IAMAS · IAPSO · IACS

AIMSA · AISPO · AISC

MOCA-09

ASSEMBLÉE CONJOINTE
JOINT ASSEMBLY

Le réchauffement de notre planète
Our warming planet

MONTRÉAL, CANADA
JULY 19 • 29 JUILLET

Program
Programme

Hotels / Hôtels	
1	Hilton Montréal Bonaventure
2	Delta Centre-Ville (on University
3	Hôtel InterContinental Montréal
4	Holiday Inn Select Montréal Centre-Ville (Downtown/Convention Centre)
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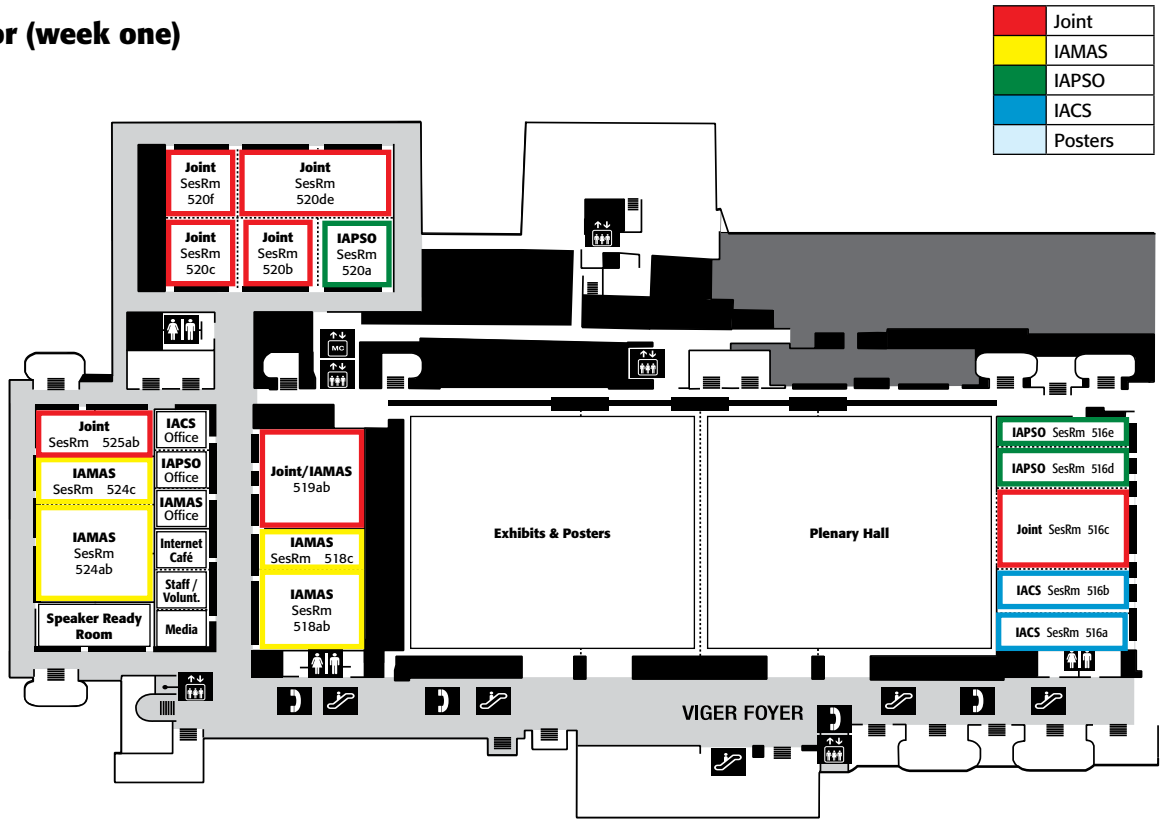
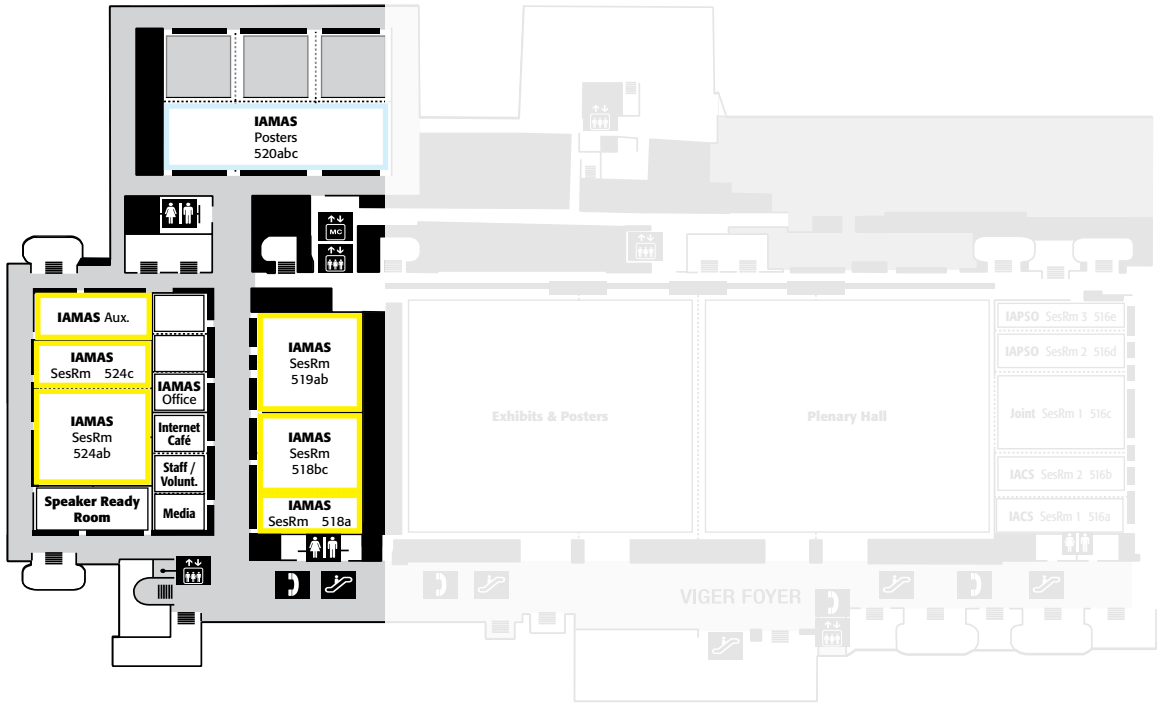


5th Floor (week two)



Message from the Assembly Chair

Dear MOCA-09 participants:

On behalf of the National Organizing Committee (NOC), I would like to welcome you to MOCA-09 and the beautiful city of Montréal. I am sure you will find this event important and stimulating both professionally and personally because of the venue and the different social activities it offers. I hope you will be able to include visits to the many interesting sites in Montréal and its surrounding areas in your schedule. I am sure you will appreciate the warmth and friendliness of the people, as well as the diversity of museums, food, music and overall cultural opportunities.

We have been working on the organization of this meeting for two years. It has been an exciting and challenging task, the success of which rests largely on the talents and generosity of the NOC members: their capacity to work together and share responsibilities, for some of them on a purely voluntary status, was certainly the key ingredient. It also made the work of the Chair much easier.

I would like to particularly acknowledge the invaluable contributions of the National Research Council of Canada (NRC), through the NRC Conference Services Office, which took care of technical issues and allowed the rest of the NOC to focus on science and the program: without their vast experience in setting up such meetings, the task of the NOC would have been so much more difficult.

I would also like to thank McGill University, which provided the initial push to have the meeting in Montréal, and throughout the preparation period, provided critical access to its Communication Services. I would like to thank the Federal Departments (Environment Canada, Fisheries and Ocean Canada) who not only delegated officials to the NOC, but also provided generous funding to this initiative. I also wish to thank the other federal departments and agencies which provided funding support, notably Natural Resources Canada, Indian and Northern Affairs Canada and the Canadian Space Agency. These were not the only sponsors of course, and in your name and mine, I extend our appreciation to all the other contributors, the names of which you will find in this Program. In completing your registration on your arrival at the Palais des Congrès, or in setting up your oral presentation or poster, you will also be helped by a number of young and eager student volunteers: they come mostly from McGill University and l'Université du Québec à Montréal (UQÀM). They are there to help you, and I would like to thank them for contributing their time to make MOCA-09 a success.

So, en résumé, I wish you a pleasant and profitable stay in Montréal: I also encourage you to read the short presentation from the Chair of our Scientific Committee, Professor Jacques Derome, which will focus on the very real and pressing scientific issues underlying MOCA-09. In the end, if this meeting can contribute to a resolution of any of these, it will have been a great success in which you will rightly share.

Thank you .

Michel Béland

Michel Béland

Chair, MOCA-09 National Organizing Committee

Message du président de l'Assemblée

Chers participants à MOCA-09.

Au nom du Comité organisateur national (CON), j'aimerais vous accueillir à MOCA-09 et à la magnifique Ville de Montréal. Je suis convaincu que vous trouverez cet événement à la fois important et stimulant tant sur les plans professionnel que personnel en raison de l'emplacement et des activités sociales qu'il offre. J'espère que vous aurez l'occasion de visiter les nombreux lieux d'intérêts de la ville et des environs. Vous saurez sûrement apprécier la chaleur et le caractère accueillant des gens, ainsi que la diversité des musées, des restaurants ainsi que des activités musicales et culturelles.

Nous œuvrons à l'organisation de cette Assemblée depuis deux ans. Ce fut une tâche passionnante et haute en défis, dont la réussite repose largement sur les talents et la générosité des membres du comité organisateur : leur capacité de collaboration et de partage des responsabilités, pour certains à titre purement volontaire, a certes été la clé du succès. Sans compter qu'ils ont facilité le rôle du président.

Je tiens tout particulièrement à souligner les contributions inestimables du Conseil national de recherches du Canada (CNRC), par l'intermédiaire du Bureau des services de conférence, qui s'est occupé des aspects techniques, permettant aussi au CON de se concentrer sur la science et le programme. Sans la vaste expérience de ses employés en organisation de telles réunions, la tâche du comité organisateur aurait été beaucoup plus complexe.

J'aimerais également remercier l'Université McGill qui a été la première à encourager la tenue de l'Assemblée à Montréal et qui, tout au long des préparatifs, a accordé un accès essentiel à ses services de communication. Des remerciements s'adressent également aux ministères fédéraux de l'Environnement et des Pêches et Océans qui, non seulement ont délégué des représentants auprès du CON, mais ont financé généreusement l'initiative. Je tiens aussi à remercier les autres ministères et organismes fédéraux qui ont procuré un soutien financier, notamment Ressources naturelles Canada, Affaires indiennes et du Nord Canada et l'Agence spatiale canadienne. En votre nom et le mien, j'exprime également notre gratitude envers tous les autres contributeurs et commanditaires dont les noms figurent dans le présent programme. Lors de votre inscription à votre arrivée au Palais des congrès, ou lorsque vous préparerez vote présentation orale ou par affiches, de nombreux jeunes étudiants bénévoles seront anxieux de vous aider : la plupart viennent de l'Université McGill et de l'Université du Québec à Montréal (UQÀM). Je les remercie de prendre le temps de contribuer à la réussite de MOCA-09.

Enfin, je vous souhaite un séjour des plus agréable et profitable à Montréal. Je vous encourage fortement à lire le bref exposé du président du Comité scientifique, le professeur Jacques Derome, qui traite expressément des enjeux réels et immédiats sous-jacents à MOCA-09. En bout de ligne, si cette réunion peut contribuer au règlement de certains de ces problèmes, elle aura connu un immense succès auquel vous pourrez dûment prendre part.

Merci.

Michel Béland

Michel Béland

Président de l'Assemblée MOCA-09

Message from the Chair, Scientific Program Committee

Dear MOCA-09 participants:

The scientific program that is detailed in the following pages is the result of work that began at the 2007 IUGG meeting with the creation of the Scientific Program Committee (SPC), composed of Manfred Lange, Johan Rodhe and Hans Volkert, Secretaries General of IACS, IAPSO and IAMAS, respectively, and myself. Early in the planning process the SPC decided to structure the program in such a way as to maximize the interaction among the scientists associated with the three Associations by encouraging joint symposia. This resulted in 21 of the 53 symposia in the program being sponsored jointly by two or three Associations. The Association-specific and the joint symposia cover a very broad range of topics, from the stratosphere to the air-land-ocean-ice interface, to the deep oceans and to major ice/snow masses, and from the poles to the tropics with some emphasis on climate-related research, consistent with the theme of our Joint Assembly: Our warming planet. We also wanted to ensure that poster presentations would be given the maximum visibility and hence scheduled 90 minute poster sessions every day with no simultaneous competing oral sessions, and by providing enough space to allow posters to be mounted for two or three days.

We were delighted that over 2100 abstracts were submitted for presentation. The important task of moving the abstracts from the evaluation stage to the construction of the program was largely the work of the symposia convenors, for whose dedication the SPC is most grateful. If imperfections can be found in the sequence of presentations within a session, it is mainly the responsibility of the Chair of the SPC who, nearly at the last minute before the program was printed, had to quickly reorganize some sessions to take into account some withdrawals, some conflicts and some less-than-certain registrations on the part of authors.

On behalf of my colleagues on the SPC I would like to thank each and every person who has contributed to the preparation of this program, and in particular all the authors from all parts of the world who have provided the scientific content. The quality of the abstracts and the breadth of the research that they cover both hold the promise of a most stimulating Assembly. We extend a special word of thanks to all the symposium convenors, and notably the lead convenors, who gave generously of their time and talent to organize the scientific program. Personally, I want to thank my colleagues on the SPC, Hans, Johan and Manfred for their major contributions and wise advice. The Associations' presidents Georg Kaser (IACS), Lawrence Mysak (IAPSO), and Guoxiong Wu (IAMAS) provided additional advice directly or through their Secretaries General. Finally, we all have a debt of gratitude to the staff of the Conference Office, especially Michèle Bourgeois-Doyle and Christine Saintonge, who have provided welcome advice over the past two years and spent countless hours keeping the database in order, despite the numerous requests for changes that came their way, and always with good humour. Their contributions have been priceless.

This Joint Assembly of three international associations aspires to be a truly global assembly that facilitates scientific and personal interactions. I am confident that, with the cooperation of each and every one of you, MOCA-09 will be a success.

Jacques Derome

Chair, Scientific Program Committee

Message du Président du comité du programme scientifique

À l'intention des participants à MOCA-09.

Le programme scientifique décrit aux pages suivantes est le résultat du travail entrepris à la réunion de 2007 de l'Union géodésique et géophysique internationale (UGGI), avec la création du Comité du programme scientifique (CPS) composé de Manfred Lange, Johan Rodhe et Hans Volkert, secrétaires généraux de l'AISC, l'AISPO et l'AIMSA, respectivement, et de moi-même. Au début du processus de planification, le CPS a décidé de structurer le programme de sorte à maximiser l'interaction entre les scientifiques associés aux trois associations en encourageant la tenue de symposiums conjoints. Ainsi, 21 de ces 53 symposiums ont été commandités conjointement par deux ou trois associations. Les symposiums spécifiques aux associations et les symposiums conjoints couvrent une très vaste gamme de sujets, allant de la stratosphère à l'interface air/terre/océan/glace, aux bilans massiques glaciaires et neigeux, des pôles jusqu'aux tropiques avec un certain accent sur la recherche climatologique, le tout étant conforme au thème de l'Assemblée jointe : Le réchauffement de notre planète. Nous voulions également nous assurer que les présentations par affiches obtiennent une visibilité maximale; nous avons donc prévu des séances de présentation de 90 minutes par jour sans séance orale simultanée, ce qui alloue assez de temps pour le montage d'affiches pendant deux ou trois jours.

Nous sommes enchantés d'avoir reçu au-delà de 2 100 résumés aux fins de présentation. Le travail important qui consiste à faire passer les résumés de l'étape d'évaluation à l'élaboration du programme incombait en grande partie aux facilitateurs des symposiums, auxquels le CPS est grandement reconnaissant. Toute imperfection dans la séquence des présentations dans une séance relève du président du CPS qui, presque à la dernière minute avant l'impression du programme, a dû réorganiser rapidement certaines séances afin de prendre en compte les retraits, les conflits et des inscriptions d'auteurs incertaines.

Au nom de mes collègues du CPS, je tiens à remercier chaque personne ayant contribué à la préparation du programme, en particulier les auteurs de partout au monde qui on fourni le contenu scientifique de ce programme. La qualité des résumés et l'étendue de la recherche qui s'y rattache laissent entrevoir une assemblée des plus stimulantes. Un remerciement spécial s'adresse à tous les facilitateurs de symposiums, notamment les facilitateurs principaux, qui ont généreusement donné de leur temps et de leur talent pour l'organisation du programme scientifique. Je tiens personnellement à remercier mes collègues du CPS, Hans, Johan et Manfred pour leurs grandes contributions et leurs sages conseils. Les présidents des associations, Georg Kaser (AISC), Lawrence Mysak (AISPO), et Guoxiong Wu (AIMSA) ont fourni d'autres conseils directement ou par l'intermédiaire de leur secrétaire général. Enfin, notre gratitude est profonde envers le personnel du Secrétariat du congrès, notamment Michèle Bourgeois-Doyle et Christine Saintonge, qui on su prodiguer des conseils pratiques au cours des deux dernières années et on consacré maintes heures à tenir à jour la base de données, malgré les nombreuses demandes de modifications, et ce toujours avec le sourire. Leurs contributions sont inestimables.

L'Assemblée conjointe des trois associations internationales aspire à constituer une véritable assemblée mondiale qui facilitera les interactions scientifiques et personnelles. J'ai pleinement confiance qu'avec la collaboration de tous et chacun MOCA-09 connaîtra un franc succès.

Jacques Derome

Président du comité du programme scientifique

The National Organizing Committee wishes to express its deepest appreciation and thanks to all of the Partners who have contributed to the success of MOCA-09.

Le comité organisateur désire vous convoiter leur gratitude et remercier tous les partenaires qui ont contribué au succès de MOCA-09.

Our Partners / Nos partenaires

PREMIER PARTNERS / PREMIERS PARTENAIRES

Fisheries and Oceans Canada / Pêches et Océans Canada

Fisheries and Oceans Canada / Pêches et Océans Canada

Fisheries and Oceans Canada (DFO) and its Special Operating Agency, the Canadian Coast Guard, deliver programs and services that support sustainable use and development of Canada's waterways and aquatic resources. On behalf of the Government of Canada, DFO is responsible for developing and implementing policies and programs in support of Canada's scientific, ecological, social and economic interests in oceans and fresh waters.

The Department's guiding legislation includes the Oceans Act, which charges the Minister with leading oceans management and providing coast guard and hydrographic services on behalf of the Government of Canada, and the Fisheries Act, which confers responsibility to the Minister for the management of fisheries, habitat and aquaculture. The Department is also one of the three responsible authorities under the Species at Risk Act.

Pêches et Océans Canada (MPO) et son organisme de service spécial, la Garde côtière canadienne offrent des programmes et services qui favorisent l'utilisation et le développement durables des voies navigables et des ressources aquatiques du Canada. Au nom du gouvernement du Canada, le MPO doit élaborer et mettre en œuvre des politiques et des programmes au profit des intérêts scientifiques, environnementaux, sociaux et économiques du Canada dans les océans et les eaux intérieures.

La législation directrice du ministère inclut la Loi sur les océans, qui confirme le pouvoir du Ministre de guider la gestion des océans et de fournir des services de garde côtière et d'hydrographie au nom du gouvernement du Canada, ainsi que la Loi sur les pêches, qui lui confie la responsabilité de gérer les pêches, l'habitat et l'aquaculture. Le MPO figure également parmi les trois autorités responsables en vertu de la Loi sur les espèces en péril.

Environment Canada / Environnement Canada

Environment Canada / Environnement Canada

Environment Canada's mandate is to preserve and enhance the quality of the natural environment; conserve Canada's renewable resources; conserve and protect Canada's water resources; forecast weather and environmental change; enforce rules relating to boundary waters; and coordinate environmental policies and programs for the federal government.

Environnement Canada a pour mandat de préserver et d'améliorer la qualité du milieu naturel, de conserver les ressources renouvelables du Canada, de conserver et de protéger les ressources hydriques du Canada, de prévoir les variations météorologiques et les changements dans l'environnement, d'appliquer les règles se rapportant aux eaux limitrophes ainsi que de coordonner les politiques et les programmes sur l'environnement du gouvernement fédéral.

PARTICIPATING PARTNERS / PARTENAIRES PARTICIPANTS

Canadian Foundation for Climate and Atmospheric Sciences (CFCAS)
Fondation canadienne pour les sciences du climat et de l'atmosphère (FCSCA)

Canadian Foundation for Climate and Atmospheric Sciences / La fondation canadienne pour les sciences du climat et de l'atmosphère

The Canadian Foundation for Climate and Atmospheric Sciences funds research that improves the scientific understanding of processes and predictions, provides relevant science to policy makers and improves understanding of the ways in which climatic and atmospheric challenges affect human health and the natural environment, in addition to strengthening Canada's scientific capacity.

La Fondation canadienne pour les sciences du climat et de l'atmosphère finance de la recherche qui contribue à une meilleure compréhension des processus et des prévisions, fournit de l'information appropriée aux décideurs, explique l'incidence des problèmes climatiques et atmosphériques sur la santé humaine et sur l'environnement naturel en plus de renforcer la capacité scientifique du Canada.

Natural Resources Canada | Ressources naturelles Canada

Natural Resources Canada / Ressources naturelles Canada

Natural Resources Canada (NRCan) works to ensure the responsible development of Canada's natural resources. Through its Climate Change Impacts and Adaptation Division, NRCan has gained invaluable expertise in the field of climate change impacts and adaptation – policy development and analysis, research, outreach activities – and will develop new information and tools to help decision-makers effectively use new knowledge to develop adaptation strategies.

Ressources naturelles Canada (RNCan) cherche à assurer le développement responsable des ressources naturelles du Canada. Par l'entremise de sa Division des impacts et de l'adaptation liés aux changements climatiques, RNCan a accumulé une expertise précieuse dans le domaine des impacts et de l'adaptation : élaboration et analyse de politiques, recherches, activités d'extension, et élaborera de nouvelles données et de nouveaux outils afin d'aider les décideurs à appliquer efficacement leurs connaissances pour élaborer des stratégies d'adaptation.

RSC The Academies of Arts, Humanities and Sciences of Canada | SRC Les Académies des arts, des lettres et des sciences du Canada

RSC: The Academies / SRC : Les Académies

The Academies of Arts, Humanities and Sciences of Canada, is the senior national body of distinguished Canadian scientists and scholars. Its primary objective is to promote learning and research in the arts and sciences. The Society consists of approximately 2000 Fellows: men and women from across the country who are selected by their peers for outstanding contributions to the natural and social sciences and in the humanities. www.rsc.ca.

La SRC : Les Académies des arts, des lettres et des sciences du Canada, est le principal organisme regroupant d'éminents scientifiques, chercheurs et gens de lettres au Canada. Elle a pour objectif premier de promouvoir l'acquisition du savoir et la recherche en sciences naturelles, sciences sociales et sciences humaines. La Société est composée de près de 2000 membres, hommes et femmes recrutés à travers tout le pays et choisis par leurs pairs pour leurs réalisations exceptionnelles en arts et en sciences.www.rsc.ca.

OTHER PARTNERS / AUTRES PARTENAIRES

EUMETSAT

EUMETSAT provides cost-effective operational satellite data, services and products in response to the needs of its users. This is achieved through the establishment and operation of satellite systems and effective dissemination schemes, and by maintaining and developing the existing services and enhancements to meet new requirements. EUMETSAT operates the European geostationary meteorological satellites known as Meteosat series. Meteosat-8 and Meteosat-9 are the first two of a series of four satellites with a twelve channel imager and an imaging repeat cycle as fast as 15 minutes for the full disk. EUMETSAT also operates the European polar meteorologipresenterscal satellites, called Metop, with a suite of imaging and sounding instruments in the solar, thermal-infrared and microwave range and a scatterometer. Notable is that Metop flies the first operational hyperspectral infrared sounder (IASI) and the first operational radio-occultation sounding instrument (GRAS).The Meteosat's as well as the polar Metop are key elements of the space based Global Observing System with substantial benefits to nowcasting, weather prediction and climate monitoring. Detailed information on all satellites, instrument and services can be found at: www.eumetsat.int.

EUMETSAT fournit des données, services et produits satellitaires opérationnels et rentables, répondant aux besoins de ses utilisateurs. Pour ce faire, l'entreprise met en place et exploite des systèmes satellitaires et des plans de diffusion efficaces, tout en assurant le maintien et l'expansion des services existants pour satisfaire aux nouvelles exigences. EUMETSAT exploite les systèmes européens de satellites météorologiques géostationnaires regroupés sous la série Meteosat. Les Meteosat 8 et 9 sont les deux premiers d'une série de quatre satellites munis d'un appareil imageur à quatre canaux, avec un cycle d'imagerie répétitif atteignant 15 minutes par disque complet. EUMETSAT exploite également les systèmes européens de satellites météorologiques polaires, appelés MetOp; ils comprennent une suite d'imageurs optiques et de sondeurs solaires, infrarouges thermiques et hyperfréquences, ainsi qu'un diffusiomètre. Fait à remarquer : le MetOp transporte le premier interféromètre de sondage atmosphérique dans l'infrarouge (IASI) et le premier instrument opérationnel d'occultation radio (GRAS). Les Meteosat ainsi que les MetOp polaires sont les éléments clés du Système mondial d'observation du climat de par leurs contributions considérables aux prévisions immédiates, à la prévision du temps et à la surveillance du climat. Des renseignements détaillés sur tous les satellites, instruments et services se trouvent à www.eumetsat.int

CRAY

A global leader in supercomputing, Cray provides innovative systems that enable scientists and engineers in government, industry and academia to meet both existing and future computational challenges. Building on expertise in designing, developing, marketing and servicing the world's most advanced supercomputers, Cray offers a comprehensive portfolio of high performance computing (HPC) systems that deliver unrivaled sustained performance on a wide range of challenging applications.

Chef de file mondial en superinformatique, Cray procure des systèmes innovateurs qui permettent aux ingénieurs et scientifiques des secteurs gouvernementaux, industriels et universitaires de relever les défis computationnels actuels et à venir. Fort d'une expertise sans précédent dans les domaines de la conception, de la mise au point, de la commercialisation et de l'entretien des super-ordinateurs les plus avancés au monde, Cray offre un portefeuille complet de systèmes informatiques de haute performance assurant le rendement soutenu d'une vaste gamme d'applications complexes.

IPY·API
International Polar Year
Année polaire internationale
2007·2008
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International Polar Year / Année polaire internationale

The Government of Canada Program for IPY includes a targeted science and research program focused on two themes: climate change impacts and adaptation, and health and well-being of Northern communities. Other key aspects of the Government of Canada Program include:

- support to agencies and organizations involved in the research licensing and permitting process;
- bolstering emergency preparedness and search and rescue capabilities and ensuring adequate facilities are available to meet the basic health and safety needs of scientists and communities involved in IPY research;
- creating education and on-the-ground training opportunities for Northerners and Aboriginal people to build capacity that contributes to a lasting legacy;
- proper storage and management all of the data generated during IPY to ensure it is accessible over the near and long term; and
- communications and outreach activities to raise awareness of IPY and Northern issues more generally.

Le Programme du gouvernement du Canada pour l'API comprend un programme de science et de recherche ciblées. Tous ces projects sont conformes à l'un des deux enjeux prioritaires : l'incidence du changement climatique et de l'adaptation à ce changement, et la santé et le bien-être des collectivités nordiques. De plus, le Programme pour l'API :

- fournira un soutien aux organismes qui présentent des demandes de licence ou de permis de recherche;
- renforcera l'état de préparation aux situations d'urgence et les capacités de recherche et de sauvetage et fera en sorte que des installations soient disponibles pour répondre aux besoins fondamentaux en matière de santé et de sécurité des scientifiques et des collectivités participant aux projets de recherche de l'API;
- créera des occasions d'éducation et de formation sur le terrain pour les résidents du Nord et les Autochtones, favorisant ainsi le renforcement des capacités qui contribueront à des retombées durables;
- entreposera convenablement et gérera toutes les données générées au cours de l'API, de sorte qu'elles soient accessibles à court et à long terme;
- exercera des activités de communication et d'action directe pour sensibiliser les gens aux enjeux de l'API et, de façon plus générale, aux enjeux des régions nordiques.

Welcome to MOCA-09!

The National Organizing Committee and International Scientific Program Committee are pleased to welcome you to MOCA-09, the IAMAS/IAPSO/IACS 2009 Joint Assembly taking place in Montréal, Canada from July 19 – 29, 2009.

This Assembly of three major international associations provides an exceptional opportunity for the world's leading meteorological, oceanographic and cryospheric researchers to converge and discuss critical issues of shared interest on a broad range of topics, and in particular regarding the warming of our planet.

Having received over 2100 abstracts, the Scientific Program Committee is pleased to offer oral and poster presentations in more than 50 distinct symposia, organized into four broad categories, generally ordered as follows:

J Joint Content bringing together more than one of the following Associations
C Content related to IACS
M Content related to IAMAS
P Content related to IAPSO

This Program Book provides delegates with the information they will need to navigate easily through the Assembly: a one-page Program Framework, a detailed listing of locations and times of all presentations, an author index, and a CD containing the abstracts of all presenting authors. This information complements the online session planner found at: www.moca-09.org/e/02-planner_e.shtml.

Delegates should note that this Assembly's National Organizing Committee has incorporated environmental considerations throughout all aspects and stages of its planning process. It is committed to balancing the need to reduce the event's overall carbon footprint while maintaining both an efficient flow of information and reasonable registration fees.

Bienvenue à MOCA-09 !

Le Comité organisateur national et le Comité du programme scientifique international sont heureux de vous accueillir à MOCA-09, l'Assemblée conjointe AIMSA/AISPO/AISC 2009, qui a lieu à Montréal, Canada du 19 au 29 juillet 2009.

Cette assemblée de trois associations majeures permet aux chercheurs de pointe des domaines météorologique, océanographique et cryosphérique de se rencontrer pour traiter de questions névralgiques d'intérêt commun touchant une vaste gamme de sujets, notamment le réchauffement de notre planète.

Ayant reçu au-delà de 2 100 résumés, le Comité du programme scientifique est en mesure d'offrir des présentations orales et par affiches dans plus de 50 symposiums organisés en quatre catégories, classifiées généralement dans l'ordre qui suit :

J Contenu conjoint regroupant plus d'une des associations suivantes
C Contenu lié à l'AISC
M Contenu lié à l'AIMSA
P Contenu lié à l'AISPO

Le présent document fournit aux délégués l'information requise pour naviguer facilement durant l'Assemblée : un cadre du programme d'une page, une liste détaillée des endroits et des heures de toutes les présentations, un index des auteurs et un CD contenant les résumés de tous les auteurs présentateurs. Ces renseignements complètent le planificateur de séances en ligne au
http://www.moca-09.org/e/02-planner_e.shtml.

Les délégués sont priés de noter que le Comité organisateur national de l'Assemblée a intégré des considérations environnementales dans tous les aspects et étapes de son processus de planification. Le comité s'est engagé à équilibrer le besoin de réduire le bilan carbone global de l'événement tout en assurant la circulation efficace de l'information et des frais d'inscription raisonnables.

National Organizing Committee / Comité organisateur national

Michel Béland
CHAIR / *PRÉSIDENT*
Environment Canada
Environnement Canada

Jacques Derome
CHAIR, SCIENTIFIC PROGRAM COMMITTEE
PRÉSIDENT DU COMITÉ DU PROGRAMME SCIENTIFIQUE
McGill University
Université McGill

Michèle Bourgeois-Doyle
National Research Council Canada
Conseil national de recherches Canada

Pierre Dubreuil
Executive Secretary
Secrétaire exécutif

Laurier Forget
National Research Council Canada
Conseil national de recherches Canada

Michel Jean
Environment Canada
Environnement Canada

Helen Joseph
Fisheries and Oceans Canada
Pêches et Océans Canada

Charles Lin
IAMAS / Environment Canada
AIMSA / Environnement Canada

Scott Munro
IACS / University of Toronto
AISC / University of Toronto

Lawrence Mysak
IAPSO / McGill University
AISPO / Université McGill

Scientific Program Committee / Comité du programme scientifique

Jacques Derome
CHAIR / PRÉSIDENT
McGill University / *Université McGill*

Hans Volkert, Institut für Physik der Atmosphäre (IPA)
Deutsches Zentrum für Luft- und Raumfahrt (DLR)
Oberpfaffenhofen, Germany / Allemagne

Secretary General of the International Association of Meteorology and Atmospheric Sciences **IAMAS**
Secrétaire général de l'Association internationale de météorologie et des sciences atmosphériques AIMSA

Johan Rodhe, Department of Oceanography
University of Gothenburg, Gothenburg, Sweden

Secretary General of the International Association for the Physical Sciences of the Oceans **IAPSO**
Secrétaire général de l'Association internationale des sciences physiques des océans AISPO

Manfred Lange, Director of the Energy
Environment and Water Research Center
Cyprus Institute, Nicosia, Cyprus

Secretary General of the International Association for the Cryospheric Sciences **IACS**
Secrétaire général de l'Association internationale des sciences cryosphériques AISC

General Information

About Montréal

Montréal is an exciting location for this event. It is a city founded upon a unique combination of French and English cultures and is a colourful mix of international influences accentuated by a blend of old world charm and modern attractions.

The island-city of Montréal is a cosmopolitan, affordable and safe destination located on the St-Lawrence River in the Province of Québec, Canada. Founded over 350 years ago by French settlers, it is one of the oldest cities in North America, with a diverse population of over three million inhabitants.

Although Montréal is the world's second-largest French-speaking city, it is also a very bilingual and multicultural city. A harmonious blend of European charm with a North American flavour, this island-city and port of call on the St-Lawrence River is one of Canada's major transportation hubs.

Official Languages

Services at the Assembly will be provided in English and French. All components of the Scientific Program, however, will be presented in English only.

Registration /Information

From July 19-29, the registration desk will be located in Viger Hall at the bottom of the central escalators and will be open during the following hours:

Sunday July 19	10:00 – 18:00
Monday July 20	07:30 – 18:30
Tuesday July 21	07:30 – 18:00
Wednesday July 22	07:30 – 18:00
Thursday July 23	07:30 – 18:00
Friday July 24	07:30 – 18:00
Monday July 27	07:30 – 18:00
Tuesday July 28	07:30 – 18:00
Wednesday July 29	07:30 – 18:00

REGULAR Registration Fee

The Regular Registration fee entitles the participants to attend the scientific sessions, poster sessions, the exhibition and coffee breaks, as well as the July 20th Opening Ceremony and Reception. It also includes a delegate registration kit consisting of this conference program and a CD-ROM of Abstracts.

STUDENT Registration Fee

The Student registration fee has been established in support of and to encourage the participation of students actively involved in this area of study. Students have the same privileges as the Regular participants.

Onsite Registration Fee

Full Registration	$880 CAD
Student Regisration	$405 CAD

Badges

Badges must be worn at all times in order to gain access to the scientific sessions, poster sessions, commercial exhibition and all social activities.

Renseignements généraux

À propos de Montréal

Montréal est un excellent choix pour la tenue de cet événement. La ville est fondée sur une combinaison unique des cultures française et anglaise. Montréal est un amalgame coloré d'influences internationales accentuées par un mélange de charme ancien et d'attractions modernes.

Cette ville insulaire est une destination cosmopolite, abordable et sûre située sur le fleuve Saint-Laurent, dans la province de Québec. Fondée il y a 350 ans par des colons français, Montréal est une des plus anciennes villes d'Amérique du Nord. Sa population aux origines diverses atteint plus de trois millions d'habitants.

Deuxième ville francophone en importance au monde, Montréal est néanmoins fortement bilingue et multiculturelle. Alliant harmonieusement le charme européen au caractère nord-américain, cette cité insulaire, passage obligé sur le fleuve Saint-Laurent, constitue une plaque tournante des transports au Canada.

Langues officielles

Les services offerts lors de l'Assemblée seront en anglais et en français, toutefois, tous les éléments du programme scientifique seront seulement disponibles en anglais.

Inscription

Du 19 au 29 juillet, le bureau d'inscription sera situé dans le hall Viger au pied des escaliers roulants et seront ouverts pendant les heures suivantes :

Le dimanche 19 juillet	10 h 00 – 18 h
Le lundi 20 juillet	07 h 30 – 18 h 30
Le mardi 21 juillet	07 h 30 – 18 h
Le mercredi 22 juillet	07 h 30 – 18 h
Le jeudi 23 juillet	07 h 30 – 18 h
Le vendredi 24 juillet	07 h 30 – 18 h
Le lundi 27 juillet	07 h 30 – 18 h
Le mardi 28 juillet	07 h 30 – 18 h
Le mercredi 29 juillet	07 h 30 – 18 h

Frais d'inscription RÉGULIERS

Les frais d'inscription réguliers permettent aux participants d'assister aux séances scientifiques, aux séances d'affiches, aux expositions et aux pauses-café ainsi qu'à la cérémonie et réception d'ouverture du 20 juillet. Ces frais incluent la trousse d'inscription comprenant ce présent document et un CD-ROM.

Frais d'inscription pour les ÉTUDIANTS

Les frais d'inscription pour les étudiants ont été mis en place afin de soutenir et d'encourager la participation de ceux qui œuvrent activement dans ce domaine. Les étudiants bénéficient des mêmes privilèges que les participants réguliers.

Inscription sur les lieux

Participant régulier	880 $CAN
Étudiant	405 $CAN

Insignes

Les participants devront porter leur insigne pour avoir accès aux sessions scientifiques, aux séances d'affiches, à l'exposition commerciale et à toutes activités sociales.

Breaks
Coffee will be served daily in the Poster and Exhibit Area from 10:00 to 10:30 and from 15:00 to16:30.

Delegates are on their own for full meals. Several restaurants are available inside the Palais des congrès, as well as within a short walking distance from the venue.

Other Related Meetings
A listing of other related meetings and events can be found immediately before the beginning of the Scientific Program on page 23.

Urgent Messages
During the congress, urgent messages may be left at the hotel where the participant is staying or at the registration desk during the hours of the Congress.

Lost and Found
Found articles should be taken to the security office located on the main floor near the entrance on 159 St. Antoine Street West. Lost property can be claimed in the same place.

No Smoking Policy
Smoking is not permitted anywhere in the Palais des congrès, including the Registration and Exhibit/Poster areas and the lobby. Smoking is permitted outside the Building only.

Internet Access
A limited number of computer terminals equipped with internet access will be available for use during regular assembly hours. Wireless access will be offered in designated MOCA-09 Assembly areas. The password is MOCA-09.

Taxes
A Federal Goods and Services Tax (GST) of 5% is charged on most goods and services in Canada. A Québec provincial tax (QST) of 7.5% is added to all goods and services purchased in the province of Québec. Accommodation tax is 3% per night.

Tipping and Gratuities
A tipping rate of 10 to 15% is recommended in Canada for service in restaurants, taxis, hair salons, etc. It is customary to calculate the tip on the subtotal prior to the applicable taxes.

Currency and banking facilities
Canadian currency is the dollar, which is divided into 100 cents. There are 5, 10, 20, 50, 100 and 1,000 dollar bills. One and two dollar bills have been replaced by coins often referred to as "loonies" and "toonies" respectively. The dollar is subject to daily fluctuations and was trading at $1 US = $1.13 CAD at the time this document was printed.

Travellers' cheques can be cashed at numerous banks and stores (with purchases). There is an ATM machine in the Couche-Tard store on Level 1 of the Palais des congrès. Banks are generally closed on Sunday. There is a foreign exchange booth at the Montréal-Trudeau International Airport and banks can be found throughout the city.

Banque Nationale – Currrency exchange in Complexe Desjardins.

Monday, Tuesday, Thursday and Friday:	09:00 to 16:30
Wednesday:	10:00 to 16:30 hours
Saturday and Sunday:	Closed

Pauses
Le café sera servi chaque jour dans l'aire des affiches et de l'exposition, soit de 10 h à 10 h 30 et de 15 h à 16 h 30. Les délégués doivent payer leurs repas complets. Plusieurs restaurants se trouvent au Palais des congrès et à courte distance de marche du site de l'Assemblée.

Réunions connexes
Une liste des réunions et activités connexes se trouve juste avant le début du programme scientifique à la page 23.

Messages urgents
Pendant le congrès, les messages urgents peuvent être laissés à l'hôtel où séjournent les participants ou au bureau d'inscription durant les heures d'ouverture.

Objets perdus
Les objets retrouvés devraient êtres laissés au bureau de sécurité situé au niveau principal près de l'entrée du 159, rue St- Antoine Ouest. Les objets perdus seront aussi récupérés au même endroit.

Politique antitabac
Il est interdit de fumer au Palais des congrès, y compris dans la zone d'inscription, dans la salle d'exposition et d'affiches et dans le foyer. On permet de fumer à l'extérieur de l'édifice seulement.

Accès Internet
Un nombre limité d'ordinateurs avec accès Internet seront disponibles durant les heures régulières de l'Assemblée. L'accès sans fil sera offert dans des aires désignées. Le mot de passe est MOCA-09.

Taxes
Une taxe fédérale sur les produits et services (TPS) de 5 % s'applique à la plupart des produits et services offerts au Canada. La taxe provinciale du Québec (TPQ) de 7,5 % s'ajoute à tous les produits et services achetés au Québec. La taxe sur l'hébergement est de 3 % la nuitée.

Pourboires
Au Canada, on recommande de donner un pourboire de 10 à 15% dans les restaurants, les taxis, les salons de coiffures, etc. Habituellement, on calcule le pourboire à partir du montant de la facture avant les taxes.

Services bancaires et de devises
La devise canadienne est divisée en 100 cents, qui se présente en billets de 5, 10, 20, 50, 100 et 1 000 dollars. Les billets d'un et de deux dollars ont été remplacés par des pièces de monnaie auxquelles on fait souvent référence sous les termes de « loonies » et « toonies » respectivement. Le dollar est soumis aux fluctuations quotidiennes et se négocie à 1$US = 1,13$ CAN au moment de l'impression du présent document.

Les chèques de voyage peuvent êtres échangés dans plusieurs banques et magasins (achats requis). Il y a un guichet automatique dans le magasin Couche-Tard situé au niveau 1 du Palais des congrès. Les banques sont généralement fermées le dimanche. Il y a un bureau d'échange de devises à l'Aéroport international Montréal-Trudeau et on peut retrouver des banques d'un bout à l'autre de la ville.

Banque Nationale – Bureau de change complexe Desjardins

Lundi, mardi, jeudi et vendredi :	9 h à 16 h 30
Mercredi :	10 h à 16 h 30
Samedi et dimanche :	fermée

Electricity supply
The electrical voltage in Canada is 110 volts (60 cycles) which is the same current as in the United States. If you are traveling from Europe or elsewhere, you will need an adapter to use small appliances or charge electronic devices. Adapters can be found at most department and electrical stores near downtown hotels.

Health Insurance
Visitors are NOT covered by the Canadian Health Insurance Plan. It is therefore recommended that participants arrange their own health and accident coverage. This can be done before leaving home through a local travel agent or medical association.

Liability
MOCA-09 registration fees DO NOT include provisions for the insurance of participants against personal injuries, sickness, and theft or property damage. This also applies to any event held during the Assembly period. Participants are advised to arrange for insurance they consider necessary. Neither the Assembly Organizing Committee, nor its sponsors or committee members assume any responsibility for loss, injury or damage to persons or belongings, whatever the cause may be.

Weather
July is one of the hottest months of the year in Montréal, with temperatures often reaching 30º Celsius or higher. For daily forecasts, please visit Environment Canada's Weatheroffice at http://www.weatheroffice.gc.ca.

Public Transit
The Assembly venue and recommended hotels are located in downtown Montréal. Public transit offered in this area includes city buses, the Metro subway system, taxis and BIXI, Montréal's new public bike system. For more information on public transit, please visit www.stcum.qc.ca or http://www.bixi.com/home.

Tours and Travel Desk
Chantecler Tours Inc., located in Montréal, is the official travel agency for the Assembly. For your convenience, a representative will be located near the Registration Desk.

Alimentation électrique
La tension électrique en vigueur au Canada est de 110 volts (60 cycles), la même que celle qu'on retrouve aux États-Unis. Si vous venez d'Europe ou d'ailleurs, vous devrez apporter un adaptateur pour recharger vos appareils électriques et/ou électroniques. On peut trouver des adaptateurs dans la plupart des grands magasins et boutiques de produits électriques, situés à proximité des hôtels du centre-ville.

Assurance santé
Les visiteurs ne sont PAS couverts par le régime d'assurance-maladie canadien. Nous recommandons par conséquent aux participants de prendre leurs dispositions quant à leur couverture santé et accidents. Cela peut être effectué avant de quitter le pays d'origine par le biais d'un agent de voyage local ou d'une association médicale.

Responsabilité
Les frais relatifs au Congrès n'incluent AUCUNE provision pour l'assurance des participants contre les blessures, la maladie et le vol ou les dommages matériels. Cela s'applique également à toute activité tenue pendant la période du Congrès. Les participants sont avisés de prendre leurs dispositions pour les assurances qu'ils considèrent comme nécessaires. Ni le comité organisateur du Congrès ni ses commanditaires ni les membres du comité n'assument quelque responsabilité que ce soit quant à la perte ou aux dommages matériels relatifs aux effets personnels non plus qu'aux blessures subies par les individus et ce, peu en importe la cause.

Température
Le mois de juillet est l'un des plus chauds de l'année à Montréal, la température atteignant souvent 30º Celsius ou plus. On peut obtenir les prévisions journalières en visitant le site Météo à http://www.weatheroffice.gc.ca.

Transport en commun
Le Palais des congrès et les hôtels recommandés sont situés au centre-ville de Montréal. Le transport public comprend les autobus urbains, le métro, les taxis et BIXI, le nouveau système public de partage de bicyclettes. Pour plus de détails, veuillez visiter www.stcum.qc.ca ou http://www.bixi.com/home.

Visites et voyages
Chantecler Tours Inc., situé à Montréal, est l'agence de voyage officielle pour l'Assemblée. Afin de répondre à vos questions, un représentant de l'agence se trouvera à proximité du bureau d'inscription.

Social Program

Opening Ceremony and Reception

Monday July 20

The formal Assembly Opening Ceremony will take place in the MOCA-09 Plenary Room, 517AB. The program will include short addresses from local dignitaries and Association Presidents, followed by a keynote presentation by Dr. Gordon McBean entitled *Climate Change and Its Impacts on Global Security*. After a short break, the scientific program will begin with the first three plenary talks. At the close of the first day of talks, all registered delegates and their guests are invited to a Welcoming Reception that will take place on the 7th floor of the Palais des congrès, at which food and beverages will be served.

Taste of Montréal Buffet

Thursday, July 23

Montréal is well known as one of Canada's food capitals and the MOCA-09 organizers are proud to invite delegates and their guests to sample some of the city's most popular informal cuisine. Those who pre-purchased tickets for this event will find them in their registration kits. A limited number of additional tickets will be available at the registration desk until the close of business on Tuesday, July 21 at $50 CAD each.

Programme social

Cérémonie d'ouverture et réception

le lundi 20 juillet

La cérémonie d'ouverture de l'Assemblée aura lieu en la salle 517AB où se tiendront les séances plénières de MOCA-09. Le programme comportera de brèves présentations par des dignitaires locaux et les présidents des associations, suivies d'un discours inaugural du Dr Gordon McBean, intitulé *Climate Change and its Impacts on Global Security*. Après une brève pause, le programme scientifique débutera avec les trois premières conférences plénières. À la fin du premier jour, tous les délégués inscrits et leurs invités sont les bienvenus à une réception d'accueil au 7^{e} étage du Palais des congrès, où seront servis aliments et boissons.

Taste of Montréal – Buffet

Le jeudi 23 juillet

Montréal est reconnue comme l'un des principaux centres gastronomiques du Canada et les organisateurs de MOCA-09 sont fiers d'inviter ses délégués à déguster certains mets typiquement montréalais. Ceux qui ont déjà acheté leurs billets pour cette activité les trouveront dans leur trousse d'inscription. Un nombre limité de billets additionnels seront offerts au bureau d'inscription jusqu'à la fermeture le mardi 21 juillet, au coût de 50 $CAN chacun.

Instructions to presenters

No personal laptop or notebook computers will be allowed for oral presentations. Every presentation will be loaded on a central server provided by the MOCA-09 organizers. Accommodations have been made for both MAC and PC technologies.

Oral Speaker Ready Room
All speakers are asked to visit the Speaker Ready Room located in Room 523ab on the 5th Level of The Palais des congrès. (see venue floorplan at the beginning of this program book) AT LEAST 24 hours before the beginning of the session in which their talk is scheduled.

A technician will be on hand to assist speakers in reviewing their presentation files to ensure they function as expected on the server. No changes in session rooms will be possible.

Session Chairs
Session Chairs should report to the designated session rooms 20 minutes prior to the start of the session to meet the speakers. It is important that sessions start on time and that the timing of the papers be strictly enforced to allow attendees to move from one session to another. In the event of a cancellation, the timing of the other papers should not be changed. The gap should be used for general discussion and/ or a break.

Speakers
All speakers are to report to their session chair 20 minutes before the beginning of the session in which their talk is scheduled. At that time, either a technician or the session chair will ensure that all scheduled presentations are accessible on-screen.

Please refer to the MOCA-09 website for further technical details, or direct your question to one of the technicians present in the Speaker Ready Room.

Scientific Sessions
All oral scientific sessions, including Plenary sessions will be held on Level 5 of the Palais des congrès. Poster Sessions and the Exhibition will also be held in the Exhibition Hall on Level 5.

Abstract Numbering Convention
All Oral Presentation numbers listed in the author index can be used as a quick reference guide, indicating the symposium, the order, the date in July, the session during the day and the room. It is to be used in conjunction with the Program Framework (page 49) and the Detailed Program (page 51).

Oral Presentation number legend:

M01	.XX	/	20	3	13
↑	↑		↑	↑	↑
a	b		c	d	e

a. Symposium
b. Order
c. Date in July
d. Session start time (1=8:30; 2=10:30; 3=13:30; 4=16:30)
e. Column in Program Framework, indicating assigned room number

Directives aux présentateurs

Aucun ordinateur portatif ou bloc-notes ne sera permis durant les présentations orales. Chaque présentation sera enregistrée sur un serveur central fourni par les organisateurs de MOCA-09. Ces derniers ont pris les dispositions nécessaires pour les technologies Mac et PC.

Salle de préparation des présentateurs
Tous les présentateurs doivent se présenter à la salle de préparation des présentateurs, située dans la salle 523ab au 5e étage du Palais des congrès. (voir le plan de salle du Palais à la page 2) et ce, AU MOINS 24 heures avant le début de la séance au cours de laquelle est prévue son allocution. Un technicien leur permettra de réviser leur fichier de présentation pour assurer qu'il fonctionne bien sur le serveur. Les changements de locaux de dernière minute seront refusés.

Présidents de séance
Les présidents de session devront se rendre à la salle de présentation désignée 20 minutes avant le début de la séance afin de rencontrer les présentateurs. Il importe que les séances commencent à l'heure et que le temps imparti soit scrupuleusement respecté pour permettre aux personnes présentes de se déplacer d'une séance à une autre. En cas d'annulation, le temps accordé aux autres présentations devra rester le même. Les intervalles devront servir aux discussions générales ou à une pause.

Présentateurs
Tous les présentateurs doivent se rendre à leur poste de présentation 20 minutes avant le début de la séance. Un technicien ou le président de la séance s'assurera alors que toutes les présentations prévues sont disponibles sur écran. Veuillez consulter le site Web de MOCA-09 pour de plus amples détails techniques, ou posez vos questions à l'un des techniciens dans la salle de préparation des présentateurs.

Séances scientifiques
Toutes les séances scientifiques orales, y compris les séances plénières auront lieu au 5e étage du Palais des congrès. Les présentations par affiches et d'exposant se tiendront aussi dans la salle d'exposition au 5e étage.

Numérotation des documents
Tous les numéros de présentations orales indiqués dans l'index des auteurs peuvent servir de guide de référence rapide, indiquant le titre de chaque symposium, l'ordre de présentation, la date en juillet, la séance du jour et la salle. On doit l'utiliser en concomitance avec le cadre du programme (page 49) et le programme détaillé (page 51).

Légende des numéros des présentations orales :

M01	.XX	/	20	3	13
↑	↑		↑	↑	↑
a	b		c	d	e

a. Symposium
b. Ordre
c. Date en juillet
d. Heure de début de la séance (1 = 8 h 30; 2 = 10 h 30; 3 = 13 h 30; 4 = 16 h 30)
e. Colonne dans le cadre du programme indiquant le numéro de la salle assignée

Poster Presentation number legend:
(Posters can be identified in the Author Index by the end number 17. Poster board numbers are indicated in the left margin of the Detailed Program poster listing.)

J08	.XX	/	22	4	17
↑	↑		↑	↑	↑
a	b		c	d	e

a. Symposium
b. Order
c. Date in July
d. Session start time (all posters sessions begin at 15:00)
e. Column in Program Framework, indicating assigned room number (all posters will be presented in 517cd)

Poster Presenters
Poster Presentations will be held in the Exhibit Area located on the 5th Level of the Palais des congrès.

Setup
Posters presentations are scheduled every day of the Assembly between 15:00 and 16:30. All presenters should verify the day on which they are scheduled to present their poster by querying their own names on the MOCA-09 Session Planner at: https://www.csoconferences.org/ei/rs.esp?id=184&scriptid=sppp1.

In order to maximize delegates' viewing time, posters will be mounted for more than one day. Three viewing periods have been planned:
- Period 1, which includes posters that will be presented on July 20 or 21;
- Period 2, which includes posters that will be presented on July 22, 23 or 24; and
- Period 3, which includes posters that will be presented on July 27, 28 or 29.

While the posters will be accessible during all the Assembly's open hours and for more than one day, presenters are only required to be in attendance on their scheduled day, from 15:00 to 16:30.

Authors are asked to mount their posters on the first morning of their viewing period (see above) beginning at 7:30 and mounting should be completed before 15:00, in order to be ready for the start of that day's poster session. The posters should remain in place until the removal period, 16:30 – 18:30 on the last day of their viewing period. A complete list of assigned poster boards will be available onsite.

Présentations par affiches

(Les affiches peuvent être identifiées par le numéro de fin 17 dans la liste des auteurs. Les numéros du tableau d'affichage sont indiqués dans la marge gauche de la liste des affiches du programme détaillé.)

J08	.XX	/	22	4	17
↑	↑		↑	↑	↑
a	b		c	d	e

a. Symposium
b. Ordre
c. Date en juillet
d. Heure de début de la séance (toutes les présentations par affiches débutent à 15 h)
e. Colonne dans le cadre du programme indiquant le numéro de la salle assignée (toutes les affiches seront présentées dans la salle 517cd)

Lieu de présentation d'affiches
Les affiches seront présentées dans l'aire d'exposition au 5e étage du Palais des congrès.

Mise en place
Des présentations par affiches se tiendront chaque jour de l'Assemblée entre 15 h et 16 h 30. Tout présentateur devrait vérifier le jour prévu pour la présentation de son affiche en recherchant son propre nom dans le site de planification des séances de MOCA-09 au https://www.csoconferences.org/ei/rs.esp?id=184&scriptid=sppp1.

Aux fins de la maximisation de la période de visionnement des délégués, les affiches seront montées pendant plus d'une journée. Trois période de visionnement sont prévues :
- Période 1, qui comprend les affiches présentées les 20 et 21 juillet;
- Période 2, qui comprend les affiches présentées les 22, 23 et 24 juillet;
- Période 3, qui comprend les affiches présentées les 27, 28 et 29 juillet.

Même si les affiches seront accessibles durant toutes les heures d'ouverture de l'Assemblée et pendant plus d'un jour, les présentateurs ne sont tenus d'être sur place que le jour qui leur est assigné, soit de 15 h à 16 h 30.

On demande à tout auteur de monter son affiche le premier matin de sa période de visionnement (voir ci-dessus) à compter de 7 h 30 et d'avoir terminé le montage avant 15 h, afin d'être prêt pour le début de la présentation par affiches ce jour-là. Les affiches devraient rester sur place jusqu'à la période de retrait, soit de 16 h 30 à 18 h 30 le dernier jour de la période de visionnement. Une liste complète des tableaux d'affichage assignés sera disponible sur les lieux.

MOCA-09 Exhibitors / Exposants de MOCA-09

ATS Technology Systems Inc. – Booth 103 kiosque

ATS Technology Systems Inc. specializes in the supply, installation and maintenance of meteorological and environmental monitoring systems. On live display will be all the latest in HSS Visibility / Fog / Present Weather Sensors, Laser Precipitation Monitor, Stand Alone Portable Weather Station, and if at all possible we will also present our Precipitation Profiler / Micro Rain Radar and Doppler Sodar system. Come by and talk to our experts about any of your meteorological needs.

ATS Technology Systems Inc. se spécialise dans la fourniture, l'installation et l'entretien de réseaux de surveillance météorologique et environnementale. Des stands animés présenteront les produits de pointe suivants : lecteurs HSS de visibilité, de brouillard et de temps présent, contrôleur laser de précipitations, station météorologique portative. Vous pourrez également observer notre système profileur de précipitations / micro-radar de pluviométrie / Doppler SODAR. Venez consulter nos experts pour tous vos besoins en météorologie.

Droplet Measurement Technologies – Booth 200 kiosque

DMT's suite of single particle optical spectrometers provide size distributions of CCN, black carbon, dust, water droplets and ice crystals accurately, rapidly and reliably.

La série de spectromètres optiques à particule simple de DMT assure la répartition exacte, fiable et rapide des fractions de noyaux de condensation des nuages, de carbone noir, de poussière, de gouttelettes d'eau et de cristaux de glace.

Rockland Scientific International Inc. – Booth 201 kiosque

Rockland Scientific specializes in designing instrumentation solutions for the measurement of small scale turbulence in natural waters. Our product line includes vertical turbulence profilers with depth capabilities between 200m and 6000m; self-recording systems for deployment from gliders, AUVs, moorings and other platforms; and expendable instruments for single use.

Rockland Scientific se spécialise dans la conception de nouveaux instruments de mesure des turbulences à petite échelle dans les eaux naturelles. Notre gamme de produits comprend des profileurs de turbulence verticale avec des capacités de profondeur variant de 200 à 6 000 m, des autoenregistreurs de déploiement à partir de planeurs, de véhicules sous-marins autonomes, d'ancrages et d'autres instruments non réutilisables.

Kipp & Zonen BV – Booth 202 kiosque

Kipp & Zonen provides class-leading instruments for measuring solar radiation and atmospheric properties in Meteorology, Climatology, Hydrology, Industry, Renewable Energy, Agriculture and Public Health. We are the specialist in the measurement of solar and sky radiation, from the ultraviolet to the far infrared. We offer a complete range of high quality instrumentation and accessories, from reliable cost-effective products to the best performance available.

Kipp & Zonen produit des instruments de classe mondiale servant à mesurer le rayonnement solaire et les paramètres de l'atmosphère relativement à la météorologie, la climatologie, l'hydrologie, l'industrie, l'énergie renouvelable, l'agriculture et la santé publique. La société Kipp & Zonen est l'experte en la mesure du rayonnement solaire, de l'ultraviolet à l'infrarouge lointain. Nous offrons une gamme complète d'instruments et d'accessoires de haute qualité, soit des produits fiables au meilleur coût-efficacité.

SEA-BIRD Electronics, Inc. – Booth 203 kiosque

Sea-Bird Electronics, Inc. is the leading manufacturer of oceanographic profiling CTDs and integrated water sampling systems, multi-parameter profilers, moored time-series temperature/salinity recorders, real-time inductive telemetry instruments and modems, and wave/tide and deep bottom pressure recorders. Our products enable oceanographers to determine salinity, density, and other properties contributing to ocean circulation, the function of marine ecosystems, and global climate dynamics. Sea-Bird has been serving customers in universities, oceanographic institutes, government agencies, engineering firms, and navies throughout the world for over 30 years, and has built a reputation for producing the most accurate data possible.

Sea-Bird Electronics, Inc. est le fabricant principal de sondes CTD de profilage océanographique et de systèmes intégrés d'échantillonnage d'eau, de profileurs à paramètres multiples, de sondes amarrées de séries chronologiques de température et de salinité, d'instruments et de modems de télémesure inductive en temps réel, et d'enregistreurs des vagues, de la marée et de la pression en grande profondeur. Nos produits permettent aux océanographes de déterminer la salinité, la densité et d'autres facteurs contribuant à la circulation océanique, la fonction des écosystèmes marins et la dynamique du climat mondial. Sea-Bird dessert des universités, des instituts océanographiques, des organismes gouvernementaux, des firmes d'ingénierie et des marines partout au monde depuis plus de 30 ans, et est reconnue pour la production des données les plus exactes possibles.

Springer – Booth 300 kiosque

Springer (www.springer.com) is the largest science, technology, and medicine (STM) book publisher and its Earth Science program publishes more than 200 books a year. Springer also publishes the largest STM eBook Collection worldwide. It publishes on behalf of more than 300 academic associations and professional societies. We aim to offer excellence, and work with the world's best academics and authors in long-standing loyal partnerships based on mutual trust and we are always open to new input. More than 150 Nobel prize-winners have published with Springer to the present date. Many of our publications are considered authoritative works in their field, read by academics and students, used by libraries and universities, academic professionals and practitioners in various branches of industry.

Springer (www.springer.com) est le plus important éditeur spécialisé dans les ouvrages scientifiques, technologiques et médicaux (STM) et son programme des Sciences de la Terre publie plus de 200 livres par année. En outre, Springer offre la plus grande collection de cyberlivres STM au monde. Cet éditeur publie au nom de plus de 300 associations universitaires et sociétés professionnelles. Toujours dans la quête de l'excellence, nous travaillons avec les meilleurs universitaires et auteurs du monde entier, dans le cadre de partenariats loyaux fondés sur la confiance mutuelle, et nous sommes toujours ouverts aux commentaires. Au-delà de 150 détenteurs de prix Nobel ont fait publier des ouvrages par Springer à ce jour. Bon nombre de nos publications sont considérées comme faisant autorité dans leur domaine; elles sont lues par des universitaires et étudiants, et sont utilisées par les bibliothèques et universités, les professionnels universitaires et les praticiens dans divers secteurs de l'industrie.

National Snow and Ice Data Center – Booth 301 kiosque

NSIDC manages and distributes snow, ice, glacier and frozen ground data from Earth's cold regions. The center offers user support and data access tools as well as the expertise of in-house cryospheric scientists. Come by and learn more about how we can help you.

Le NSIDC gère et diffuse des données sur la neige, la glace, les glaciers et le gélisol provenant des régions froides de la Terre. Le centre offre des outils d'assistance à l'utilisateur et d'accès aux données ainsi que l'expertise des scientifiques internes en recherche cryosphérique. Passez nous voir afin de découvrir dans quelle mesure nous pouvons vous aider.

IUGG 2011 – Booth 302 kiosque

The Organising Committee for IUGG2011 invites you to Melbourne, Australia to participate in an exciting, multi-disciplinary conference on cutting edge science, presented by the eight scientific associations of the IUGG. IUGG2011 will be marked by a scientific program of outstanding plenary speakers, a comprehensive program of symposia organised by each IUGG association, a compelling keynote program, and the highlight of IUGG conferences, an inter-disciplinary, inter-association program of symposia addressing major scientific issues of global and regional significance and concern. The new Melbourne Convention Centre is the most modern convention centre in the world. Melbourne, voted the world's most live able city, hosts a diverse and dynamic scientific research community. Australia and New Zealand are fantastic destinations for holidays and tourism, offering exotic touring opportunities. The indigenous culture of Australia and the Maori culture of New Zealand are unique in the world. Visit the ladies from Australia on Stand 302 to find out more about IUGG2011 and travelling to Australia!

Le Comité organisateur de l'UGGI2011 vous invite à Melbourne, Australie, pour participer à un congrès multidisciplinaire des plus stimulants sur la science de pointe, présenté par les huit associations scientifiques de l'Union Géodésique et Géophysique Internationale. Ce congrès offrira un programme scientifique de conférenciers principaux, un programme exhaustif de symposiums organisés par chaque association de l'UGGI , un programme thème et, comme point saillant, un programme interdisciplinaire et inter-associations de symposiums portant sur des enjeux scientifiques majeurs d'importance et de préoccupation mondiales et régionales. Le nouveau Melbourne Convention Centre est le centre des congrès le plus moderne au monde. Melbourne, nommée la ville la plus agréable à vivre à l'échelle mondiale, abrite un milieu de recherche scientifique à la fois diversifié et dynamique. L'Australie et la Nouvelle-Zélande sont de fantastiques destinations vacances, offrant d'excitantes randonnées exotiques. La culture indigène de l'Australie et la culture des Maori de la Nouvelle-Zélande sont uniques. Venez rendre visite aux dames australiennes au stand 302 afin de vous renseigner davantage sur l'UGGI2011 et les voyages en Australie.

Government of Canada / Gouvernement du Canada – Booth 303 kiosque

Government of Canada / Gouvernement du Canada

This joint Government of Canada booth offers information on initiatives being undertaken by Environment Canada, the Department of Fisheries and Oceans, Natural Resources Canada and the National Research Council of Canada.

Ce kiosque conjoint du gouvernement du Canada offre de l'information sur les initiatives lancées par Environnement Canada, Pêches et Océans Canada, Ressources naturelles Canada et le Conseil national de recherches Canada.

Canadian Space Agency – Booth 400 kiosque

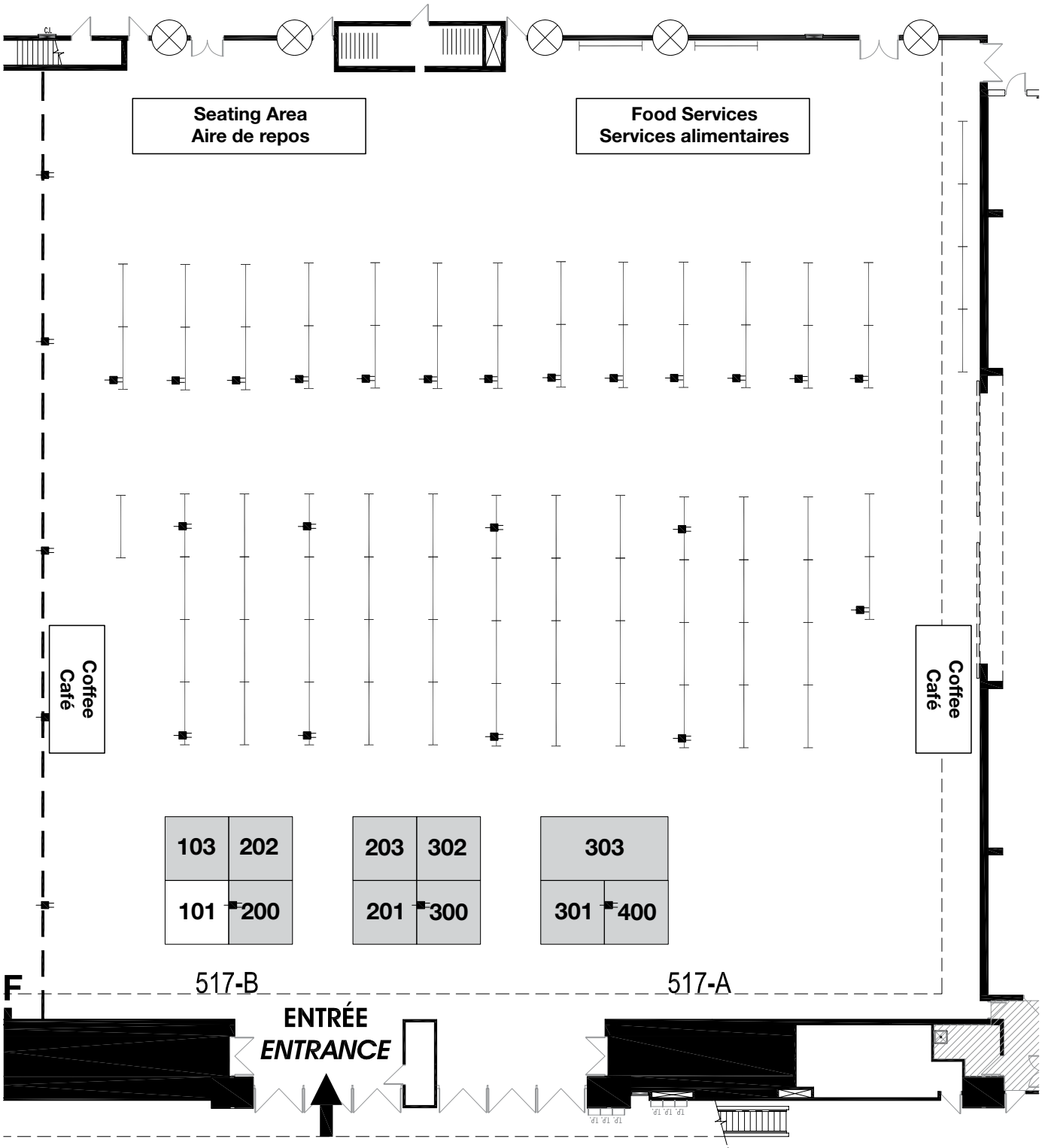
Established in 1989, the Canadian Space Agency coordinates all civil, space-related policies and programs on behalf of the Government of Canada. The Agency directs its resources and activities through four key thrusts: Earth Observation, Space Science and Exploration, Satellite Communications, and Space Awareness and Learning. By leveraging international cooperation, the CSA generates world-class scientific research and industrial development for the benefit of humanity.

Website: http://www.asc-csa.gc.ca/eng/default.asp

Établie en 1989, l'Agence spatiale canadienne est chargée de coordonner, au nom du gouvernement du Canada, l'ensemble des politiques et des programmes civils dans le domaine spatial. L'ASC exerce ses activités dans les quatre grands axes suivants : Observation de la Terre, Exploration et sciences spatiales, Télécommunications par satellites et Sensibilisation à l'espace et éducation. L'ASC mise sur la collaboration internationale pour favoriser le développement industriel et la recherche scientifique de calibre mondial au profit de l'humanité.

Site Web : http://www.asc-csa.gc.ca/fra/default.asp

Floor Plan / Plan de Salle



Other Related Meetings and Events / Autres réunions et activités connexes

The listing below offers details about related events, not part of the MOCA-09 basic program, but approved by the organizing committee, and provided in sufficient time to be included in this Program Book. It is not comprehensive. Please check the MOCA-09 website for possible new listings, as well as with your individual groups of interest. Please note that descriptions are in the language submitted by the organizers.

Vous trouverez ci-après, la liste des réunions et des activités connexes qui ne font pas partie du programme de base de MOCA-09 mais qui sont approuvées par le Comité national organisateur, et qui nous ont été soumises assez tôt pour être ci-incluses. Veuillez noter que la liste n'est pas complète. Vous pouvez vérifier les ajouts en ligne, sur le site web de MOCA-09, ainsi qu'avec les groupes d'intérêt particulier. À noter que les desccriptions sont dans la langue indiquée par les organisateurs.

Meetings	
Event Title:	**First IAMAS Executive Committee (EC) Meeting**
Open to:	IAMAS EC officers and national correspondents
When:	Monday, 20 July 2009 from 1630 to 1830 pm
Where:	Palais des congrès de Montréal, Room 522a
Contact:	Jenny Lin (jennylin@lasg.iap.ac.cn)
Description:	Review IAMAS activities since IUGG2007; plan the program of IAMAS GA 2011; revise IAMAS status; etc. Interested non committee members should seek contact to the committees via Jennylin@lasg.iap.ac.cn whether they can join the proceedings as technical experts, also subject to sufficient seats in the meeting room
Event Title:	**First IAPSO Executive Committee (EC) Meeting**
Open to:	IAPSO EC Members and Specially Invited Guests
When:	Tuesday July 21 from 1200 to 1330
Where:	Palais des congrès de Montréal, Room 522b
Contact:	Johan Rodhe (johan.rodhe@gu.se)
Description:	Business meeting. The Agenda has been sent to the EC members. They could also find the Agenda by logging in at the IAPSO website under the flap Business Meetings at the IAPSO website, iapso.iugg.org. Lunch will be served during the Meeting
Event Title:	**SOPHOCLES Discussion Meeting**
Open to:	Interested Southern ocean and cryospheric scientists, both modellers and observationalists
When:	Tuesday, 21 July 2009, from 18:30 pm
Where:	Palais des congrès de Montréal, Room 522b
Contact:	Siobhan O'Farrell (siobhan.ofarrell@csiro.au)
Description:	SOPHOCLES is the acronym for 'Southern Ocean Physical Oceanography and Cryospheric Linkages'. The group has met in 2007 and 2008 on the fringes of major conferences to discuss the parameterization of cryospheric components (sea ice, ice shelves, icebergs) in Southern ocean and regional models. The aim is to facilitate discussion across the community working on a range of space/time scales on model parameterizations, model evaluation and model comparisons. The group has links to CliC, SCAR, CLIVAR SO panel and CLIVAR WGOMD.
Event Title:	**APECS Polar Careers Panel Discussion and Reception**
Open to:	Early career polar scientists and mentors
When:	Tuesday, 21 July 2009, from 18:30 to 20:30pm
Where:	Palais des congrès de Montréal, Room 520de
Contact:	Alexandra Jahn (alexandra.jahn@mail.mcgill.ca)
Description:	Panel discussion on polar careers with four experienced scientists, followed by a question period and a reception. Interested early career scientists from all fields are welcome to attend. Experienced polar scientists are encouraged to join, especially for the reception (~7:45 pm). For more details on the events and the invited speakers, please see: www.apecs.is/moca09

Event Title:	IAPSO General Business Meeting
Open to:	IAPSO National Delegates, EC Members and Specially Invited Guests
When:	Wednesday July 22 from 0830 to 1000
Where:	Palais des congrès, Room 516 d
Contact:	Johan Rodhe (johan.rodhe@gu.se)
Description:	Business meeting. The Agenda has been sent to the National Correspondents and EC members. It could also be found under the flap Business Meetings at the IAPSO website, iapso.iugg.org.Coffee will be served.
Event Title:	**International Commission on Polar Meteorology**
Open to:	All MOCA-09 Delegates
When:	Wednesday, 22 July 2009, from 12:15 to 13:15pm
Where:	Palais des congrès de Montréal, Room 524c
Contact:	David Bromwich, President, Bromwich.1@osu.edu
Description:	Biannual meeting concerned with symposia, IPCC activities, etc.
Event Title:	**ICCP – Executive Board Meeting**
Open to:	ICCP members
When:	Wednesday, 22 July 2009 from 12:15 to 13:30pm
Where:	Palais des congrès, Room 522a
Contact:	Prof. Zev Levin at zevlev@post.tau.ac.il
Event Title:	**Introducing the IACS Glossary of Mass-balance and Related Terms**
Open to:	All with an interest in glacier mass balance and related subjects
When:	Wednesday, 22 July 2009 from 1530-1700pm
Where:	Palais des congrès de Montréal, Room 516a
Contact:	Graham Cogley (gcogley@trentu.ca)
Description:	This session will introduce the first public release, for community discussion and comment, of the Glossary of Mass-balance and Related Terms, a document prepared by the Working Group on Mass-balance Terminology and Methods of the International Association of Cryospheric Sciences. The aim of the Glossary, which is an update and expansion of the much-cited standard "Anonymous 1969", is to promote clarity and reduce ambiguity in the communication of information about glacier mass balance. It also defines a considerable number of terms in the more general field of physical glaciology. The session will be of particular interest to mass-balance practitioners and of general interest to all physical glaciologists.
Event Title:	**ICMA Meeting**
Open to:	members of ICMA
When:	Thursday, 23 July 2009 from 1800 to 1930pm
Where:	Palais des congrès de Montréal, Room 522c
Contact:	Shigeo Yoden (yoden@kugi.kyoto-u.ac.jp)
Description:	regular biennial meeting
Event Title:	**ICPAE Business Meeting**
Open to:	ICPAE members and other invitees
When:	Thursday, 23 July 2009 from 18:00 to 19:00pm
Where:	Palais des congrès de Montréal, Room 522a
Contact:	Athena.coustenis@obspm.fr
Description:	Business meeting
Event Title:	**International Commission on Climate (ICCL) biennial meeting**
Open to:	All climate-interested MOCA-09 delegates
When:	Thursday 23 July from 18:00-20:00
Where:	Room 525ab (immediately following afternoon session of Symposium J11)

Contact:	Neil Holbrook (Neil.Holbrook@utas.edu.au)
Description:	Biennial meeting of the International Commission on Climate - the focus of the meeting will be to revisit membership, call for new members, and propose symposia for the IUGG2011 Conference in Melbourne, Australia, plus general climate issues of interest and/or concern. If anyone is interested to become a member of the ICCL, please come along or put your name forward. We are keen to recruit new members!
Event Title:	**Stratospheric Processes and their Role in Climate - Data Assimilation Meeting (SPARC-DA)**
Open to:	All MOCA-09 delegates
When:	Friday, 24 July 2009 from 08:30 - 12:00pm
Where:	Palais des congrès de Montréal, Room 520f
Contact:	Saroja.polavarapu@ec.gc.ca
Description:	3 invited talks on data assimilation in the climate context plus open discussion of SPARC-DA activities including the SPARC International Polar Year (IPY) project, and possible future collaborations. Invited talks are on using data assimilation to improve climate models in the troposphere (Mark Rodwell, UK), and stratosphere (Manuel Pulido, Argentina and Canada) and on seamless prediction from weather to climate scales (Craig Bishop, USA)
Event Title:	**Second IAPSO Executive Committee (EC) Meeting**
Open to:	IAPSO EC Members and Specially Invited Guests
When:	Friday July 24 from 1200 to 1330
Where:	Palais des congrès de Montréal, Room 522b
Contact:	Johan Rodhe (johan.rodhe@gu.se)
Description:	Business meeting. The Agenda has been sent to the EC members. They could also find the Agenda by logging in at the IAPSO website under the flap Business Meetings at the IAPSO website, iapso.iugg.org. Lunch will be served during the Meeting
Event Title:	**IRC Business Meeting**
Open to:	IRC members, Working Group Chairs and Rapporteurs
When:	Friday, 24 July 2009 from 18:00 to 21:30pm
Where:	Palais des congrès de Montréal, Room 525ab
Contact:	Carol Russell at crussell@irc-iamas.org
Description:	Annual business meeting
Event Title:	**iAnZone/SASSI Workshop**
Open to:	Antarctic oceanographers and all interested scientists
When:	Saturday, 25 July 2009 from 9 am to 5 pm
Where:	Delta Hotel Montréal, Concerto room
Contact:	Karen Heywood (K.Heywood@uea.ac.uk), Andrea Bergamasco (andrea.bergamasco@ismar.cnr.it), Alex Orsi (aorsi@tamu.edu)
Description:	iAnZone is a SCOR affiliated group of Antarctic scientists that meets regularly to coordinate current and future science activities, and to facilitate the exchange of results from those programs. SASSI is an IPY cluster program with participation from several countries focused on better understanding the exchange between the Antarctic shelves and the deep ocean.
Event Title:	**Second IAMAS Executive Committee (EC) Meetings**
Open to:	IAMAS EC officers and national correspondents
When:	Monday, 27 July 2009 from 1630 to 1830
Where:	Palais des congrès de Montréal, Room 522 b
Contact:	jennylin@lasg.iap.ac.cn
Description:	Revise IAMAS status; set up Nomination Committee for the IAMAS GA in Melbourne 2011; Presentations from national representatives interested in hosting IAMAS 2013, etc. Interested non committee members should seek contact to the committees via Jennylin@lasg.iap.ac.cn whether they can join the proceedings as technical experts, also subject to sufficient seats in the meeting room.

Events	
Event Title:	**IACS Bar-B-Q**
Open to:	IACS members and friends
When:	Wednesday, 22 July 2009 from 18:00-21:00pm
Where:	Bistro VÛ, Old Port, Montréal, http://bistrovu.com/
Contact:	Ross Brown (brown.ross@ouranos.ca)
Description:	Informal a la carte bar-b-q on the terrace of the Yacht Club de Montréal in the Old Port of Montréal, a pleasant 15 minutes walk from the Convention Centre through the historic district of Old Montréal.
Event Title:	**IAPSO Dinner**
Open to:	IAPSO members and friends
When:	Wednesday, 22 July 2009 from 19:00pm+
Where:	Restaurant La Maison Kam Fung,1111 Saint-Urbain Street
Contact:	Lawrence Mysak, IAPSO President and Johan Rodhe IAPSO Secretary General
Description:	The price is $25 (beverages not included). Tickets will be sold at the conference registration desk (cash only) July 19, 20 and 21 (morning). The Menu and more information can be found on the IAPSO website, http://iapso.sweweb.net/

Scientific Program / Programme scientifique

Scientific Program / Programme scientifique

Please note: all contributions are published as submitted by the submitting author. Consequently, organizers cannot accept any responsibility regarding the accuracy of the submissions or the authors listed. All Assembly abstracts can be found on CD-ROM affixed to the back cover of this program book. **Late changes to the program can be found in the addendum to this document.**

Nota : Les abrégés sont publiés tels que soumis par les auteurs. Par conséquent, les organisateurs ne sont pas responsables de l'exactitude des documents transmis ou de l'index du présentateur. Les abrégés sont sur le CD-ROM situé sur la couverture intérieure à l'endos de ce document. **Les changements de dernières minutes au programmes sont disponibles dans l'addendum.**

While services, including general information about this Assembly, are provided in English and French, the Scientific Program component is presented only in English.	Alors que les services offerts lors du congrès, incluant les renseignements généraux sont disponibles en anglais et en français, veuillez prendre note que le programme scientifique est disponible en anglais seulement.

Complete Symposium Listing

JOINT Symposia

SESSION	TITLE
J01	**Observations of High Latitude Climate Change**
	Sponsoring Associations: IAMAS/IACS/IAPSO
Convenors:	**Matthew Lazzara** (IAMAS), Shelley Knuth (IAMAS), David Reusch (IAMAS), Michael Town (IAMAS), Matthew Sturm (IACS), Peter Haugan (IAPSO)
Invited Speakers:	Mark Serreze, National Snow and Ice Data Center, USA Eric Steig, University of Washington, USA David H. Bromwich, Ohio State University, USA
Description:	This symposium aims to bring together observational descriptions of the high latitude regions in the atmosphere, ocean and cryosphere from 200 years ago to the present. Topics from both polar regions as well as from in situ and space based observing platforms are the basis for this symposium. New observations collected via recent efforts, including the International Polar Year (IPY), International Trans-Antarctic Scientific Expedition (ITASE), and other ongoing long-term observational and paleo-climate efforts related to climate change at the poles, are solicited. In addition, presentations dealing with observational and data assimilation methods are welcome. Sample topic areas include ice core observations, mass balance investigations (surface, airborne or satellite based), satellite observations (e.g. altimetry, clouds, icebergs, etc.), ocean monitoring studies (e.g. ARGO, AON, etc.), polar surface observing networks (e.g. Automatic Weather Stations, ground-based GPS, etc.), and data syntheses from reanalysis.
J02	**Polar Regional Weather and Climate Modelling (and Global Relevancy)**
	Sponsoring Associations: IAMAS/IACS/IAPSO
Convenors:	**Annette Rinke** (IAMAS), John Cassano (IAMAS), David Holland (IACS), Andrey Proshutinsky (IAPSO)
Invited Speakers:	John Turner, British Antarctic Survey, UK John Walsh, International Arctic Research Center, USA
Description:	The coincidence of rapid change in Arctic climate (extreme 2007 decline in sea ice and recent unprecedented warming) and enhanced observational activities during the IPY offers hope that these changes will be documented in great detail. However, in order to reproduce variability and changes in the Arctic and Antarctic at time scales from synoptic to decadal, explain them and predict their future dynamics, models of the Arctic and Antarctic climatic systems are needed both to reproduce past and present states and to predict future transformations. It is difficult to construct, understand, and explain a "global" picture based on observations, without including modelling. It is also problematic to employ models for prediction of climate without knowing model errors and their uncertainties. This session invites both numerical and observationally based contributions: (i) enhancing our understanding of the physical processes regulating variability of environmental conditions (atmosphere, cryosphere, and ocean) in the Polar Regions, (ii) assessing models performance and their uncertainties using results of the Model Intercomparison Projects (MIPs), (iii) developing new models and analytical approaches allowing more accurate reproduction of interaction in the system atmosphere-ice-ocean or identifying teleconnections showing role of the Polar regions in the global processes and vice-versa; (iv) improving parameterizations of the specific processes in the atmosphere, ice, or ocean. Discussions associated with data assimilation and reconstructions/reanalysis of the climatic systems for the Arctic and Antarctic are welcomed as well.

SESSION	TITLE
J03	**International Polar Year – Early Results**
	Sponsoring Associations: IAMAS/IACS/IAPSO
Convenors:	**Michel Béland** (IAMAS), Ian Allison (IACS), Karen Heywood (IAPSO)
Invited Speakers:	Liz Thomas, British Antarctic Survey, UK Alex Orsi, Texas A&M, USA Jean-Claude Gascard, LOCEAN, France Hayley Hung, Environment Canada Aurélie Bouchard, MeteoFrance Thor Erik Nordeng, Norwegian Meteorological Institute Steve Ackley, University of Texas, USA Bob Bindschadler, Goddard Space Fligfht Centre, NASA Jon Ove Hagen, University of Oslo, Norway James Drummond, Dalhousie University, Canada
Description:	This symposium provides the first opportunity after the official end of the observing period of the International Polar Year 2007-2008 (1 March 2007 to 1 March 2009) to report new results from IPY projects. The session will particularly highlight interdisciplinary results addressing the IPY themes of assessing the present environmental status of the polar regions; quantifying and understanding environmental changes in polar regions; and better understanding the links between the polar regions and the rest of the globe. Contributions on advances towards implementation of sustainable observing systems of the earth system in polar regions are also welcome.
J04	**The Contribution of Greenland and Antarctica to Fresh Water Input to the Ocean and Sea Level Change**
	Sponsoring Associations: IAMAS/IACS/IAPSO
Convenors:	**Éric Rignot** (IACS), Jonathan Bamber (IAMAS), Thierry Fichefet (IAPSO)
Invited Speakers:	Ralf Greve, Institute of Low Temperature Science, Hokkaido University, Japan David Holland, New York University, USA
Description:	Key uncertainties remain regarding the future reaction of climate, ice sheets and the carbon cycle to anthropogenic greenhouse gas forcing. Paleoclimatic reconstructions offer a framework against which climate, ice sheet and carbon cycle models can be tested. This session aims at strengthening the interactions between these various communities.
J05	**Arctic Ocean Circulation and Sea Ice: Present and Future**
	Sponsoring Associations: IAPSO/IACS
Convenors:	**Göran Björk** (IAPSO), Marika Holland (IAPSO), Bruno Tremblay (IAPSO), Manfred A. Lange (IACS)
Invited Speakers:	James Overland, NOAA, Seattle Mary-Louise Timmermans, Woods Hole Oceanographic Institution, USA Bert Rudels, Finnish Institute of Marine Research
Description:	The Arctic Ocean has undergone large changes during the last decades including several pulses of warmer inflowing Atlantic water, huge area extent variations of the low salinity surface layer and a general decline in summer ice extent, with an extreme in 2007 when about 40% of the basin was ice free in August. In this perspective it likely that further changes will occur in the future, and may give a dramatic impact on marine life and human activities, such as exploration of natural resources and merchant shipping. Another type of change has been an intensified research activity with a seemingly ever increasing data stream from research ships, satellites, drifting platforms and moorings, including an extra peak during the International Polar Year 2007-2008. There has also been an increased number of theoretical studies utilizing observations and models. This ongoing research provides surely a much better knowledge of the present ocean circulation and sea ice conditions but it also opens possibilities to make realistic projections into the future. This session has a relatively broad theme and invites both numerical and observationally based contributions: (i) enhancing our understanding of the present ocean circulation and sea ice conditions in the Arctic (ii) enhancing our understanding of the future ocean circulation and sea ice conditions in the Arctic.

SESSION	TITLE
J06	**Abrupt Changes in the Climate System**
	Sponsoring Associations: IACS/IAMAS/IAPSO
Convenors:	**Andreas Schmittner** (IACS), Andrew Bush (IAMAS), Richard Wood (IAPSO)
Description:	Paleoclimate proxy records clearly show that the climate system does not always change gradually. Abrupt changes have been documented both at high and low latitudes and involve all components of the climate system: ice, ocean, atmosphere and biosphere. Theoretical studies and model simulations suggest that non-linearities and thresholds can explain some of the observed abrupt changes. For future predictions, however, these findings pose a major challenge. Which systems are vulnerable to abrupt changes in our warming planet?What have been the impacts of past abrupt climate changes on physical and ecosystems? Is it possible to predict abrupt climate changes, or identify conditions under which they are likely? What could be the societal impacts of future abrupt climate changes? These are some of the questions we want to address in this session.
J07	**Comparison of Projected Future Climate Change to Warm Intervals in Earth History**
	Sponsoring Associations: IAMAS/IAPSO/IACS
Convenors:	**Alan Haywood** (IAMAS), Arne Winguth (IAPSO), Eric Wolff (IACS)
Invited Speakers:	Jerry McManus, Lamont Doherty Earth Observatory of Columbia University, USA Paul Valdes, University of Bristol, UK Harry Dowsett, US Geological Survey Bette Otto-Bliesner, National Center for Atmospheric Research, USA
Description:	IPCC (2007) scenarios for future climate change suggest that by the later part of this century global annual mean temperatures may increase by 1.1 to 6.4°C. This magnitude of temperature rise has not been recorded since the Neogene. Paleoclimate records derived from various proxies provide insights into past global and regional climatic and environmental changes. Moreover, these proxies are of relevance to calibrate and validate comprehensive Earth system models in order to improve the understanding and prediction of future climate evolution. This session will highlight a variety of paleoclimatic topics over different timescales and temporal resolutions, in order to assess climate impacts associated with anthropogenic perturbations. It will focus on intervals in the last 100 million years of Earth history that are believed to have been warmer than the present. These include the Last Interglacial, Marine Oxygen Isotope Stage 11, Pliocene warm intervals, the Mid-Miocene Climate Optimum and Climate Transition, the Early Eocene, PETM and ELMO events, and the Cretaceous Thermal Maximum. Contributions providing insights into these intervals of time, based on new data, data synthesis or modelling techniques will be welcomed, especially those which link recent paleoclimate studies to future climate change by comparing global, regional or local responses reconstructed in the past to projections for the future.
J08	**Ice Cores in Paleoclimate**
	Sponsoring Associations: IACS/IAMAS
Convenors:	**Valérie Masson-Delmotte** (IACS), Kumiko Goto-Azuma (IACS), Elisabeth Schlosser (IAMAS)
Invited Speakers:	David Bromwich, Ohio State University, USA David Fisher, Geological Survey of Canada James White, University of Colorado, USA
Description:	Ice cores offer unique archives of multiple indicators of past glaciological, climatic and environmental changes. Measurements conducted in borehole and ice cores can provide crucial information regarding the dynamics of polar ice sheets and put constraints on their past extension. The wealth of geochemical analyses which can be performed on ice cores make it possible to reconstruct past variations locally, but also regionally (at the location of moisture and aerosol sources) and globally (well mixed greenhouse gases), as well as to document key climatic forcings linked with natural and anthropogenic aerosols and with solar activity. This symposium will be dedicated to the paleoclimatic information derived from ice cores. This includes results from new ice cores drilled in various latitudes and documenting climate variability over various time scales. We also welcome presentations of innovative methods in order to broaden the spectrum of glaciological, climatic and environmental parameters derived from ice cores; these methods may be linked with analytical innovation, or may rely on new modelling approaches in order to improve the physical understanding of the deposition and archiving processes. We especially encourage contributions about meteorological aspects of ice core interpretation, such as precipitation origin, moisture transport to the drilling locations, general atmospheric circulation in past and present climates, moist deposition of chemical components, etc. Finally, this session will also be open for the comparison between ice core records with other paleoclimatic archives such as marine sediment or speleothem records, and for the comparison between glaciological and climatic models and ice core results.

SESSION	TITLE
J09	**Interannual and Interdecadal Climate Variability and Predictability with Special Sessions on Chaos and Nonlinearity in the Climate System Dedicated to the Memory of Professor Edward N. Lorenz**
	Sponsoring Associations: IAMAS/IACS/IAPSO
Convenors:	**Clara Deser** (IAMAS), Paul Kushner (IAMAS), Klaus Dethloff (IACS), Shoshiro Minobe (IAPSO)
Invited Speakers:	Ichiro Yasuda, University of Tokyo, Japan Judith Perlwitz, CIRES, USA Shang-Ping Xie, University of Hawaii, USA Ben Kirtman, University of Miami, USA Fei Fei Jin, University of Hawaii, USA Yochanan Kushnir, Columbia University, USA Tim Palmer, ECMWF, UK
Description:	Although climate predictions are demanded on increasingly fine regional scales, the climate system is dominated on interannual-to-decadal timescales by large-scale patterns that control regional climate. These patterns couple distinct components of the climate system and disparate regions of the globe, and as a result remain a challenge to simulate and to understand. This symposium aims to synthesize our current knowledge of and our ability to predict interannual-to-decadal variability. We solicit papers that elucidate the mechanisms of interannual to decadal variability and lend insight into how coupled climate interactions — atmosphere-ocean-sea ice, troposphere-stratosphere, biosphere-climate, chemistry-climate, etc. — give rise to this variability. The symposium will include sessions on important sectors of interannual-to-decadal variability: • Indian and Pacific Ocean sectors • Atlantic sector (including North America/Europe) • Southern Hemisphere (including Antarctica) • Arctic sector as well synthesis sessions providing • Perspectives on our theoretical understanding of interannual-to- decadal timescale variability. • Perspectives on climate prediction on interannual to decadal timescales via simulation with comprehensive climate models. In light of Professor Edward N. Lorenz' fundamental contributions to our understanding of nonlinear chaotic dynamics and of climate system dynamics, MOCA-09 will dedicate part of this symposium to the theme "Chaos and Nonlinearity in the Climate System" in Professor Lorenz' honour. This part of the symposium will highlight recent advances in the analysis of chaotic systems and applications to climate. It will also seek to develop new questions of theoretical interest that arise from observations and models of climate dynamics, with an emphasis on nonlinear aspects of climate, such as nonlinear feedbacks and the effect of nonlinearity on predictability.

SESSION	TITLE
J10	**Climate Sensitivity, Climate Feedbacks and Regional Responses to Global Forcing**
	Sponsoring Associations: IAMAS/IACS/IAPSO
Convenors:	**Natalia Andronova** (IAMAS), Peter Jansson (IACS), Hans W. Linderholm (IACS), Andrew J. Weaver (IAPSO)
Description:	Understanding and predicting changes in the climate system is a scientific goal for avoiding unwanted and abrupt changes. The climate sensitivity, defined as a change in the global near-surface temperature due to doubling carbon dioxide, serves as a measure of global climate change and is widely used for climate model intercomparison, for evaluation of the climate system feedbacks and for estimating economical impacts of climate change. Recent frustration of policy makers with a persistent range of uncertainties in the climate sensitivity estimates given in the sequence of the IPCC reports has questioned the usefulness of this climate change measure for policy application. As the climate sensitivity is an important milestone for understanding climate system forcings (anthropogenic and natural) and feedbacks on different spatial and temporal scales, it challenges the climate theory community to provide clear and adequate scientific information on how uncertainties in the climate sensitivity are translated into the changes on regional scales, and how information on the regional scales can be used to constrain climate sensitivity estimation. This requires a close conversation between climate modelers, observatories and stakeholders considering that human economic activity is an important driving force in evolution of the climate system. This symposium calls for papers that further advance knowledge of global and regional climate feedbacks related to the uncertainties in climate sensitivity for prediction of future climates, and that address how the climate sensitivity concept evolves along with gathering more observational and model data on the evolution of the climate system for policy applications in reducing human stress on the environment.
J11	**Climate Model Intercomparison**
	Sponsoring Associations: IAMAS/IACS/IAPSO
Convenors:	**Vladimir Kattsov** (IAMAS), Vladimir Kattsov (IACS), Neil Holbrook (IAPSO)
Invited Speakers:	René Laprise, Centre ESCER, Université du Québec à Montréal, Canada Peter Gleckler, PCMDI, Lawrence Livermore National Laboratory, USA Andreas Oschlies, Leibniz Institute of Marine Science (IFM-GEOMAR), University of Kiel, Germany
Description:	The ability of a model to accurately simulate observations is a critical test of model integrity, performance and potential predictive skill. This is one important method of model evaluation. Within the climate modelling community, model intercomparison has also proved to be a very valuable method of model evaluation, and is evidenced by many successful model intercomparison projects that have been developed since the late 1980s [see http://www.clivar.org/organization/wgcm/projects.php]. This symposium invites papers from any climate model intercomparison discipline (and not necessarily only from participants of the various listed international programs), examining the nature and causes of output differences among the models, addressing different verification approaches, developing metrics for objective discrimination of climate models, etc.
J12	**Regional Climate Modelling**
	Sponsoring Associations: IAMAS/IACS/IAPSO
Convenors:	**René Laprise** (IAMAS), Jens Christensen (IACS), Markus Meier (IAPSO)
Invited Speaker:	Gudfinna Adalgeirsdottir, Danish Climate Centre
Description:	Increasingly Regional Climate Models (RCMs) evolve towards Regional Earth System Models, coupling interactively the atmospheric, oceanic and land components. Contributions are invited on model development including the coupling of components of the climate system, such as regional ocean and sea ice, marine and terrestrial ecosystems, and biogeochemical cycles. Contributions are also invited reporting on coordinated model intercomparison projects, including time-slice simulations performed with global Atmospheric General Circulations Models of uniform high resolution or variable resolution and with nested limited-area Regional Climate Models. Contributions reporting on methodological and validation issues, assessment of the skill and added value for current climate simulations and projections of climate changes are particularly welcome.

SESSION	TITLE
J13	**Biogeochemistry and Climate** **Sponsoring Associations: IAPSO/IACS/IAMAS**
Convenors:	**Denise Smythe-Wright** (IAPSO), Leif Anderson (IAPSO), John P. Burrows (IAMAS), Melissa Lafrenière (IACS)
Invited Speakers:	Martin Heimann, Max Plank Institute, Jena, Germany Douglas Wallace, Leibniz-Institut für Meereswissenschaften, Kiel, Germany Julie LaRoche, Leibniz-Institut für Meereswissenschaften, Kiel, Germany
Description:	Global climate change is being driven by anthropogenic modification of the atmospheric composition primarily by the release of long lived greenhouse gases by the combustion of fossil fuels but also by the generation of short lived greenhouse constituents, resulting from air pollution and changes in land usage. However the response of the terrestrial and oceanic biospheres to climate change is highly non linear and inadequately understood. Measurements of atmospheric composition provide an early warning of the likely changes and Climate chemistry models are being developed to provide accurate prediction of change. Ocean observations have revealed a warmer and less alkaline ocean during the last decades and models tell us that this trend will likely continue and that the ocean will become stormier and less nutrient rich by the end of this century. How this will impact upon ocean biogeochemistry and its interaction with the atmosphere is unclear. Current research is addressing these important themes as we enter the next phase of the anthropocene. This symposium will focus on all aspects biogeochemistry and including climate and ecosystem model development. We particularly welcome contributions on carbon dioxide, methane and nitrous oxide measurements and their regional and global trends, carbon dioxide uptake, ocean acidification, carbon export, eutrophication/nutrient depletion, impacts of dust deposition due to storms and trace constituent measurements and the fluxes of short lived precursors.
J14	**Ocean-Ice-Atmosphere Boundary Layers and Interactions** **Sponsoring Associations: IACS/IAMAS/IAPSO**
Convenors:	**Günther Heinemann** (IACS), Donald K. Perovich (IAPSO), Ian Renfrew (IAMAS)
Invited Speakers:	Jörg Hartmann, Alfred-Wegener-Institute for Polar and Marine Research, Bremerhaven, Germany William Neff, NOAA/OAR, USA David Bromwich, Bird Polar research Center, USA
Description:	In polar regions, boundary layers and their interaction with the surface can be studied under unique conditions. Investigations can be performed for a variety of boundary layer phenomena, such as thermal internal boundary layers, katabatic winds, stable and strong convective boundary layers under near-ideal conditions. In addition, the feedbacks between the atmosphere and the surface, such as snow physics processes, polynya formation processes, sea ice production and bottom water formation represent key processes for the polar climate system. The representation of these processes is a major challenge for current weather and climate models.This symposium wants to bring together researchers working in the areas of high-latitude boundary layer processes and related sea ice, ocean and snow processes. Contributions are welcome dealing with observational studies, studies using numerical models (including parameterizations and verification), and studies of chemical processes, particularly under the aspect of climate change.

SESSION	TITLE
J15	**High Latitude Terrestrial Processes, Hydrology, and Interactions with the Atmosphere**
	Sponsoring Associations: IACS/IAMAS
Convenors:	**John Pomeroy** (IACS/IAHS), Richard Essery (IAMAS)
Description:	In high latitudes, the state of the land surface snow, ice and water resources are strongly controlled by complex interactive processes that govern exchange between the climate, snow, lake ice, permafrost and hydrology. These processes are subject to intense investigation as part of the International Polar Year studies of freshwater supply and cold regions processes. Interactions such as those processes mediating climate, snow accumulation, snowmelt, sublimation, soil moisture, soil thermodynamics, evaporation, and vegetation are of particular interest. In order to consider future changes in hydrology and water resources due to anthropogenic climate change it is necessary to understand these processes. However, the nature of these interactions, and our ability to model the relevant processes, are currently very limited. It is expected that both natural climate variability and anthropogenic climate change will result in significant changes to the state of high latitude cryosphere and hydrology, however, due to the complex processes and their cumulative effects it is difficult to predict with confidence what direction and with what celerity these changes will occur. Contributions are be solicited on, but not limited to, the following: the the interactions between surface, snow and atmospheric processes in high latitudes, • snow processes and hydrology, • the effects of changing Arctic vegetation on land surface processes, snow, hydrology and the atmosphere, • the effects of climate change on high latitude hydrometeorological processes, • the ability of existing hydrological and land-surface models to consider the complex interactions between land, snow, ice, hydrology and atmospheres, and the ability of these models to consider the impact of climate change on high latitude hydrological systems.
J16	**Remote Sensing – Use of Products in Cryospheric, Atmospheric and Oceanographic Investigations**
	Sponsoring Associations: IACS/IAMAS/IAPSO
Convenors:	**Christian Haas** (IACS), Stella Melo (IAMAS), Christian Haas (IAPSO)
Invited Speakers:	Roger DeAbreu, Canadian Ice Service, Ottawa, Canada C. T. McElroy, Environment Canada Ted Scambos, National Snow and Ice Data Center, Boulder, Colorado, USA Roger Marchand, Joint Institute for the Study of Atmosphere and Ocean, University of Washington, USA
Description:	The cryosphere, atmosphere, and oceans are key elements of the global climate system, and show strong evidence of the present rapid climate change. Satellite data play an important role in their observation, as they provide global measurements with high temporal sampling. We invite presentations demonstrating the potential and power of satellite data for observations and modelling of recent, climate-related changes in the cryosphere, atmosphere, and oceans.
J17	**Monsoon Observations, Modelling and Prediction**
	Sponsoring Associations: IAMAS/IAPSO
Convenors:	**Takehiko Satomura** (IAMAS), Jianping Li (IAMAS), Jay McCreary (IAPSO)
Invited Speakers:	Peter Webster, Georgia Institute of Technology, USA Gabriel. A. Vecchi, Geophysical Fluid Dynamics Laboratory, USA Swadhin Behera, Japan Agency for Marine-Earth Science and Technology Dong Xiao Wang, South China Sea Institute, China

SESSION	TITLE
Description:	The scientific importance of the monsoons cannot be overemphasized. They impact climate, both regionally and globally, and interact with the El Niño-Southern Oscillation (ENSO) and Indian Ocean Dipole (IOD) modes of climate variability. They involve complex multi-scale interactions among the Earth's atmosphere, ocean, land surface, cryosphere, and biosphere, including human activities (land use/cover, atmospheric composition, aerosols, etc.). Furthermore, the economies of many countries in monsoon regions are strongly impacted by monsoon-related droughts and floods. Future change in the monsoon climate is also of the greatest concern to the world economy and to sustainable development. A number of monsoon experiments have been carried out recently to understand monsoon physics. They include the SCSMEX, GAME, NAME, MESA, AMMA, projects, which have been carried out or are currently underway. In addition, the Asian Monsoon Years (AMY 2007-2012) and International Monsoon Study (IMS, 2008-2012) are new WCRP initiatives to study the monsoon, and their first intensified observation periods (IOPs) will have just finished by the time of the Montréal 2009 Joint Assembly. Therefore, this joint symposium provides an excellent opportunity for scientists to present new outcomes on interactive monsoon systems from the most recent experiments. The symposium will be focused on the following topics: • The effects of interactions among atmosphere, ocean, land surface, cryosphere, and biosphere, including human activities, on monsoons • The characteristics and mechanisms of monsoon variability at different time scales, and monsoon predictability and prediction • Initial results from the IOPs of IMY and AMY and the latest advances from SCSMEX, GAME, NAME, MESA and AMMA • Other monsoon related topics are also welcome. Observational, modelling and theoretical studies are all encouraged.
J18	**Natural Hazards (Atmosphere, Ocean and Ice)** **Sponsoring Associations: IAMAS/IACS/IAPSO**
Convenors:	**Uwe Ulbrich** (IAMAS), Jean Palutikov (IAMAS), Andreas Kääb (IACS), Richard E. Thomson (IAPSO)
Description:	Understanding and forewarning of natural hazards are among the most important challenges facing the world community. Hazards associated with natural causes can have major impacts on human health, economy and political stability. This session will examine natural hazards originating from processes in the atmosphere, ocean and cryosphere, including those generated on land (e.g. coastal and hydrological hazards), the seafloor, and in the biospheres. The session will provide an understanding of the spatial and temporal conditions that lead to hazard occurrence, and the assessment of risk under past, present and future climate conditions. Presentations exploring hazard predictability and long-term forecasting are invited, as are those directed toward hazard severity and resulting impacts on natural and human systems, such as security and the economy. While contributions should have a natural sciences perspective, submissions dealing with interdisciplinary work are strongly encouraged. The session will also consider early warning and adaptation strategies that emerge from the natural sciences, including those that deal with climate change. Studies are sought which investigate hazards due to extreme climatic events as well as those that arise from combinations of natural factors that eventually lead to serious consequences despite the absence of parametric extremes. Presentations that examine damage producing mechanisms, or associated damage augmentation factors like duration and preconditioning, are also welcome.
J19	**Tropical Cyclones** **Sponsoring Associations: IAMAS/IAPSO**
Convenors:	**Roger K. Smith** (IAMAS), Michael Montgomery (IAMAS), Fumin Ren (IAMAS), Liguang Wu (IAPSO)
Invited Speakers:	Noel Davidson, Bureau of Meteorology, Melbourne, Australia Tom Knutson, Geophysical Fluid Dynamics Laboratory, New Jersey, USA Michael T. Montgomery, Naval Postgraduate School, California, USA Lynn K. (Nick) Shay, University of Miami, Florida, USA Chun-Chieh Wu, National Taiwan University, Taipei, Taiwan
Description:	Tropical cyclones are the most destructive weather systems on the planet and are awe-inspiring coherent vortex structures. We do not yet fully understand the processes that determine their development and movement to the extent that their properties can be forecasted with precision over a time scale of several days. Research papers are solicited on all aspects of tropical cyclones, especially those concerned with the fundamental dynamical and thermodynamical processes involved as well as the genesis, intensification, movement, and impacts. Papers are especially encouraged on the processes concerned with changes of tropical cyclone activity in a warming climate.

SESSION	TITLE
J20	**Atmospheres and Ices of Terrestrial Planets** **Sponsoring Associations: IAMAS/IACS**
Convenors:	**Dimitri Titov** (IAMAS), Athéna Coustenis (IAMAS), Ralf Greve (IACS), Kathryn E. Fishbaugh (IACS), Christine Schott Hvidberg (IACS)
Invited Speakers:	R. Orosei, IFSI, Rome, Italy H. Vali, McGill University, Canada Ernst Hauber, DLR-Institute of Planetary Research, Berlin, Germany David Grinspoon, Denver Museum of Nature & Science, USA
Description:	Papers are invited on the physics and chemistry of the lower, middle and upper atmosphere, ionosphere and surface ices of the inner planets and comets. Comparative studies of the atmospheres of Venus, Earth and Mars, as well as the ices on Earth and Mars, are also invited, with emphasis on the differences and similarities in their climates. Results from recent missions to Mars, Venus and the terrestrial planets in general are of particular interest. Reports on improvements in general circulation models of the thermosphere and lower atmospheres of the planets, coupled atmosphere/cryosphere models and descriptions of future planetary missions are also invited, as well as advances in laboratory experiments.
J21	**Advances in Data Assimilation for Earth System Science** **Sponsoring Associations: IAMAS/IACS/APSO**
Convenors:	**Richard Swinbank** (IAMAS), Mu Mu (IAMAS), William Lahoz (IAMAS), Andrew Roberts (IACS), Paola Malanotte-Rizzoli (IAPSO)
Invited Speakers:	Laurent Bertino, NERSC, Norway Hendrik Elbern, Universität zu Köln, Germany Pierre Gauthier, Université du Québec à Montréal (UQAM), Canada Eugenia Kalnay, University of Maryland, USA Pierre Lermusiaux, Massachusetts Institute of Technology, USA Zhiyong Meng, Peking University, China Saroja Polavarapu, Environment Canada, Canada Mark Buehner, Environment Canada, Canada
Description:	Data Assimilation is a key technique in Earth Science, allowing the exploitation of the vast quantity of measurements of the Earth System. Data assimilation can organise the wealth of data from both satellite and in situ platforms to analyse the current and past state of the atmosphere, ocean and cryosphere and form the basis of improved forecasts from the meso to the global scale. The session will bring together scientists working across a broad range of subject areas; particular topics will include: • advanced assimilation methods, including variational and ensemble-based approaches; • improved use of observations: adaptive observing methods, calculation of observation sensitivities, observing system experiments and observing system simulation experiments, and validation metrics; • assimilation of data from new satellite instruments, such as COSMIC, CloudSat, IASI, OCO and ADM Aeolus; • applications to weather and climate prediction, oceanography, mesoscale and cloud-scale processes, atmospheric chemistry, the middle atmosphere and the cryosphere.

IACS Symposia

SESSION	TITLE
C01	**Understanding Cryospheric Change in Canada**
Convenors:	**Greg Flato**
Invited Speakers:	Brian Menounos, University of Northern British Columbia, Canada Claude Duguay, University of Waterloo, Canada Terry Prowse, Environment Canada and University of Victoria, Canada Diane Lavoie, Department of Fisheries and Oceans, Canada Christian Haas, University of Alberta, Canada Derek Mueller, Trent University, Canada Toni Lewkowicz, University of Ottawa, Canada Humfrey Melling, Department of Fisheries and Oceans, Canada Valentina Radic, University of British Columbia, Canada David Burgess, Natural Resources Canada, Canada Stephanie Pfirman, Barnard College, USA Gregory Flato, University of Victoria, Canada
Description:	This symposium will provide a synthesis of current understanding of the drivers, processes and feedbacks involved in cryospheric variability and change in Canada. It will be comprised of a series of invited overview presentations addressing the main cryospheric components (snow, sea-ice, fresh-water ice, glaciers and permafrost) along with the connections between these components and the ecosystem. The presentations will provide an overview of the current state of the science, outlining key processes, recent research results, and critical knowledge gaps. The session will also aim to include a presentation on the connections between the cryosphere and northern residents.
C02	**Mountain and Forest Snow Cover: Climatology, Interactions and Processes**
Convenors:	**Christoph Marty,** Peter Beni, Richard Essery
Invited Speakers:	Danny Marks, USDA Agricultural Research Service, Boise, USA Steven Ghan, Pacific Northwest National Laboratory, USA
Description:	The unique physical properties of snow have a profound and rapidly varying influence on the seasonal snow cover in mountain and forest areas. Heterogeneity by vegetation canopies and the complexity of alpine landscapes interact with present challenges for both monitoring and modelling of snow in many areas where the snow cover is an important phenomenon of the natural environment. The amount of snow in alpine and forest areas is also key factor for winter tourism. Its quantification, trend and modelling in a changing climate are thus important for ecological and economical assessments. Models of snow processes are required for a wide range of applications in hydrological forecasting, avalanche risk assessment and climate modelling. The scientific background of this session is defined by the role of alpine snow as a water resource and touristic necessity and its interaction with mountain forest as an important part of the landscape and protection from snow avalanches. The session will focus on monitoring, processes and modelling of spatial and temporal variations in the accumulation and melting of alpine- and forest snow cover.
C03	**Snow and Ice Mechanics and Microstructure**
Convenors:	**Ilka Hamann,** Thomas Kämpfer
Invited Speakers:	Takeo Hondoh, Hokkaido University, Japan Ian Baker, Dartmouth College, USA Jacques Meyssonnier, Laboratoire de Glaciologie et de Géophysique de l'Environnement, CNRS, France Jo Jacka, Australian Antarctic Division
Description:	Precise knowledge of the mechanics of ice and snow is essential for the correct understanding of the geomorphological processes taking place in cold regions. Such processes have not only geophysical, but also climatic and social consequences that range from local to global scale. The mechanical properties of snow, firn and ice are direct macroscopic manifestations of their microstructures. These consist not only of polycrystalline properties, like dislocations, inclusions, grain boundaries and lattice orientations, but also of the geometric and topological properties of the pore space of granular snow and porous firn. As an additional complication, the continual creep and the high homologous temperatures typically found in natural snow and ice give rise to complex metamorphism and recrystallization processes that unceasingly modify their microstructures. The objectives of this session are to address how the microstructures of snow, firm and ice evolve, how they affect the mechanical properties of snow and ice, and how they interact with the environment on local and global scales. Especially welcome are contributions covering the most diverse aspects of modelling, experiments and field observations of snow and ice mechanical and microstructural processes, as well as their geophysical, climatic and social consequences.

SESSION	TITLE
C04	**Changes in Glaciers in Different Climate Regimes**
Convenors:	**Liss Andreassen,** Bruce Raup
Invited Speakers:	Graham Cogley, Trent University, Canada Andreas Kääb, University of Oslo, Norway
Description:	The mass balance of glaciers is determined by the relative amounts of snow accumulation and ablation, and is therefore sensitive to changes in these climatic variables. Over the last several decades, glaciers have changed dramatically, contributing to sea level rise. Coordinated international programmes such as the Global Land Ice Measurements from Space (GLIMS) initiative are now delivering information on glacier variations from many new regions. Results from the International Polar Year (IPY) are also beginning to emerge. This session is an opportunity to bring together the latest observations of glaciers and ice caps in different climate regimes from around the world and to compare these observations with modelling studies. We welcome regional studies of recently observed changes of individual glaciers or ice caps, dynamic processes affecting mass balance, as well as theoretical studies on modelling of glacier mass balance. Presentations addressing the current state of glaciers and the contribution to runoff and sea level rise are especially encouraged.
C05	**Changes in Continental Snow Cover, Lake and River Ice**
Convenors:	**Claude Duguay,** Allan Frei
Invited Speakers:	Terry Prowse, Environment Canada and University of Victoria, Canada David Robinson, Rutgers University, USA Jia Wang, NOAA Great Lakes Environmental Research Lab, USA
Description:	Snow and freshwater ice are sensitive indicators of climate variability and change, as well as drivers of climate variability due to their feedback on the surface energy budget. Changes in snow cover melt dates, timing of maximum snow depth, lake and river ice phenology (freeze-up, break-up and duration) and maximum ice thickness have been documented for many regions of the Northern Hemisphere during the latter part of the 20th century. Recent observations and projections from climate models indicate that further significant changes are to take place during the 21st century. This session will accept contributions focusing on the response of terrestrial snow cover and freshwater ice to climate variability, including atmospheric circulation patterns, and climate change (past, contemporary, and future projected conditions) from regional to hemispherical scales. The session will also provide an avenue to present papers dealing with the status of snow/freshwater ice observing networks around the world and strategies for improving observational networks, including the use of satellite remote sensing and numerical models.
C06	This symposium has been cancelled and all papers submitted to it have been distributed to other appropriate symposia

IAMAS Symposia

SESSION	TITLE
M01	**Middle Atmosphere Science**
	Responsible commission: ICMA
Convenors:	**Shigeo Yoden,** Gregory Bodeker, Daniel Marsh, Charles McLandress, Ross Salawitch
Invited Speakers:	Theodore Shepherd, University of Toronto, Canada Joan Alexander, NorthWest Research Associates, USA Rolando Garcia, National Center for Atmospheric Research, USA Kaoru Sato, University of Tokyo, Japan Saroja Polavarapu, Environment Canada, Canada Elisa Manzini, Centro Euro-Mediterraneo per i Cambiamenti Climatici, Italy Kaley Walker, University of Toronto, Canada Markus Rex, Alfred Wegener Institute, Germany Marc von Hobe, Forschungszentrum, Jülich, Germany
Description:	Papers related to any aspect of the dynamics, chemistry, or physics of the atmosphere from near the tropopause to the lower thermosphere are appropriate for this session. Observational, modeling, theoretical, and laboratory studies are all solicited. Research topics include (but are not limited to): multiple-scale dynamics and mixing, observations and modeling of gravity waves, stratospheric chemistry and ozone, vertical coupling in the polar regions, microphysics, chemistry and dynamics in the TTL or the extratropical UTLS, tropical/extratropical interactions, and intraseasonal and interannual variations in the middle atmosphere. We specially invite new results that will provide new insights into the science of the middle atmosphere.
M02	**Climate Processes in the Upper Troposphere and Stratosphere**
	Responsible commission/program: ICMA/SPARC
Convenors:	**Laura Pan,** Martin Dameris, Piers Forster
Invited Speakers:	Neal Butchart, Meteorological Office, UK Paul Konopka, FZJ, Germany Bill Randel, NCAR, USA Lesley Gray, University of Reading, UK Greg Bodeker, National Institute of Water and Atmospheric Research, New Zealand Karen Rosenlof, NOAA, USA Ian Folkins, Dalhousie University, Canada
Description:	Dynamical, chemical and radiative processes in the upper troposphere and stratosphere play an important role in the Earth's climate system. Trends in the thermal and dynamical structure and the chemical composition of this region are key indicators of climate change. In this session, we invite papers on recent progress in observational, theoretical and modeling studies of stratospheric/upper tropospheric processes. Topics include but are not limited to: • changes in the Brewer-Dobson circulation and its effect on temperature, ozone and water vapour concentrations near the tropopause and in the stratosphere • the two-way exchange between stratosphere and troposphere • temperature trends in the upper troposphere and lower stratosphere • understanding ozone trends and the dynamical and chemical processes that control ozone recovery, • stratospheric water vapour trends and dehydration in the tropical tropopause layer

SESSION	TITLE
M03	**The Impact of Solar Variability on Earth**
	Responsible commissions/association/program: ICMA, IRC, IAGA, SPARC
Convenors:	**Ulrike Langematz,** Victor Fomichev, Joanna D. Haigh, Lon L. Hood, Alexei Krivolustsky, Werner Schmutz, Tom Woods
Invited Speakers:	Greg Kopp, Laboratory for Atmospheric and Space Physics, Boulder, U.S.A. Wolfgang Finsterle, Physikalisch-Meteorologisches Observatorium Davos (PMOD), Switzerland Gerard Thuillier, CNRS-SA, France Yvonne Unruh, Imperial College, U.K. Bernd Funke, Instituto de Astrofisica de Andalucia, Spain Kirill Semeniuk, York University, Canada Hauke Schmidt, Max-Planck-Institute for Meteorology, Germany Lesley Gray, Reading University, U.K. Katja Matthes, Freie Universität Berlin, Germany Kunihiko Kodera, Nagoya University, Japan Warren White, University of California, San Diego, U.S.A. David Rind, NASA GISS, USA Ulrich Cubasch, Freie Universität Berlin, Germany Raimund Muscheler, Lund University, Sweden
Description:	The session will address all aspects of the impact of solar variations on the Earth's atmosphere and oceans. These include: • the response to variations in total and spectral electromagnetic radiation • the response of the atmosphere to energetic particles precipitating from the space • the identification of mechanisms and interactions leading to indirect solar effects • the impact of solar activity on tropospheric meteorological processes and climate. The symposium invites contributions on identifying the solar signal from ground-based and satellite observational datasets ranging from the upper atmosphere (thermosphere, mesosphere) to the troposphere, the Earth's surface and the oceans. Papers on the solar irradiance and particle flux on Earth are welcome as well as contributions on physical and chemical processes and mechanisms leading to the observed solar signal. Simulations with mechanistic, general circulation and chemistry climate models are especially encouraged. Studies may include solar variations on different time scales ranging from the 27-day rotation period over the 11-year solar cycle to centennial and millennial variations including the Maunder Minimum.
M04	**Solar UV Radiation**
	Responsible commission: IRC
Convenors:	**Peter Köpke,** Mario Blumthaler, Nataly Chubarova
Invited Speakers:	Ann Webb, University of Manchester, U.K. Tom McElroy, Environment Canada
Description:	This symposium invites papers with the focus on: new methods for the determination of Solar UV radiation from ground and from space, development of UV instruments and networks; the temporal and spatial variability of solar UV (back and into the future) due to variable atmospheric conditions, and especially in the variable local human environment; effects of solar UV on men, biosphere (inclusive water) and air chemistry, also considering the diversity of biological weighting.
M05	**Stratosphere-Troposphere-Ocean Coupling in Climate - Top Down or Bottom Up?**
	Responsible commissions: ICDM/ICMA
Convenors:	**Theodore G. Shepherd,** Ulrich Cubasch, Adam Scaife
Invited Speakers:	Julie Arblaster BMRC, Australia and NCAR Stefan Brönnimann, ETH Zurich, Switzerland Isla Simpson, Imperial College, UK Judith Perlwitz, NOAA, USA Andrew Marshall, Met Office Hadley Centre, UK Doug Smith, Met Office Hadley Centre, UK Michael Sigmond, University of Toronto, Canada Kuni Kodera, University of Nagoya, Japan Katja Matthes, Free University of Berlin, Germany Noel Keenlyside, Kiel University, Germany Chiara Cagnazzo, CEMCC, Bologna, Italy

SESSION	TITLE
Description:	There is a growing body of evidence that the stratosphere actively couples to the troposphere, although the mechanisms for this coupling are only partly understood. They involve dynamical, physical and chemical processes covering a range of scales. On seasonal timescales stratosphere-troposphere models may offer extra predictive skill through inclusion of stratospheric variability and its coupling to the surface. So questions arise as to how this coupling occurs and whether the stratosphere may play an active role in seasonal prediction. On climate timescales stratosphere-troposphere coupling will involve the ocean. So the question arises whether the stratosphere may also play an active role climate prediction. Unambiguous evidence of such roles may be sought in the tropospheric and ocean response to stratospheric climate perturbations such as solar variability, ozone depletion, and volcanoes. Indirect dynamical effects through stratosphere-troposphere coupling are a major focus of this session. The question of a stratospheric role in ocean coupling in climate is particularly timely, as the past effects of ozone depletion are expected to reverse as the stratospheric ozone layer slowly recovers during the 21st century. Climate models are expected to begin to provide useful contributions to this question as chemistry-climate models encompassing the stratosphere are beginning to be coupled to ocean models. The aim of this symposium is to bring together scientists analyzing observational data, modellers trying to simulate the processes involved as realistically as possible, and theoreticians developing conceptual and mechanistic models of the interaction between stratosphere, troposphere and ocean. Contributions on all aspects of stratosphere- troposphere-ocean coupling are encouraged.
M06	**Theoretical Advances in Dynamics** **Responsible commission: ICDM**
Convenors:	**Eyal Heifetz,** Theodore G. Shepherd, Nili Harnik, Hisashi Nakamura
Invited Speakers:	Tapio Schneider, California Institute of Technology, USA Volkmar Wirth, University of Mainz, Germany Richard Scott, St. Andrews University, UK Edwin P. Gerber, New York University, USA Shigeo Yoden, University of Kyoto, Japan Sukyoung Lee, Penn State University, Adam Sobel, Columbia University, USA
Description:	This session focuses on the application of geophysical fluid dynamics theory to the understanding of the atmospheric circulation, with emphasis on synoptic to planetary scale atmospheric circulations, both in the troposphere and stratosphere. Contributions based on theoretical, diagnostic and modeling (either realistic or idealized) studies are invited on a range of topics including, but not limited to, wave and cyclone growth and evolution, eddy-mean flow interactions and possible dynamical regimes arising from it, the dynamics of storm tracks and jet streams, the dynamics of the stratospheric polar vortex, and its interaction with the troposphere.
M07	**Towards Seamless Probabilistic Forecasting** **Responsible commission: ICDM**
Convenors:	**Craig Bishop**, David Frame
Invited Speakers:	Roberto Buizza, ECMWF, Reading, UK David Frame, University of Oxford, Oxford, UK Jean-Philippe Duvel, LMD, Paris, France Pieter L. Houtekamer, Environment Canada, Dorval, Canada Clifford Mass, University of Washington, Seattle, USA Tim Palmer, ECMWF, Reading, UK Richard Swinbank, Met Office, Exeter, UK
Description:	Ensemble methods are becoming increasingly popular for both the analysis of observations and for quantifying uncertainties in forecasts for both the atmosphere and ocean. Probabilistic methods are being applied at a wide range of timescales, from forecasts a few hours ahead to prediction of climate change. This session invites contributions on all aspects of ensemble and probabilistic forecasting at all lead times and will include the following 5 topics: • probabilistic data assimilation • probabilistic short-range forecasting systems • probabilistic medium-range forecasting systems • probabilistic monthly, seasonal and climate prediction systems • applications of probabilistic forecasts

SESSION	TITLE
M08	**Dynamics and Predictability of High-impact Weather**
	Responsible commission: ICDM
Convenors:	**Istvan Szunyogh**, Richard Swinbank
Invited Speakers:	Edmund Chang, Stony Brook University, USA Mel Shapiro, CIRES/NOAA University of Colorado and National Center for Atmospheric Research, Boulder, USA Yucheng Song, Plurality/EMC/NCEP/NOAA, USA Patrick Harr, Naval Postgraduate School, USA Huw C. Davies, Institute for Atmospheric & Climate Science, Switzerland
Description:	This symposium invites papers on all aspects of the dynamics of severe weather events on synoptic scales and smaller, and their predictability on one-day to sub-seasonal timescales. THORPEX is an international research programme to improve the prediction of high-impact weather on short- to medium-range timescales. While this session is not exclusively focused on THORPEX, all studies that relate to the THORPEX programme will be appropriate for this symposium. Studies based on THORPEX field campaigns such as the THORPEX Pacific Asian Regional Campaign (T-PARC, 2008), Tropical Cyclone Structure 08 (TCS08) and the European THORPEX Regional Campaign (E-TReC, 2007) will be particularly welcome.
M09	**Topographic Effects on Weather and Climate**
	Responsible commission: ICDM
Convenors:	**Ronald B. Smith,** Kenneth S. Gage, Zhe-min Tan
Invited Speaker:	Akiyo Yatagai, Research Institute for Humanity & Nature, Japan Kenichi Ueno, University of Tsukuba, Japan Jon Egill Kristjansson, University of Oslo, Norway Sylvain Mailler, CNRS - Laboratoire de Météorologie Dynamique, France Hanna Joos, ETH Zurich, Switzerland
Description:	This symposium invites contributions based on observational (including diagnostic), theoretical and numerical studies of the Earth's topography on atmospheric circulation, weather and climate. Topics of relevance include: boundary layer flows over hills, generation of waves and turbulence by flow over complex terrain, variability of dynamical fields over complex terrain, spatial and temporal distribution of mountain induced rainfall, mesoscale orographic impacts revealed by observations, vortex and cyclogenesis associated with orography and their weather impacts, mechanical and thermal forcing of large-scale orography and their regional and global climate effects.
M10	**Tropical Waves & Circulations and Tropical-midlatitude Interactions**
	Responsible commission: ICDM
Convenors:	**Brian Mapes,** Richard Grotjahn, Michael Blackburn
Invited Speakers:	Brian Hoskins, Imperial College and Reading University, UK George Kiladis, Earth System Research Laboratory, NOAA, USA Hisashi Nakamura, University of Tokyo, Japan Hartmut Borth, University of Hamburg, Germany
Description:	This symposium invites contributions regarding convectively-coupled tropical waves and tropical circulations. Contributions on the diverse linkages between the tropics, subtropics and midlatitudes are also invited. We seek to advance and connect understanding in these areas by bringing together diagnostic, theoretical, idealised and realistic simulation, prediction and model intercomparison approaches. Topics include the dynamics of equatorial waves and organized tropical convection, tropical intraseasonal variability including phenomena such the Madden-Julian Oscillation, and large-scale tropical circulations including responses to surface anomalies. Contributions on lateral influences and impacts, scale interactions and predictability, and the subtropical highs and other subtropical weather systems are also welcomed.
M11	**Dynamical Implications of Aerosol-Cloud-Climate Interactions**
	Responsible commissions: ICDM /ICCP
Convenors:	**Wojciech Grabowski,** Johannes Quaas
Invited Speakers:	Robert Wood, University of Washington, USA Teruyuki Nakajima, CCSR/University of Tokyo, Japan Barnaby Love, University of East Anglia, UK

SESSION	TITLE
Description:	Aerosol-cloud-climate interactions take place on a wide range of spatial scales, from the cloud microscale to the atmospheric general circulation. Changes of atmospheric aerosols affect cloud microphysical process and these changes feed back on small- and mesoscale processes. In turn, changes of the latent heating on the mesoscale affect the larger-scale circulations and thus meteorological conditions in which subsequent clouds develop. These complex multiscale interactions are poorly understood yet their net result has a critical impact on the Earth climate in general, and on the indirect aerosol effects in particular. The purpose of this session is to review progress in the area of aerosol-cloud-climate interactions across all relevant scales and with the emphasis on dynamical processes, from the process-level understanding, through feedbacks in cloud ensembles, up to large-scale effects that can be represented in climate models. We encourage submission of papers that use observations and/or modeling to distinguish between changes in cloud fields due to changes in aerosols and changes due to different meteorological conditions. On the modeling side, we are interested in papers addressing aerosol effects on ensembles of clouds, rather than on individual clouds. We also encourage papers demonstrating interactions between microphysics and multiscale dynamics in cloud-resolving large-domain and global simulations, where the interactions between cloud-scale and large-scale process can be studied with significantly better confidence.
M12	**Relations Between Aerosols and Ice Formation in Clouds: Measurements and Modelling** **Responsible commission: ICCP**
Convenors:	**Paul J. DeMott,** Ottmar Möhler
Invited Speakers:	Allan Bertram, University of British Columbia, Canada Joachim Curtius, Goethe-University Frankfurt, Germany Andrew Heymsfield, National Center for Atmospheric Research, USA Ulrike Lohmann, ETH-Zurich, Switzerland
Description:	Understanding and predicting initiation of ice in clouds and its potential relation to the changing state of atmospheric composition remain as enigmatic topics. Yet such knowledge and capabilities are critical to ultimately understanding and quantifying the role of aerosols and clouds in affecting weather and climate. Many approaches advance knowledge in this area including theoretical studies, experimental measurements (laboratory, ground-based, aircraft, satellite), cloud and climate model simulations, and combinations thereof. This session welcomes papers touching on all aspects of this study area including theoretical developments, laboratory and atmospheric measurements of ice nuclei concentrations and ice nucleation mechanisms (homogeneous or heterogeneous), physical and chemical identification of various types of aerosols as primary ice nuclei, description of new techniques for measuring ice nuclei or ice crystal concentrations, cloud measurements providing insights into primary or secondary ice formation processes, direct or indirect comparisons of ice nuclei and ice formation in clouds, studies (laboratory, field and satellite) of aerosol-ice cloud and aerosol-mixed phase cloud interactions, parameterization of ice formation, and modeling studies of ice formation and its implications at all model scales (parcel to global).
M13	**Aerosol-Cloud-Radiation-Precipitation Interactions** **Responsible commissions: IRC, ICCP, ICACGP**
Convenors:	**Ulrike Lohmann,** George A. Isaac, Guang-Yu Shi, Teruyuki Nakajima
Invited Speakers:	Joyce Penner, University of Michigan, USA Zev Levin, Tel Aviv University, Israel Howard Barker, Environment Canada
Description:	Clouds exert major influences on both shortwave and longwave radiation as well as on the hydrological cycle. Small changes in the amount, altitude, physical thickness, and/or microphysical properties of clouds due to human influences can exert changes in Earth's radiation budget that either partly offset or enhance warming due to anthropogenic greenhouse gases. Because clouds form on aerosol particles, changes in the amount and/or composition of aerosols affect clouds in a variety of ways. The forcing of the radiation balance and the hydrological cycle due to aerosol-cloud interactions has large uncertainties because a variety of important processes are not well understood. Thus, this symposium will investigate the full interaction among aerosol-cloud-radiation-precipitation processes, which have started to draw a great attention from various communities of radiation, chemistry, clouds and climate modeling. The symposium will highlight various interaction processes important for understanding the earth's climate formation. Specifically, we invite papers on recent progress in observational, theoretical and modeling studies discussing aerosol direct and indirect radiative effects, interactions of aerosols with warm, mixed-phase and ice clouds and the hydrological cycle, and cloud microphysical, cloud dynamics and cloud radiative processes.

SESSION	TITLE
M14	**3D Radiative Transfer in the Atmosphere**
	Responsible commission: IRC
Convenors:	**Robert F. Cahalan,** Bernhard Mayer
Invited Speaker:	Tamas Varnai, University of Maryland, USA Jean-Luc Widlowski, Joint Research Centre of the European Commission, Italy
Description:	We invite papers on modeling and observations involving three-dimensional (3D) radiative transfer (RT) applications to the Earth's atmosphere and surface (vegetation, land and sea ice). We are interested in aspects of solar ultraviolet (UV) radiation (e.g. actinic flux; irradiance on horizontal and tilted receivers including biological ones); visible and near-infared radiation with applications to solar radiative transfer and remote sensing; and 3D effects due to variations in thermal absorption and emissivity. We expect methods for identifying errors and limits of various RT methods, and highlighting 3D effects characteristic of UV, Vis-NIR, and thermal RT. We strongly encourage papers on new approaches explicitly considering 3D radiative effects.
M15	**Atmospheric Composition Change: Air Pollution in the Global Environment**
	Responsible commission: ICACGP
Convenors:	**Maria Kanakidou,** David Edwards, John Burrows, Kimitaka Kawamura, Young J. Kim
Invited Speakers:	Tong Zhu, Peking University, China Jos Lelieveld, Max Planck Institute for Chemistry, Mainz, Germany and The Cyprus Institute,Cyprus Yugo Kanaya, Frontier Research Center for Global Change, Yokohama, Japan
Description:	The symposium will investigate the tropospheric composition, how this is altered by human activities and the natural variability of the environment and the impact of these changes on air quality and climate. The symposium invites presentations on new findings on emissions, transport and transformation of pollutants in the troposphere that highlight the relations between induced forces and impacts to the environment. Attention will be given to the interactions between natural and anthropogenic substances, element cycles as well as gaseous and particulate phases in the troposphere. There are many major international projects related to these topics like AC&C (IGAC/SPARC), T&TP in ACCENT, the Megacities-Asia subproject of IGAC (and the two new EU FP7 projects MEGAPOLI and CITYZEN), from which we especially welcome contributions. The symposium welcomes laboratory, field, remote sensing and modelling investigations as well as integration of observations and modelling. Specific topics of interest are outlined: • Emissions (emission inventories, emission factors, gases and aerosols, inverse modelling, constrains). • Atmospheric transport and transformation of pollutants, including aerosols. • Oxidizing capacity in the troposphere (daytime/nighttime chemistry, free radicals, organics, missing reactivity, halogen chemistry). • Chemistry at the interfaces (ice/ snow/ aerosols/precipitation) • Role of Megacities and other 'hot spot' areas on regional air quality and climate. • Observing atmospheric composition change, including remote sensing and state of the art observations
M16	**Thunderstorms and their Manifestation on Local, Regional and Global Scales**
	Responsible commission: ICAE
Convenors:	**Earle Williams,** Serge Soula, Colin Price
Invited Speakers:	Joseph R. Dwyer, Florida Institute of Technology, USA Zen Kawasaki, Osaka University, Japan
Description:	New developments in the observation of thunderstorms span the electromagnetic spectrum: In the X-ray and gamma ray domain (for detection of energetic radiation presumed to be caused by runaway electrons in thunderstorm fields), in the VHF domain (for detailed lightning structure and comparison with radar and in situ measurements of storms), in the VLF region (for regional lightning studies over land and over ocean, including hurricanes), and in the ELF region (for studies of the global circuit and the extraordinary lightning flashes that produce sprites, elves and haloes in the mesosphere). These new observations have all spurred an integration of activity in atmospheric electricity over many scales. In this symposium, we invite papers covering the following topics: • Observational, theoretical and modeling studies on the relationship between storm morphology and the electrical activity both within and above storms, including sprites, elves and haloes • Operational application of lightning data for weather forecasting and climate monitoring • Impact of lightning on climate, lightning's response to climate change, and atmospheric chemistry. • The global electrical circuit and the Earth's Schumann resonances • Energetic radiation from lightning and thunderstorms • All other related subjects in atmospheric electricity.

SESSION	TITLE
M17	**Lightning: Characteristics, Physics, and Hazard Mitigation**
	Responsible commission: ICAE
Convenors:	**Vladimir Rakov,** Christian Bouquegneau, Daohong Wang
Invited Speakers:	Osmar Pinto, INPE - National Institute for Space Research, Brazil. Nick Demetriades, Vaisala, USA Farhad Rachidi, Swiss Federal Institute of Technology (EPFL), Lausanne, Switzerland Weitao Lu, Chinese Academy of Meteorological Sciences, Beijing, China Yang Zhao, Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences, Lanzhou, China
Description:	Lightning can be defined as a transient, high-current (typically tens of kilo-amperes) electric discharge whose length is measured in kilometers. It represents a serious hazard to human life, as well as to various objects and systems. The scope of the symposium includes the following topics: Properties of different types of lightning discharges, lightning models, various effects of lightning discharges, basic theory of lightning protection and warning systems, evaluation of lightning risk and risk management. One of the objectives of this symposium is to facilitate interaction between lightning researchers and those concerned with mitigation of lightning effects.
M18	**Comparative Atmospheres of the Giant Planets and their Satellites**
	Responsible commission: ICPAE
Convenors:	**Athéna Coustenis,** Darrell F. Strobel, Hojatollah Vali
Invited Speakers:	P. Lavvas, University of Arizona, USA M. Flasar, NASA/GSFC, Greenbelt, USA Kevin Hand, Jet Propulsion Laboratory, Padadena, USA Darrell Strobel, Johns Hopkins University, USA Sushil Atreya, University of Michigan, USA Orton Glenn, California Institute Of Technology, USA
Description:	Papers are invited which report progress on all aspects of our current understanding of the evolution of atmospheres of the outer planets, their moons and their interactions with their environment (rings, magnetosphere, surfaces). The emphasis will be on insights gained from recent space missions, including Cassini-Huygens and Earth-orbiting satellites. Contributions describing the atmosphere-related objectives of the relevant missions, analysis of observations, and the results of model simulations of atmospheric evolution are also welcome. Research on exoplanetary atmospheres in comparison to the ones in our solar system is also of relevance. The relation of all of these aspects to the field of Astrobiology shall be put forward.

IAPSO Symposia

SESSION	TITLE
P01	**Mesoscale Ocean Eddies**
	This symposium is co-sponsored by IABO
Convenors:	**William Crawford,** Michael Stacey, Sinjae Yoo
Invited Speakers:	John Marshall, Massachusetts Institute of Technology, USA Anya Waite, University of Western Australia Bo Qiu, University of Hawaii, USA
Description:	Mesoscale eddies impact most oceanic processes, from heat, salt, momentum and biochemical fluxes to biological productivity. The present set of altimetry satellites reveal, in near-real time, the formation, propagation and decay of eddies and allow scientists to locate eddies for multi-disciplinary ship-based studies. Recent developments in eddy-resolving numerical ocean models and increasing computer power now permit detailed simulations of physical, chemical and biological processes. Atmospheric-ocean models reveal the role of winds in eddy formation and the impact of eddies on global climate. This session encourages contributions on aspects of mesoscale ocean eddies, including biological processes, to provide an opportunity for scientists to share and discover new scientific information.
P02	**Effects of Climate Variability on Nearshore Coastal Environments: Physical, Geomorphologic and Biological Interactions**
	This symposium has now been expanded to include P08
Convenors:	**Maria Cintia Piccolo,** Bo Gustafsson, Arnoldo Valle Levinson
Invited Speaker:	Robin Davidson-Arnott, University of Guelph, Canada
Description:	Coastal habitats are highly vulnerable to variability in the earth's climatic conditions. They are affected by physical factors such as sea level rise, changes in frequency and strength of storms, variations in wave and current patterns, fluctuations in salinity-temperature, and storm surges. These factors induce increased coastal erosion, habitat modifications, loss of coastal wetlands, exposure to tsunamis, etc. The vulnerability is further increased by the pressure of human migration to coastal areas. Coastal environments are affected by a very complex interaction among geomorphologic, physical and biological processes. These effects should be appreciable at the full spectrum of temporal and spatial scales of variability because of the inherently large gradients in coastal ocean variables. This symposium is organized in order to understand the role of individual processes and, most important, the interplay among them. The symposium seeks to promote discussion among active scientists in all specialities related to coastal environments. Preference will be given to studies dealing with interaction processes.
P03	**Argo and Operational Oceanography**
Convenors:	**Howard Freeland,** John Gould, Temel Oguz, Toshio Suga
Invited Speakers:	Toshio Yamagata, University of Tokyo and JAMSTEC, Japan Harold Ritchie, Environment Canada, Dartmouth NS, Canada
Description:	This full-day session will focus on the opportunities being offered by the new real-time data systems that permit research on the evolution of the oceans on a large scale, as well as the observation and assessment of ocean state for the generation of products which carry distinct social benefits. We invite papers that address the following topics: • academic exploration of the ocean environment using Argo • the use of Argo to supply useful products, and • all other fields of operational oceanography Operational Oceanography is not yet well defined, so we are interpreting it as the use of real-time data systems, such as Argo or satellite altimetry, for monitoring the health or condition of a large ocean area and for ecosystem assessment. Such data systems can also be used to enhance meteorological forecasting and the safety of navigation.
P04	**Overflows and Abyssal Currents**
Convenors:	**Gordon Swaters,** James B. Girton
Invited Speakers:	Ilker Fer, University of Bergen, Norway Sonya Legg, Princeton University, USA Jack Whitehead, Woods Hole Oceanographic Institution, USA

SESSION	TITLE
Description:	Density-driven flows over sills and grounded baroclinic currents are important components of the abyssal portion of the meridional overturning circulation. The variability associated with these flows is responsible for a significant fraction of the mixing that occurs in the deep ocean. This symposium will provide a forum for the presentation and discussion of results related to laboratory, observational, numerical and theoretical investigations of overflows and abyssal currents, from sub-mesoscale to planetary-scale dynamics.
P05	**Physics and Chemistry of the Oceans: General Topics**
Convenors:	**Eugene Morozov,** Silvia Blanc, Leo Maas, Gregorio Parrilla
Invited Speakers:	Michael J. Buckingham, Scripps Institute of Oceanography, USA Trevor McDougall, CSIRO Marine & Atmospheric Research, Australia
Description:	The symposium is planned to discuss the new results of research in physical and chemical oceanography concerning circulation, water masses and their interaction, currents, wind waves, internal waves, tides, and other phenomena in different regions of the ocean. Variability of oceanic processes on different space and time scales will be considered. The topics of the symposium include chemical distributions and interactions as well as sea ice, variations in sea level and storm surges, recent results in satellite observations of the ocean, numerical and laboratory modelling. The symposium is intended to touch upon all problems of physical and chemical oceanography not included in the themes of other symposia.
P06	**Ocean Mixing Processes and Consequences**
Convenors:	**Barry Ruddick,** Robin Muench, Anna K. Wåhlin
Invited Speakers:	Claudia Cenedese, Woods Hole Oceanographic Institution, USA James Ledwell, Woods Hole Oceanographic Institution, USA Jennifer MacKinnon, Scripps Institution of Oceanography, USA Lars Umlauf, Leibniz-Institute for Baltic Sea Research (IOW), Germany Jody Klymak, University of Victoria, Canada
Description:	Diapycnal and horizontal ocean mixing ranges from exchange processes near the surface and bottom to slower interior mixing processes, affecting ocean circulation and large-scale heat transport so important to climate. Other consequences include chemical exchanges such as nutrient transport to the photic zone (affecting biological productivity), exchanges in the coastal ocean and across shelves, and mixing of deep ocean currents and overflows. The driving mechanisms are numerous; tidal and other currents, internal waves, turbulence generated by bottom friction, surface wind and waves, and double-diffusive effects, to name but a few. Recent discoveries about horizontal mixing at mesoscales and smaller illustrate important links between horizontal and vertical mixing mechanisms. A key objective of mixing studies is a mechanistic understanding combined with observations, leading to specific parameterizations that can be confidently implemented in circulation models. This session will focus on recent process studies and data sets, and new parameterization schemes for ocean mixing as well as studies of the effects of specific parameterizations on circulation models. *This symposium is co-sponsored by the US National Committee for Geodesy and Geophysics and the Scientific Committee on Oceanic Research.*
P07	**The Southern Ocean: Its Physics, Chemistry, Biology and Links to the Global Climate System**
Convenors:	**Zhaomin Wang,** Isabelle Ansorge
Invited Speakers:	Sarah Gille, Scripps Institute of Oceanography, USA Karen Heywood, University of East Anglia, UK John Marshall, Massachusetts Insitute of Technology, USA Michael Meredith, British Antarctic Survey, UK Dorothee Bakker, University of East Anglia, UK Mike Lucas, University of Cape Town, South Africa Eberhard Fahrbach, Alfred Wegener Institute, Germany Steven Rintoul and Serguei Sokolov, CSIRO, Australia

SESSION	TITLE
Description:	The Southern Ocean is important in the global climate system due to its large heat uptake and carbon storage. Its circulation is also an important component in the global thermohaline circulation. In the Southern Ocean, significant amounts of bottom water form in the sub-polar region; the Antarctic Circumpolar Current is the largest current in the world ocean; oceanic eddies are active; there are distinct layers of different water mass properties. It is conceivable that these processes have a marked affect on the distribution of biota. The Southern Ocean has strong interactions with the other components of the climate system. As these exchanges play an important role in regulating mean global climate, a better understanding of the physical, biological and chemical processes is highly important. This symposium aims to discuss new results of research in physical, chemical, and biological processes in the Southern Ocean and their links to the global climate system on broad temporal and spatial scales.
P08	**Coastal Currents and Large Marine Ecosystems**
Convenors:	**Tarsicio Antezana,** Kimberly Hyde
Invited Speaker:	Edmo J.D. Campos Instituto Oceanografico da Universidade de Sao Paulo, Brasil This symposium has now been combined with P02
Description:	This symposium will discuss how western and eastern boundary and other coastal currents (and their variability) affect and drive large marine ecosystems, their physics, chemistry, biology and fisheries. It will address common processes between eastern and western boundary currents and the fronts involved, as they affect ecosystems, as well as the major differences between systems. The symposium will also address up and down scaling between global and large marine ecosystem scales. What are the factors that influence primary production, and how this production is channeled through the food web to fish production? What physical processes influence the Bakun triad in different systems?
P09	**Deep Ocean Exchange with the Shelf**
Convenors:	**John Johnson,** Piers Chapman
Invited Speakers:	Ken Brink, Woods Hole Oceanographic Institution, USA Dongjiang Yuan, Institute of Oceanology, Qingdao, China Katja Fennel, Dalhousie University, Canada Sheekela Baker-Yeboah, Massachusetts Institute of Technology, USA
Description:	The exchanges and fluxes that occur near the shelf break are important parts of the global ocean circulation. Better understanding of the exchanges between the shelf and the deep ocean will improve the interpretation of observations and is needed for more realistic modelling of climate, the carbon cycle, sedimentation and marine ecosystems.Oral and poster papers are invited on the following topics: • processes due to shelf waves, internal tides, shelf break upwelling, storms and extreme events that produce effects over time scales of weeks to one or two years; • transport over the shelf and shelf break of riverine and estuarine input of sediment and fresh water; • dissipation of tidal motion along the continental margins on time scales of hours to days; • physical controls of chemical and biological fluxes between the shelf and the open ocean that can affect the ecology of such regions; and • coupled physical-chemical-biological models, generally at local to regional scales, that have a more realistic description of the exchanges at the shelf edge.
P10	**The Variable Atlantic Meridional Overturning Circulation – Characteristics, Causes and Consequences for Climate**
Convenors:	**Torsten Kanzow,** Lisa Beal
Invited Speakers:	Bogi Hansen, Faroese Fisheries Laboratory, Faroe Islands Arne Biastoch, IFM-GEOMAR, Germany Susan Lozier, Duke University, USA
Description:	In carrying large amounts of heat northward, the Atlantic Meridional Overturning Circulation (AMOC) is an important element of the time-variable coupled climate system. Paleo-oceanographic records imply that the strength and spatial structure of AMOC have undergone substantial and rapid changes during the Earth's past; changes which are associated with fluctuations in climate. Observations and model simulations suggest that the AMOC displays natural fluctuations over a broad range of intra-seasonal to centennial time scales, linked to both internal and coupled modes of variability. At present, possible sustained changes of the AMOC in the currently evolving climate are in the centre of an ongoing scientific debate. Here, we invite contributions of researchers involved in observing, simulating, and predicting AMOC variability and its characteristics over all time scales, as well as those investigating possible consequences for climate. This includes the role of variability in the subpolar Seas and horizontal gyres of the Atlantic, in the Southern Ocean and Arctic Seas, as well as in the exchange with the Indo-Pacific Ocean, and variability related to feedbacks of the coupled climate system.

Detailed Program

Oral Presentation number legend:

M01 .XX / 20 3 13
↑ ↑ ↑ ↑ ↑
a b c d e

a. Symposium
b. Order
c. Date in July
d. Session start time (1=8:30; 2=10:30; 3=13:30; 4=16:30)
e. Column in Program Framework, indicating assigned room number

Poster Presentation number legend:
(Posters can be identified in the Author Index by the end number 17. Poster board numbers are indicated in the left margin of the Detailed Program poster listing.)

J08 .XX / 22 4 17
↑ ↑ ↑ ↑ ↑
a b c d e

a. Symposium
b. Order
c. Date in July
d. Session start time (all posters sessions begin at 15:00)
e. Column in Program Framework, indicating assigned room number (all posters will be presented in 517cd)

Programme détaillé

Légende des numéros des présentations orales :

M01 .XX / 20 3 13
↑ ↑ ↑ ↑ ↑
a b c d e

a. Symposium
b. Ordre
c. Date en juillet
d. Heure de début de la séance (1 = 8 h 30; 2 = 10 h 30; 3 = 13 h 30; 4 = 16 h 30)
e. Colonne dans le cadre du programme indiquant le numéro de la salle assignée

Présentations par affiches
Légende des numéros des présentations par affiches : (les affiches se distinguent par un numéro encadré additionnel)

J08 .XX / 22 4 17
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a b c d e

a. Symposium
b. Ordre
c. Date en juillet
d. Heure de début de la séance (toutes les présentations par affiches débutent à 15 h)
e. Colonne dans le cadre du programme indiquant le numéro de la salle assignée (toutes les affiches seront présentées dans la salle 517cd)

Program Framework – Week 1

		Plenary	IAMAS				Flex	Joint						IACS		IAPSO			Posters
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17
	room:	517ab	518ab	518c	524ab	524c	519ab	520f	520b	520c	520de	525ab	516c	516a	516b	520a	516d	516e	
Monday July 20																			
am1	0830	Opening	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Coffee Break:	1000 - 1030																		
am2	1030	Plenary	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Lunch:	1200 - 1330																		
pm1	1330	-	M13	M06	M01	M08	M07	J04	J16	J05	J03	J12	J17	C02	P01	P05	P06	P09	
Posters and Coffee Break (no orals): 1500 - 1630 GRAND OPENING OF POSTER AND EXHIBIT HALL																			
pm2	1630	-	M13	M06	M01	M08	M07	J04	J16	J05	J03	J12		C02	P01	P05	P06	P09	
Tuesday July 21																			
am1	0830	-	M13	M06	M01	M08	M07	J14	J16	J05	J03	J12	J17	C02	P01	P05	P06	P09	
Coffee Break:	1000 - 1030																		
am2	1030	-	M13	M06	M01	M08	M07	J14	J16	J05	J03	J12	J17	C05	P01	P05	P06	P03	
Lunch:	1200 - 1330																		
pm1	1330	-	M13	M06	M01	M08	M07	J14	J16	J06	J03	J12	J17	C05	P01	P05	P06	P03	
Posters and Coffee Break (no orals): 1500 - 1630																			
pm2	1630	-	M13	M06	M01	M08	J09	J14	J16	J06	J03	J12	J17	C05	P01	P05	P06	P03	
Wednesday July 22																			
am1	0830	-	M13	M14	M01	M11	J09	J20	J08	J15	-	-	-		C01	General Bus Mtg			
Coffee Break:	1000 - 1030																		
am2	1030	Medal Pres	M13	M14	M01	M11		J20	J08	J15	-	-	-		C01				
Lunch:	1200 - 1330																		
pm1	1330	-	M13	M14	M01	M11	J09	J13	J08	J01	J02	J12	J17		C01		P06	P04	
Posters and Coffee Break (no orals): 1500 - 1630																			
pm2	1630	-		M14	M01		J09	J13	J21	J01	J02	J12	J17		C01		P10	P04	
Thursday July 23																			
am1	0830	Plenary	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Coffee Break:	1000 - 1030																		
am2	1030	-		M18	M01	M12	J09	J13	J21	J01	J19	J07	J17	C03	C04	P07	P10	P04	
Lunch:	1200 - 1330																		
pm1	1330	-	J13	M18	M01	M12	J09	J02	J21	J01	J19	J07	J17	C03	C04	P07	P10	P04	
Posters and Coffee Break (no orals): 1500 - 1630																			
pm2	1630	-		M18	M05	M12	J09	J02	J21		J19	J11	J17	C03	C04	P07	P10	P02/08	
Friday July 24																			
am1	0830	-			M05	M12	J09		J21	J10	J19	J11	J17		C04	P07	P10	P02/08	
Coffee Break:	1000 - 1030																		
am2	1030	-			M05	M12	J09		J21	J10	J19	J11	J18		C04	P07		P02/08	
Lunch:	1200 - 1330																		
pm1	1330	-			M05		J09		J21	J10	J19	J11	J18		C04	P07			
Posters and Coffee Break (no orals): 1500 - 1630																			
pm2	1630	-			M05				J21	J10	J19	J11	J18						

Program Framework – Week 2

		IAMAS					Posters
		01	02	03	04	05	17
	room:	518a	518bc	519ab	524ab	524c	
Monday July 27							
am1	0830	M02	M03	M10		M17	
	1000 - 1030	Coffee Break:					
am2	1030	M02	M03	M10	M15	M17	
	1200 - 1330	Lunch:					
pm1	1330	M02	M03	M10	M15	M17	
Posters and Coffee Break (no orals): 1500 - 1630							
pm2	1630	M02	M03	M10	M15	M17	
Tuesday July 28							
am1	0830	M02	M03	M10	M15	M16	
	1000 - 1030	Coffee Break:					
am2	1030	M02	M03	M10	M15	M16	
	1200 - 1330	Lunch:					
pm1	1330	M02	M03	M10	M15	M16	
Posters and Coffee Break (no orals): 1500 - 1630							
pm2	1630	M02	M03	M10	M15	M16	
Wednesday July29							
am1	0830	M04		M10	M15	M09	
	1000 - 1030	Coffee Break:					
am2	1030	M04		M10	M15	M09	
	1200 - 1330	Lunch:					
pm1	1330	M04				M09	
Posters and Coffee Break (no orals): 1500 - 1630							
pm2	1630					M09	

Detailed Program

Opening Ceremony Room 517ab

8:30 **Welcoming Remarks:**

The Chair of MOCA-09's National Organizing Committee, Dr. Michel Béland

The Major of Montréal, Gérald Tremblay

The President of IUGG, Dr. Tom Beer

The President of IAMAS, Dr. Guoxiong Wu

The President of IAPSO, Dr. Lawrence Mysak

The President of IACS, Dr. Georg Kaser

The President of NRC, Dr. Pierre Coulombe

9:15 – 10:00 **Keynote Lecture:**

Dr. Gordon McBean, *University of Western Ontario, Canada*

Climate Change and Its Impacts on Global Security

1030-1200 **517ab**
Session: Plenary

1030 PLEN.2/20201 **A World of Change: Climate Yesterday, Today, and Tomorrow**
S. Solomon*
National Oceanic and Atmospheric Administration, USA

1100 PLEN.3/20201 **Impact of Climate Change on the Marine Carbon Cycle**
C. Le Quere*
University of East Anglia, Norwich, UK and British Antarctic Survey, UK

1130 PLEN.4/20201 **A Glimpse at Canada's Deglacial Future Using Regional Glaciation Modelling**
G.K.C. Clarke*, F.S. Anslow, A.H. Jarosch, V. Radic, C. Reuten
University of British Columbia, Canada

1330-1500 **520f**
Session: The Contribution of Greenland and Antarctica to Fresh Water Input to the Ocean and Sea Level Change
Chair: Eric Rignot

1330 J04.1/20306 **Antarctic and Greenland Ice Sheet Changes Seen by ENVISAT Radar Altimetry and GRACE: Comparison and Synthesis**
A. V. Kouraev*, B. Legresy, G. Ramillien, F. Blarel, F. Rémy, J.-M. Lemoine, M. Horwath
LEGOS, France

1345 J04.2/20306 **Does Warming of the North Atlantic Explain the Acceleration of Greenland's Outlet Glaciers?**
F. Straneo*, D.A. Sutherland, G.S. Hamilton, R.G. Curry, L.A. Stearns
Woods Hole Oceanographic Institution, USA

1400 J04.3/20306 **Large Scale Modeling of Ice Flow in Antarctica Constrained Using InSAR Data**
E. Larour*, E. Rignot
Jet Propulsion Laboratory/CalTech/NASA, USA

1415 J04.4/20306 **Grounding Line Movement and Ice Shelf Buttressing in Marine Ice Sheets**
D.M. Holland*, D. Goldberg, C. Schoof
New York University, USA

1445 J04.6/20306 **Greenland and Antarctica Contribution to Sea Level from GRACE**
I. Velicogna*, J. Wahr
ESS, University of California, USA

*Denotes presenting author.

1330-1500 **520b**
Session: Remote Sensing of the Atmosphere I
Chair: Stella Melo

1330 J16.1/20307 **MISR: A Multiangle View of Earth**
R. Marchand*, D. Diner, MISR Science Team
NASA Jet Propulsion Laboratory, USA

1400 J16.3/20307 **Evaluation of CM-SAF Cloud Products Derived from SEVIRI using CloudSat/ CALIPSO Measurements, Ground-based Observations and MODIS Cloud Products**
R. Hollmann*, M. Lockhoff, R. Weber
Deutscher Wetterdienst, Germany

1415 J16.4/20307 **Scale by Scale Validation of Satellite Precipitation Products**
J. Pinel*, S. Lovejoy, D. Schertzer
McGill University, Canada

1430 J16.5/20307 **Diagnosing Antarctic Fog from Satellite**
M.A. Lazzara*, S. Ackerman, D.W. Hillger
University of Wisconsin-Madison, USA

1445 J16.6/20307 **Improving the Rain Rate Estimation from Ground-based Weather Radar using Artificial Neural Networks**
Z. Toofaninejad*, A.M. Noorian, A. Sedaghatkerdar
Atmospheric Science and Meteorological Research Center, Iran

1330-1500 **520c**
Session: Sea Ice
Chair: Göran Björk

1330 J05.1/20308 **A Sea Ice Free Summer Arctic within 30 Years?**
J. Overland*, M. Wang, J. Walsh
NOAA/Pacific Marine Environmental Laboratory, USA

1400 J05.3/20308 **The Loss and Potential Recovery of Perennial Arctic Sea Ice**
M.M. Holland*, D.A. Bailey
National Center for Atmospheric Research, USA

1415 J05.4/20308 **A Proposal for an Arctic Sea Ice Protected Area**
S. Pfirman*, C. Fowler, B. Tremblay, R. Newton, P. Ewins
Barnard College, Columbia University, USA

1430 J05.5/20308 **Sea Ice Conditions in the Northwest Passage: 2007 and 2008 within the Context of Historical Variability**
S.E.L. Howell*, C.R. Duguay
University of Waterloo, Canada

1445 J05.6/20308 **Have We Reached a Tipping Point in the Arctic Sea Ice Cover?**
P. Winsor*, A. Condron
School of Fisheries And Marine Sciences, University of Alaska Fairbanks, USA

1330-1500 **520de**
Session: Data Assimilation/Glaciers
Chair: Michel Béland

1330 J03.1/20309 **Arctic System Reanalysis: Achievements and Goals**
D.H. Bromwich*, Y.H. Kuo, M.C. Serreze, J.E. Walsh, F. Chen, K.M. Hines, L.-S. Bai, S.-H. Wang, H. Huang, L. Li,
Polar Meteorology Group, Byrd Polar Research Center, The Ohio State University, USA

1345 J03.2/20309 **The Concordiasi Campaign: First Results**
A Bouchard*, F Rabier, V Guidard, F. Karbou, S. Guedj
Météo France/CNRS, France

1400 J03.3/20309 **Characterizing the Spring-Time Arctic Stratosphere during IPY**
R. Batchelor*, K. Strong, R. Lindenmaier, A. Manson, C. Meek, S. Polavarapu, M. Reszka, G. Manney, W. Daffer, NDACC IRWG Arctic Station Teams
Department of Physics, University of Toronto, Canada

1415 J03.4/20309 **Mapping the Total Antarctic Ice Sheet Discharge: a Series of IPY Benchmark Data Sets**
R. Bindschadler*
NASA Goddard Space Flight Center, USA

1445 J03.6/20309 **Meteorological Environment at Glacier Fleming, Antarctic Peninsula, Derived from in situ AWS**
J.F. Carrasco*, A. Wendt, A. Rivera, J. Quintana
Direccion Meteorologica de Chile, Chile

1330-1500 **525ab**
Session: Regional Climate Modelling
Chair: Laxmi Sushama

1330 J12.1/20310 **Does a Higher Resolution RCM Improve the Predictability of a Climate-Ice Sheet Modelling System for the Greenland Ice Sheet?**
G. Adalgeirsdottir*, M. Stendel, P. Lucas-Picher, J.H. Christensen, R. Mottram, E. Bueler
Danish Meteorological Institute, Denmark

1400 J12.3/20310 **A Regional Climate Model for the British Columbia Continental Shelf**
M. Foreman*, B. Pal, W. Merryfield, D. Masson
Fisheries And Oceans Canada, Institute of Ocean Sciences, Canada

1415 J12.4/20310 **Climate Scenarios for the Mediterranean Basin with a Coupled Regional System**
G. Sannino*, V. Artale, X. Bi, S. Calmanti, A. Carillo, A. Dell'Aquila, F. Giorgi, G. Pisacane, P.M. Ruti, M. Struglia,
ENEA, Italy

1430 J12.5/20310 **Anthropic Land-Use Cools European Summer Season**
P. Lionello*, M. Zampieri
University of Salento, Italy

1445 J12.6/20310 **Impact of the Ocean Diurnal Cycle on the Intraseasonal Ocean/Atmosphere Interactions in the North Atlantic European Region**
V. Guemas*, M. Kageyama, D. Salas-Mélia, H. Giordani, A. Voldoire
CNRM-Météo, France

1330-1500 516c
Session: Results from Monsoon Experiment Plans
Chair: Jay McCreary

1330 J17.1/20311 **Field Observation of Monsoon and its Associated Air-sea Feedback over the South China Sea**
D. Wang*
South China Sea Institute of Oceanology, Chinese Academy of Sciences, China

1400 J17.3/20311 **Atmospheric Mixed Layers over the South China Sea during SCSMEX**
P.E. Ciesielski*, R.H. Johnson
Colorado State University, USA

1415 J17.4/20311 **Tibetan Middle Tropospheric Ozone Minimum in June Discovered from GOME Observations**
Y. Liu*, Y. Wang, Z.N. Cai, X. Liu, K. Chance
Institute of Atmospheric Physics, Chinese Academy of Sciences, China

1445 J17.5/20311 **South China Heavy Rainfall Experiment in 2008 and its Preliminary Results**
Y. Ni*
Chinese Academy of Meteorological Sciences, China

1330-1500 516a
Session: Snow Under Canopy
Chair: Richard Essery

1330 C02.1/20312 **Correcting Radiation Fields for Canopy Shading and Emissivity in Complex Mountainous Basins**
D. Marks*, R. Essery, T. Link, A. Winstral, M. Reba, J. Pomeroy
USDA Northwest Watershed Research Center, USA

1400 C02.3/20312 **Influence of Forest Canopy Interception on Modeled Estimates of Sub-canopy Snow**
N. Rutter*, R. Essery, M. Stähli, T. Jonas, P. Bartlett
University of Sheffield, UK

1415 C02.4/20312 **Energy Budget in a Snow-Covered Subalpine Forest: Measurements and Model**
T. Jonas*, M. Broer, S. Etzold, W. Eugster, D. Gustafsson, M. Stähli
WSL Institute for Snow and Avalanche Research SLF, Switzerland

1430 C02.5/20312 **A Review of Parametrizations for Radiative Transfer to Snow Beneath Forest Canopies**
R. Essery*, A. Barr, P. Bartlett, T. Jonas, N. Rutter, M. Staehli
University of Edinburgh, UK

1445 C02.6/20312 **Sub-Canopy Radiant Energy during Snowmelt in Non-Uniform Forests Spanning a Latitudinal Transect**
T.E. Link*, J.W. Pomeroy, R. Essery, D. Marks, R. Lawler, J. Hardy
University of Idaho, USA

1330-1500 518ab
Session: Observations of Aerosol-cloud Interactions
Chair: Ulrike Lohmann

1330 M13.1/20301 **Aerosol-Cloud-Radiation-Precipitation Interactions**
Z. Levin*
Tel Aviv University, Israel

1400 M13.3/20301 **Errors Associated with In-Situ Cloud Microphysics Measurements and the Implications for Climate Simulations**
G.A. Isaac*
Cloud Physics And Severe Weather Research Section, Environment Canada, Canada

1415 M13.4/20301 **Observational Study of Aerosol Impacts on Entrainment in Cumulus Clouds**
P.Y. Chuang*, J.D. Small
University of California, USA

1430 M13.5/20301 **Does Air Pollution Really Suppress Precipitation in Israel?**
D. Rosenfeld*, A. Givati
The Hebrew University of Jerusalem, Israel

1330-1500 518c
Session: Theoretical Advances in Dynamics
Chair: Nili Harnik

1330 M06.1/20302 **Water Vapor and the Dynamics of Climate Changes**
T. Schneider*, P.A. O'Gorman, X. Levine
California Institute of Technology, USA

1400 M06.3/20302 **Moist Baroclinic Eddies as Features of the Dry and Moist Isentropic Circulation in a Warming Climate**
F. Laliberté*, O. Pauluis
New York University, USA

*Denotes presenting author.

1415 M06.4/20302 **The Atmospheric Circulation Response to Idealized Climate Change-like Thermal Forcings in a Simple GCM**
D.W.J. Thompson*, A.H. Butler, R. Heikes
Colorado State University, USA

1430 M06.5/20302 **Impact of Sharp SST Gradient in Midlatitude on the Atmospheric General Circulation and its Annular Variability: Importance of 'Oceanic Baroclinic Adjustment'**
H. Nakamura*, T. Sampe, A. Goto, B. Taguchi, M. Nonaka, A. Kuwano-Yoshida, N. Komori, W. Ohfuchi, S.-P. Xie
University of Tokyo, Japan

1445 M06.6/20302 **Annular Variability in the Atmosphere and Eddy-Zonal Flow Interactions**
M. Blackburn*, S. Sparrow, J.D. Haigh
Imperial College London, UK

1330-1500 **524ab**
Session: Chemistry (1)
Chair: Shigeo Yoden

1330 M01.1/20303 **Polar Ozone Chemistry: Field Observations and Ozone Loss Rates**
M. Rex*, R. Schofield, T. Canty, R.J. Salawitch
Alfred Wegener Institute for Polar And Marine Research, Germany

1400 M01.3/20303 **Polar Ozone Photochemistry: Critical Parameters and their Uncertainties**
M. Von Hobe*, J.-U. Grooß, R. Müller, F. Stroh
Forschungszentrum Jülich, Institute for Chemistry and Dynamics of the Geosphere (ICG-I: Stratosphere), Germany

1430 M01.5/20303 **Wind and Temperature Perturbations in the Middle Atmosphere after Solar Proton Events as Simulated with GCM**
A.A. Krivolutsky*, G.R. Zakharov, T.Yu. Vyushkova, A.I. Repnev, L.A. Cherepanova
Central Aerological Observatory, Russia

1445 M01.6/20303 **The Impact of Recent Laboratory Measurements of the ClOOCl Cross Section on Our Understanding of Polar Ozone Chemistry**
T. Canty*, R. Salawitch, R. Stimpfle, D. Wilmouth, J. Anderson, M. von Hobe, F. Stroh, M. Rex, R. Schofield
University of Maryland, USA

1330-1500 **524c**
Session: Dynamics and Predictability of High-impact Weather
Chair: Istvan Szunyogh

1330 M08.1/20304 **The THORPEX Pacific Asian Regional Campaign and Affiliated Programs over the Western North Pacific: Objectives, Strategies, and Accomplishments**
P. Harr*
Naval Postgraduate School, Naval Postgraduate School, USA

1400 M08.3/20304 **Wintertime Component of the Thorpex Pacific-Asian Regional Campaign (T-PARC)**
Y. Song*, Z. Toth
IMSG/EMC/NCEP/NOAA, USA

1430 M08.5/20304 **Explosive Cyclogenesis over Western Pacific: Upstream Precursors and Downstream Impacts**
E.K.M. Chang*
Stony Brook University, USA

1330-1500 **519ab**
Session: Towards Seamless Probalistics Forecasting
Chair: Craig Bishop

1330 M07.1/20305 **Seamless Prediction of Weather and Climate: Bringing the Insights and Constraints of NWP into the Climate Change Arena**
T.N. Palmer*, F.J. Doblas-Reyes, A. Weisheimer, M. Rodwell
ECMWF, UK

1353 M07.3/20305 **Investigating the Transient Climate Response with Climateprediction.net**
D. Frame*, M. Allen, T. Aina, M. Thurston, H. Yamazaki, K. Yamazaki, S. Rosier, D. Rowlands
University of Oxford, UK

1415 M07.4/20305 **Towards Probabilistic Climate Change Scenarios Based on Statistical Downscaling**
R. Huth*, S. Kliegrova, L. Metelka, J. Ribalaygua, J.M. Gutierrez, R. Tomozeiu
Institute of Atmospheric Physics, Czech Republic

1430 M07.5/20305 **Objective Presentation of Ensemble Climate Prediction: Illustration of Paleo-Climate Constrain**
Y.H. Yamazaki*, C. Huntingford, D.J. Frame, D.C. Frank, M.R. Allen
University of Oxford, UK

1445 M07.6/20305 **Tropical Intraseasonal Variability in Seasonal Forecasts**
J.P. Duvel*, P.K. Xavier, F. Doblas Reyes
LMD, France

1330-1500 **516b**
Session: Bio
Chair: Bill Crawford

1330 P01.1/20313 **Eddies of the Leeuwin Current as Mediators of Primary Production, Cross-shelf Transport and Vertical Fluxes**
A.M. Waite*
University of Western Australia, Australia

1400 P01.3/20313 **Abrupt Ecosystem Changes in the Edge of the Ulleung Warm Eddy in the East Sea in April 2006**
S. Yoo*, C-W. Shin, J-H. Hyun, E-J. Yang, J-H. Noh, H-K. Kang, J. Park
Korea Ocean Research & Development Institute, South Korea.

1415 P01.4/20313 **How Do Meso-scale Eddies Affect the Distribution of North Atlantic Euphausiids?**
Y. Endo*, P.H. Wiebe
Graduate School of Agricultural Science, Tohoku University, Japan

1430 P01.5/20313 **Mixing and Upwelling in a Sargasso Sea Mode-Water Eddy**
B.J.W. Greenan*, J.R. Ledwell, D.J. McGillicuddy Jr.
Bedford Institute of Oceanography, Canada

1445 P01.6/20313 **The Ulleung Warm Eddy in the Southwestern East Sea**
K.I. Chang*, Y.B. Kim, S.S. Byun
School of Earth And Environmental Sciences, Seoul National University, Korea

1330-1500 **520a**
Session: Remote Sensing
Chair: Eugene Morozov

1330 P05.1/20314 **Geo-Acoustic Doppler Spectroscopy: A Novel Acoustic Technique for Surveying the Seabed**
M.J. Buckingham*
Scripps Institution of Oceanography, USA

1400 P05.3/20314 **Causality Principle: A Powerful Tool to Examine the Refraction Index of Acoustic Waves Predicted by Viscoelastic Models for the Seabed**
S. Blanc*
Naval Service of Research and Development, Argentina

1415 P05.4/20314 **Surface Current Patterns in the Northern Adriatic Extracted from HF Radar Data using Self-Organizing Map Analysis**
H. Mihanovic*, S. Cosoli, D. Ivankovic, I. Vilibic, V. Dadiæ, M. Gacic
Hydrographic Institute of the Republic of Croatia, Croatia

1430 P05.5/20314 **Spatial and Temporal Variability of Oil Pollution in the Caspian Sea Based on Remote Sensing Data**
S.A. Lebedev*, A.G. Kostianoy
Geophysical Center, Russian Academy of Sciences, Russia

1330-1500 **516d**
Session: General Mixing I
Chair: Barry Ruddick

1330 P06.1/20315 **Patchy Mixing Matters**
J. MacKinnon*
Scripps Institution of Oceanography, USA

1400 P06.3/20315 **Diapycnal Mixing on the East Pacific Rise near 10N**
A.M. Thurnherr*, L.C. St. Laurent, A. Ruiz Angulo
Lamont-Doherty Earth Observatory, USA

1415 P06.4/20315 **Diapycnal Mixing by Mesoscales**
V.M. Canuto*, M.S. Dubovikov
NASA-Goddard Institute for Space Studies, USA

1430 P06.5/20315 **Distribution of Deep Near-Inertial Waves Interacting with Large- and Meso-Scale Velocity Fields Observed in the Kuroshio Extension**
J.-H. Park*, D. R. Watts, K. A. Donohue, L. Rainville
Graduate School of Oceanography, University of Rhode Island, USA

1445 P06.6/20315 **Can Loss of Balance from Mesoscale Eddies Adequately Power Deep Ocean Mixing?**
P.D. Williams*, T.W.N. Haine, P.L. Read
University of Reading, UK

1330-1500 **516e**
Session: Deep Ocean Exchange I
Chair: John Johnson

1330 P09.1/20316 **Constraints on Steady Cross-Shelf Flow**
K.H. Brink*
Woods Hole Oceanographic Institution, USA

1400 P09.3/20316 **Dynamics of Advection-Driven Upwelling over a Shelf-Break Submarine Canyon**
S.E. Allen*, B.M. Hickey
Department of Earth And Ocean Sciences, University of British Columbia, Canada

1415 P09.4/20316 **Seaward Channeling of Dense Shelfwater in the Presence of Submarine Canyons, Ridges and Corrugated Topography**
A.K. Wåhlin *
University of Gothenburg, Sweden

1630-1800 **520f**
Session: The Contribution of Greenland and Antarctica to Fresh Water Input to the Ocean and Sea Level Change
Chair: Thierry Fichefet

1630 J04.7/20406 **Increased Future Sea Level Rise due to Rapid Decay of the Greenland Ice Sheet?**
R. Greve*
Institute of Low Temperature Science, Hokkaido University, Japan

1645 J04.9/20406 **Mass Changes of Glaciers on the Margins of the Greenland Ice Sheet: Observations from GRACE and Landsat**
A Arendt*, S Luthcke, M Fahnestock
Geophysical Institute, University of Alaska, USA

1700 J04.10/20406 **Topographical Marine Ice Sheet Instability in Antarctica - Part 1. Argumentation, Method of Characterisation**
G. Durand*, C. Ritz, G. Navas, F. Rémy
LGGE, CNRS, UJF-Grenoble, France

1715 J04.11/20406 **Topographical Marine Ice Sheet Instability in Antarctica - Part 2. Potential Contribution to Sea-Level**
C. Ritz*, G. Durand, G. Navas
LGGE, CNRS, UJF-Grenoble, France

1730 J04.12/20406 **Mass Budget of the Greenland and Antarctic Ice Sheets: Trends and Physical Controls**
E. Rignot*, I. Velicogna, J. Box, M. van den Broeke
University of California Irvine, USA

1630-1800 **520b**
Session: Remote Sensing of the Atmosphere II
Chair: Tom McElroy

1630 J16.7/20407 **Introducing NOAA MSU/AMSU Atmospheric Temperature Datasets for Climate Variability and Trend Research**
C.-Z. Zou*
NOAA/NESDIS/Center for Satellite Applications And Research, USA

1645 J16.8/20407 **Reviving the Goddard Satellite-based Surface Turbulent Fluxes (GSSTF) Dataset: Preliminary Results and Findings**
C.-L. Shie*, L.S. Chiu, R. Adler, P. Xie, I.-I. Lin, E. Nelkin, R. Chokngamwong, F.-C. Wang, S. Braun, L. Wu,
UMBC/GEST, USA

1700 J16.9/20407 **Estimating Model of the Caspian Sea Effective Evaporation Based on Satellite Altimetry Data**
S.A. Lebedev*
Geophysical Center, Russian Academy of Sciences, Russia

1715 J16.10/20407 **Cumulonimbus Anvil in Summer Asia Detected By TRMM PR**
Y.F. Fu*, P. Liu, A.Q. Cao, Q. Liu, Y. Wang
University of Science And Technology of China, China

1730 J16.11/20407 **Data Assimilation of Dust Aerosol Observations for the CUACE/Dust Forecasting System**
T. Niu*, S.L. Gong, G.F. Zhu, H.L. Liu, X.Q. Hu, C.H. Zhou, Y.Q. Wang
Chinese Academy of Meteorological Sciences, China

1630-1800 **520c**
Session: Ocean Circulation
Chair: Marika Holland

1630 J05.7/20408 **Impacts of the Barents Sea inflow Branch on the Arctic Ocean Water Column**
B. Rudels*
University of Helsinki and Finnish Meteorological Institute, Finland

1645 J05.8/20408 **Ocean Surface Heat Flux Variability in the Barents Sea: A Model Study**
M. Aarthun*, C. Schrum
Geophysical Institute, University of Bergen, Norway

1700 J05.9/20408 **Formation of the Arctic Upper Halocline in a Coupled Ocean and Sea-ice Model**
A.T. Nguyen*, D. Menemenlis, R. Kwok
Jet Propulsion Lab, California Institute of Technology, USA

1715 J05.10/20408 **Variability of Freshwater Pathways in the Arctic Ocean**
A. Jahn*, B. Tremblay, M. Holland, R. Newton, L.A. Mysak
McGill University, Canada

1730 J05.11/20408 **Simulating the Arctic Ocean using Data Assimilation in the NEMO 1/4 Degree Global Ice-Ocean Model**
K. Haines*, R.I. Mugford, G.C. Smith
University of Reading, UK

1745 J05.12/20408 **Variability of the Fresh Water Export through the Canadian Archipelago in an Arctic-Atlantic Regional Model**
M.N. Houssais*, C. Herbaut
LOCEAN, IPSL, UPMC, France

1630-1800 **520de**
Session: Multidisciplinary
Chair: Karen Haywood

1630 J03.7/20409 **The Association of Polar Early Career Scientists (APECS)**
E.R. Thomas*, J. Baeseman, D. Haase, J. Xavier, M. Strezlecki
British Antarctic Survey, UK

1700 J03.9/20409 **GLACIODYN - The Dynamic Response of Arctic Glaciers to Global Warming**
J.O. Hagen*, J. Oerlemans
University of Oslo, Norway

1730 J03.11/20409 **The Polar Environment Atmospheric Research Laboratory (PEARL) at Eureka, Nunavut: International Polar Year and Beyond**
J.R. Drummond*
Dalhousie University, Canada

1630-1800 **525ab**
Session: Regional Climate Modelling
Chair: René Laprise

1630 J12.7/20410 **Polar Atmospheric Modeling for an Arctic System Model**
J.J. Cassano*, M.W. Seefeldt
University of Colorado, USA

1645 J12.8/20410 **Regional Coupled Climate and Environmental Modeling for the Baltic Sea Region**
H.E.M. Meier*
Swedish Meteorological And Hydrological Institute, Norrköping and Stockholm University, Sweden

1700 J12.9/20410 **Seasonal Variations of Sea Ice and Ocean Circulation in the Bering Sea: A Model-Data Fusion Study**
J. Wang*, H. Hu, K. Mizobata, S. Saitoh
NOAA Great Lakes Environmental Research Laboratory, USA

1715 J12.10/20410 **The Impact of Land Cover Changes on the Hydroclimate of the La Plata Basin**
E.H. Berbery*, S.-J. Lee
University of Maryland, USA

1730 J12.11/20410 **Sensitivity of a Regional Climate Model to Convective Parameterizations: Simulation of Summer Precipitation over East Asia using MM5**
J.P. Tang*, S. Song
School of Atmospheric Sciences, Nanjing University, China

1745 J12.12/20410 **Sensitivity of Ice Cloud Microphysics in a Regional Climate Model: A Case Study for the Tropical Warm Pool International Cloud Experiment**
Y. Wang*, C.N. Long, G. Thompson, H. Morrison, J.H. Mather, S.A. McFarlane
Pacific Northwest National Laboratory, USA

1630-1800 **516a**
Session: Snow Climatology
Chair: Christoph Marty

1630 C02.7/20412 **Global and Regional Simulations of Effects of Climate Change on Mountain Snow**
S. Ghan*, Y. Qian, L.R. Leung
Pacific Northwest National Laboratory, USA

1700 C02.9/20412 **Modeling Basin Scale Snow Water Equivalent: Present Day and Projected Future Impacts in the Oregon Cascades**
E.A. Sproles*, A.W. Nolin, A. Brown
Oregon State University, USA

1715 C02.10/20412 **Analyses of Newly Digitized Snow Series Over the Last 100 Years+ in Switzerland**
M. Croci-Maspoli*, C. Wuethrich, M. Begert, S.C. Scherrer, R. Weingartner, C. Appenzeller
Federal Office of Meteorology and Climatology MeteoSwiss, Switzerland

1730 C02.11/20412 **Step-like Decrease of Snow Days in the Alps**
C. Marty*
WSL Institute for Snow And Avalanche Research SLF, Switzerland

1745 C02.12/20412 **Snow Line Rise in the Central Andes of Chile: Evidence and Impacts**
G. Casassa*, R. Jara, A. Yañez, J. Carrasco, R. Osorio
Centro de Estudios Cientificos, Chile

1630-1800 **518ab**
Session: Arctic
Chair: George Isaac

1630 M13.7/20401 ***In-situ* Observation of Arctic Mixed Phase Clouds during the ISCAD Flight Campaign**
A. Korolev*, S. Ghan, G. McFarquhar, B. Schmidt, M. Wolde, H. Verlinde, W. Strapp, S. Brooks, A. Zelenyuk, P. Liu,
Environment Canada, Canada

1645 M13.8/20401 **Space-Based Evaluation of the Aerosol Indirect Effect in the Arctic**
K.V. Tietze*, T.J. Garrett, A. Stohl
University of Utah, USA

1700 M13.9/20401 **Modeling of the Effects of Acidic Aerosols on Arctic Cloud Microstructure and Surface Radiative Budget during Winter**
A. Stefanof*, E. Girard, J.-P. Blanchet, R. Munoz-Alpizar, A.K. Bertram G. Dueymes
UQAM, Canada

1715 M13.10/20401 **A New and Simple Lidar-Derived Sulphate Index for the Arctic : Meaning, Validation and Links with Thin Ice Clouds**
P. Grenier*, J.-P. Blanchet, R. Munoz-Alpizar
Institut des Sciences de l'Environnement - UQAM, Canada

1730 M13.11/20401 **Simulated Changes in the Radiative Properties of Arctic Stratus Due to Anthropogenic Forcing**
K. Alterskjaer*, J.E. Kristjansson, C. Hoose
University of Oslo, Norway

1745 M13.12/20401 **Arctic Winter Thin Ice Clouds-Aerosol-Precipitation Interactions inferred from CALIPSO, CloudSat and NARCM Simulations**
R. Munoz-Alpizar*, J.-P. Blanchet, P. Grenier, E. Girard
Université du Québec à Montréal, Canada

*Denotes presenting author.

1630-1800 **518c**
Session: Theoretical Advances in Dynamics
Chair: Gwendal Rivière

1630 M06.7/20402 **Understanding Stratosphere-Troposphere Interactions with an Idealized GCM**
E.P. Gerber*, L.M. Polvani
New York University, USA

1700 M06.9/20402 **Quantifying the Eddy Feedback and the Persistence of Zonal Index**
G. Chen*, A. Plumb
Program of Atmospheres, Oceans and Climate, MIT, USA

1715 M06.10/20402 **Axisymmetric Steady Solutions in an Idealized Model of Atmospheric General Circulations: Hadley Circulation and Super-rotation**
S. Yoden*, H. Yamamoto, K. Ishioka
Kyoto University, Japan

1745 M06.12/20402 **Excitation of Atmospheric Oscillations Synchronized with Planetary Rotation and Revolution: Dynamical Similarity between Sea-land Breeze and Monsoon**
M.D. Yamanaka*
IORGC/JAMSTEC, Yokosuka & Kobe University, Japan

1630-1800 **524ab**
Session: Chemistry (2)
Chair: Ross Salawitch

1630 M01.7/20403 **Studying the Middle Atmosphere with the Atmospheric Chemistry Experiment (ACE) Satellite Mission**
K.A. Walker*
University of Toronto, Canada

1700 M01.9/20403 **Carbon Dioxide in the Mesosphere and Lower Thermosphere: Comparing ACE Observations and the Extended CMAM**
S.R. Beagley*, C Boone, V.I. Fomichev, K Semeniuk, J.J. Jin, J.C. McConnell
York University, Canada

1715 M01.10/20403 **Charged Meteoric Particles as Ice Nuclei in the Mesosphere**
L. Megner*, J. Gumbel
Stockholm University, Sweden

1730 M01.11/20403 **Inter-hemispheric Coupling Inferred from Models and Measurements of Polar Mesospheric Clouds**
H. Körnich*, B Karlsson, C. McLandress, T. Shepherd, S. Benze, C.E. Randall, M. Mills, V.L. Harvey, D. Marsh, A.W. Merkel, S. Bailey, J. Russell
LASP, USA

1745 M01.12/20403 **The Impact of Atmospheric Tides on the Distribution of Polar Mesospheric Clouds**
D.R. Marsh*, A.W. Merkel, A.K. Smith
National Center for Atmospheric Research, USA

1630-1800 **524c**
Session: Dynamics and Predictability of High-impact Weather
Chair: Istvan Szunyogh

1630 M08.7/20404 **Extra-tropical Flow Dynamics and THORPEX: Some Core Aspects**
H.C. Davies*
Institute for Atmospheric & Climate Science, ETH Zurich, Switzerland

1700 M08.9/20404 **Diabatic Rossby Waves - Aspects of its Dynamics and Predictability**
H. Wernli*, M. Böttcher, P. Kenzelmann
University of Mainz, Germany

1715 M08.10/20404 **Linked Extreme Weather Events: Severe Cold and Record-breaking Rains in Mexico and Disruptive Wild Fires in California in Late October 2007**
L.F. Bosart*, H.M. Archambault, J.M. Cordeira
University At Albany/SUNY, USA

1730 M08.11/20404 **A Weather, Climate and Earth-system Prediction Project for the 21st Century**
M. Shapiro*
CIRES/NOAA University of Colorado And National Center for Atmospheric Research, USA

1630-1800 **519ab**
Session: Towards Seamless Probalistics Forecasting
Chair: Craig Bishop

1630 M07.7/20405 **Seasonal Ensemble Hindcasts with a Coupled Ocean-Atmosphere Model**
J.S. Frederiksen*, C.S. Frederiksen, S.L. Osbrough
CSIRO Marine And Atmospheric Research, Australia

1645 M07.8/20405 **High Initial-time Sensibility Observed for the Tropospheric NAM Predictability in the Stratospheric Sudden Warming**
Y. Kuroda*
Meteorological Research Institute, Japan

1700 M07.9/20405 **Is the Extreme Seasonal Climate Condition Easier to Predict than Normal?**
C.-T. Chen*, S.-L. Lin
National Taiwan Normal University, Taiwan

1715 M07.10/20405 **Ensemble Prediction and Data Assimilation at ECMWF**
R. Buizza*, T. Palmer, R. Hagedorn, L. Isaksen, M. Leutbecher, F. Vitart
ECMWF, UK

1745 M07.12/20405 **TIGGE and Results from the Met Office Medium-range Multi-model Ensemble**
R. Swinbank*, C. Johnson
Met Office, UK

1630-1800 **516b**
Session: Coastal Off-shore
Chair: Sinjae Yoo

1630 P01.7/20413 **Timing, Sources and Pathways for Incorporation of Larval Fishes into a Developing Anti-cyclonic Eddy of the Leeuwin Current, SW Australia**
A.M. Waite*, D. Holliday, L.E. Beckley, M. Feng, P.A. Thompson
School of Environmental Science, Murdoch University, Australia

1645 P01.8/20413 **Physical and Chemical Signatures of a Developing Anti-Cyclonic Eddy in the Leeuwin Current, Eastern Indian Ocean**
M. Feng*, H. Paterson, A. Waite, D. Gomis, L. Beckley, D. Holiday, P. Thompson
CSIRO Marine And Atmospheric Research, Australia

1700 P01.9/20413 **Is the Cold Center of the East China Sea an Eddy?**
F. Qiao*, X. Lv
First Institute of Oceanography, State Oceanic Administration, China

1730 P01.11/20413 **The Delagoa Pulse: A Mesoscale Oceanic Eddy Embedded in between the Agulhas Current and the African Coast**
A.A. Meyer*, M.L. Grundlingh
Council for Scientific and Industrial Research, South Africa

1745 P01.12/20413 **On the Properties of Mesoscale Eddies in Two Eastern Boundary Upwelling Systems**
J. Kurian*, F. Colas, J. C. McWilliams, X. Capet
IGPP University of California, USA

1630-1800 **520a**
Session: Modeling
Chair: Gregorio Parilla

1630 P05.7/20414 **Analytic Models of Internal Wave Attractors**
L.R.M. Maas*
NIOZ Royal Netherlands Institute for Sea Research and IMAU Utrecht University, The Netherlands

1645 P05.8/20414 **Mesoscale Vortical Dynamics in the West African Upwelling Regions**
D.M. Solovyov*, A.G. Kostianoy
Marine Hydrophysical Institute, Ukraine

1700 P05.9/20414 **The Thermodynamic Equation of Seawater - 2010 (TEOS-10): Implications for Observational Oceanography and Ocean Modeling**
T.J. McDougall*
CSIRO Marine & Atmospheric Research, Hobart, Australia

1730 P05.11/20414 **Interfacial Wave Transformation in Basin of Variable Depth: Analytical and Numerical Results**
T. Talipova*, V. Maderich, R. Grimshaw, E. Pelinovsky
Institute of Applied Physics RAS, Russia

1630-1800 **516d**
Session: General Mixing II
Chair: Anna Wåhlin

1630 P06.7/20415 **Mixing in Oceanic and Laboratory Overflows**
C. Cenedese*, C. Adduce
Woods Hole Oceanographic Institution, USA

1700 P06.9/20415 **Influence of Swimming Marine Organisms on Turbulence in the Ocean from In-Situ Measurements**
S. Rousseau*, E. Kunze, R. Dewey
University of Victoria, Canada

1715 P06.10/20415 **Transition to Turbulence in Salt Sheets**
W. Smyth*, S. Kimura
College of Oceanic And Atmospheric Sciences, Oregon State University, USA

1730 P06.11/20415 **Double Diffusive Turbulence in Sheared Environments**
S. Kimura*, W. Smyth
College of Oceanic And Atmospheric Sciences, Oregon State University, USA

1745 P06.12/20415 **Internal Waves and Mixing above the Southwest Indian Ridge**
T. Beitzel*, J. MacKinnon, T.M.S. Johnston, R. Pinkel
Scripps Institution of Oceanography, USA

1630-1800 **516e**
Session: Deep Ocean Exchange II
Chair: John Middleton

1630 P09.7/20416 **Ross Sea Shelf Break Cascading Events: Entrainment Processes and Link with Microbiology**
A. Bergamasco*, P. Del Negro, M. Celussi, E. Crevatin, C. De Vittor, S. Aliani, A. Trevisiol
OGS-BIO, Italy

1645 P09.8/20416 **Evaluation of Volume Transport from the Kuroshio into the Shelf Region of East China Sea**
T. Matsuno*, K. Ichikawa, T. Senjyu, K. Fukudome, N. Hirose, C.T. Liu, P.F. Chen, H.W. Chen
Kyushu University, Japan

1700 P09.9/20416 **Structure and Dynamics of Water Exchange between the Kuroshio and Marginal Seas of China**
D. Yuan*
Chinese Academy of Sciences, China

1730 P09.11/20416 **Transformation of an Agulhas Eddy Near the Continental Slope**
S. Baker-Yeboah*, G. Sutyrin, G.R. Flierl, Y. Zhang
Massachusetts Institute of Technology, USA

*Denotes presenting author.

1500-1630 Exhibit Hall
Poster board numbers are listed in the left margin

J018 J04.1/20417 **Antarctic Ice Sheet Melting Provides Negative Feedbacks on Future Climate Warming**
T. Fichefet*, D. Swingedouw, P. Huybrechts, H. Goosse, E. Driesschaert, M.-F. Loutre
Université Catholique de Louvain, Institut d'Astronomie et de Géophysique Georges Lemaître, Louvain-La-Neuve, Belgium

J019 J04.2/20417 **A Polythermal Parallel Ice Sheet Model**
A. Aschwanden*, E. Bueler, M. Truffer
Arctic Region Supercomputing Center, Fairbanks, USA

J020 J04.3/20417 **Changes in the Ice Sheets Masses in Antarctica and Greenland from the Earth's Rotation Instabilities Data**
N. Sidorenkov*
Hydrometcenter of Russia, Moscow, Russia

J021 J04.4/20417 **Subgrid Representation of Margins in Simulation of Greenland Ice Sheet Dynamics**
S.J. Marshall*
University of Calgary, Calgary, Canada

J022 J04.5/20417 **In situ Accumulation Measurements at Fleming Glacier (69°S), Wordie Ice-shelf Embayment, Western Antarctic Peninsula**
A. Rivera*, F. Bown, A. Wendt, R. Zamora, J. Wendt, C. Bravo, M. Rodriguez,
Centro de Estudios Cientificos (CECS), Valdivia, Chile

J023 J04.6/20417 **Model Verification and Atmospheric Conditions Associated with a Significant Greenland Melt Event in 2002**
S. Zhang*, G.W.K. Moore
University of Toronto, Canada

J024 J04.7/20417 **Ocean Freshening near Antarctica**
C.F. Giulivi*, S.S. Jacobs
Lamont-Doherty Earth Observatoty of Columbia University, New York, USA

J048 J12.8/20417 **Evaluation of the Internal Variability in the Canadian Regional Climate Model over the Arctic domain using the Approach Big-Brother**
M. Rapaic*, M. Leduc, R. Laprise
UQAM, Montréal, Canada

J049 J12.9/20417 **Output from a Ten Year Climate Run of a Regional Antarctic Numerical Weather Prediction System**
N. Adams*
Australian Bureau of Meteorology, and the Antarctic Climate and Ecosystems Cooperative Research Centre, Hobart Tasmania, Australia

J050 J12.10/20417 **Comparison of RegCM Simulations for Poland with Observational Data**
A. Jaczewski*, M. Liszewska
Institute of Meteorology and Water Management, Legionowo, Poland

J051 J12.11/20417 **Changes in Weather Extremes Simulated by High Resolution RegCM over Romania for the Near Future (2021-2050)**
C. Boroneant*, M. Caian, A. Enculescu, M. Matei
National Meteorological Administration, Bucharest, Romania

J052 J12.12/20417 **Dynamical Downscaling for the Impact Estimation of Snow Amount over Japan Using Pseudo Global Warming Method**
M. Hara*, T. Yoshikane, X. Ma, F. Kimura, H. Kawase
Japan Agency for Marine-Earth Science and Technology, Yokohama, Japan

J053 J12.13/20417 **Dynamical and Statistical Downscaling Experiments to Project Regional Climate Change of Intense Precipitation in Japan**
Y. Wakazuki*
Japan Agency for Marine-Earth Science and Technology, Yokohama, Japan

J054 J12.14/20417 **Impact of SST Resolution on Climate Simulation Around Japan**
S. Iizuka*, K. Dairaku, W. Sasaki
National Research Institute for Earth Science and Disaster Prevention, Tsukuba, Japan

J055 J12.15/20417 **Land-Atmosphere Interactions Described by a Regional Coupled Model Applied on Mediterranean Area**
G. Sannino*, P. Faggian, D. Ronzio, V. Artale, A. Dell'Aquila, A. Carillo
CESI Ricerca - Milano – Italy

J056 J12.16/20417 **Numerical Simulation of Regional Climate Extremes under IPCC A2 Scenario in Southeast China**
W. Chen*, Z. Jiang, L. Li, P. Yiou
Nanjing University of Information Science and Technology, Key Laboratory of Meteorological Disaster of Ministry of Education, Nanjing, China

J057 J12.17/20417 **Toward the Assessment of the Global Warming Effects on Japan Coasts using Regional Wave Model**
W. Sasaki*, K. Dairaku, S. Iizuka
Frontier Research Center for Global Change, JAMSTEC, Yokohama, Japan

J058 J12.18/20417 **Typhoons Reproduced in a 5km-mesh Regional Climate Model**
M. Nakano*, S. Kanada, T. Kato, S. Hayashi, M. Nakamura, H. Sasaki, T. Uchiyama, K. Kurihara, A. Kitoh
Advanced Earth Science and Technology Organization, Tsukuba, Japan

J059 J12.19/20417 **Projection of the Changes in the Future Extremes over Japan Using a Cloud-Resolving Non-Hydrostatic Model (JMA-NHM) with Horizontal Resolutions of Several Kilometers**
S. Kanada*, M. Nakamura, M. Nakano, S. Hayashi, T. Kato, H. Sasaki, K. Aranami, Y. Honda, K. Kurihara, A. Kitoh, T. Uchiyama
AESTO/MRI, Tsukuba, Japan

J076 J16.20/20417 **Use of High-resolution X-band Weather Radar for Areal Rainfall Estimation**
Z. Toofaninejad*, H. Leijnse, R. Uijlenhoet
Atmospheric Science and Meteorological Research Center, Tehran, Iran

J077 J16.21/20417 **The Differences of Cloud Properties between Precipitating and Non-precipitating Clouds over the Tropics and Subtropics Derived from TRMM Measurements**
Q. Liu*, Y. Fu
School of Earth and Space Sciences, University of Science and Technology of China, Heifei, China

J078 J16.22/20417 **A Water Vapor Algorithm for TMI Measurements Based on a Log-Linear Relationship**
Y. Wang*, Y. Fu, G. Liu
University of Science and Technology of China, Hefei, Anhui, China

J079 J16.23/20417 **Intercomparison of the Relationship between Precipitation and Elevation among Gridded Precipitation Datasets**
O. Arakawa*, K. Kamiguchi, A. Kitoh
Meteorological Research Institute, Tsukuba, Japan

J080 J16.24/20417 **New Evidences of Precipitation in Subtropical High Condition during Boreal Summer**
S. Feng*, Q. Liu, Y. Fu
University of Science and Technology of China, Heifei, China

J081 J16.25/20417 **Satellite-Based Estimation of Freshwater Discharge from the Mississippi and Changjiang Rivers**
A. Fan*, B. Lin
SSAI, Hampton, USA

J082 J16.26/20417 **Rainfall Monitoring over Iran, Using Passive Microwave Satellite Data**
A. Matkan*
Shahid Beheshti University, Tehran, Iran

J083 J16.27/20417 **Observing Land in the Future Sentinel -2 a State of the Art GMES Mission**
M. Bali*, M. Niezette
Vega Deutschland GmbH & Co. KG, Darmstadt, Germany

C111 C02.1/20417 **A Study Ecological Characteristics of Nettle Tree in Caspian of Forests**
F. Kazemnezhad*
Islamic Azad University of Chalous Branch, Iran

C112 C02.2/20417 **Climate Change Induced Massive Mortality in Maghreb Forests: Case Study of Atlas cedar (Cedrus atlantica M.) Dieback in Algeria**
H. Chenchouni*, A. Briki
Forest Conservation of Wilaya of Batna, Algeria

C113 C02.3/20417 **Effect of Gap Size and Light on Qualitative and Quantitative Characteristics of White Beech (carpinus betulus L.) Seedlings in Mountain Forest Caspian Region**
K. Ghourchibeiky*, A. Kia, R. Noory
Azad University, Tonekabon, Iran

C114 C02.4/20417 **Estimation of Outflow from the Bottom of Snowpack in a Mountainous Region in Central Japan with a Simple Combined Snowmelt-Percolation Model**
T. Matsumoto*, K. Kawashima, A. Togari, M. Shimamura
Research Center for Natural Hazards and Disaster Recovery, Niigata University, Niigata, Japa

C115 C02.5/20417 **Seasonal Change in the Altitudinal Distribution of Snowmelt on a Mountainous Slope in Northern Japan in Relation to Synoptic Scale Climatic Condition**
T. Matsumoto*, Y. Kodama, N. Ishikawa
Research Center for Natural Hazards and Disaster Recovery, Niigata University, Niigata, Japan

M122 M01.1/20417 **Fast Radiative Transport of Infrared Limb Measurements in the Presence of Clouds**
S. Griessbach*, L. Hoffmann, M. Ern, R. Spang
Forschungszentrum Jülich, Jülich, Germany

M123 M01.2/20417 **Current Status of SAM II, SAGE, SAGE II and SAGE III Data Products**
L. Thomason*, J. Zawondy, J.R. Moore, N. Iyer
NASA Langley Research Center, Hampton, VA, USA

M124 M01.3/20417 **The Diurnal and Seasonal Evolution of Chlorine Monoxide and its Implications for ClO Dimer Chemistry**
S. Kremser*, R. Schofield, B.J. Connor, G.E. Bodeker, J. Barrett, T. Canty, R.J. Salawitch, M. Rex, U. Langematz, M.P. Chipperfield
Freie Universitaet Berlin, Berlin, Germany

M125 M01.4/20417 **A Revised Ozone Parameterisation: COPCAT Coefficients within SLIMCAT Simulations**
B. Monge-Sanz*, M. Chipperfield
Institute for Atmospheric Science and Climate, University of Leeds, UK

M126 M01.5/20417 **The Sensitivity of Chemistry Climate Model Results to the Solar Cycle and Volcanic Aerosol during 1980-2000**
Y. Yamashita*, K. Sakamoto, H. Akiyoshi, M. Takahashi, T. Nagashima, L.B. Zhou
Center for Climate System Research, University of Tokyo, Kashiwa, Japan

*Denotes presenting author.

M127 M01.6/20417 **Untangling the Dynamical and Chemical Effects on the Evolution of Stratospheric Ozone Through the 21st Century**
D.A. Plummer*, J.F. Scinocca, T.G. Shepherd, S.R. Beagley, K. Semeniuk
Environment Canada, Montréal, Canada

M128 M01.7/20417 **Ozone and EESC Recovery Times in the Future Atmosphere Calculated under the CCMVal-REF2 Scenario and a No-Climate-Change Run**
H. Akiyoshi*, Y. Yamashita, K. Sakamoto, L.B. Zhou, T. Imamura
National Institute for Environmental Studies, Tsukuba, Japan

M129 M01.8/20417 **Is Ozone Recovering as Expected?**
B. Hassler*, G.E. Bodeker, M. Dameris
National Institute of Water and Atmospheric Research, Lauder, New Zealand

M130 M01.9/20417 **Atmospheric Temperature Response to Decrease in Long-Wave Transmissivity in a Two-Layer Model: Illustration of Stratospheric Cooling**
S. Gotoh*, H. Kanzawa
Graduate School of Environmental Studies, Nagoya University, Nagoya, Japan

M131 M01.10/20417 **First Brewer Ozone Spectrophotometer Observations from the South Pole**
C.T. McElroy*, V. Savastiouk, R.D. Evans, S. Oltmans, J. Booth, A. Cox
Environment Canada, Downsview, Canada

M141 M06.11/20417 **Case Study of a Semi-stationary Subtropical Cyclone on the Border Between Brazil and Uruguay**
L. F. Prado*, F. Vemado
University of Sao Paulo, Sao Paulo, Brazil

M142 M06.12/20417 **Dynamical and Microphysical Parameters of the Cold Front Cloud System Influence on the Frontal Profile Slope**
M. Curic*
Institute of Meteorology, University of Belgrade, Belgrade, Serbia

M143 M06.13/20417 **Structure and Energy Cycle of a Cyclone System in the Brazilian Southeastern Coast: A Case Study**
J.R. Dias Pinto*, R.P. da Rocha
Department of Atmospheric Science, University of São Paulo, Brazil

M144 M06.14/20417 **Understanding the Storm Track and large-Scale Flow Response to Midlatitude SST Anomalies**
D.J. Brayshaw*, B. Hoskins, M. Blackburn
Reading University, Reading, UK

M145 M06.15/20417 **Nonlinear Baroclinic Dynamics of Surface Cyclones Crossing a Zonal Jet**
G. Rivière*, J.-B. Gilet, M. Plu
CNRM/GAME (CNRS and Météo-France)

M146 M06.16/20417 **Stationary Nonlinearity and Stationary Wave Reflection Near the Critical Layer**
L. Wang*, P. Kushner
University of Toronto, Canada

M147 M06.17/20417 **The PV Dynamics of the Polar Front and the Connected Precipitation Patterns in Middle Latitudes for Aqua-Planet and Realistic Boundary Conditions**
H. Borth*, I. Tuerschmann, V. Wirth
KlimaCampus, University of Hamburg, Germany

M159 M07.18/20417 **A Statistical Dynamical Kalman Filter for Geophysical Flows.**
J.S. Frederiksen*, T.J. O'Kane
CSIRO Marine and Atmospheric Research, Aspendale, Australia

M160 M07.19/20417 **Bayesian Model Averaging's Problematic Treatment of Extreme Weather and a Paradigm Shift that Fixes It**
C.H. Bishop*, K.T. Shanley
Naval Research Laboratory, Monterey, USA

M161 M07.20/20417 **A Short-Range Ensemble Precipitation Prediction System over Iberia: Evaluation and Verification During a low Predictability Season**
A. Pascual*, D. Santos-Muñoz, M.L. Martin, F. Valero, L.I. Sebastián
Universidad Complutense de Madrid, Spain

M162 M07.21/20417 **Flow-dependent Error Covariances from an Ensemble Variational Assimilation**
A. Bouchard*, L. Berre, G. Desroziers, L. Raynaud, R. Montroty, O. Pannekoucke, F. Rabier,
Météo France/CNRS

M163 M07.22/20417 **An Adaptive Ensemble Covariance Localization Tool for the Local Ensemble Transform Kalman Filter**
D. Hodyss*, C.H. Bishop
Naval Research Laboratory, Monterey, USA

M164 M07.23/20417 **Investigating the Cycling Interval of the Ensemble Transform**
J. McLay*, C. Reynolds
Naval Research Laboratory, Monterey, USA

M167 M08.24/20417 **Numerical Modeling of Maximum Hail Size**
G.W. Reuter*, F. Jia
University of Alberta, Edmonton, Canada

M168 M08.25/20417 **Analysis of Regional Droughts by Using some indices in Salt Lake Basin of Iran**
T. Ensafi Moghaddam*
Research Institute of Forests and Rangelands, Tehran, Iran

M169 M08.26/20417 **Case Study of Aircraft Icing at Tehran-Mehrabad Airport**
S. Tajbakhsh*, P. Ghaffarian, F. Sahraian
I.R. of Iran Meteorological Organization, Tehran, Iran

*Denotes presenting author.

M170 M08.27/20417 **Mean Climatic Conditions that Favor the Subtropical Cyclones Development over Eastern Coast of Brazil**
T. Ambrizzi*, M.S. Reboita, R.P. Da Rocha
University of São Paulo, São Paulo, Brazil

M171 M08.28/20417 **Estimation of the Geophysical Parameters and Orbital Error Effect on the Altimetric Measurements for Mean Sea Level Determination**
A. Rami*, S. Kahlouche, M. Khelif
Centre of Space Techniques, Oran, Algeria

M172 M08.29/20417 **Climate Change and Return Precipitation in Morocco**
M.-S. Karrouk*
University Hassan II, Climatology Research Centre (CEREC), Casablanca, Maroc

M173 M08.30/20417 **Investigate the MM5 Model Ability to Simulate and Predict Convective Precipitation**
S. Ghandhari*, A.H. Meshkatee, M. M.Farahani, S. Jafari
Mashad Iran Climatology Research Institute, Iran

M174 M08.31/20417 **Interactions of Elevated Supercells with the Stable Boundary Layer: An Observational Study on the Possible Mechanisms for Tornadogenesis in the Lawrence, Kansas Supercell of 12 March, 2006**
C.T. Simmons*, L.A. Mysak
McGill University, Montréal, Canada

M175 M08.32/20417 **Analysis of a Return-flow Event with Rain Storm Occurred over North China**
S. Zhang*, Y. Zhang, P. Guo
Hebei Meteorological and Eco-Environmental Monitoring Laboratory, Shijiazhuang, China

M176 M08.33/20417 **The Effects of NAO on Some Meteorological Parameters over South West Asia**
M.A. Nasr Esfahany*, F. Ahmadi Givi, A.R. Mohebalhojeh
University of Tehran, Tehran, Iran

M177 M08.34/20417 **Causes of Abrupt Heavy Fog over Highway**
M.L. Yan*, Q.L. Miao
Nanjing University of Information Science &Technology, China

M178 M08.35/20417 **Mesoscale Moist Adjoint Sensitivities Study of a Meiyu Heavy Rainfall Event**
K.K. Chu*, Z.M. Tan
Nanjing University, Nanjing, China

M179 M08.36/20417 **Review the Effect of ENSO on the Iran Seasonal Precipitation Distribution during 1971-2000**
D. Parhizkar*, F. Ahmadi Givi, S. Hajjam
Islamic Azad University, Tehran, Iran

M180 M08.37/20417 **An Experiment on Objective Forecasting Temperature**
M. Shao*, H. Xu
National Meteorological Center, CMA, China

M181 M08.38/20417 **Numerical Simulation of Secondary Cyclone over the East Coast of Southern Brazil**
C.M.N. Iwabe*, R.P. da Rocha
University of São Paulo, São Paulo, Brazil

P231 P05.1/20417 **Subsatellite Experiments near the Shelf in the Black Sea**
V. Bakhanov*, N. Bogatov, A. Ermoshkin, V. Kazakov, O. Kemarskaya, V. Lobanov, I. Repina, V. Titov, Yu. Troitskaya, E. Zuikova
Institute of Applied Physics RAS, Nizhny Novgorod, Russia

P232 P05.2/20417 **Near-Inertial Waves Coupled to Mesoscale Motions and their Role on Diapycnal Mixing Processes**
M.B. Aguiar-González*, A. Rodríguez-Santana, J. Cisneros-Aguirre, A. Martínez-Marrero
Universidad de Las Palmas de Gran Canaria, Spain

P233 P05.3/20417 **Examination of the Japan Sea Variability using Merged Satellite Altimetry Data**
O.O. Trusenkova*, D.D. Kaplunenko, V.B. Lobanov
V.I. Il'ichev Pacific Oceanological Institute, Far Eastern Branch, Russian Academy of Sciences, Vladivostok, Russia

P246 P06.4/20417 **A New Model for Vertical Ocean Mixing**
V.M. Canuto*, A.M. Howard, Y. Cheng
NASA-Goddard Institute for Space Studies, New York, USA

P247 P06.5/20417 **Turbulence-Wave Duality in Anisotropic Turbulence**
B. Galperin*, S. Sukoriansky, N. Dikovskaya
College of Marine Science, University of South Florida, St. Petersburg, USA

P248 P06.6/20417 **Influence of Vertical Mixing on Meridional Overturning Circulation under the Energy Constraint**
Y.P. Guan*, Y. Shen, R.X. Huang
LED, South China Sea Institute of Oceanology, CAS, Guangzhou, China

P249 P06.7/20417 **Microstructure Measurements in the Northern South China Sea during the Summer**
X.H. Xie*, G.Y. Chen, Z.M. Lu, X.D. Shang
South China Sea Institute of Oceanology, Chinese Academy of Sciences, Guangzhou, China

P250 P06.8/20417 **Vertical Mixing in the Northern East China Sea during Summer**
C. J. Jang*, S.-T. Jang, J. H. Lee, D. Kim, S. You, C.-H. Kim
Korea Ocean Research & Development Institute, Ansan, Korea

P262 P09.9/20417 **The Upwelling of Downwelling Currents**
R.P. Matano*, E.D. Palma
Oregon State University, Corvallis, USA

*Denotes presenting author.

P263 P09.10/20417 **Diurnal Internal Tides Trapped around an Island in the Middle Adriatic**
H. Mihanovic*, M. Orlic, Z. Pasaric
Hydrographic Institute of the Republic of Croatia, Split, Croatia

P264 P09.11/20417 **Freshwater Transport in the Coastal Buoyancy-Driven Current Affected by Variable Downwelling-Favorable Winds**
A. Yankovsky*, G. Maze, J. Rogers-Cotrone
University of South Carolina, Columbia, USA

P265 P09.12/20417 **Intrusion of the Kuroshio Subsurface Water on the East China Sea Shelf**
C. Sun*, X.-M. Yan
Chinese Academy of Sciences, Qingdao, China

P266 P09.13/20417 **Long Term Changes and Front Behavior at the Ross Sea Shelf Break (Antarctica)**
G. Budillon*, P. Castagno, S. Aliani,
A. Bergamasco, G. Spezie
Universita' degli Studi di Napoli 'Parthenope', Italy

P267 P09.14/20417 **Simulation of Seasonal Variations of Chlorophyll in the Yellow and East China Seas**
X. Guo*, X. Zhao
Ocean University of China, Qingdao, P.R. China

0830-1000 **520f**
Session: Invited Lectures
Chair: Ian Renfrew

0830 J14.1/21106 **Boundary Layers and Chemistry over the Polar Ice Sheets**
W.D. Neff*
NOAA/Earth System Research Laboratory, Boulder, USA

0900 J14.3/21106 **Low-Level Performance of Polar WRF in Polar Environments**
D.H. Bromwich*, K.M. Hines
Polar Meteorology Group, Byrd Polar Research Center, The Ohio State University, Columbus, OH, USA

0930 J14.5/21106 **Airborne Studies of Atmosphere-Ice-Ocean Interactions in the Arctic**
J. Hartmann*, G. Birnbaum, V. Gryanik, C. Lüpkes
Alfred Wegener Institute for Polar and Marine Research, Bremerhaven, Germany

0830-1000 **520b**
Session: Remote Sensing of Sea Ice
Chair: Christian Haas

0830 J16.13/21107 **Operationally Monitoring Sea Ice in Canada's Changing Arctic**
R. De Abreu*
Canadian Ice Service / Environment Canada

0900 J16.15/21107 **The Use of SAR Products for Expedition Planning and Polynya Model Validation**
T. Krumpen*, T. Busche, C. Haas, S. Hendricks, J. Hoelemann, T. Klagge, M.A. Morales Maqueda, L. Rabenstein, D. Schroeder, S. Willmes,
Alfred Wegener Institute (AWI), Bremerhaven, Germany

0915 J16.16/21107 **Analyses of Arctic Sea-Ice Concentrations Calculated from Satellite Radiometer Data at 85 GHz for 1992-2008**
S. Kern*, L. Kaleschke, G. Spreen
Center for Marine and Atmospheric Sciences, University of Hamburg, Institute of Oceanography, Hamburg, Germany

0930 J16.17/21107 **Improving Models with Global Scale Sea Ice Data from Satellites**
F. Girard-Ardhuin*, D. Croize-Fillon, G. Garric, C.E. Testut
Ifremer LOS/CERSAT, Plouzane, France

0945 J16.18/21107 **High Radar-backscatter Regions on Antarctic Sea Ice and their Relation to Sea-ice and Snow Properties and Meteorological Conditions**
S. Willmes*, C. Haas, M. Nicolaus
University of Trier, Trier, Germany

0830-1000 **520c**
Session: Ocean Circulation/ Vertical Heatfluxes
Chair: Bruno Tremblay

0830 J05.13/21108 **Surface Freshening due to Melting of Sea Ice and its Consequence in Ocean Acidification in the Canada Basin**
M. Yamamoto-Kawai*, F.A. McLaughlin, E.C. Carmack, S. Nishino, K. Shimada, N. Kurita
Institute of Ocean Sciences, Fisheries and Oceans, Sidney, Canada;

0845 J05.14/21108 **Seasonal Modification of the Arctic Ocean Intermediate Water Layer Off the Eastern Laptev Sea Continental Shelf Break**
I.A. Dmitrenko*, S.A. Kirillov, V.V. Ivanov, R.A. Woodgate, I.V. Polyakov, N. Koldunov, L. Fortier, C. Lalande, L.. Kaleschke, L.A. Timokhov,
Leibniz Institute of Marine Sciences, University of Kiel, Germany

0900 J05.15/21108 **Mixing Mechanisms and the Evolution of Heat and Salt in the Canada Basin**
M.-L. Timmermans*
Woods Hole Oceanographic Institution, Woods Hole, MA, USA

0930 J05.17/21108 **The Development of Atlantic Water Heat Content on its Way through the Arctic Ocean**
C. Koeberle*, R. Gerdes, F. Hacker
Alfred Wegener Institute for Polar and Marine Research, Bremerhaven, Germany

0830-1000 **520de**
Session: Atmospheric Chemistry
Chair: Michel Béland

0830 J03.13/21109 **Studying the Atmospheric Input of Organic Pollutants and Mercury to the Arctic: the IPY Project of Intercontinental Atmospheric Transport of Anthropogenic Pollutants to the Arctic (INCATPA)**
H. Hung*, A. Steffen, Y. Su, Y.-F. Li, J. Ma, A. Dastoor, A. Cole, D. Durnford, E. Sverko, T. Harner,
Environment Canada, Toronto, Canada

0900 J03.15/21109 **Time Trends in Air-Sea CO2 Fluxes in a Changing Arctic Climate**
B. Lansard*, A. Mucci, L.A. Miller, E. Shadwick, H. Thomas, T.N. Papakyriakou
McGill University, Montréal, Canada

0915 J03.16/21109 **MATCH-PSC Lidar Campaigns in Antarctica during IPY: Polar Stratospheric Clouds Formation and Evolution**
N. Montoux*, C. David, A. Klekociuk, M. Pitts, M. Snels, J. Jumelet, P. Keckhut, S. Bekki
LATMOS, Paris, France

*Denotes presenting author.

0930 J03.17/21109 **Report of Key Results from the Study of the Aerosol Impact on the Arctic Hydrological Cycle during IPY**
J.P. Blanchet*, É. Girard, T. Ayash, J. Sloan
Université du Québec à Montréal, Canada

0830-1000 525ab
Session: Regional Climate Modelling
Chair: Ernesto-Hugo Berbery

0830 J12.13/21110 **A New Global Meso-beta-scale Atmospheric Reanalysis**
A.J. Monaghan*, D.L. Rife, J.O. Pinto, C.A. Davis
National Center for Atmospheric Research, Boulder, USA

0845 J12.14/21110 **Assessing the Dynamic Downscaling Ability over South America with the Intensity-Scale Verification Approach**
F. De Sales*, Y. Xue
University of California, Los Angeles, USA

0900 J12.15/21110 **On the Relative Importance of High-Resolution Dynamical Downscaling Error Components**
A. Gobiet*, M. Suklitsch, H. Truhetz, N.K. Awan, H. Goettel, D. Jacob
Wegener Center for Climate and Global Change and Institute for Geophysics, Astrophysics, and Meteorology, University of Graz, Austria

0915 J12.16/21110 **Regional Climate Change Scenarios - Benefits of Modeling in High Resolution for Central and Eastern Europe**
T. Halenka*, M. Belda, J. Miksovsky
Dept. of Meteorology and Environment Protection, Faculty of Mathematics and Physics, Charles University, Czech Republic

0930 J12.17/21110 **Preliminary Results Obtained with the Developmental Version of the Canadian Regional Climate Model (CRCM5)**
R. Laprise*, D. Paquin, K. Winger, R. de Elia, A. Zadra, B. Dugas
Université du Québec à Montréal, Canada

0945 J12.18/21110 **Regional Climate Modeling for Impacts Applications in the US Pacific Northwest**
E.P. Salathe, Jr.*, C. Mass, Y. Zhang, R. Steed
University of Washington, Seattle, USA

0830-1000 516c
Session: Effects of interactions among atmosphere, ocean, land surface, cryosphere, and biosphere, including human activities, on monsoons
Chair: Andrew Turner

0830 J17.13/21111 **Submonthly Indian Ocean Cooling Events and Their Interaction With Large-scale Conditions**
G. Vecchi*, I. Lloyd
NOAA/GFDL, Princeton NJ, USA

0900 J17.15/21111 **Effect of Atmosphere-Ocean Interaction on the Tripole Rainfall Pattern in East Asia during Boreal Summer**
H.-H. Hsu*, W.-L. Tseng
National Taiwan University, Taipei, Taiwan

0915 J17.16/21111 **Effects of Interannual Variations of SST over the Tropical Oceans on Summer Monsoon Trough and Tropical Cyclone Activity over the Western North Pacific**
T. Terao*
Kagawa University, Takamatsu, Japan

0930 J17.17/21111 **Biennial Transitions between the Indian and Australian Summer Monsoons and Roles of Ocean-Atmosphere Interactions in the Tropical Indian Ocean**
R. Wu*
Center for Ocean-Land-Atmosphere Studies, Calverton, USA

0945 J17.18/21111 **The Role of the Western Arabian Sea Upwelling in Indian Monsoon Rainfall Variability**
T. Izumo*, C. de Boyer Montegut, J.-J. Luo, S.K. Behera, S. Masson, T. Yamagata
Frontier Research Center for Global Change (FRCGC), JAMSTEC, Yokohama, Japan

0830-1000 516a
Session: Forest Snow Avalanches / Mixed
Chair: Peter Bebi

0830 C02.13/21112 **Meteorological and Snow Pack Conditions during Avalanche Releases in forested Areas of the Swiss Alps**
P. Bebi*, C. Gollut
WSL - Institute for Snow and Avalanche Research, SLF Davos, Switzerland

0845 C02.14/21112 **Parameterisation of Blowing Snow Transport and Sublimation in a Hydrological Land Surface Scheme: Model Tests Over Mountain Tundra Terrain**
M.K. MacDonald*, J.W. Pomeroy, A. Pietroniro
University of Saskatchewan, Saskatoon, Canada

0900 C02.15/21112 **Assessing Snowpack Modeling on Slopes**
C. Fierz*, M. Lehning, J. Schweizer
WSL Institute for Snow and Avalanche Research SLF, Davos, Switzerland

0915 C02.16/21112 **Forest Disturbances, Snow Redistribution, and Snow Avalanche Interactions on Mountain Treed Slopes**
M. Voiculescu*, D. Germain
West University, Timisoara, Romania

0930 C02.17/21112 **Determination of Snow Accumulation and Duration under Different Canopy Covers and Elevation Classes of Forest: A Case Study from Bolu, Turkey**
A. Aydin*, A. Duyar, M. Ozturk
Western Black Sea Forestry Research Institute, Bolu, Turkey

0945 C02.18/21112 **Snow Density Measurement in Different Elevation Classes in Kartalkaya-Bolu, Turkey**
A. Aydin*, A. Duyar
Western Black Sea Forestry Research Institute, Bolu, Turkey

0830-1000 **518ab**
Session: Aerosol Effects in Global Models
Chair: Philip Stier

0830 M13.13/21101 **Direct and Indirect Forcing by Anthropogenic Aerosols: Can We Decrease Uncertainties?**
J. Penner*, M. Wang, L. Xu
University of Michigan, USA

0900 M13.15/21101 **Aerosol Direct and Indirect Radiative Forcing Evaluation Relevant for Earth's Climate Formation**
T. Nakajima*, E. Oikawa, S. Fukuda, T. Mitsui, D. Goto, M. Satoh, K. Suzuki
Center for Climate System Research, University of Tokyo, Japan

0915 M13.16/21101 **Synthetic Simulation of Aerosol-Cloud-Radiation-Precipitation Interactions with General Circulation Model**
T. Takemura*
Research Institute for Applied Mechanics, Kyushu University, Fukuoka, Japan

0930 M13.17/21101 **Aerosol-Cloud Interactions: Sensitivity to Carbonaceous Aerosol Emissions and Changing GHGs**
S. Menon*, D. Koch, G. Beig, I. Sednev
Lawrence Berkeley National Laboratory, Berkeley, CA, USA

0945 M13.18/21101 **Using CERES Observations to Evaluate the Aerosol Indirect Effect in the CCCma GCM**
X. Ma*, K. Von Salzen, J. Cole
Canadian Centre for Climate Modeling and Analysis, University of Victoria, Canada

0830-1000 **518c**
Session: Theoretical Advances in Dynamics
Chair: Eyal Heifetz

0830 M06.13/21102 **Influence of the Stratospheric Potential Vorticity Distribution on Planetary Wave Breaking and the Brewer-Dobson Circulation**
R.K. Scott*
University of St Andrews, St Andrews, Scotland, UK

0900 M06.15/21102 **A Vortex Dynamics Perspective on Stratospheric Sudden Warmings: The Resonant Excitation Theory**
N.J. Matthewman*, J.G. Esler
University College London, UK

0915 M06.16/21102 **Finite Amplitude Equilibration of Baroclinic Waves on a Jet**
S. Lee*
Pennsylvania State University, University Park, USA

0830-1000 **524ab**
Session: Chemistry/Transport (1)
Chair: Daniel Marsh

0830 M01.13/21103 **Direct Measurement of Polar Stratospheric Cloud Volume by CALIPSO**
M.C. Pitts*, L.R. Poole, L.W. Thomason
NASA Langley Research Center, Hampton, VA, USA

0845 M01.14/21103 **A Global View on the Extratropical Tropopause Transition Layer from the ACE-FTS**
M.I. Hegglin*, C.D. Boone, G.L. Manney, K.A. Walker
University of Toronto, Toronto, Canada

0900 M01.15/21103 **The Role of Potential Vorticity as a Barrier to Exchange between the Troposphere and Lowermost Stratosphere**
J. Gille*, S. Karol, V. Yudin, D. Kinnison, B. Nard
University of Colorado, Boulder, USA

0915 M01.16/21103 **Assessment of the Interannual Variability of Lower Stratospheric Monthly Averages of O3 and N2O using Observations from Odin/SMR**
F. Khosrawi*, R. Mueller, M.H. Proffitt, J. Urban, D.P. Murtagh
MISU, Stockholm University, Stockholm, Sweden

0930 M01.17/21103 **Mesosphere-StratosphereTransport During Southern Hemisphere Autumn Deduced from MIPAS Observations**
W.A. Lahoz*, Y. Orsolini, A.J. Geer, W. Choi, D. Allen
NILU, Kjeller, Norway

0945 M01.18/21103 **Ascent Rates in the Tropical Lower Stratosphere Derived from Vertical Profiles of Ozonesonde Data**
R. Lehmann*, M. Rex
Alfred Wegener Institute for Polar and Marine Research, Potsdam, Germany

0830-1000 **524c**
Session: Dynamics and Predictability of High-impact Weather
Chair: Edmund Chang

0830 M08.13/21104 **A Case Study of a 'Hurricane-like' Polar Low in the Barents Sea during 16-21 December 2002**
I. Føre*, J.E. Kristjansson, E. Kolstad, Ø. Sætra
University of Oslo, Oslo, Norway

*Denotes presenting author.

0845 M08.14/21104 **High-impact Forecasting in the Future - TIGGE and Plans for a Global Interactive Forecast System**
R. Swinbank*, Z. Toth, P. Bougeault, E. Ebert, W. Tennant
Met Office, Exeter, UK

0900 M08.15/21104 **Nargis Track Forecasts by JMA Weekly Ensemble Forecast Data**
T. Nakazawa*, R. Sakai, T. Komori
Meteorological Research Institute, Tsukuba, Japan

0915 M08.16/21104 **T-NAWDEX - The THORPEX North Atlantic Waveguide and Downstream Impact Experiment: Outline of Scientific Background**
H. Wernli*, A. Dörnbrack, G. Craig, S. Jones
DLR Oberpfaffenhofen, Germany

0930 M08.17/21104 **The THORPEX Interactive Grand Global Ensemble (TIGGE) and the Prediction of Extratropical Cyclones**
L. S. R. Froude*, K. I. Hodges, L. Bengtsson
Environmental Systems Science Centre (ESSC), University of Reading, UK

0945 M08.18/21104 **A Climatology of High Lapse Rates and their Influence on Heat Waves East of the Rocky Mountains**
J.M. Cordeira*, T.J. Galarneau, Jr., L.F. Bosart
University At Albany/SUNY, Albany, New York, USA

0830-1000 **519ab**
Session: Towards Seamless Probalistics Forecasting
Chair: Jorgen Fredericksen

0830 M07.13/21105 **Status of the Short-range Ensemble Prediction System at Météo-France**
L. Descamps*, C. Labadie, A. Joly
Météo-France, Toulouse, France

0845 M07.14/21105 **Multi-Ensemble and Bias-Corrected Ensemble: the NAEFS Example**
G. Candille*
Department of Earth and Atmospheric Sciences, Université du Québec à Montréal, Canada

0900 M07.15/21105 **On the Orthogonalization of Bred Vectors**
J.D. Keller*, A. Hense, L. Kornblueh, A. Rhodin
University of Bonn, Germany

0915 M07.16/21105 **Local Predictability of the Performance of an Ensemble Forecast System**
I. Szunyogh*, E. Satterfield
Texas A&M University, College Station, TX, USA

0930 M07.17/21105 **NAEFS and Its Probabilistic Forecast**
Y. Zhu*, B. Cui, D. Hou, Z. Toth
Environmental Modeling Center/NCEP/NOAA, Camp Springs, MD, USA

0945 M07.18/21105 **Comparison of Moist Targeted Singular Vectors and Ensemble Kalman Filter Perturbations for Regional Ensemble Prediction Systems**
X. Li*, M. Charron, R. Frenette, M.K. Yau
McGill University, Canada

0830-1000 **516b**
Session: Deep Sea
Chair: Michael Stacey

0830 P01.13/21113 **Cold Core Eddies between New Zealand and Antarctica Detected during the Oceanographic Cruises of the CLIMA Project**
Y. Cotroneo*, G. Budillon, G. Fusco, G. Spezie
Università degli Studi di Napoli 'Parthenope', Naples, Italy

0845 P01.14/21113 **The Vertical Structure of Eddy Heat Transport Simulated by an Eddy-Resolving OGCM**
B.Y. Yim*, Y. Noh, B. Qiu, S.H. You, J.H. Yoon
Yonsei University, Seoul, Korea

0900 P01.15/21113 **Internal and Forced Eddy Variability in the Labrador Sea**
A. Bracco*, H. Luo, Y. Zhong
EAS Georgia Tech, Atlanta GA, USA

0915 P01.16/21113 **On the Propagation and Decay of NBC Rings**
K. Kirchner*, S. Hüttl-Kabus, M. Rhein
University of Bremen, Bremen, Germany

0930 P01.17/21113 **Observations and Models of the Interaction between Geostrophic Turbulence and Rossby Waves in the Ocean**
J. Marshall*
Massachusetts Institute of Technology, Cambridge, USA

0830-1000 **520a**
Session: Modeling and Circulation
Chair: Leo Maas

0830 P05.13/21114 **Inventories of Bomb Tritium in the General Circulation Model of the North Pacific**
Y.F. Xu*, Q. Ba
Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China

0845 P05.14/21114 **From IAPSO Standard Seawater to the Hydrothermal Fluids Found off NE Taiwan**
C.T.A. Chen*
National Sun Yat-Sen University, Institute of Marine Geology and Chemistry, Kaohsiung, Taiwan

0900 P05.15/21114 **Seasonal and Interannual Variability of Sea Ice Extent in the Arctic Ocean**
A.G. Kostianoy*, A.M. Sirota, P.N. Ermakov
P.P. Shirshov Institute of Oceanology, Moscow, Russia

0930 P05.17/21114 **A Simulation of Acidification of Ocean**
Q. Zhao*, Q. Li, J. Li, F. Wu
National Climate Center, Beijing, China

0830-1000 **516d**
Session: Thermocline Mixing I
Chair: Robin Muench

0830 P06.13/21115 **Diapycnal Mixing at Mid-Depth in the Ocean**
J.R. Ledwell*
Woods Hole Oceanographic Institution, Woods Hole, USA

0900 P06.15/21115 **Stirring and Mixing by Internal Waves Breaking at Critical Levels**
D.A. Birch*, M.A. Sundermeyer
UMass Dartmouth School for Marine Science and Technology, New Bedford, USA

0915 P06.16/21115 **Diapycnal Mixing Over a European Shelf Sea**
M.R. Palmer*, J. Sharples, J.A.M. Green, T.P. Rippeth, P.M. Holligan, J.H. Simpson
Proudman Oceanographic Laboratory, Liverpool, UK

0930 P06.17/21115 **Mixing in the Equatorial Thermocline: The Importance of Small Vertical Scale Velocity Features**
K.J. Richards*, A. Natarov
University of Hawaii at Manao, Honolulu, USA

0945 P06.18/21115 **Upper Ocean Diapycnal Heat Flux and Mixing Processes in the Central and Eastern Equatorial Atlantic**
R. Hummels*, M. Dengler, B. Bourles
Leibniz-Institut Für Meereswissenschaften, Kiel, Germany

0830-1000 **516e**
Session: Deep Ocean Exchange III
Chair: Piers Chapman

0830 P09.13/21116 **The Influence of the Brazil and Malvinas Currents on the Southwestern Atlantic Shelf (SWAS) Circulation**
R.P. Matano*, E.D. Palma, A.R. Piola
Oregon State University, Corvallis, USA

0845 P09.14/21116 **Nitrogen and Carbon Cycling on the North American East Coast Continental Shelf**
K. Fennel*, J. Wilkin, R. Najjar
Dalhousie University, Halifax, Canada

0915 P09.16/21116 **Tracer Experiments on Kuroshio Subsurface Water Intrusion onto the Shelf of East China Sea**
X. Guo*
Center for Marine Environment Studies, Ehime University, Matsuyama, Japan

0930 P09.17/21116 **Simulation of the Senegalese and Mauritanian Upwelling: How are the Winds actually Driving SST Variability and Water Mass Renewal?**
B. Sow*, S. Faye, A. Lazar
Laboratoire de Physique de l'Atmosphère et de l'Océan - Siméon Fongang, Dakar, Sénégal

0945 P09.18/21116 **Wind Effects on Seasonal Variations of the Cross-Shelf Transport in the East China Sea**
Z.L. Liu*, D.X. Hu, D.Z. Yang
Institute of Oceanology, Chinese Academy of Sciences, Qingdao, China

1030-1200 **520f**
Session: Ocean-Ice-Atmosphere Boundary Layers and Interactions
Chair: Günther Heinemann

1030 J14.7/21206 **Satellite-Based Midlatitude Cyclone Statistics Over the Southern Ocean -- Tracks and Surface Fluxes**
X. Yuan*, J. Patoux, C. Li
Lamont-Doherty Earth Observatory of Columbia University, Palisades, USA

1045 J14.8/21206 **Impact of Synoptic and Mesoscale Disturbances on the Beginning and End of the Summer Melt Season over Sea Ice**
P.O.G. Persson*, A. Solomon, M. Shupe, J.-W. Bao, H. Morrison
CIRES, University of Colorado, Boulder, CO, USA

1100 J14.9/21206 **Observation and Analyzes of the Summer Diurnal Cycle in the Lower Atmospheric Boundary Layer at Dome C, Antarctic Plateau**
C. Genthon*, D. Six, V. Favier, S. Argentini, A. Pellegrini
Laboratoire De Glaciologie, LGGE CNRS/UJF, Saint Martin d'Hères, France

1115 J14.10/21206 **High-temporal Resolution Observations of the Thermal and Kinematic Vertical Structure in the Arctic Boundary Layer during ASCOS**
P.O.G. Persson*, M. Shupe, V. Leuski, I.M. Brooks, B.J. Brooks, M. Tjernström
Cooperative Institute for Research in Environmental Sciences/NOAA/ESRL, University of Colorado, Boulder, USA

1130 J14.11/21206 **A Short Introduction of Posters will be Made**
G. Heinemann*
University of Trier, Germany

*Denotes presenting author.

1030-1200 **520b**
Session: Remote Sensing of the Atmosphere III
Chair: Roger Marchand

1030 J16.19/21207 **Ozone Measurement: From Discovery to Recovery**
T. McElroy*
Environment Canada, Downsview, Canada

1100 J16.21/21207 **Climatological Study of Total Ozone Column in Central Spain**
D. Mateos*, A. De Miguel, J. Bilbao
Valladolid University, Valladolid, Spain

1115 J16.22/21207 **Inferring Missing Data in Satellite GHG Data**
P. Musilek*, J. Rodawy, A. Sanches-Azofeifa
University of Alberta, Edmonton, Canada

1130 J16.23/21207 **Arctic Total Water Vapor: Comparison of Regional Climate Simulations with Observations, and Simulated Decadal Trends**
G. Heygster*, A. Rinke, C. Melsheimer, K. Dethloff
Alfred Wegener Institute for Polar and Marine Research, Potsdam, Germany

1145 J16.24/21207 **Global Cloud Geometrical Properties Retrieved from ADEOS-II / GLI Data**
M. Kuji*, T. Nakajima
Nara Women's University, Nara, Japan

1030-1200 **520c**
Session: Mixed
Chair: Göran Björk

1030 J05.19/21208 **Arctic Regional Coupled Modelling of Recent and Possible Future Climates**
R. Döscher*, T. Königk, K. Wyser, H.E.M. Meier, P. Pemperton, M. Qian
Rossby Centre / SMHI, Norrköping, Sweden

1045 J05.20/21208 **Tracer-derived Freshwater Composition of the Siberian Continental Shelf and Slope Following the Extreme Arctic Summer of 2007**
E.P. Abrahamsen*, M.P. Meredith, K.K. Falkner, S. Torres-Valdes, M.J. Leng, M.B. Alkire, S. Bacon, S.W. Laxon, I. Polyakov, V. Ivanov,
British Antarctic Survey, Cambridge, UK

1100 J05.21/21208 **On the Nature of Upwelling Storms in the Western Arctic**
G.W.K. Moore*, R.S. Pickart
University of Toronto, Toronto, Canada

1115 J05.22/21208 **Ventilation of the Canada Basin 1992-2008: What CFC and Oxygen Distributions Tell Us about Circulation Pathways and Convection Sites**
F.A. McLaughlin*, E.C. Carmack, S. Nishino, K. Shimada
Institute of Ocean Sciences, Sidney, Canada

1030-1200 **520de**
Session: Atmospheric Dynamics
Chair: Michel Béland

1030 J03.19/21209 **The WWRP-THORPEX IPY Cluster**
T.E. Nordeng*
Norwegian Meteorological Institute, Oslo, Norway

1100 J03.21/21209 **Thorpex Arctic Weather and Environmental Prediction Initiative (TAWEPI): Summary of Modelling and Data Assimilation Activities**
A. Zadra*
Meteorological Research Division, Environment Canada, Dorval, Canada

1115 J03.22/21209 **Observations and Modeling of Polar Lows and Arctic Fronts: Early Results from the Norwegian IPY-THORPEX**
J.E. Kristjansson*, I. Barstad, A. Dörnbrack, Ø. Hov, E. Irvine, T. Iversen, E. Kolstad, T.E. Nordeng, H. Ólafsson, Ø. Sætra, T. Aspelien, R. Randriamampianina
University of Oslo, Oslo, Norway

1130 J03.23/21209 **Flying into the Eye of a Polar Low: Results from the Greenland Flow Distortion Experiment**
C. Hay*, G.W.K. Moore
University of Toronto, Toronto, Canada

1145 J03.24/21209 **Climatological Conditions for the Subpolar North Atlantic during the Field Campaign of the Greenland Flow Distortion Experiment**
G.W.K. Moore*, I.A. Renfrew, R.S. Pickart
University of Toronto, Toronto, Canada

1030-1200 **525ab**
Session: Regional Climate Modelling
Chair: Andreas Gobiet

1030 J12.19/21210 **Simulation of Atlantic Tropical Cyclone Activity using a Regional Climate Model: Benefits and Shortcomings**
L.-P. Caron*, C.G. Jones
Canadian Regional Climate Modeling and Diagnostics Network, UQAM, Montréal, Canada

1045 J12.20/21210 **Simulations of Regional, Extreme Monthly Precipitation by the NARCCAP RCMs**
W.J. Gutowski, Jr.*, NARCCAP Modelers
Iowa State University, Ames, USA

1100 J12.21/21210 **Evaluation of Climate Change Hydrological Impacts and Associated Uncertainty Over the Mackenzie River Basin Using the CRCM**
B. Music*, D. Caya, A. Frigon
Ouranos, Consortium on Regional Climatology and Adaptation to Climate Changes, Montréal, Canada

*Denotes presenting author.

1115 J12.22/21210 **Very High Resolution Regional Climate Modelling of Greenland**
P. Lucas-Picher*, J. H. Christensen, G. Aðalgeirsdóttir, M. Stendel
Danish Meteorological Institute, Copenhagen, Denmark

1130 J12.23/21210 **Assessment of Future Changes in the Large Rainband over East Asia in Summer using the Pseudo-Global Warming Downscaling Method**
H. Kawase*, T. Yoshikane, M. Hara, F. Kimura, B. Ailikun, T. Yasunari
National Institute for Environmental Studies, Tsukuba, Japan

1030-1200 516c
Session: Effects of Interactions among Atmosphere, Ocean, Land Surface, Cryosphere, and Biosphere, including Human Activities, on Monsoons
Chair: Huang-Hsiung Hsu

1030 J17.19/21211 **The Atlantic Forced Component of the Indian Monsoon Interannual Variability**
A. Bracco*, F. Kucharski, J.-H. Yoo, F. Molteni
EAS Georgia Institute of Technology, Atlanta, USA

1045 J17.20/21211 **Sea Surface Temperature Patterns and Extreme Variations in the Characteristics of the South America Monsoon System: Observations and Simulations from the IPCC Global Coupled Models**
R.J. Bombardi*, L.M.V. Carvalho
Institute of Astronomy, Geophysics and Atmospheric Sciences, University of Sao Paulo, Sao Paulo, Brazil

1100 J17.21/21211 **Intensification of the ENSO-South Asian Summer Monsoon Interaction by a Weakened Atlantic Thermohaline Circulation**
W. Chen*, R. Lu
Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China

1115 J17.22/21211 **Towards Local Air-Sea Interaction in ITCZ Simulations**
A. Duan*, C.-H. Sui, G. Wu
State Key Laboratory of Numerical Modelling for Atmospheric Sciences and Geophysical Fluid Dynamics (LASG), Institute of Atmospheric Physics (IAP), Chinese Academy of Sciences (CAS), Beijing, China

1130 J17.23/21211 **Local Air-Sea Interactions in the Indian Ocean in Coupled Models**
M.A. Bollasina*, S. Nigam
University of Maryland, College Park, MD, USA

1145 J17.24/21211 **A Conceptual Seasonal Prediction Model of the East Asian Summer Monsoon Using ENSO and NAO**
Z. Wu*, B. Wang, J. Li
Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China

1030-1200 516a
Session: Changes in Continental Snow Cover, Lake and River Ice I
Chair: Chris Derksen

1030 C05.1/21212 **Seasonal Ice and Snow Cover of Continental Water Bodies from Radar Altimetry and Radiometry**
A.V. Kouraev*, M.N. Shimaraev, P.I. Buharizin, M.A. Naumenko, J.-F. Cretaux, N. Mognard, B. Legresy, F. Remy
Université de Toulouse; UPS (OMP-PCA), LEGOS Toulouse, France

1045 C05.2/21212 **Northern Hemisphere Snow Cover Extent during the Satellite Era**
D. Robinson*
Rutgers University, Piscataway, New Jersey, USA

1115 C05.4/21212 **Characterizing the Uncertainties in Snow Cover Monitoring over Northern High Latitudes**
R. Brown*, C. Derksen, L. Wang, H. Zhao, R. Fernandes
Environment Canada at Ouranos, Montréal, Canada

1130 C05.5/21212 **Development of the Great Lakes Ice-circulation Model (GLIM): Application to Lake Erie in 2004**
J. Wang*
NOAA Great Lakes Environmental Research Laboratory, Ann Arbor, USA

1030-1200 518ab
Session: Aerosol Effects in Global Models
Chair: Joyce Penner

1030 M13.19/21201 **Understanding the Local and Global Impacts of Aerosol**
M.J. Rodwell*, T. Jung
European Centre for Medium-range Weather Forecasts, Reading, UK

1045 M13.20/21201 **Coupled Aerosol-Chemistry-Climate 20th Century Transient Global Model Experiments, with and without Aerosol Indirect Effects**
D. Koch*, D. Shindell, S. Menon, G. Faluvegi, S. Bauer, R. Miller, G. Schmidt, R. Ruedy, J. McConnell
Columbia University, New York, USA

1100 M13.21/21201 **Quantification of Uncertainties Associated with Indirect Aerosol Effect Parameterizations of Various Complexities**
U. Lohmann*, P. Stier, R. West, J.H. Seinfeld, J. Quaas
University of Oxford, Oxford, UK

1115 M13.22/21201 **Indirect Effect in NCAR CAM: Sensitivity to Aerosol-Cloud Parameterizations**
X. Liu*, S.J. Ghan, R.E. Easter, R. Zaveri, A. Gettelman, H. Morrison, J.-F. Lamarque, C. Chuang, N. Meskhidze, J. Xu,
Pacific Northwest National Laboratory, Richland, WA, USA

*Denotes presenting author.

1130 M13.23/21201 **Comparison of Cloud-Aerosol-Precipitation Interactions Using a Novel Approach for Representing Ice Microphysics in Bin and Bulk Microphysics Schemes**
H. Morrison*, W.W. Grabowski
NCAR, Boulder, USA

1145 M13.24/21201 **Impact of a New Aerosol Climatology on the Canadian Global Model (GEM) Forecasts**
I. Paunova*, P. Vaillancourt, L. Garand, K. von Salzen
Data Assimilation and Satellite Meteorology Research, Meteorological Research Division, Environment Canada, Dorval, Canada

1030-1200 **518c**
Session: Theoretical Advances in Dynamics
Chair: Steven Feldstein

1030 M06.19/21202 **Effect of Latitudinal Variations in Low-level Baroclinicity on Eddy Life Cycles and Upper-tropospheric Wave-breaking Processes**
G. Rivière*
CNRM/GAME (CNRS and Météo-France), France

1045 M06.20/21202 **Two Types of Baroclinic Life Cycles during the Southern Hemisphere Summer**
S.B. Feldstein*, W. Moon
Pennsylvania State University, University Park, USA

1100 M06.21/21202 **Nonlinear Perturbation Growth in Baroclinic Flows**
G. Lapeyre*, O. Rivière, O. Talagrand
Laboratoire de Météorologie Dynamique, Paris, France

1130 M06.22/21202 **The Dynamics of Eye Formation and Eye Maintenance in Axisymmetric Diabatic Vortices**
V. Wirth*, T. Dunkerton
Institut for Atmospheric Physics, Mainz, Germany

1145 M06.24/21202 **Tropopause-level Wave-guides**
O. Martius*, C. Schwierz, H.C. Davies
Institute for Atmospheric and Climate Science, ETH Zurich, Switzerland

1030-1200 **524ab**
Session: Chemistry/Transport (2)
Chair: Gregory Bodeker

1030 M01.19/21203 **How Much Ozone was Affected by Ozone Depleting Substances over Antarctica Before 1980?**
T.G. Shepherd*, P.E. Huck, G.E. Bodeker
NIWA, Christchurch, New Zealand

1045 M01.20/21203 **Attribution of Global Mean Temperature Trends in the Middle Atmosphere: Analysis of the Radiative Budget**
A.I. Jonsson*, V.I. Fomichev
University of Toronto, Toronto, Canada

1100 M01.21/21203 **Seasonal Persistence of Anomalies of Ozone and Other Trace Gases in the Stratosphere**
T.G. Shepherd*, V.E. Fioletov, S. Tegtmeier
University of Toronto, Toronto, Canada

1115 M01.22/21203 **Global Ozone Signals Associated with Extreme NAM Events as Revealed with the MRI Chemistry-Climate Model Driven by Observed Forcings**
K. Shibata*, M. Deushi
Meteorological Research Institute, Tsukuba, Japan

1130 M01.23/21203 **Low Ozone Events in the Southern Polar Summer Stratosphere as Indicated by Met Office Ozone Analyses**
D.R. Jackson*, Y.J. Orsolini, O. Engelsen
Met Office, Exeter, UK

1145 M01.24/21203 **An Idealised Study of the Effects of Small Scales on Chemistry in a Two-Dimensional Turbulent Flow**
F. Ait Chaalal*, M. Bourqui
McGill University, Montréal, Canada

1030-1200 **524c**
Session: Dynamics and Predictability of High-impact Weather
Chair: Heini Wernli

1030 M08.19/21204 **A Dynamical Analysis of the Impact of Targeted Observations**
I.A. Renfrew*, E.A. Irvine, S.L. Gray, J. Methven, K. Bovis, R. Swinbank
The University of East Anglia, Norwich, UK

1045 M08.20/21204 **Predictability of the Large-Scale Atmospheric Flow During the Winter Phase of T-PARC**
I. Szunyogh*, E. Satterfield
Texas A&M University, College Station, TX, USA

1100 M08.21/21204 **Optimal Width of Hot Spots for Driving Deep Moist Convective Systems**
F.J. Robinson*, S.C. Sherwood, D. Gerstle
Yale University, New Haven, USA

1115 M08.22/21204 **Baroclinic Wave Amplification in Idealised Scenarios of Extra-Tropical Transition of Tropical Cyclones**
M. Riemer*, S.C. Jones
Naval Postgraduate School, Monterey, USA

1130 M08.23/21204 **Meteorological Conditions Behind the Devastating Beaufort Coast Storm Surge Event of September 1999**
D. Small*, J. Gyakum, E. Atallah
McGill University, Montréal, Canada

1145 M08.24/21204 **MISR Observations of Hurricane Core Dynamics**
D.L. Wu*, D.L. Nelson
Jet Propulsion Laboratory, California Institute of Technology, Pasadena, USA

1030-1200 **519ab**
Session: Towards Seamless Probalistics Forecasting
Chair: Roberto Buizza

1030 M07.19/21205 **Short-range Probabilistic Forecasting using MOGREPS**
R. Swinbank*, K. Mylne, S. Beare, N. Bowler, J. Flowerdew, W. Tennant, C. Woolcock
Met Office, Exeter, UK

1100 M07.21/21205 **Probabilistic Forecasting of Thunderstorms through Combining Nowcasting Methods and NWP**
K. Kober*, G.C. Craig, C. Keil, A. Tafferner
Deutsches Zentrum Fuer Luft- Und Raumfahrt, Institut Fuer Physik Der Atmosphaere, Oberpfaffenhofen, Germany

1115 M07.22/21205 **Regime-dependence of Impacts of Radar Rainfall Data Assimilation**
C. Keil*, G.C. Craig
Deutsches Zentrum für Luft- und Raumfahrt, Institut für Physik der Atmosphäre, Oberpfaffenhofen, Germany

1130 M07.23/21205 **Dealing with the Uncertainties Related with LAMEPS**
Y. Wang*
ZAMG, Vienna, Austria

1145 M07.24/21205 **PROBCAST: A Web-Based Portal to Mesoscale Probabilistic Forecasts**
C. Mass*, S. Joslyn, J. Pyle, P. Tewson, T. Gneiting, A. Raftery, J. Baars, J.M. Sloughter, D. Jones, C. Fraley,
University of Washington, Seattle, Washington, USA

1030-1200 **516b**
Session: Vert Flux
Chair: Bill Crawford

1030 P01.19/21213 **Mixed Layer Lateral Eddy Fluxes Mediated by Air-Sea Interaction**
E.F. Shuckburgh*, G. Maze, J. Marshall
British Antarctic Survey, Cambridge, UK

1045 P01.20/21213 **Influence of Mesoscale Eddies on Internal Waves of Tidal Frequency**
M. Dunphy*, K. Lamb
University of Waterloo, Waterloo, Canada

1100 P01.21/21213 **High-Resolution Eddy-Resolving Numerical Model of the Black Sea with Applications for Transport and Dispersal of Oil Spill Plumes**
M.J. Bowman*, K.A. Korotenko, D.E. Dietrich
School of Marine & Atmospheric Sciences, State University of New York, Stony Brook NY, USA

1115 P01.22/21213 **Explosive Meridional Migration of Cyclones and Anticyclones**
D. Nof*, S. Van Gorder
Florida State University, USA

1030-1200 **520a**
Session: Circulation
Chair: Silvia Blanc

1030 P05.19/21214 **Wind and Buoyancy Effects on Meridional Overturning Circulation in the Sea of Okhotsk**
H Mitsudera*, J. Matsuda, T. Nakamura, K. Uchimoto, T. Nakanowatari, N. Ebuchi
Institute of Low Temperature Science, Hokkaido University, Sapporo, Japan

1045 P05.20/21214 **Meridional Density Gradients do not drive the Atlantic Overturning Circulation**
A.M. De Boer*, A Gnanadesikan, N.E. Edwards, A.J. Watson
University of East Anglia, Norwich, UK

1100 P05.21/21214 **A Regional Climatology of the Humboldt Current System**
C. Grados*, A. Chaigneau, J.L. Blanco, J. Ledesma, L. Vasquez
IMARPE, Callao, Peru

1115 P05.22/21214 **Modeling Baroclinic Boundary Transport Variability: A Surrogate for Sea Level**
N.J. Holbrook*, S. McGregor, I.D. Goodwin
University of Tasmania, Hobart, Australia

1130 P05.23/21214 **Regional Sea Level Rise around the Australian Coastline**
S.P. O'Farrell*
Antarctic Climate and Ecosystems CRC, Hobart, Australia

1030-1200 **516d**
Session: Thermocline Mixing II
Chair: Barry Ruddick

1030 P06.19/21215 **Propagation of Near-inertial Waves Beyond the Critical Latitude and Consequences for Deep Ocean Mixing**
P. Bouruet-Aubertot*, K. Winters, T. Gerkema
LOCEAN-Université Pierre et Marie Curie, Paris, France

1045 P06.20/21215 **On the Parameterization of Mixing Processes at the Equator**
M. Dengler*, J. Schafstall, J. Toole, D. Banyte
Leibniz-Institut fuer Meereswissenschaften, Germany

1100 P06.21/21215 **Diapycnal Mixing in a Weakly Stratified, High-latitude Ocean with Nonlinear Equation of State**
R.D. Muench*, L. Padman, B. Ruddick, T. Ross
Earth & Space Research, Seattle, USA

1115 P06.22/21215 **Observations of Turbulent Mixing in the Transition Layer**
B. Rahter*, L. St. Laurent
Florida State University, Tallahassee, USA

*Denotes presenting author.

1130 P06.23/21215 **The Puzzle of Mixing in the Seasonal Thermocline of the Shelf Seas**
J.H. Simpson*, T. Rippeth, J. Sharples
School of Ocean Sciences, Bangor University, Wales, UK

1145 P06.24/21215 **Spatial and Temporal Variability in the Semidiurnal Tide near Monterey Bay**
G.S. Carter*
University of Hawaii, Honolulu, USA

1030-1200 516e
Session: Argo
Chair: Toshio Suga

1030 P03.1/21216 **Past, Present and Bright Future of Operational Oceanography**
T. Yamagata*, Y. Miyazawa, S. Behera
APL/JAMSTEC, Yokohama, Japan

1100 P03.3/21216 **Determining Ocean Correlation Scales using Argo Float Data**
L.M. McLean*, B.A. King
National Oceanography Centre, Southampton, UK

1115 P03.4/21216 **On the Assimilation of Argo Float Trajectories into the Mediterranean Forecasting System (MFS)**
J.A.U. Nilsson*, S. Dobricic, N. Pinardi
INGV, Bologna, Italy

1130 P03.5/21216 **Indonesian through Flow Variability as Observed by Argo Profilers and Hydrographic Data within the Indian Ocean**
C.F. Giulivi*, A.L. Gordon
Lamont-Doherty Earth Observatory of Columbia University, New York, USA

1145 P03.6/21216 **Interannual Variability of the Atlantic Interior Geostrophic Transport at 36N**
J.A. Brearley*, E.L. McDonagh, B.A. King, H.L. Bryden
National Oceanography Centre Southampton, Southampton, UK

1330-1500 520f
Session: Ocean-Ice-Atmosphere Boundary Layers and Interactions
Chair: Don Perovich

1330 J14.13/21306 **Frost Flowers as the Main Source of Sea Salt Aerosol in Winter in the Antarctica: A Trajectory Study of Year-round Sea Salt Aerosol Record over 25 Years at Neumayer, Antarctica**
X. Tian-Kunze*, L. Kaleschke, R. Weller, G. König-Langlo, D. Wagenbach
Institute of Oceanography, University of Hamburg, Germany

1345 J14.14/21306 **Mapping of Sea Ice Production and Surface Heat/Salt-flux in the Polar Oceans**
T. Tamura*, K.I. Ohshima, S. Nihashi
Institute of Low Temperature Science, Sapporo, Japan

1400 J14.15/21306 **Seasonality of Pack Ice and Snow in the Arctic Transpolar Drift - Spectral Surface Albedo and Transmission**
M. Nicolaus*, S. Gerland, J. Haapala, S. Hanson
Norwegian Polar Institute, Troms, Norway

1415 J14.16/21306 **Ocean Processes in the Under-Ice Boundary Layer near an Antarctic Ice Shelf**
N.J. Robinson*, C.L. Stevens, M.J.M. Williams, P.J. Langhorne, T.G. Haskell
National Institute of Water and Atmospheric Research, Wellington, New Zealand

1430 J14.17/21306 **Effects of Wave Age and Air Stability on Whitecap Coverage**
D. Myrhaug*, L.E. Holmedal
Norwegian University of Science and Technology, Trondheim, Norway

1445 J14.18/21306 **On the Spatial Propagation of Inertial Waves in Ice-ocean Boundary Layers**
A. Roberts*, W.D. Hibler III
Arctic Region Supercomputing Center, University of Alaska Fairbanks, USA

1330-1500 520b
Session: Remote Sensing of Oceans & Biomass
Chair: Roger DeAbreu

1330 J16.25/21307 **Satellite Estimates of Ocean Primary Production Interannual Patterns**
A.B. Couto*, A.M. Maharaj, N.J. Holbrook
Macquarie University, Sydney, Australia

1345 J16.26/21307 **Empirical Approach for the Development of Local Chlorophyll Algorithms in the Optically Complex Waters of the Estuary and Gulf of Saint Lawrence**
M. Yayla*, N. T. O'Neill, P. Larouche, S. Çizmeli
CARTEL-Université de Sherbrooke, Sherbrooke (Québec) Canada

1400 J16.27/21307 **Studying Coastal Ocean Dynamics during Polynya Events in the Laptev Sea using Remote-Sensing Data and Long-Term in situ Observations**
J.A. Hölemann*, T. Krumpen, C. Haas, I. Dmitrenko, T. Klagge, S. Willmes, L. Timokhov, H. Kassens
Alfred Wegener Institute for Polar and Marine Research, Bremerhaven, Germany

1415 J16.28/21307 **Estimating Transitions in Pan-Arctic (N of 60N) Bioclimate Subzones and NDVI-Derived Biomass Using Landsat and GIMMS (1982-2000)**
K.A. Luus*, R.E.J. Kelly
University of Waterloo, Waterloo, Canada

1430 J16.29/21307 **Anomalies of the Satellite and Simulated SST Related to Dynamic Processes in the Japan/East Sea**
O. Trusenkova*
Pacific Oceanological Institute, Vladivostok, Russia

1445 J16.30/21307 **Influence of the Anomalous Atmospheric Impacts on Marine Ecosystems of the Black and Caspian Seas Detected by Remote Sensing Data**
D. Solovyov*, S. Stanichny, V. Burdyugov, R. Stanichnaya, E. Kalinin
Marine Hydrophysical Institute, Sevastopol, Ukraine

1330-1500 **520c**
Session: Abrupt Changes in the Climate System
Chair: Andreas Schmittner

1330 J06.1/21308 **Younger Dryas: A Data to Model Comparison to Constrain the Strength of the Overturning Circulation**
K.J. Meissner*
University of Victoria, BC, Canada

1345 J06.2/21308 **The Atmospheric Response in the North Atlantic and Mediterranean Regions to a Sustained Weakening of the MOC**
D.J. Brayshaw*
Reading University, Reading, UK

1400 J06.3/21308 **Sensitivity of Atlantic Large-scale Ocean Circulation to Surface Wind-stress for Present and Glacial Climates**
M. Montoya*, A. Levermann, A. Born, J. Schewe
Dpto. Astrofisica Y Ciencias De La Atmosfera, Universidad Complutense De Madrid, Spain

1415 J06.4/21308 **A New Analytical Model for Heinrich Events and Climate Instability**
D. Nof*, C. Sandal
Florida State University, USA

1430 J06.5/21308 **The Collapse of the Bering Strait Ice Dam and the Abrupt Temperature Rise in the Beginning of the Holocene**
D. Nof*, C. Sandal
Florida State University, USA

1445 J06.6/21308 **Glacial Greenhouse Gas Fluctuations Controlled by Ocean Circulation**
A. Schmittner*, E.D. Galbraith
Oregon State University, Corvallis OR, USA

1330-1500 **520de**
Session: Oceans
Chair: Karen Haywood

1330 J03.25/21309 **Air-Sea Interaction during the Greenland Flow Distortion Experiment: Turbulent Fluxes during High Wind Conditions**
I.A. Renfrew*, G.N. Petersen
University of East Anglia, UK

1345 J03.26/21309 **Slope Water Export to the Deep Ocean off the Tip of the Antarctic Peninsula**
A.H. Orsi*, D. Gomis, G. Tosonotto
Texas A&M University, College Station, USA

1415 J03.28/21309 **Arctic Ocean Variability during the Past 20 Years**
J.-C. Gascard*
University Pierre et Marie Curie, France

1445 J03.30/21309 **Seasonal Variations in the Freshwater Content of the East Greenland Current Revealed by a Synergy of Data From Ships and Hooded Seals**
P.A. Dodd*, M. Biuw, M.A. Fedak, E. Hansen, K.M. Kovacs, C. Lydersen, O.A. Nost
The Norwegian Polar Institute, Norway

1330-1500 **525ab**
Session: Regional Climate Modelling
Chair: Markus Meier

1330 J12.25/21310 **Impact of Vegetation Dynamics on Regional Prediction of Future Climate Changes in West Africa**
G. Wang*, C.A. Alo
University of Connecticut, USA

1345 J12.26/21310 **Influences of Global Warming and Local Processes on Warm Season Climate in Mongolia**
T. Sato*, F. Kimura
Center for Climate System Research, University of Tokyo, Japan

1400 J12.27/21310 **On the Validation of RCMs in Terms of Reproducing Annual Cycle**
T. Halenka*, P. Skalak, M. Belda
Dept. of Meteorology and Environment Protection, Fac. of Mathematics and Physics, Charles University, Czech Republic

1415 J12.28/21310 **Weather Extremes in Romania Simulated With a High Resolution RegCM for Current and Future Climates**
C. Boroneant*, M. Caian, A. Enculescu, M. Matei
National Meteorological Administration, Bucharest, Romania

1430 J12.29/21310 **Uncertainty Studies of RCM-simulated Climate and Climate Change Projections**
H. Côté *, R. de Elia
Consortium Ouranos, Montréal, Canada

1330-1500 **516c**
Session: Effects of Interactions among Atmosphere, Ocean, Land Surface, Cryosphere, and Biosphere, including Human Activities, on Monsoons
Chair: Zhiwei Wu

1330 J17.25/21311 **Snow-Monsoon Teleconnections: Testing Competing Mechanisms using Idealized Snow Forcing Conditions in a GCM**
A.G. Turner*, J.M. Slingo
NCAS-Climate, Reading, UK

*Denotes presenting author.

1345 J17.26/21311 **The Effect of Synoptic and Land Surface Conditions for Precipitation Processes over the Tibetan Plateau**
S. Sugimoto*, K. Ueno
Graduate School of Life and Environmental Science, University of Tsukuba, Japan

1400 J17.27/21311 **Roles of Anomalous Tibetan Plateau Warming on the Severe 2008 Winter Storm in Central-Southern China**
Q. Bao*, J. Yang, Y.M. Liu, G.X. Wu, B. Wang
LASG, Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China

1415 J17.28/21311 **The Annual Variation of the East Asian Climatology and Tibetan Plateau Diabatic Heating during Boreal Summer**
X. Liu*
Institute of Tibetan Plateau Research, Chinese Academy of Sciences, Beijing, China

1430 J17.29/21311 **Relations of Winter Fresh Snow Cover over North Eurasia and Summer Climate Anomalies in China**
G.Q. Zhou*, S.N. Mu
Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China

1330-1500 **516a**
Session: Changes in Continental Snow Cover, Lake and River Ice II
Chair: Allan Frei

1330 C05.7/21312 **Snow Cover - Atmosphere Interaction Related to the Variability and Change of Arctic Oscillation**
R. Bojariu*, M. Caian, R. Garcia Herrera, T. Zhang, O.W. Frauenfeld
National Meteorological Administration, Bucharest, Romania

1345 C05.8/21312 **A 30-Year Snow Water Equivalent Data Record for Northern Canada from Satellite Passive Microwave Data**
C. Derksen*, L. Wang, P. Toose, A. Rees, A. Walker
Environment Canada, Toronto, Canada

1400 C05.9/21312 **Snow Processes in the Pyrenees under Changing Climatic Conditions**
J.I. Lopez-Moreno*, S. Goyette, M. Beniston
Pyrenean Institute of Ecology, CSIC, Zaragoza, Spain

1415 C05.10/21312 **Global Directions in River-Ice Research**
T.D. Prowse*
W-CIRC, Environment Canada, University of Victoria, Victoria, BC, Canada

1330-1500 **518ab**
Session: Clouds in Global Models
Chair: Surabi Menon

1330 M13.25/21301 **Aerosol Size-Dependent Impaction Scavenging in Warm, Mixed, and Ice Clouds in the ECHAM5-HAM**
B. Croft*, U. Lohmann, R.V. Martin, P. Stier, S. Wurzler, J. Feichter, C. Hoose
Dalhousie University, Halifax, Canada

1345 M13.26/21301 **Inhomogeneities of Clouds - A New Statistical Scheme for Large-Scale Models**
S. Jess*, P. Spichtinger, U. Lohmann
ETH Zurich, Switzerland

1400 M13.27/21301 **Incorporation of a Multi-Moment Microphysics Scheme in the CCCma SCM: Numerical Results and Comparison with ARM Observations**
X. Wang*, M.K. Yau
McGill University, Montréal, Canada

1415 M13.28/21301 **Vertical Velocity Probability Distributions Simulated in the CAM-Oslo GCM**
J.E. Kristjansson*, C. Hoose, G. Svensson, S. Arabas, H. Pawlowska, J.L. Brenguier
University of Oslo, Oslo, Norway

1430 M13.29/21301 **The Near-Omnipresence of Coalescence in Warm Clouds**
J. Jensen*
NCAR/EOL, USA

1330-1500 **518c**
Session: Theoretical Advances in Dynamics
Chair: Hisashi Nakamura

1330 M06.25/21302 **Dynamics of a Wave-like Teleconnection Pattern along the Summertime Asian Jet**
Y. Kosaka*, H. Nakamura, M. Watanabe, M. Kimoto
University of Tokyo, Tokyo, Japan

1345 M06.26/21302 **Dynamics of Intraseasonal Oscillations**
A.H. Sobel*, E.D. Maloney, G. Bellon, D.M. Frierson
Columbia University, New York, NY, USA

1415 M06.28/21302 **The Basic Ingredients of the North Atlantic Storm Track**
D.J. Brayshaw*, B. Hoskins, M. Blackburn
Reading University, UK

1430 M06.29/21302 **What Forces the Northern Hemisphere Winter Stationary Waves?**
E.K.M. Chang*, W. Lin
Stony Brook University, Stony Brook, USA

1445 M06.30/21302 **Compensating Meridional Energy Transports Associated with Stationary Eddies and Transients**
M. Watanabe*, T. Iwasaki, C. Kodama, S. Hasegawa
Center for Climate System Research, University of Tokyo, Kashiwa, Japan

*Denotes presenting author.

1330-1500 **524ab**
Session: Data Assimilation
Chair: Saroja Polavarapu

1330 M01.25/21303 **Data Assimilation for Climate Applications**
S. Polavarapu*
Environment Canada, Toronto and University of Toronto, Toronto, Canada

1400 M01.27/21303 **Studies of Stratopause Structure, Evolution and Transport from Satellite Data and New Assimilation Products**
G.L. Manney*, K. Krueger, M.J. Schwartz, S. Pawson, N.J. Livesey, S. Polavarapu, M.G. Mlynczak, E.E. Remsberg, J.M. Russell III
Jet Propulsion Laboratory, California Institute of Technology, Pasadena, USA

1415 M01.28/21303 **Ozone Assimilation in the UK Met Office Model**
D. Jackson*, C. Mathison
UK Met Office, Exeter, UK

1430 M01.29/21303 **Impact of SABER Temperature Observations on Mesospheric Prediction**
Y. Nezlin*, S. Ren, Y.J. Rochon, S. Polavarapu
University of Toronto, Canada

1445 M01.30/21303 **Stratospheric Transport in a CTM using DAS and GCM Winds: Identifying Effects**
B. Monge-Sanz*, M. Chipperfield, D. Dee, A. Simmons, S. Uppala, S. Ren, S. Polavarapu, T. Shepherd
Institute for Atmospheric Science and Climate, University of Leeds, UK

1330-1500 **524c**
Session: Dynamics and Predictability of High-impact Weather
Chair: Patrick Harr

1330 M08.25/21304 **Large Scale Weather Patterns Associated with California Extreme Heat Waves and their Link to Daily Summer Maximum Temperatures in the Central Valley**
R. Grotjahn*
University of California, Davis, USA

1345 M08.26/21304 **A Numerical Study of Hurricane Noel (2007) Model Verification and Extratropical Transition**
S. Zhang*, G.W.K. Moore
University of Toronto, Canada

1400 M08.27/21304 **Polar Lows: High-Impact Weather at High Latitudes**
E.W. Kolstad*, T.J. Bracegirdle
Bjerknes Centre for Climate Research, Bergen, Norway

1415 M08.28/21304 **Role of Upper-Level PV Anomalies in Polar Low Development and their Significance for Forecasting**
S.F. Kew*, A. Miltenberger
Institute for Atmosphere and Climate Science, ETH Zurich, Switzerland

1430 M08.29/21304 **Predictability Associated with Interactions between Recurving West Pacific Tropical Cyclones and the Extratropical Large-Scale Flow**
H.M. Archambault*, D. Keyser, L.F. Bosart
University At Albany/SUNY, Albany, NY USA

1445 M08.30/21304 **Preconditioning of the Occurrence of Extreme Events by the Marine Surface in the North-Atlantic European Region**
V. Guemas*, D. Salas-Mélia, M. Kageyama, H. Giordani, A. Voldoire
CNRM-Météo, Toulouse, France

1330-1500 **519ab**
Session: Towards Seamless Probalistics Forecasting
Chair: David Frame

1330 M07.25/21305 **Issues in Ensemble-Based Data Assimilation**
P.L. Houtekamer*, H.L. MItchell
Environment Canada, Dorval, Quebec, Canada

1400 M07.27/21305 **An Operational Mesoscale Ensemble Data Assimilation and Prediction System: E-RTFDDA - System Design and Verification**
Y. Liu*, T. Hopson, G. Roux, J. Hacker, M. Xu, T. Warner, S. Swerdlin
National Center for Atmospheric Research, Colorado, USA

1415 M07.28/21305 **Parametric EnKF for the Reduction of Forecast Error due to Model Imperfectness**
H. Koyama*, M. Watanabe
Hokkaido University, Sapporo, Japan

1430 M07.29/21305 **Performances of a Square-root Ensemble Kalman Filter when Varying Ensemble Sizes**
W. Sacher*
McGill University, Montréal, Canada

1445 M07.30/21305 **Data Assimilation Using Modulated Ensembles**
C.H. Bishop*, D. Hodyss
Naval Research Laboratory, Monterey CA, USA

*Denotes presenting author.

1330-1500 **516b**
Session: Sub-meso
Chair: Sinjae Yoo

1330 P01.25/21313 **Impacts of Submesoscales on the Upper and Deeper Ocean Turbulence from High Resolution Simulations**
P. Klein*, B.L. Hua, G. Lapeyre, X. Capet, E. Danioux, G. Roullet, S. Le Gentil, H. Sasaki
LPO IFREMER/CNRS, Plouzane, France

1345 P01.26/21313 **Towards a New Interpretation of Upper-Ocean Dynamics at Meso and Submesoscales**
G. Lapeyre*, P. Klein, B.L. Hua, H. Sasaki
Laboratoire de Météorologie Dynamique, Paris, France

1400 P01.27/21313 **The Impact of Mesoscale Processes on Westward Transport off Central California**
L.M. Ivanov*, C.A. Collins, T. Margolina
Moss Landing Marine Laboratories, Moss Landing, USA

1415 P01.28/21313 **Eddies From the Bottom Up: Testing Mesoscale Eddy Simulations Against Submesoscale Eddy Parameterizations**
B. Fox-Kemper*, F.O. Bryan, J.A. Dennis
University of Colorado at Boulder, USA

1430 P01.29/21313 **Dynamic and Hydrographic Properties of Mesoscale Fronts in the Subpolar Gyre**
A. Després*, G. Everdin
LOCEAN-IPSL, Université Pierre et Marie Curie, Paris, France

1445 P01.30/21313 **Circulation at the South-West Indian Ridge in a High-Resolution Global Ocean Model**
I.J. Ansorge*, J.V. Durgadoo, B.A. De Cuevas, J.R.E. Lutjeharms
University of Cape Town, Cape Town, South Africa

1330-1500 **520a**
Session: Circulation and Estuaries
Chair: Eugene Morozov

1330 P05.25/21314 **Remarkable Inter-annual Variability of Water Properties and Circulation in the Deep Layers of the Mediterranean Sea**
S. Sparnocchia*, G.P. Gasparini, K. Schroeder, M. Borghini, D. Bacciola
CNR-ISMAR, Trieste, Italy

1345 P05.26/21314 **Recent Changes in Water Mass Characteristics and Transport at the Section along 60N in the Subpolar North Atlantic**
A.N. Demidov*, S.A. Dobrolyubov, R.Yu. Tarakanov, A.V. Sokov, P.A. Sultanov
Moscow State University, Moscow, Russia

1400 P05.27/21314 **Trace Carbonyl Compounds in Surface Seawaters of the Lower St.-Lawrence Estuary: Determination using Derivatization and Solid-Phase Microextraction (SPME)**
E.D. Hudson*, P.A. Ariya
Department of Chemistry, McGill University, Montréal, Canada

1415 P05.28/21314 **Rapid Dispersal of a Hydrothermal Plume by Turbulent Mixing**
M. Walter*, C. Mertens, U. Stöber, C.R. German, D.R. Yoerger, J. Sültenfuß, M. Rhein, B. Melchert, E.T. Baker
University of Bremen, Bremen, Germany

1430 P05.29/21314 **Acidification of the Hypoxic Bottom Waters of the Lower St. Lawrence Estuary: A History and Potential Impacts**
A. Mucci*, M. Starr, D. Gilbert, B. Sundby
McGill University, Montréal, Canada

1445 P05.30/21314 **Hydrodynamics of a Mangrove-Fringed Estuary, Mtwapa Creek, Kenya**
C. Magori*
Kenya Marine and Fisheries Research Institute, Mombasa, Kenya

1330-1500 **516d**
Session: Tides, Internal Waves, Topography, and Mixing I
Chair: Anna Wåhlin

1330 P06.25/21315 **What Can We Learn about Waves and Turbulence from Seismic Profiling?**
J.M. Klymak*, B.R. Ruddick, W.S. Holbrook
University of Victoria, Victoria, Canada

1400 P06.27/21315 **Radiation and Dissipation of Topographic Internal Waves in the Southern Ocean**
M. Nikurashin*, R. Ferrari
Princeton University, Princeton, USA

1415 P06.28/21315 **Mixed-Layer Deepening and Internal Wave Generation by Sheared Turbulence**
B.R. Sutherland*, J.R. Munroe
University of Alberta, Edmonton, Canada

1430 P06.29/21315 **Turbulence along a Submarine Canyon Axis**
E. Kunze*, K. Bartlett, C. MacKay, E. McPhee-Shaw, K. Morrice, S. Brody, J. Girton
University of Victoria, Victoria, Canada

1330-1500 **516e**
Session: Argo
Chair: Hal Ritchie

1330 P03.7/21316 **Response of Marine Primary Production to Monsoon Variations in the South China Sea**
H. Wang*, S. Gao
National Marine Environmental Forecasting Center, SOA, Beijing, China

1345 P03.8/21316 **Intraseasonal Kelvin and Annual Rossby Waves Revealed in Argo Salinity Data**
P Singhruck*, K.J. Heywood, A.J. Matthews
Chulalongkorn University, Bangkok, Thailand

1400 P03.9/21316 **Rossby Wave Propagation in the Tropical North Atlantic Observed from Argo Floats**
P.C. Chu*, L.M. Ivanov, O.V. Melnichenko, N.C. Wells
Naval Postgraduate School, Monterey CA, USA

1415 P03.10/21316 **Sea-to-air Oxygen Flux Associated with the Destruction of Shallow Oxygen Maximum**
T. Suga*, Y. Nakagawa, C. Sukigara, K. Hanawa, T. Kobayashi, N. Shikama
Tohoku University, Sendai, Japan

1430 P03.11/21316 **Study of Sonic Layer Depth variability in the North Indian Ocean utilizing Argo profiles and climatological salinities**
D. Swain*, T.V.S. Udaya Bhaskar
The International Association for the Physical Sciences of the Oceans (IAPSO) and Space Physics Laboratory, Thiruvananthapuram, India

1445 P03.12/21316 **Tropical Atlantic Process Study from ARGO Floats and Models**
S. Arnault*, Y. Tanguy, P. Lattes
LOCEAN-IPSL, France

1630-1800 519ab
Session: Lorenz Symposium
Chair: Klaus Dethloff

1630 J09.1/21405 **Towards the Probabilistic Earth-System Model**
T.N. Palmer*, F.J. Doblas-Reyes, A. Weisheimer, G.J. Shutts, J. Berner, J.M. Murphy
ECMWF, Reading, UK

1700 J09.3/21405 **A New Approach to Quantify Predictability: Nonlinear Error Growth Dynamics**
J.P. Li*, R.Q. Ding
LASG, Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China

1715 J09.4/21405 **Decadal Predictability of the Atlantic: Estimation of Optimal Perturbations**
E. Hawkins*, R. Sutton
NCAS - Climate, University of Reading, UK

1730 J09.5/21405 **Nonlinear Post-Processing of Dynamical Seasonal Climate Forecasts**
W.W. Hsieh*, J. Finnis, W.J. Merryfield, H. Lin
University of British Columbia, Vancouver, Canada

1745 J09.6/21405 **The Generation of Global Hyper Climate Modes**
D. Dommenget*, M. Latif
IFM-GEOMAR, Kiel, Germany

1630-1800 520f
Session: Ocean-Ice-Atmosphere Boundary Layers and Interactions
Chair: Günther Heinemann

1630 J14.19/21406 **Siberian Coastal Polynya Hydrography Response to the Sea-Ice and Atmospheric Forcing**
I.A. Dmitrenko*, H. Kassens, S.A. Kirillov, G. Heinemann, T. Krumpen, J.A. Hölemann, T. Klagge, C. Wegner, D. Bauch
Leibniz Institute of Marine Sciences, University of Kiel, Germany

1645 J14.20/21406 **Aircraft Observations of the Atmospheric Boundary Layer Over the Ronne Polynya, Antarctica**
I.A. Renfrew*, E.Fiedler, T. Lachlan-Cope, J. King
University of East Anglia, UK

1700 J14.21/21406 **Spatiotemporal Variability of Sea-ice Coverage, Thin Ice Fraction and Ice Production in the Laptev Sea as Derived from Passive Microwave Sensor Data between 1979 and 2008**
S. Willmes*, S. Adams, D. Schröder, G. Heinemann
University of Trier, Trier, Germany

1715 J14.22/21406 **Polynya Studies in the Laptev Sea with a Fully Coupled High Resolution Atmosphere Sea-ice Ocean Model**
D. Schroeder*, G. Heinemann, L. Ebner, S. Adams, S. Willmes, R. Timmermann
University of Trier, Department of Environmental Meteorology, Faculty of Geoscience, Trier, Germany

1730 J14.23/21406 **Sea Ice Iass Balance Observations and Energy Exchange Across the Ice-Ocean-Atmosphere Boundary Layers**
D. Perovich*, J. Richter-Menge, B. Elder, C. Polashenski, K. Jones
ERDC-Cold Regions Research and Engineering Laboratory, Hanover, USA

1745 J14.24/21406 **Modeling the Formation and Evolution of Leads in Arctic**
K. Wang*, C. Wang
Norwegian Polar Institute, Polar Environmental Centre, Troms , Norway

*Denotes presenting author.

1630-1800 **520b**
Session: Remote Sensing of Ice & Meltwater
Chair: Christian Haas

630 J16.31/21407 **Of Light and Snow: Remote Sensing of the Poles**
T. Scambos*
National Snow and Ice Data Center, Boulder, Colorado, USA

1700 J16.33/21407 **Rapid Change of the Snow Surface Properties at Vostok, East Antarctica, Revealed by Altimetry**
P. Lacroix*, B. Legresy, F. Remy, F. Blarel
Laboratoire d'Étude en Géophysique et Océanographie Spatiale, Toulouse, France

1715 J16.34/21407 **Using SAR Imagery to Monitor Ice Development on Lakes on Alaska's North Slope**
C. van Breukelen*, D.M. White, B. Schnabel, P. Prokein
University of Alaska Fairbanks, Fairbanks, AK, USA

1730 J16.35/21407 **Flow of Circumpolar Deep Water and Glacier Melt Water in the Amundsen Sea**
A.K. Wåhlin*, G. Björk, C. Nohr, X. Yuan
University of Gothenburg, Sweden

1630-1800 **520c**
Session: Abrupt Changes in the Climate System
Chair: Andreas Schmittner

1630 J06.7/21408 **Temperature and Precipitation Changes in the Altai Mountains against the Background of Global Climate Changes**
M. Syromyatina*, I. Moskalenko, K. Chistyakov
St. Petersburg State University, Russia

1645 J06.8/21408 **Spatial and Temporal Characteristics of the Decadal Abrupt Changes of Global Atmosphere-Ocean System in the 1970s**
D. Xiao*, J. P. Li
Chinese Academy of Meteorological Sciences,China Meteorological Administration, Beijing, China

1700 J06.9/21408 **Arctic Seasonal Catastrophes and Climate Variability**
A. Proshutinsky*, M-L. Timmermans, J. Toole
Woods Hole Oceanographic Institution, Woods Hole, USA

1715 J06.10/21408 **Understanding the Abrupt Changes in mid-Holocene North Africa: A Dynamic Transition from Sustainability to Vulnerability**
Y. Wang*, J.E. Kutzbach
Pacific Northwest National Laboratory, Richland, WA, USA

1630-1800 **520de**
Session: Data Assimilation/ Glaciers
Chair: Ian Allison

1630 J03.31/21409 **Antarctic Sea Ice: International Polar Year Cruises**
S.F. Ackley*, A.P. Worby
University of Texas, San Antonio, USA

1700 J03.33/21409 **Spectral Validation Metrics for Sea Ice Mechanics Models based on International Polar Year Observations**
A. Roberts*, J. Hutchings
Arctic Region Supercomputing Center, University of Alaska, Fairbanks, USA

1715 J03.34/21409 **The State of the Canadian Cryosphere: New Satellite and Field Observations for the International Polar Year**
C. Derksen*, A. Walker
Environment Canada, Toronto, Canada

1730 J03.35/21409 **Sea Ice Cover as a Product of Air-sea Interaction Processes**
A. Makshtas*, S. Shutilin, V. Sokolov, V. Kustov, N. Zinoviev
Leading Scientist, Russia

1745 J03.36/21409 **Observations on the Annual Cycle of Sea Ice - In Situ Measurements of Sea Ice in the Transpolar Drift, Arctic Ocean**
S. Hanson*, J. Haapala, M. Nicolaus, S. Gerland
DTU Space, National Space Institute, Copenhagen, Denmark

1630-1800 **525ab**
Session: Regional Climate Modelling
Chair: Philippe Lucas-Picher

1630 J12.31/21410 **Climate Change and Permafrost: Regional Modelling with CLASS New Deep Soil Configuration from 1961 to 2100**
J.-P. Blanchette*, L. Sushama, R. Laprise, M. Allard, R. Harvey
Université du Québec à Montréal, Canada

1645 J12.32/21410 **Quantifying Uncertainty in Regional Climate Downscaling with a Perturbed Physics Ensemble of RCM Simulations**
L. Separovic*, R. de Elia, R. Laprise
Université du Québec à Montréal, Canada

1700 J12.33/21410 **A Parameterization of Fractional Cloudiness for Multi-Scale Earth System Models**
L.D. Fowler*
CIRA - Colorado State University, Fort Collins, Colorado, USA

1715 J12.34/21410 **Coupling of the Canadian Regional Climate Model (CRCM) with 1D Lake Models: Simulations of the Great Lakes Area**
A Martynov*, L Sushama, R Laprise
Canadian Regional Climate Modelling and Diagnostics (CRCMD) Network, Université du Québec à Montréal, Canada

1730 J12.35/21410 **Validation of Hydro-Meteorological Variables and their Projected Changes for North American Basins in an Ensemble of Canadian Regional Climate Model Simulations**
M Braun*, L Sushama, D Caya
Université du Québec à Montréal, Canada

1745 J12.36/21410 **Evaluation of Cloud and Radiation Processes as Simulated by the Canadian Regional Climate Model GEM Using ARM Observations.**
D. Paquin-Ricard*, C.G. Jones, P.A. Vaillancourt
Canadian Regional Climate Modelling and Diagnostics Network, Université du Québec à Montréal, Canada

1630-1800 516c
Session: Effects of Interactions among Atmosphere, Ocean, Land Surface, Cryosphere, and Biosphere, including Human Activities, on Monsoons
Chair: Annalisa Bracco

1630 J17.31/21411 **Multi-Scale Forcing and Formation of Subtropical Desert and Monsoon**
G. Wu*, Y. Liu, X. Zhu, X. Liang
LASG, Institute of Atmospheric Physics, Beijing, China

1645 J17.32/21411 **Global and Temporal Characteristics of Monsoon/vegetation Biophysical Process Interactions**
Y. Xue*, F. De Sales, R. Vasic, C.R. Mechoso, A. Arakawa, S. Prince
University of California, Los Angeles, USA

1700 J17.33/21411 **Projection of Precipitation Extremes in the Asian Monsoon Region**
A. Kitoh*, K. Kamiguchi, O. Arakawa, S. Kusunoki
Meteorological Research Institute, Tsukuba, Japan

1715 J17.34/21411 **Impact of CO2-Induced Warming on Summer Rainfall over East Asia**
Y. Lei*, B. Hoskins, J. Slingo
University of Reading, Reading, UK

1730 J17.35/21411 **Airborne Observations of Greenhouse Gases During the Indian Summer Monsoon 2008**
T. J. Schuck*, A.K. Baker, F. Slemr, C.A.M Brenninkmeijer, A. Zahn, M. Hermann, P. van Velthoven, D. Oram
MPI for Chemistry, Mainz, Germany

1745 J17.36/21411 **Projected Changes in the Annual Cycle of the South American Monsoon**
A. Seth*, M. Rojas, S.A. Rauscher
University of Connecticut, Storrs, CT, USA

1630-1800 516a
Session: Changes in Continental Snow Cover, Lake and River Ice III
Chair: Claude Duguay

1630 C05.13/21412 **Modelling Canadian Lake Ice Phenology**
L. Brown*, C.R. Duguay
Interdisciplinary Centre on Climate Change (IC3), University of Waterloo, Waterloo, Canada

1645 C05.14/21412 **Observation of Ice Phenology from Passive Microwave Brightness Temperature Measurements on Large Canadian Northern Lakes: Great Bear and Great Slave Lakes**
K.-K. Kang*, C.R. Duguay, S.E.L. Howell
Interdisciplinary Centre on Climate Change (IC3), University of Waterloo, Canada

1700 C05.15/21412 **Some Linkages between Terrestrial Snow Cover, Atmospheric Circulation, and Arctic Sea Ice**
A. Frei*, G. Gong, J. Stroeve, Y. Ge, D. Ghatak
Hunter College, City University of New York, USA

1715 C05.16/21412 **Evaluation of European Snow Cover as Simulated by an Ensemble of Regional Climate Models**
S. Kotlarski*, C. Schär, D. Lüthi
Institute for Atmospheric and Climate Science, ETH, Zürich, Switzerland

1730 C05.17/21412 **The Response of Northern Hemisphere Snow Cover to a Changing Climate**
R.D. Brown*, P.W. Mote
Environment Canada at Ouranos, Montréal, Canada

1745 C05.18/21412 **Effect of Global Warming on Snow Hydrology in Lebanon**
A. Hreiche*, C. Bocquillon, W. Najem
Centre Régional de l'Eau et de l'Environnement -Université Saint-Joseph, Beirut, Lebanon

1630-1800 518ab
Session: Local and Regional Aerosol-cloud Interactions
Chair: Jon Egill Kristjansson

1630 M13.31/21401 **The Response of Precipitation to Aerosol Through Riming and Melting in Deep Convective Clouds**
Z. Cui*, K. Carslaw, A. Blyth
School of Earth and Environment, University of Leeds, Leeds, UK

1645 M13.32/21401 **The Interaction of Urban Aerosol with Stratocumulus Cloud**
T.W. Choularton*, K. Bower, W. Gallagher, J. Crosier, H. Coe, G. McFiggans, P. Connolly
University of Manchester, UK

*Denotes presenting author.

1700 M13.33/21401 **Dynamically and Thermal-Dynamically Stratified Aerosol and Cloud Interaction**
W. Su*, N.G. Loeb, K.-M. Xu
Science Systems and Applications, Inc., Hampton, VA, USA

1715 M13.34/21401 **Aerosol-Cloud-Radiation Interactions in the Field of Cumulus Clouds**
M Ovtchinnikov*, L Berg, R Ferrare, E Kassianov
Pacific Northwest National Laboratory, Richland, USA

1730 M13.35/21401 **Impact of Atmospheric Aerosols on Precipitation from Deep Organized Convection: Results from a Prescribed-flow Model with a Double-moment Bulk Microphysics Scheme**
J. Slawinska*, W.W. Grabowski, H. Morrison
University of Warsaw, Warsaw, Poland

1745 M13.36/21401 **Effects of Aerosol on Cloud and Precipitation Under Clean and Dirty Environments: A Comparative Study by Means of Observation and Modeling**
T. Yuan*, Z. Li, J. Fan, F. Niu
University of Maryland, College Park, Maryland, USA

1630-1800 **518c**
Session: Theoretical Advances in Dynamics
Chair: Guillaume Lapeyre

1630 M06.31/21402 **Interactions between Weather Regimes and Marine Surface in the North-Atlantic Region**
V. Guemas*, D. Salas-Mélia, M. Kageyama, H. Giordani, A. Voldoire, E. Sanchez-Gomez
CNRM-Météo, Toulouse, France

1645 M06.32/21402 **The Midlatitude Response to ENSO - Deciphering Cause and Effect**
N. Harnik*, R. Seager, N. Naik, M.A. Cane, M. Ting, Y. Kushnir
Tel Aviv University, Tel Aviv, Israel

1700 M06.33/21402 **Energy Conversion of Baroclinic Instability Waves Viewed from Mass-Weighted Isentropic Zonal Means (MIM)**
T. Iwasaki*
Graduate School of Science, Tohoku University, Sendai, Japan

1715 M06.34/21402 **Modulations in the Planetary Wave Field Induced by Upward-Propagating Rossby Wave Packets Prior to Stratospheric Sudden Warming Events**
K. Nishii*, H. Nakamura
Graduate School of Science, University of Tokyo, Tokyo, Japan

1730 M06.35/21402 **Dynamics of a Distinctive Feature of the Extra-Tropical Lowermost Stratosphere**
S.F. Kew*, M. Sprenger, H.C. Davies
Institute for Atmosphere and Climate Science, ETH Zurich, Switzerland

1745 M06.36/21402 **A New Look at Stratified Shear Flow Instability**
E. Heifetz*, N. Harnik, A. Rabinovich, R. Brkan, O. Umurhan, F. Lott
Tel-Aviv University, Israel

1630-1800 **524ab**
Session: Large Scale Dynamics (1)
Chair: Charles McLandress

1630 M01.31/21403 **The Role of Dynamics in Middle Atmosphere Modelling**
T.G. Shepherd*
University of Toronto, Toronto, Canada

1700 M01.33/21403 **Predictability of Stratospheric Circulations in Northern Hemisphere Winter**
T. Ichimaru*, T. Hirooka, H. Mukougawa
Kyushu University, Fukuoka, Japan

1715 M01.34/21403 **Assessing the Impact of Climate Change on Stratospheric Sudden Warmings**
C. McLandress*, T.G. Shepherd
University of Toronto, Toronto, Canada

1730 M01.35/21403 **Blocking Precursors to Stratospheric Sudden Warming Events**
O. Martius*, L.M. Polvani, H.C. Davies
Institute for Atmospheric and Climate Science, ETH Zurich, Switzerland

1745 M01.36/21403 **Tropical Troposphere-influence on Major Sudden Stratospheric Warming in January 2003**
P. Vargin*, D.H.W. Peters, V. Yushkov, N. Tsvetkova
Central Aerological Observatory, Moscow Region, Russia

1630-1800 **524c**
Session: Dynamics and Predictability of High-impact Weather
Chair: Yucheng Song

1630 M08.31/21404 **The Use of Meteosat Second Generation Satellite Data for Convective Storm Forecasting**
M. Koenig*
EUMETSAT, Darmstadt, Germany

1645 M08.32/21404 **The Genesis of Tropical Cyclones from Extratropical Precursors over the North Atlantic during 2004- 2008: A Diagnostic and Compositing Study**
T.J. Galarneau Jr.*, L.F. Bosart
University at Albany/SUNY, Albany, USA

1700 M08.33/21404 **Synoptic Analysis of a Heavy Rainfall Event in Southeastern China in June 2008**
Y. Zhang*
Nanjing University, Nanjing, China

1715 M08.34/21404 **The Role of Dynamical Precursor Features in UK Heavy Precipitation Events**
A. Twitchett*, C. Schwierz
University of Leeds, UK

1730 M08.35/21404 **Severe Weather Modeling with GRAPES in Rainy Season of Southern China**
X. Peng*, Y. Chang
State Key Laboratory of Severe Weather, Chinese Academy of Meteorological Sciences, Beijing, China

1630-1800 516b
Session: Bio
Chair: Michael Stacey

1630 P01.31/21413 **Sea Level and Chlorophyll Mapping of Mesoscale Eddies of the Northeast Pacific**
W. Crawford*, N. Bolingbroke
Fisheries & Oceans Canada, Sidney, Canada

1645 P01.32/21413 **Break-up of the Alaskan Stream into Aleutian Eddies and Associated Anomalies**
K. Rogachev*, N.V. Shlyk
Pacific Oceanological Institute, Vladivostok, Russia

1700 P01.33/21413 **Eddy-Mean Flow Interaction in the Decadally-Modulating Kuroshio Extension System**
B. Qiu*, S. Chen
University of Hawaii at Manoa, Honolulu, USA

1730 P01.35/21413 **Contribution of Temperature Anomaly to Large Sea Surface Height Anomaly Associated with Mesoscale Eddy**
H. Abe*, K. Hanawa
Tohoku University, Sendai, Japan

1630-1800 520a
Session: Moseoscale Processes
Chair: Leo Maas

1630 P05.31/21414 **Generation of Inertial Oscillations as Deep Ocean Response to Hurricanes**
E.G. Morozov*, M.G. Velarde
Shirshov Institute of Oceanology, Moscow, Russia

1645 P05.32/21414 **Large Amplitude Internal Waves and Energy Flux**
K. Lamb*
University of Waterloo, Waterloo, Canada

1700 P05.33/21414 **Mass Transport Induced by Internal Kelvin Waves beneath Shore Fast Ice**
J.E.H. Weber*, E. Støylen
University of Oslo, Norway

1715 P05.34/21414 **Influence of Ice Cover on Edge and Internal Waves**
S. Muzylev*
P.P. Shirshov Institute of Oceanology, Moscow, Russia

1730 P05.35/21414 **Modeling of Internal Waves over the Critical Latitude**
T. Talipova*, O. Polukhina, I. Bezruk
Institute of Applied Physics RAS, Russia

1630-1800 516d
Session: Tides, Internal Waves, Topography, and Mixing III
Chair: Robin Muench

1630 P06.31/21415 **Observations of Turbulent Kinetic Energy Dissipation Rate in the Wyville Thomson Basin**
E.J. Venables*, M.E. Inall, T.J. Sherwin
Scottish Association for Marine Science, Oban, UK

1645 P06.32/21415 **Tidal Induced Mixing in the Mauritanian Upwelling Region**
J. Schafstall*, M. Dengler, P. Brandt
Leibniz-Institut für Meereswissenschaften an der Universität Kiel, Germany

1700 P06.33/21415 **Near-inertial Waves and Internal Tides in the Subtropical Indian Ocean during Cirene Experiment**
P. Bouruet-Aubertot*, X. Le Vaillant, Y. Cuypers, J. Vialard, M. McPhaden
LOCEAN-Université Pierre et Marie Curie, Paris, France

1715 P06.34/21415 **Simultaneous Resolution of the Eddying General Circulation and Reasonably Accurate Tides in a 32-Layer, 1/12.5 Degree Global Ocean Model**
B.K. Arbic*, E.J. Metzger, A.J. Wallcraft
Department of Oceanography and Center for Ocean-Atmospheric Prediction Studies, Tallahassee, Florida, USA

1730 P06.35/21415 **Model-Data Comparison of Internal Tidal Beams and Mixing near Monterey Bay**
T.M.S. Johnston*, D.L. Rudnick, G.S. Carter, R.E. Todd, S.T. Cole
Scripps Institution of Oceanography, University of California, San Diego, La Jolla, USA

1745 P06.36/21415 **Turbulent Mixing in the Deep Western Boundary Current of the Subpolar North Atlantic**
C. Mertens*, M. Walter, U. Stöber, M. Rhein
University of Bremen, Bremen, Germany

1630-1800 516e
Session: OpOcean
Chair: Toshio Suga

1630 P03.13/21416 **The Canadian Operational Network of Coupled Environmental PredicTion Systems (CONCEPTS)**
H. Ritchie*, F. Davidson, E. Dombrowsky, G. Flato, P. Pellerin, W. Renaud, M. Taillefer, K. Thompson, B. Topliss, D. Wright,
Meteorological Research Division, EC, Dartmouth NS, Canada

*Denotes presenting author.

1700 P03.15/21416 **An Embedded Wireless Sensor Network for Coastal Marine Environmental Assessments**
R. Nair*, F. Brunetti, S. Küchler
Istituto Nazionale Di Oceanografia E Di Geofisica Sperimentale - OGS, Trieste, Italy

1715 P03.16/21416 **Improvements to the Wind-Driven Component of the OSCAR Surface Current Product**
K. Dohan*, G.S.E. Lagerloef, J.T. Gunn, F. Bonjean
Earth & Space Research, Seattle, USA

1730 P03.17/21416 **High-Frequency Continuous Observations from Ferrybox for Determining Ocean Variability**
H. Wehde*, A. Folkestad, K. Sørensen, D.D. Durand, J. Magnusson
Norwegian Institute for Water Research (NIVA), Norway

1500-1630 Exhibit Hall
Poster board numbers are listed in the left margin

J001 J03.1/21417 **Number Concentration of Aerosol Particles in the Antarctic Troposphere Measured by the Aircraft POLAR-2 from Germany**
N. Hirasawa*, K. Hara, M. Wada, T. Yamanouchi
National Institute of Polar Research, Tokyo, Japan

J002 J03.2/21417 **On the Role of Friction and Surface Fluxes of Heat and Moisture in Generating Favourable Conditions for Polar Low Developments**
T.E. Nordeng*
Norwegian Meteorological Institute, Oslo, Norway

J003 J03.3/21417 **The Indirect Semi-Direct Aerosol Campaign**
S. Ghan*, G. McFarquhar, H. Verlinde, S. Brooks, M. Dubey, S. Xie, A. Korolev, P. Liu, A-M. McDonald, A. Zelenyuk
Pacific Northwest National Laboratory, Richland, USA

J004 J03.4/21417 **Human Influence on Arctic Sea Ice Detectable from Early 1990s Onwards**
S.-K. Min*, X. Zhang, F.W. Zwiers, T. Agnew
Environment Canada, Toronto, Canada

J005 J03.5/21417 **The Impact of Blowing Snow on Arctic Sea Ice and Snow: Results from an Improved Sea-ice / Snow / Blowing Snow Coupled System**
Y.C. Chung*, S. Bélair, J. Mailhot, A. Zadra
Numerical Prediction Research Section, Meteorological Research Division, Numerical Prediction Research Section, Meteorological Research Division, Environment Canada, Dorval, Canada

J006 J03.6/21417 **Using Global Radiation Model to Simulate Surface Temperature Impact on Snow Melt - Loven Glacier - Spitsberg**
D. Laffly*, S. Delage, M. Griselin, C. Marlin
Université de Toulouse (GEODE)

J007 J03.7/21417 **An Overview of the Greenland Flow Distortion Experiment**
I. A. Renfrew*, G.W.K. Moore, J.E. Kristjansson, H. Olafsson, S.L Gray, G.N. Petersent
University of East Anglia, UK

J008 J03.8/21417 **ADCP Observations across the Labrador Sea during the IPY**
D.J. Torres*, Y. Geshelin, M.M. Hall
Woods Hole Oceanographic Institution, Woods Hole, MA, USA

J009 J03.9/21417 **Bipolar Atlantic Thermohaline Circulation - BIAC IPY Cluster # 23**
S. Østerhus*, T. Gammelsrød
Bjerknes Centre for Climate Research, Bergen, Norway

J010 J03.10/21417 **Nearshore Circulation off the Mackenzie Delta**
W. Perrie*, R. Mulligan, S. Solomon, A. Hoque, L. Zhang
Bedford Institute of Oceanography, Dartmouth, Canada

J011 J03.11/21417 **Large-Scale Planetary Disturbances in Temperature at High Latitudes During Arctic Winter - the SATI and COSMIC Perspective**
M.G. Shepherd*, Y.-M. Cho, G.G. Shepherd
Centre for Research In Earth and Space Science, York University, Toronto, Canada

J012 J03.12/22417 **Chemical and Physical Properties of Arctic Aerosol**
R.Y.-W. Chang*, S.J. Sjostedt, J.P.D. Abbatt, K. Hayden, W.R. Leaitch, S.-M. Li
University of Toronto, Toronto, Canada

J013 J03.13/21417 **ASCOS/AMISA 2008 Field Program: Accomplishments and First Results**
P.O.G. Persson*, M. Tjernström, C. Leck, I.M. Brooks, B.J. Brooks, A. Gasiewski
Cooperative Institute for Research in Environmental Sciences/NOAA/ESRL, Boulder, USA

J014 J03.14/21417 **Validation of Model Cloud Parameters Using AIRS Radiances**
O. Pancrati*, L. Garand, S. Heillette
Environment Canada, Dorval, Canada

J015 J03.15/21417 **Fire and Ice - Aerosol Properties of Forest Fire Plumes over Greenland during POLARCAT-GRACE 2008**
B. Weinzierl*, Y. Fliecker, A. Minikin, H. Schlager, M. Scheibe, U. Hamann, A. Schäfler, H. Sodemann, J.F. Burkhart, A. Stohl
Institut für Physik der Atmosphäre, Deutsches Zentrum für Luft- und Raumfahrt (DLR), Oberpfaffenhofen, Germany

J027 J05.1/21417 **Arctic Dipole Mode Responsible for the Recent Ice Cover Anomaly in the Pacific Sector**
M. Ikeda*
Hokkaido University, Sapporo, Japan

J028 J05.2/21417 **Atlantic Water Eddies in the Arctic Ocean's Canada Basin**
S. Zimmermann*, F. McLaughlin, E. Carmack, M-L. Timmermans, J. Toole, R. Krishfield, K. Shimada, S. Nishino
Department Fisheries & Oceans Canada, Sidney, Canada

J029 J05.3/21417 **Comparison of Sea Ice Thickness EM Measurements from SEDNA**
C.A. Geiger*, J.A. Richter-Menge, S. Streeter, B.C. Elder, S. Hendricks, T. Martin, C. Haas,
University of Delaware, Newark, DE, USA

*Denotes presenting author.

J030 J05.4/21417 **Decadal Variations in Arctic Ocean Ice**
Z. Long*, W. Perrie, C. Tang, E. Dunlap
Bedford Institute of Oceanography, Dartmouth, Canada

J031 J05.5/21417 **Impact and Response of a Reduced Arctic Sea-ice Cover on Ocean Properties**
J. Sedlacek*, R. Knutti
ETH Zürich, Zürich, Switzerland

J032 J05.6/21417 **Is the Dipole Anomaly a Major Driver to Record Lows in Arctic Summer Sea Ice Extent?**
J. Wang*, J. Zhang, E. Watanabe, M. Ikeda, K. Mizobata, J.E. Walsh
NOAA Great Lakes Environmental Research Laboratory, Ann Arbor, USA

J033 J05.7/21417 **Recent Numerical Efforts in the Finite Element Louvain-la-Neuve Sea-Ice Model (FELIM)**
O. Lietaer*, S. Bouillon, T. Fichefet, V. Legat
Université Catholique de Louvain, Louvain-la-Neuve, Belgium

J034 J05.8/21417 **Regional Model Projections of IPCC Climate Scenarios in the Arctic Ocean**
S. Graham*, E. Demirov
Memorial University of Newfoundland, St. John's, Canada

J035 J05.9/21417 **Response Characteristics of the Arctic Ocean Ice Thickness on Ice Export Perturbations**
G. Björk*, C. Stranne
University of Gothenburg, Sweden

J036 J05.10/21417 **Sensitivity Tests for a Coupled Atmosphere-Ice-Ocean Column Model**
K. Borenäs*, G. Björk
Swedish Meteorological and Hydrological Institute, Västra Frölunda, Sweden

J037 J05.11/21417 **The Impact of the Greenland Tip Jet on the Subpolar North Atlantic**
D.A.J Sproson*, I.A. Renfrew, K.J. Heywood
University of East Anglia, Norwich, UK

J038 J05.12/21417 **Vertical Mixing at Intermediate Depths in the Arctic Boundary Current**
Y.D. Lenn*, P.J. Wiles, S. Torres-Valdez, E.P. Abrahamsen, T.P. Rippeth, J.H. Simpson, S. Bacon, S.W. Laxon, I. Polyakov, V. Ivanov
School of Ocean Sciences, Bangor University, UK

J039 J05.13/21417 **Wind-driven River and Sea-Ice Meltwater Distributions along the Laptev Sea Continental Slope Derived from Stable Oxygen Isotope Composition within the Water Column**
D. Bauch*, M. Gröger, I. Dmitrenko, J. Hölemann, A. Mackensen, N. Andersen
Leibniz Institute of Marine Sciences (IFM-GEOMAR), Kiel, Germany

J042 J06.1/21417 **New Policies and Laws for Future Abrupt Climate Changes**
M. Niu*, J. Jie
Nanjing University of Information Science & Technology, Nanjing, China

J043 J06.2/21417 **Change Detection in Canadian Low Streamflows: A Simultaneous Study of Trends and Abrupt Changes**
E. Ehsanzadeh*
Hydro-Quebec/NSERC, University of Quebec, INRS-ETE, Quebec, Canada

J044 J06.3/21417 **Impact of the Greenland Ice Sheet on Northern Hemispheric Glacial-Interglacial Cycles**
S.J. Koenig*, R.M. DeConto, D. Pollard
Climate System Research Center, University of Massachusetts, Amherst, USA

J045 J06.4/21417 **The Impact of the Abrupt Climate Change near 4,400 yr BP on Culture Subrogation in Yuchisi, Middle China and Its Global Implication**
J. Wang*, L. Sun
Key Laboratory of Global Change and Marine-Atmospheric Chemistry, Third Institute of Oceanography, State Oceanic Administration, China

J062 J14.1/21417 **Validation of Simulated Sea-Ice Concentrations from Sea-Ice/Ocean Models using Satellite Data and Polynya Classification Methods**
S. Adams*, S. Willmes, G. Heinemann, R. Gerdes, R. Timmermann, P. Rozman
University of Trier, Trier, Germany

J063 J14.2/21417 **Observations of Frazil Ice Formation in the Laptev Sea Sea Polynya from Upwards Looking ADCPs (Acoustic Doppler Current Profilers)**
I. Dmitrenko*, C. Wegner, T. Krumpen, J.A. Hoelemann, L. Timokhov, H. Kassens, T. Klagge,
IFM-GEOMAR, Kiel, Germany

J064 J14.3/21417 **ADCP Measurements and EOF Analysis for the Study of Polynya Processes in Terra Nova Bay (Antarctica)**
S. Sparnocchia*, P. Picco, A. Cappelletti
CNR ISMAR- Trieste, Italy

J065 J14.4/21417 **Snow -Air Exchange Processes at Barrow, Alaska in Spring 2009**
G. Kos*, N. Adechina, P.A. Ariya
McGill University, Department of Atmospheric and Oceanic Sciences, Montréal, Quebec, Canada;

J066 J14.5/21417 **Boundary Layer Flow In stability in the Glacier Wind**
D.S. Munro*
University of Toronto at Mississauga, Canada

J067 J14.6/21417 **Drifting Snow Thresholds in the Presence of Precipitation**
K. Leonard*
Lamont-Doherty Earth Observatory of Columbia University, Palisades, New York, USA

J068 J14.7/21417 **Sea-ice Energy Balance: Results from a Summer Ice-drift Experiment in the Central Arctic**
S. de La Rosa*, A. Sirevaag, M. Nicolaus, S. Gerland, L.H. Smedsrud
Geophysical Institute, University of Bergen, Bergen,Norway

J069 J14.8/21417 **Validation of the Modified Second Order Closure Model Proposed for Calculating Turbulent Terms in Ekman Boundary Layer**
M. M. Ei Farahani*, A. Jalali
Institute of Geophysics, University of Tehran

J070 J14.9/21417 **CRACICE-MERTZ : Insights into the Rifting and Calving Process of an Ice Tongue**
P. Lacroix*, B. Legresy, L. Lescarmontier, R. Coleman, N.W. Young, I.E. Tabacco, L. Testut, F. Remy
LEGOS, Toulouse, France

J071 J14.10/21417 **Chemical Composition of Snow Pit from Joinville Island and Detroit Plateau at Antarctic Peninsula**
A.S. Alencar*, I. Wainer, J.C. Simões, H. Evangelista, M. DeAngelis, F. Vimeux, M. Potocki, A.V. Kurbatov, P.A. Mayewski
Universidade de São Paulo, São Paulo, Brazil

J072 J14.11/21417 **Material Behavior of Sea Ice at Scales of 10 to 100 km**
C.A. Geiger*, J.W. Weatherly, J.A. Richter-Menge
University of Delaware, Newark, DE, USA

J073 J14.12/21417 **The Seasonal Freshwater Content Changes over Siberian Arctic Shelves During 20th Century**
S. Kirillov*, I. Dmitrenko
Arctic and Antarctic Research Institute, St.Petersburg, Russia

J086 J16.1/21417 **Improvement of Snow Water Equivalent Retrieval Algorithms in Lake-Rich, High-Latitude Environments**
G. Gunn*, C.P. Derksen, C.R. Duguay
Interdisciplinary Centre on Climate Change (IC3) and Department of Geography & Environmental Management, University of Waterloo, Waterloo, Canada

J087 J16.2/21417 **Monitoring the Ice Break-up Process on Large Lakes With Passive and Active Microwave Satellite Remote Sensing Data**
K.-K. Kang*, C.R. Duguay, S.E.L. Howell
Interdisciplinary Centre on Climate Change (IC3), University of Waterloo, Canada

J088 J16.3/21417 **An Automatic Algorithm for Monitoring the Melting Zone of the Antarctic Peninsula Using ASAR WS Data**
J. Arigony-Neto*
Universidade Federal do Rio Grande, Rio Grande, Brazil

J089 J16.4/21417 **Variability of the ENVISAT altimetric signals over Antarctica driven by wind conditions**
S. Parouty*, B. Legrésy, F. Rémy, F. Blarel
Université de Toulouse, Toulouse, France

J090 J16.5/21417 **About the Total Winter-Time Circum-Antarctic Coastal Polynya Area: 1992-2008**
S. Kern*
Center for Marine and Atmospheric Sciences, University of Hamburg, Institute of Oceanography, Hamburg, Germany

J091 J16.6/21417 **Analysis of ALOS /PALSAR Interferometry to Identify Recent Change and Surface Motion of Kongur Mountain Glacier,Pamirs**
Z. Jiang*, S. Liu, F. Yu
State Key laboratory of Cryospheric Sciences,Cold and Arid Regions Environment and Engineering Research Institute,Chinese Academy of Sciences, Lanzhou, China

J092 J16.7/21417 **Recent Changes to Data Systems at the NSIDC Distributed Active Archive System (DAAC)**
R.L.S. Weaver*
National Snow and Ice Data Center, Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, Colorado, USA

J093 J16.8/21417 **Analysis and Following of Risk Evolution of Natural Resources Degradation in the Aurès Region by Remote Sensing**
H. Chenchouni*, A. Arar, M.C. Benabderrahmane
University of Batna, Algeria

J096 J17.1/21417 **A Comparison of Monsoon Climate Features of 20 Year between Offshore, Coast and Estuary Islands in Jiangsu**
J. Wang*, C. Miao, W. Li, H. Li
College of Atmospheric Science, Nanjing University of Information Science & Technology, China

J097 J17.2/21417 **Atmospheric Circulation Associated with Anomalous Variations of East Asian Winter Monsoon**
G. Zeng*, W.-C. Wang, Z. Sun
Nanjing University of Information Science and Technology, Nanjing, China

J098 J17.3/21417 **Response of Sea Surface Variations to the Climate of Peninsular India in the RegCM3 Modeling System**
R. Janardanan*, L. R Nayagam, K. Mohanakumar
Cochin University of Science and Technology, Cochin, India

J099 J17.4/21417 **Subsurface Equatorial Zonal Current in the Eastern Indian Ocean**
I. Iskandar*, Y. Masumoto, K. Mizuno
Sriwijaya University, Palembang, Indonesia

*Denotes presenting author.

J100 J17.5/21417 **The Effect of Eurasian Snow Cover and the SST of Arabian Sea and Bay of Bengal on the Monsoon Rainfall of Pakistan**
M.H.A. Baig*, G. Rasul
Research and Development Division (R&D), Pakistan Meteorological Department, Islamabad, Pakistan

J101 J17.6/21417 **The Effects of the Radiation, Sea Surface Temperature and Wind Shears on the Simulated Tropical Cloud Systems over the South China Sea**
D. Fu*, X. Guo, C. Liu
Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China

J102 J17.7/21417 **Analysis of the Diabatic Heating Characteristic of Atmosphere over Tibetan Plateau in Winter**
J.J. Yu*, Y.M. Liu, G.X. Wu
LASG, Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China

J103 J17.8/21417 **An Extratropical Air-Sea Interaction Over the North Pacific in Association with a Preceding El Nino Episode in Early Summer**
Y. Wang*
Chinese Academy of Meteorological Sciences, Beijing, China

J104 J17.9/21417 **The Influence of Wintertime Thermal Contrast over Asian Continent on Asian Monsoon**
H. Yan*, H. Liang, Y. Chen
Yunnan Climate Center, Kunming, China

J105 J17.10/21417 **The Relative Roles of Land-sea Distribution and Orography in the Asian Monsoon**
Z.F. Xu*, C.B. Fu, Y.F. Qian
RCE-TEA, Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China

J106 J17.11/21417 **Impacts of Human Emissions on Wind Speed Change over China for the 21st Century as Projected by 20 Climate Models**
Y. Jiang*, Z.-C. Zhao, Y. Luo
National Climate Center, Beijing, China

J107 J17.12/21417 **The Behaviors of South China Sea Summer Monsoon in IPCC AR4 CGCMs**
X. Wang*, W. Zhou
Guy Carpenter Asia-Pacific Climate Impact Centre, City University of Hong Kong, Hong Kong, China

J108 J17.13/21417 **Uncertainties in Future Projections of Extreme Precipitation in the Asian Monsoon Regions**
A.G. Turner*, J.M. Slingo
NCAS-Climate, Reading, UK

C118 C05.1/21417 **A Study on the Relationship between Glacier and Lake Variations in the Tibetan Plateau**
A. Lu*, T. Yao, L. Wang, N. Wang, K. Duan
Cold and Arid Regions Environmental and Engineering Research Institute, CAS, China

C119 C05.2/21417 **Changes in Lake Ice Phenology and their Causes, Dorset Area of South Ontario**
H. Yao*, K. Somers, M. Mackay
Ontario Ministry of Environment, Dorset, Canada

M134 M01.1/21417 **Features of Quasibiennial Oscillation in Ozone and Temperature over Tropics by Wavelet Analysis**
S. Fadnavis*, G. Beig
Indian Institute of Tropical Meteorology, Pune, India

M135 M01.2/21417 **HIRDLS Observations of Upper Troposphere and Stratosphere Water Vapor**
J. Gille*, H. Worden, B. Nardi, S. Karol, L. Smith, T. Eden, V. Yudin, D. Kinnison, R. Khosravi, J. Barnett
University of Colorado, Boulder, USA

M136 M01.3/21417 **SABER Observations of Short and Long-term Ozone Variability during MIDAS Campaign**
D. Swain*, K. Kishore Kumar, G. Ramkumar
The International Association for the Physical Sciences of the Oceans (IAPSO) and Space Physics Laboratory, Thiruvananthapuram, India

M137 M01.4/21417 **Temperature and Ozone Observed by MIPAS/ENVISAT and MLS/AURA: The Global Atmospheric Tides and Comparisons with Model Results**
D.-Y. Wang*, W.E. Ward, M. Michael Höpfner, J.H. Jiang
University of New Brunswick, Fredericton, New Brunswick, Canada

M138 M01.5/21417 **The Impact of Mesospheric Observations on the 2-Day Wave in a Middle Atmosphere Data Assimilation System**
M. Keller*, S. Ren, C. McLandress, S. Polavarapu, T. G. Shepherd
University of Toronto, Canada

M150 M06.2/21417 **Mechanism for the Extreme Weather of South China in January 2008**
C. Bueh*
DCRP & LASG, Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China

M151 M06.3/21417 **The Selective Absorption Mechanism for the Maintenance of Blocking**
A. Yamazaki*, H. Itoh
Kyushu University, Fukuoka, Japan

M152 M06.4/21417 **Influence of the Sea Surface Temperature Rise on Baroclinic Instability Wave Activity under an Aqua Planet Condition**
C. Kodama*, T. Iwasaki
Tohoku University, Sendai, Japan

M153 M06.5/21417 **An Energetic Perspective to the Effect of NAO on the Climate of South West Asia**
F. Ahmadi Givi*, M.A. Nasr Esfahany, A.R. Mohebalhojeh
University of Tehran, Tehran, Iran

M154 M06.6/21417 **On the Significance of Sensible Heat Supply from the Ocean in the Maintenance of Mean Baroclinicity along Storm-tracks**
H. Nakamura*, D. Hotta, M. Nonaka, B. Taguchi
University of Tokyo, Tokyo, Japan

M155 M06.7/21417 **A New Parameterization for Momentum Transport in the Convective Boundary Layer**
P.M. M. Soares*, P.M. A. Miranda
University of Lisbon, CGUL, IDL, Lisbon, Portugal

M156 M06.8/21417 **Model of the Zonal Circulation of the Atmosphere**
N. Sidorenkov*
Hydrometcenter of Russia, Moscow, Russia

M184 M13.1/21417 **The Study on Variable Tendency of Low Cloud and Drizzle Days with Aerosol Clouds Physical Effect over Hebei Area, Northern China**
J.D. Ying*, W. Zhihui, Y. Yan, S. Yuwen, A. Yuegai, S. Lixin
Weather Modification Office of Hebei Province, Shijiazhuang, China

M185 M13.2/21417 **Determination of the Aerosols Scattering Phase Function from Integral Nephelometer and Sun-photometer Measurements**
Y. Han*, D. Lü, R. Rao, Y. Wang
Key Laboratory of Middle Atmosphere and Global Environment Observation,Institute of Atmospheric Physics,Chinese Academy of Sciences(CAS), Beijing, P.R.China

M186 M13.3/21417 **Long Term Trends of Aerosol and Cloud Properties Detected from 16-year MFRSR Measurements at the ARM SGP Site**
M. Duan*, Q. Min, D. Lu
Key Laboratory of Middle Atmosphere and Global Environment Observation, Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China

M187 M13.4/21417 **Dust Aerosol Detection Using PARASOL Multi-channel and Multi-directional Polarized Data**
X.H. Fan*, H.B. Chen, P. Goloub, L.F. Lin, Z.G. Han
LAGEO, Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China

M188 M13.5/21417 **Impact of the Aerosol Effects on Precipitation at Regional Scale**
S. Stefan*, M. Caian
University of Bucharest, Bucharest, Romania

M189 M13.6/21417 **A Feasibility Study of Aerosol Retrieval over Sun Glint Region using TANSO-CAI**
S. Fukuda*, T. Nakajima
Center for Climate System Research, University of Tokyo, Kashiwa, Japan

M190 M13.7/21417 **Characterization of Aerosol Particles, by Spectrophotometry Methods Analysis**
F. B. Santanna*, P. H. Z. Arruda, J. S. Nogueira
Universidade Federal Mato Grosso, Cuiabá, MT, Brasil

M191 M13.8/21417 **Sensitivity Experiments with the Canadian NWP Model; Radiation, Clouds and Aerosols**
P. A. Vaillancourt*
RPN-MRD-Environment Canada, Montréal, Canada

M192 M13.9/21417 **A Simplified Model for Understanding the Evolution of Cirrus Clouds**
C. Schmidt*, T.J. Garrett, S. Sjostrom, M. Maestas, S. Krueger, M. Zulauf
Uniersity of Utah, Salt Lake City, UT, USA

M193 M13.10/21417 **A Modeling Study of the Effects of Direct Radiative Forcing due to Carbonaceous Aerosol on the Climate in East Asia**
H. Zhang*, Z.-L. Wang, P.-W. Guo, Z.-Z. Wang
Laboratory for Climate Studies, National Climate Center, China Meteorological Administration, Beijing, China

M194 M13.11/21417 **Investigations on the Indirect Effect of Sulfate, Nitrate and Carboneous Aerosols in China using a Regional Climate Chemistry Modeling System**
T. Wang*, S. Li, F. Shen, B. Zhuang
School of Atmospheric Science, Nanjing University, Nanjing, China

M195 M13.12/21417 **Clouds, Rotors, Relief and Geomagnetic Fields as Key Parameters Accompanied Dangerous Events**
G. Pirnach*, T. Belyi
Ukrainian Hydrometeorologic Research Institute, Kyiv, Ukraine

M196 M13.13/21417 **Backscatter Spatial Variability in the Vicinity of Boundary Layer Marine Clouds Observed With CALIOP**
J. Tackett*, L. Di Girolamo
University of Illinois at Urbana-Champaign, Urbana, USA

M197 M13.14/21417 **Satellite Remote Sensing Aerosol Direct Radiative Forcing over Land: Consideration of Heterogeneity of Surface Reflectance**
X. Xia*
Institute of Atmospheric Physics, CAS, Beijing, China

M198 M13.15/21417 **Aerosol Pollutions of Megapolises**
V. Minashkin*, A. Andronova, I. Granberg, A. Ginzburg, M. Iordanskiy, V. Lebedev, F. Trefilova,
Karpov Institute of Physical Chemistry, Moscow, Russia

*Denotes presenting author.

M199 M13.16/21417 **Aerosol Black Carbon over Central Part Himalayas Observed from a High Altitude Location, Nainital: Temporal Variations and Long Range Transport**
U.C. Dumka*, R. Kumar
Tata Institute of Fundamental Research, Balloon Facility, Hyderabad, India

M200 M13.17/21417 **Simulation of Shallow Cumulus Clouds with Two-moment Warm-rain Scheme and Prescribed Entrainment-mixing Scenarios**
J. Slawinska*, W.W. Grabowski, H. Morrison, H. Pawlowska
Institute of Geophysics, University of Warsaw, Warsaw, Poland

M201 M13.18/21417 **Quality Control for the Aerosol Optical Characteristics Measured by Sky Radiometer**
K. Aoki*, T. Hayasaka
University of Toyama, Toyama, Japan

M202 M13.19/21417 **Aerosol and Cloud Studies over New Delhi, India using Indigenously Developed Micro Pulse Lidar**
S.L. Jain*, P.K. Dubey, B.C. Arya, Y.N. Ahammed, P.S. Kulkarni, A. Kumar, D.K. Shukla,
National Physical Laboratory, New Delhi, India

P205 P01.1/21417 **Statistics of Eddy Flux from an Eastern Boundary Current**
T. Wakamatsu*
Fisheries and Oceans Canada, Institute of Ocean Sciences, Sidney BC, Canada

P206 P01.2/22417 **Vertical Structure of Circulation Induced by a Stationary and Slow-moving Hurricane**
Z.M. Lu*, R.X. Huang
South China Sea Institute of Oceanology, Chinese Academy of Sciences, Guangzhou, China

P207 P01.3/21417 **Energy Distribution of Rossby Waves in the South China Sea and its Dynamic Characteristics**
G.Y. Chen*, Q. Yang, X.D. Shang
South China Sea Institute of Oceanology, Chinese Academy of Sciences, Guangzhou, China

P208 P01.4/21417 **Estimates of Bottom Flows and Bottom Boundary Layer Dissipation of the Oceanic General Circulation from Global High Resolution Models**
B.K. Arbic*, J.F. Shriver, P.J. Hogan, H.E. Hurlburt, J.L. McClean, E.J. Metzger, R.B. Scott, A. Sen, O.M. Smedstad, A.J. Wallcraft
Department of Oceanography and Center for Ocean-Atmospheric Prediction Studies, Florida State University, Tallahassee, Florida, USA

P209 P01.5/21417 **Observations of Oceanic Vortex Rossby Waves**
C. Chavanne*, P. Flament, D. Luther, K.-W. Gurgel
University of Hawaii, Honolulu, USA

P210 P01.6/21417 **Effects of Near-Inertial Motion on Midlatitude Ocean Gyres**
D.N. Straub*, A. Gertz
McGill University, Montréal, Canada

P211 P01.7/21417 **Alternating Zonal Jets and the Wind-Driven Midlatitude Ocean Circulation**
B.T. Nadiga*, D. Straub
LANL, Los Alamos, USA

P212 P01.8/21417 **Anticyclonic Eddies in the Alaskan Stream**
W.R. Crawford*, H. Ueno, H.J. Freeland, H. Onishi, E. Oka, K. Sato, T. Suga,
JAMSTEC, Yokosuka, Japan

P213 P01.9/21417 **Fine Structure Variability Associated with Mesoscale Eddies in the Subpolar North Atlantic**
C. Mertens*, R. Meissner, M. Walter, M. Rhein, U. Stöber
University of Bremen, Bremen, Germany

P214 P01.10/21417 **On the Zonal Wavenumber/ frequency Spectrum of Westward Propagating Signals in the Ocean**
A.M. Maharaj*, R. Tailleux
Macquarie University, Sydney, Australia

P215 P01.11/21417 **Agulhas Ring Injection Into the South Atlantic During Glacials and Interglacials**
D. Nof*, V. Zharkov
Florida State University, USA

P216 P01.12/21417 **Effects of Meso-Scale Eddy/Wind Interactions on Biological New Production and Eddy Kinetic Energy**
C. Eden*, H. Dietze, A. Oschlies
IFM-GEOMAR, Germany

P217 P01.13/21417 **The Transition between Interior-Driven and Surface-Driven Dynamics Flow in Mesoscale Ocean Turbulence**
K.S. Smith*, R. Tulloch
New York University, New York, NY, USA

P218 P01.14/21417 **Eddies in the Canary Region**
A. Marrero-Díaz*, P. Sangrà, F. Machín, A. Rodríguez-Santana
Universidad de Las Palmas de Gran Canaria, Spain

P221 P03.1/21417 **Survey of the Gulf Stream Northern Recirculation Gyre with Temperature, Salinity and Oxygen Data from Argo Floats**
D. Gilbert*
Institut Maurice-Lamontagne, Mont-Joli, Québec, Canada

P222 P03.2/21417 **Variations in the Upper Layer of the Ocean around the Kuroshio Extension Region**
N. Iwasaka*, F. Kobashi, H. Iwamaru, Y. Ohno-Kakazu
Tokyo University of Marine Science and Technology, Tokyo, Japan

P223 P03.3/21417 **Vertical Structures of the North Pacific Mode Waters**
K. Toyama*, T. Suga
Tohoku University, Sendai, Japan

P224 P03.4/21417 **Analysis and Identification of Mesoscale Structures in Bransfield Strait from AMRS-E**
C. Salinas*, M. Hernández-Arencibia
Universidad de las Palmas de Gran Canaria, Spain

P225 P03.5/21417 **Anatomy of a Data Assimilation System: Prospects for the Data Starved Indian Ocean?**
B.P. Maggero*
Institute for Meteorological Training & Research, Nairobi, Kenya

P226 P03.6/21417 **Developing Ocean Prediction System for the Northeast Asian Marginal Seas**
Y.-K. Cho*, B.-J. Choi, G.-H. Seo, S. Kim, Y.H. Kim, Y.-M. Kim
Chonnam National University, Gwangju, Korea

P227 P03.7/21417 **Quality Control of Argo Surface Trajectory Data Considering Position Errors Fixed by ARGOS System**
T. Kobayashi*, T. Nakamura, N. Ogita, H. Nakajima
JAMSTEC, Yokosuka, Japan

P228 P03.8/21417 **Recent Changes in Global Surface Layer Salinity Based on Argo Float Array**
S. Hosoda*, T. Suga, N. Shikama, K. Mizuno
JAMSTEC IORGC, Yokosuka, Japan

P236 P05.1/21417 **A Lagrangian Mean Theory on Coastal Sea Circulation**
W. Jiang*, S. Feng, L. Ju, P. Zhang
Ocean University of China,Qingdao, P.R. China

P237 P05.2/21417 **Equatorward Undercurrent on the Eastern Boundary of the Ocean induced by Buoyancy Input**
Y.H. Seung*
Inha University, Incheon, South Korea

J238 P05.3/21417 **The Water Quality Monitoring and Simulation on Dissolved Oxygen in Yangtze Estuary**
S.-X. Zhang*
Nanjing University of Information Science & Technology, Nanjing, China

P239 P05.4/21417 **A New Climatology of the Sea of Okhotsk with Isopycnal Averaging**
H. Uehara*, A. Kruts, Y. Volkov, T. Nakamura, J. Nishioka, T. Ono, H. Mitsudera,
Institute of Low Temperature Science, Hokkaido University, Sapporo, Japan

P240 P05.5/21417 **Sea Level Trend in the Gulf of Thailand : A Preliminary Study**
S. Niemnil*, M. Naeije, I. Trisirisatayawong
Royal Thai Naval Academy, Bangkok, Thailand

P241 P05.6/21417 **The Role of Mean Ocean Salinity in Climate**
P.D. Williams*, E. Guilyardi, G. Madec, S. Gualdi, E. Scoccimarro
University of Reading, UK

P242 P05.7/21417 **Tide-induced Eulerian and Lagrangian Residual Circulation in Bohai Bay**
W. Sun*, L. Zhao, L. Zheng, H. Gao
Ocean University of China, Qingdao, P. R. China

P243 P05.8/21417 **Weakening of the North Pacific Subtropical Front and Mode Water Ventilation in Global Warming**
F. Kobashi*, S.-P. Xie
Tokyo University of Marine Science and Technology, Tokyo, Japan

P253 P06.1/21417 **Ocean Mixing in the Central Arctic**
I. Fer*
Geophysical Institute, University of Bergen and Bjerknes Centre for Climate Research, Bergen, Norway

P254 P06.2/21417 **Direct Comparison of Finestructure Parameterization with Microstructure**
A. Ruiz-Angulo*, A.M. Thurnherr, L.C. St. Laurent
Lamont Doherty Earth Observatory, Palisades, USA

P255 P06.3/21417 **Diapycnal Diffusivity Fluxes in the Cape Verde Frontal Zone**
A. Rodriguez-Santana*, A. Martínez-Marrero, J.L. Pelegrí, F. Machín
Universidad de Las Palmas de Gran Canaria, Spain

P256 P06.4/21417 **Instability of Baroclinic Tidal Flow in a Stratified Fjord**
Z. Liu*, S.A. Thorpe
Physical Oceanography Laboratory, Ocean University of China, Qingdao, China

P257 P06.5/21417 **Tidally-Generated Large-Amplitude Internal Waves and Associated Mixing in the Amchitka Strait, the Aleutian Islands**
T. Nakamura*, Y. Isoda, M. Nagasawa, S. Takagi, T. Wagawa, H. Mitsudera
Institute of Low Temperature Science, Hokkaido University, Sapporo, Japan

P258 P06.6/21417 **High-frequency Hydrographic Observations in the Storfjorden, Svalbard**
P. Bouruet-Aubertot*, F. Jardon, F. Vivier, A. Lourenço, Y. Cuypers
LOCEAN-Université Pierre et Marie Curie, France

P259 P06.7/21417 **Systematic Subgrid Modeling for Geophysical Flows**
J.S. Frederiksen*, T.J. O'Kane, M.J. Zidikheri
CSIRO Marine and Atmospheric Research, Aspendale, Australia

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0830-1000 **519ab**
Session: Decadal Predictability and Variability
Chair: Clara Deser

0830 J09.7/22105 **Decadal Prediction and Predictability in the Indo-Pacific Sector**
B. Kirtman*
University of Miami, USA

0900 J09.9/22105 **Quantifying the Role of Ocean Initial Conditions in Decadal Climate Prediction**
D. Matei*, H. Pohlmann, W. Müller, H. Haak, J. Jungclaus, J. Marotzke
Max Planck Institute for Meteorology, Hamburg, Germany

0915 J09.10/22105 **Case Studies in Decadal Climate Prediction**
L. Hermanson*, R.T. Sutton
University of Reading, Reading, UK

0930 J09.11/22105 **Hindcasting the Pacific Decadal Oscillation for Near-term Climate Prediction**
T. Mochizuki*, M. Ishii, M. Kimoto, Y. Chikamoto, M. Watanabe
Japan Agency for Marine-Earth Science and Technology, Yokohama, Japan

0945 J09.12/22105 **In Depth Analysis of the Performance of a Decadal Prediction System**
JI Robson*, R.T. Sutton, D. Smith
Walker Institute, University of Reading, Reading, UK

0830-1000 **520f**
Session: Atmospheres
Chair: Ralf Greve

0830 J20.1/22106 **Evolution of the Atmosphere of Venus**
D. Grinspoon*
Denver Museum of Nature & Science, Denver, USA

0900 J20.3/22106 **Atmospheric Observations by Venus Express**
D. Titov*, H. Svedhem
Max Planck Institute for Solar System Research, Katlenburg-Lindau, Germany

0915 J20.4/22106 **CO and CO2 Vertical Profiles and Climatology from SOIR Measurements in the Upper Atmosphere of Venus**
A. Mahieux*, R. Drummond, V. Wilquet, A.C. Vandaele, A. Fedorova, O. Korablev, E. Villard, F. Montmessin, J.-L. Bertaux
Belgian Institute for Space Aeronomy, Brussels, Belgium

0930 J20.5/22106 **Structure and Organization of the Atmospheric Circulation of Venus**
S.S. Limaye*
Space Science and Engineering Center, University of Wisconsin, Madison, Wisconsin, USA

0945 J20.6/22106 **Comparisons of the Venus and Earth Thermospheres**
G.M. Keating*, S.W. Bougher, M.E. Theriot
George Washington University, Newport News, Virginia, USA

0830-1000 **520b**
Session: Atmospheric Framework & Modelling
Chair: Kumiko Goto-Azuma

0830 J08.1/22107 **Antarctic Precipitation Studies Relevant to Ice Core Investigations**
D.H. Bromwich*
Polar Meteorology Group, Byrd Polar Research Center, The Ohio State University, Columbus, OH, USA

0900 J08.3/22107 **Investigating Circulation Changes on the Antarctic Peninsula using Ice Cores**
E.R. Thomas*, J.R. McConnell, P. Dennis
British Antarctic Survey, Cambridge, UK

0915 J08.4/22107 **Precipitation Regime of Dronning Maud Land, Antarctica: Implications for EPICA Ice Core Interpretation**
E. Schlosser*, J.G. Powers, M.G. Duda, K.W. Manning
Institute of Meteorology, University of Innsbruck, Innsbruck, Austria

0930 J08.5/22107 **A Climatology of Air Transport to the Antarctic and its Interannual Variability**
K. Suzuki*, T. Yamanouchi, N. Hirasawa
National Institute of Polar Research, Tokyo, Japan

0945 J08.6/22107 **Understanding Millennial Scale Water Isotope Variability Using GISS ModelE-R**
A.N. LeGrande*, G.A. Schmidt, S.C. Lewis, M.C. Kelley
NASA Goddard Institute for Space Studies and Center for Climate Systems Research, Columbia University, New York, NY USA

0830-1000 **520c**
Session: High Latitude Terrestrial Processes, Hydrology, and Interactions with the Atmosphere
Chair: John Pomeroy

0830 J15.1/22108 **Simulation of the Specific Surface Area of Snow using a One-Dimensional Physical Snowpack Model**
H.-W. Jacobi*, F. Domine, W.R. Simpson, M. Sturm, T.A. Douglas
Laboratoire de Glaciologie et Géophysique de l'Environnement, Saint-Martin d'Hères, France

0845 J15.2/22108 **Surface Snow Modeling at Dome C, Antarctica**
C. Fierz*, C. Groot Zwaaftink, A . Cagnati, M. Lehning, M. Valt
WSL Institute for Snow and Avalanche Research SLF, Davos, Switzerland

0900 J15.3/22108 **Study of the Effects of Surface Sublimation and Blowing Snow Sublimation on the Water Budget over a Monthly Timescale Using a Coupled Blowing Snow- Atmospheric Model**
J. Yang*, M.K. Yau
McGill University, Montreal, Canada

0915 J15.4/22108 **Long-term Simulation of Water and Energy Budget and Process Studies on Recent Moistening and Thawing of Soil in Eastern Siberia**
T. Yamazaki*, Y. Iijima, M. Ishikawa
Graduate School of Science, Tohoku University, Sendai, Japan

0930 J15.5/22108 **Spatial Correlation of Snow Water Equivalent and Snow Melt Rates over an Alpine Ridge, Canadian Rocky Mountains**
C.M. DeBeer*, J.W. Pomeroy
Centre for Hydrology, University of Saskatchewan, Saskatoon, Canada

0830-1000 516b
Session: Sea-ice in the Canadian Arctic
Chair: Greg Flato

0830 C01.1/22113 **Arctic Sea Ice Thickness Change: Recent Observations and Challenges**
C. Haas*, S. Hendricks, L. Rabenstein
University of Alberta, Edmonton, Canada

0900 C01.3/22113 **Effect of Climate Change on Sea Ice Algal Production in the Canadian Arctic**
D. Lavoie*, K.L. Denman, R.W. Macdonald, C. Michel
Institut Maurice-Lamontagne, Mont-Joli, Canada

0930 C01.5/22113 **Past Variations in the Thickness of Sea Ice in the Canadian Arctic and their Links to Drift Patterns and Climate**
H. Melling*
Fisheries and Oceans Canada, Sidney, BC, Canada

0830-1000 518ab
Session: Aerosol-Cloud-Interactions
Chair: Susan van den Heever

0830 M13.37/22101 **The Impact of Aerosol Particles on Warm Clouds and Precipitation on the Regional Scale**
B. Vogel*, M. Bangert, H. Vogel, A. Seifert
Institut für Meteorologie und Klimaforschung, Universität Karlsruhe, Karlsruhe, Germany

0845 M13.38/22101 **Measured and Modeled Cloud-Aerosol Radiative Effects in Polluted Cumulus Clouds**
K. S. Schmidt*, G. Feingold, P. Pilewskie, H. Jiang, O. Coddington
Laboratory for Atmospheric and Space Physics, University of Colorado, Boulder, CO, USA

0900 M13.39/22101 **Droplet and Drizzle Drop Correlations with CCN**
J. Hudson*, S. Noble, V. Jha
Desert Research Institute, Reno, USA

0915 M13.40/22101 **Parcel Model and Three-dimensional Simulations of Pyro-convective Clouds: from CCN Activation to Precipitation**
P. Reutter*, J. Trentmann, H. Su, M. Simmel, A. Seifert, M. Herzog, D. Rose, H. Wernli, M.O. Andreae, U. Pöschl
Dept. of Biogeochemistry, Max Planck Insitute for Chemistry, Mainz, Germany

0930 M13.41/22101 **Contrasting CCN Growth Kinetics during Anthropogenic and Biogenic Episodes at a Rural Field Site**
N.C. Shantz*, W.R. Leaitch, J.P.D. Abbatt, R.Y.-W. Chang, J. Slowik
University of Toronto, Toronto, Canada

0945 M13.42/22101 **The Development of the Aerosol Module in BCC and Its Performance**
Z. Wang*, Q. Liu, H. Zhang, T. Wu
Beijing Climate Center, Beijing, China

0830-1000 518c
Session: Radiative Transfer in the Atmosphere
Chair: Robert Cahalan

0830 M14.1/22102 **3D Radiative Tansfer and Topography**
B. Mayer*
Deutsches Zentrum Fuer Luft- und Raumfahrt (DLR), Oberpfaffenhofen, Wessling, Germany

0900 M14.3/22102 **An Improved Geometric-Optical Model with Mutual Shadowing**
Q. He*, D.R. Lu
Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China

0915 M14.4/22102 **Abnormal Surface SW Flux and 3D radiative Transfer of Broken Clouds--Observation at Yangbajing Observatory, Tibet**
D. Lu*, J. Huo, W. Zhang, Y. Xuan
Key Laboratory for Middle Atmosphere and global Environment Observation(LAGEO), Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China

0930 M14.5/22102 **3D Radiative Effects of Vertically Extended Clouds on Reflectance and Aerosol Optical Thickness Retrieval in Nearby Clear Regions from MODIS and ASTER Images over the SGP Site of the ARM Program**
G. Wen*, A. Marshak, R.F. Cahalan
University of Maryland, Baltimore County, USA

0945 M14.6/22102 **3D Radiative Transfer Simulations for the Validation of Cloud Products from Remote Sensing**
F. Faure*, T. Zinner, L. Bugliaro, B. Mayer
Deutsches Zentrum Fuer Luft- Und Raumfahrt (DLR), Oberpfaffenhofen, Germany

*Denotes presenting author.

0830-1000 **524ab**
Session: Large Scale Dynamics (2
Chair: Steven Pawson

0830 M01.37/22103 **Recent Climate Change and Stratospheric Variability: Results from an Ensemble of Simulations for the last 50 Years.**
E. Manzini*, C. Cagnazzo, P.G. Fogli
CMCC-INGV, Italy

0900 M01.39/22103 **Wave Forcing in the Stratosphere as a Result of Climate Change**
B. Winter*, M Bourqui
McGill University, Montréal, Canada

0915 M01.40/22103 **Three-Dimensional Evolution of Ensemble Forecast Spread before a Stratospheric Sudden Warming Event in January 2006**
K. Nishii*, H. Nakamura
Graduate School of Science, University of Tokyo, Tokyo, Japan

0930 M01.41/22103 **The Combined Effects of ENSO and the 11-year Solar Cycle on the Northern Hemisphere Polar STratosphere**
N. Calvo*, D.R. Marsh
National Center for Atmospheric Research, Boulder, CO, USA

0945 M01.42/22103 **Influence of ENSO and QBO on the Frequency of Sudden Stratospheric Warmings**
K. Matthes*, J.H. Richter
CGD/NCAR, Boulder, Colorado, USA

0830-1000 **524c**
Session: Dynamical Implications of Aerosol-Cloud-Climate Interactions
Chair: Wojciech Grabowski/Johannes Quaas

0830 M11.1/22104 **A New Generation Global Cloud Modeling and Satellite Remote Sensing**
T. Nakajima*, M. Satoh, T. Mitsui, T. Inoue, K. Suzuki
Center for Climate System Research, University of Tokyo, Japan

0900 M11.3/22104 **Multiscale Cloud-Aerosol Interactions in a Global Model**
S. Ghan*, R. Easter, V. Larson, X. Liu, H. Morrison, M. Ovtchinnikov, Y. Qian, D. Schanen, T. Shippert, H. Yu
Pacific Northwest National Laboratory, Richland, WA, USA

0915 M11.4/22104 **Relationship of Aerosol and Cloud Cover, Top Height, and Liquid Water Path in Satellite Data and Sensitivity Studies with a General Circulation Model, and Implications for Aerosol Radiative Forcings**
J. Quaas*, U. Lohmann, P. Stier
Max Planck Institute for Meteorology, Hamburg, Germany

0930 M11.5/22104 **Aerosol-induced Weakening of the Walker Circulation**
Y. Ming*
NOAA/Geophysical Fluid Dynamics Laboratory, Princeton, NJ, USA

0945 M11.6/22104 **Effect of Entrainment-Mixing Processes on Spectral Shape: Parameterization for Use in GCMs**
Y. Liu*, P. Daum
Brookhaven National Laboratory, USA

1030-1200 **517ab**
Session: Plenary
Chair:

1030 PLEN.1/22100 **Monitoring the Variability in the Circulation of the North Atlantic Ocean**
H.L. Bryden*
University of Southampton, UK

1030-1200 **520f**
Session: Ices on Terrestial Planets
Chair: Dmitri Titov

1030 J20.7/22206 **MAIC-2, a Latitudinal Model for the Martian Surface Temperature, Atmospheric Water Transport and Surface Glaciation**
R. Greve*, B. Grieger, O. Stenzel
Institute of Low Temperature Science, Hokkaido University, Sapporo, Japan

1052 J20.9/22206 **Radar Sounding of the Martian Polar Layered Deposits**
R. Orosei*, G. Picardi, J.J. Plaut, R. Seu, MARSIS Team, SHARAD Team
Istituto Nazionale Di Astrofisica, Rome, Italy

1114 J20.10/22206 **Paleo-Glaciers on Mars**
E. Hauber*, S. van Gasselt
DLR-Institute of Planetary Research, Berlin, Germany

1136 J20.12/22206 **The Search for Ancient Life: A Lesson Learned from Martian Meteorite ALH84001**
H. Vali*
McGill University, Montreal, Canada

1030-1200 **520b**
Session: Antarctic Ice Cores
Chair: Elisabeth Schlosser

1030 J08.7/22207 **Past Climates and Environments from Ice Cores in West Antarctica: An Overview**
J.W.C. White*
University of Colorado, Boulder, USA

1100 J08.9/22207 **The WAIS Divide Stable Isotope Record, El Nino, and West Antarctic Temperature**
E.J. Steig*, J.W.C. White
University of Washington, Seattle, WA USA

1115 J08.10/22207 **EPICA Dome C 800 000 Year Record of Glacial and Interglacial Climate Variability and Sensitivity**
V. Masson-Delmotte*, B. Stenni, K. Pol
P. Braconnot, O. Cattani, S. Falourd
M. Kageyama, J. Jouzel, A. Landais
B. Minster, G. Krinner, S. Johnsen,
R. Röthlisberger, J. Chappellaz, J. Hansen,
U. Mikolajewicz, B. Otto-Bliesner
IPSL, UMR CEA CNRS UVSQ 1572, Gif-sur-Yvette, France

1130 J08.11/22207 **Environmental Changes during the Past Seven Glacial Cycles Reconstructed from Dome Fuji, East Antarctica**
K. Goto-Azuma*, M. Hirabayashi,
T. Miyake, R. Uemura, T. Kuramoto,
H. Motoyama, M. Igarashi, Y. Iizuka, K. Suzuki, T. Suzuki, K. Fujita, S. Horikawa, M. Kohno, Y. Fuji, K. Kawamura, S. Aoki, T. Nakazawa
National Institute of Polar Research, Tokyo, Japan

1030-1200 520c
Session: High Latitude Terrestrial Processes, Hydrology, and Interactions with the Atmosphere
Chair: Richard Essery

1030 J15.7/22208 **The Impact of Snow Heterogeneity on Ecosystem Fluxes in a North Sweden Landscape**
R. Harding*, A. Wiltshire, J. Bennie
R. Baxter, E. Blyth
Centre for Ecology and Hydrology, Wallingford, UK

1045 J15.8/22208 **Improving Modeled Snowmelt Energetics in a Shrub-Tundra Landscape through a Better Representation of Vegetation Characteristics**
C.B. Ménard*, R. Essery, D. Clark
J. Pomeroy
University of Edinburgh, Edinburgh, UK

1100 J15.9/22208 **Seasonal Patterns of Sulphate Source Contributions to the Snowpack of a High Arctic Icefield**
V.L. Wasiuta*, A.-L. Norman, S.J. Marshall
Queen's University, Kingston, Canada

1115 J15.10/22208 **Impact of Climate Conditions on the Hydrological Response of a Polar Glacier System - Austrelovenbreen - Svalbard**
M. Griselin*, C. Marlin, E. Bernard
D. Laffly, E. Delangle, J.-M. Friedt
CNRS - Université De Franche Comté, CNRS UMR ThéMA, Besançon, France

1130 J15.11/22208 **The Soil Consumption of Atmospheric Methane in a Simulated Future Climate**
C.L. Curry*
Canadian Centre for Climate Modelling and Analysis, Victoria, Canada

1030-1200 516b
Session: Glaciers and Lakes in Canada
Chair: Greg Flato

1030 C01.7/22213 **Glacier Fluctuations in Western Canada and the Role of Climate**
B. Menounos*
University of Northern British Columbia, Prince George, Canada

1100 C01.9/22213 **Glacier Mass Balance Projections Derived from General Circulation Models over Southwestern Canada**
V. Radic*, F.S. Anslow, G.K.C. Clarke
A.H. Jarosch, C. Reuten
University of British Columbia, Vancouver, Canada

1130 C01.11/22213 **The Mass Balance of Canadian Glaciers and Ice Caps - Observations, Links to Climate, and the Variation of Related Water Fluxes**
D.O. Burgess*, M.N. Demuth
Natural Resources Canada-Geological Survey of Canada, Ottawa, Canada

1030-1200 518ab
Session: Radiation
Chair: Teruyuki Nakajima

1030 M13.43/22201 **Cloud Radiative Effects from Land, Ship and Satellite Based Observations**
A. Macke*, K. Lengfeld, J. Kalisch
A. Sinitsyn, S. Wahl
IFM-GEOMAR, Kiel, Germany

1045 M13.44/22201 **Effects of Ice Cloud Particle Shapes on Radiative Transfer**
I. Grishin*, J.J. Sloan, T. Kuhn, K. Kwiecien
University of Waterloo, Waterloo, Canada

1100 M13.45/22201 **Decadal Changes in Surface Radiative Fluxes: An Update**
M. Wild*
ETH Zurich, Institute for Atmospheric and Climate Science, Zurich, Switzerland

1115 M13.46/22201 **Applying the Index of Potential Radiative Forcing to Quantify Relative Contributions of Atmospheric Parameters to the Surface Shortwave Irradiance**
K. Kawamoto*, T. Hayasaka
Nagasaki University, Nagasaki, Japan

1130 M13.47/22201 **A Brief Review of some Avant-garde Studies into Clouds and Radiation**
H.W. Barker*
Environment Canada, Toronto, Canada

*Denotes presenting author.

1030-1200 **518c**
Session: 3D Radiative Transfer in the Atmosphere
Chair: Bernhard Mayer

1030 M14.7/22202 **A Hybrid Approach to Computational Radiative Transfer in 3D Clouds: Getting the Best of Monte Carlo and Deterministic Methods**
A.B. Davis*, G. Bal
Los Alamos National Laboratory, Space and Remote Sensing Group, Los Alamos, NM, USA

1100 M14.9/22202 **A Global Analysis of Sun-view Geometry Dependence of Oceanic Water Cloud Optical Thickness Retrieved from Multiangle Imaging SpectroRadiometer (MISR)**
L. Liang*, L. Di Girolamo
Department of Atmospheric Sciences, University of Illinois, Urbana Illinois, USA

1115 M14.10/22202 **A Rapid Unbiased Monte Carlo Method for Lidar Simulations**
R. Buras*
Deutsches Zentrum Für Luft- Und Raumfahrt E.V., Germany

1130 M14.11/22202 **Apparent Absorption of Spectral Solar Radiation in Heterogeneous Tropical Cirrus Clouds**
K. S. Schmidt*, P. Pilewskie, M.D. King
G. Wind, L. Tian, S. Platnick, T. Arnold
Laboratory for Atmospheric and Space Physics, University of Colorado, Boulder, Colorado, USA

1145 M14.12/22202 **The Plane-Parallel Nature of Oceanic Water Clouds**
L. Di Girolamo*, L. Liang, S. Platnick
University of Illinois, Urbana, USA

1030-1200 **524ab**
Session: Large Scale Dynamics (3)
Chair: Fabrizio Sassi

1030 M01.43/22203 **QBO-Vortex Interaction in an AGCM with a Spontaneously Forced QBO**
J.A. Anstey*, T.G. Shepherd, J.F. Scinocca
University of Toronto, Toronto, Canada

1045 M01.44/22203 **Relationship Among SSW, VI, PJO and AO in an Idealized Stratosphere-Troposphere Coupled Model**
S. Yoden*, M. Kohma, S. Nishizawa
Kyoto University, Kyoto, Japan

1100 M01.45/22203 **Representations of the Stratospheric Polar Vortices in Versions 1 and 2 of the Goddard Earth Observing System Chemistry-Climate Model (GEOS CCM)**
S Pawson*, R.S. Stolarski, J.E. Nielsen, J. Perlwitz, L. Oman, D. Waugh
Global Modeling and Assimilation Office, NASA GSFC, Greenbelt, USA

1115 M01.46/22203 **Observations of Coupling Between the Lower Stratosphere and Upper Mesosphere**
G.G. Shepherd*, Y.-M. Cho
M.G. Shepherd
Centre for Research in Earth and Space Science, York University, Toronto, Canada

1130 M01.47/22203 **Long-term Variations of Zonally Asymmetric Stratospheric Ozone and their Effects on Vertical Coupling of Planetary Wave Patterns from Tropo- to Mesosphere**
A. Gabriel*, D.H.W. Peters, I. Kirchner
H.-F. Graf
Leibniz-Institut für Atmospherenphysik, Kühlungsborn, Germany

1145 M01.48/22203 **Characteristics of The Stratospheric Travelling Planetary Waves**
Z.-Y. Chen*
LAGEO / Institute of Atmospheric Physics / Chinese Academy of Sciences, Beijing, China

1030-1200 **524c**
Session: Dynamical Implications of Aerosol-Cloud-Climate Interactions
Chair: Wojciech Grabowski/Johannes Quaas

1030 M11.7/22204 **The VOCALS Regional Experiment: Extreme Coupling Between Cloud Dynamics and Microphysics in Marine Stratocumulus Sheet**
R. Wood*
University of Washington, Seattle, USA

1100 M11.9/22204 **Aerosols Closing Open Cellular Convection in Marine Stratocumulus: Implications to Aerosol Radiative Forcing By Changing Cloud Cover**
D. Rosenfeld*
Hebrew University of Jerusalem, Israel

1115 M11.10/22204 **Observed Relationships between the Properties of Trade-wind Cumuli, Aerosols, and Meteorology**
S. Dey*, L. Di Girolamo, J. Tackett, G. Zhao
University of Illinois at Urbana Champaign, Urbana, USA

1130 M11.11/22204 **Indirect Aerosol Effects in Idealized Simulations of Convective-Radiative Quasi-Equilibrium**
W.W. Grabowski*, H. Morrison
National Center for Atmospheric Research, Boulder, Colorado, USA

1145 M11.12/22204 **Cloud System Resolving Modelling of the Diurnal Cycle over the Maritime Continent**
B.S. Love*, A.J. Matthews
University of East Anglia, Norwich, UK

1330-1500 **519ab**
Session: Decadal Predictability and Variability
Chair: Ben Kirtman

1330 J09.13/22305 **18.6-year Period Moon-tidal Cycle and North Pacific Ocean-climate Variability**
I. Yasuda*
Ocean Research Institute, University of Tokyo, Japan

1400 J09.15/22305 **Uncertainty in Future Climate Trend Projections: Lessons from a 40-Member Coupled GCM Ensemble**
C. Deser*, V. Bourdette, C. Cassou
NCAR, Boulder, CO, USA

1415 J09.16/22305 **Interannual-to-decadal Variability in Intensity of the Kuroshio Extension Current and its Possible Mechanism in an Eddy-resolving OGCM**
M. Nonaka*, B. Taguchi, H. Sasaki
H. Nakamura
JAMSTEC, Yokohama, Japan

1430 J09.17/22305 **Influences of the Kuroshio/ Oyashio Extensions on Air-Sea Heat Exchanges and Storm Track Activity as Revealed in Regional Atmospheric Model Simulations for the 2003/4 Cold Season**
B. Taguchi*, H. Nakamura, M. Nonaka,
S.-P. Xie
Earth Simulator Center, JAMSTEC, Yokohama, Japan

1445 J09.18/22305 **Impact of Very High Model Resolution on Simulated Climate and Climate Variability**
S. Yang*, K. Wyser, S. Wang
Danish Meteorological Institute, Copenhagen, Denmark

1330-1500 **520f**
Session: Biogeochemistry and Climate
Chair: Denise Smythe-Wright

1330 J13.1/22306 **On the Use of Atmospheric CO2 Observations to Detect and Quantify Climate Driven Terrestrial Carbon Cycle Feedbacks in the Earth System**
M. Heimann*
Max-Planck-Institute for Biogeochemistry, Jena, Germany

1400 J13.3/22306 **Soil Carbon Biogeochemical Feedbacks to the Climate**
N. Ostle*, N. McNamara, R. Bardgett
P. Smith
Centre for Ecology and Hydrology, Lancaster, UK

1415 J13.4/22306 **Influences of the Land Surface on the Global Carbon Budget**
R. Harding*, C. Huntingford, L. Mercado
S. Sitch
Centre for Ecology and Hydrology, Wallingford, Oxon., UK

1430 J13.5/22306 **Methane Emissions from Northern Peatlands in the 21st Century**
R. Wania*, I. Ross, I.C. Prentice
Department of Earth Sciences, University of Bristol, Bristol, UK

1445 J13.6/22306 **A New Approach to Investigate the Impacts of Nonlinear Climate Change on the Terrestrial Ecosystem in China**
G.D. Sun*, M. Mu
LASG, Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China

1330-1500 **520b**
Session: Non Antarctic Ice Cores
Chair: Valérie Masson-Delmotte

1330 J08.13/22307 **A GCM-based Analysis of Circulation Controls on d18O in the Southwest Yukon, Canada: Implications for Climate Reconstructions in the Region**
R.D. Field*, G.W.K. Moore, G. Holdsworth, G.A. Schmidt
University of Toronto, Toronto, Canada

1345 J08.14/22307 **Temperature Related Isotope Records from Alpine Ice Cores: Reality or Ficition?**
P. Bohleber*, D. Wagenbach, R. Böhm
W. Schöner
Institut für Umweltphysik, University of Heidelberg, Germany

1400 J08.15/22307 **Connection between Ice Cores in the N Atlantic Sector (Greenland and the Canadian Arctic) and the Mt. Logan (N Pacific Sector) ; Using ENSO and the Tropics**
D. Fisher*, R. Koerner
Geological Survey of Canada, Ottawa, Canada

1430 J08.17/22307 **A Temperature Reconstruction over Past Millennia on Tibetan Plateau Using Ice Cores**
K. Duan*, T. Yao, L. Thompson, L. Wang, L. Tian, B. Xu
CAREERI, CAS, Lanzhou Gansu, China

1445 J08.18/22307 **Variability of Atmospheric Dust Retrieved from an Ice Core Glaciochemistry, Central Tibetan Plateau**
S. Kang*, Y.J. Zhang, Y.L. Zhang
B. Grigholm, S. Kaspari, D. Qin, J. Ren
P. Mayewski
Institute of Tibetan Plateau Research, CAS, Beijing, China

1330-1500 **520c**
Session: Recent Warming Trends in the High Polar Regions
Chair: Michael Town

1330 J01.1/22308 **A Review of Evidence for Antarctic Surface Warming in the last Century**
E.J. Steig*
University of Washington, Seattle, WA USA

*Denotes presenting author.

1400 J01.3/22308 **Surface and Mid-tropospheric Climate Change in Antarctica**
D.H. Bromwich*, A.J. Monaghan
S.R. Colwell
Polar Meteorology Group, Byrd Polar Research Center, Ohio State University, Columbus, OH, USA

1430 J01.5/22308 **Recent Changes in Antarctic Temperature and Circulation Patterns: A Nonlinear Approach**
D.B. Reusch*
Pennsylvania State University, University Park, USA

1445 J01.6/22308 **Antarctic Peninsula Warming Event: Diagnosis and Possible Causes**
V. Lagun*, N. Ivanov, S. Jagovkina
Arctic and Antarctic Research Institute, Saint-Petersburg, Russia

1330-1500 **520de**
Session: Arctic Climate Modeling and Global Relevancy
Chair: Annette Rinke

1330 J02.1/22309 **Optimization of Global Climate Model Simulations of Arctic Climate**
J.E. Walsh*, W.L. Chapman
University of Alaska, Fairbanks, AK, USA

1400 J02.3/22309 **The Arctic Climate System: Regional Feedbacks and Global Links**
K. Dethloff*, A. Rinke, W. Dorn, M. Mielke, M. Maturilli, R. Neuber, S. Brand
D. Handorf, A.P. Makstahs, V.T. Sokolov
N.S. Zinoviev, V.J. Kustov
Alfred Wegener Institute for Polar and Marine Research, Potsdam, Germany

1415 J02.4/22309 **Projected Changes in Eurasian and Arctic Summer Cyclones under Global Warming in the Bergen Climate Model**
Y. Orsolini*, A. Sorteberg
Norwegian Institute for Air Reseach, Kjeller, Norway

1430 J02.5/22309 **New Evidences of Interactions between Aerosol-Cloud-Precipitation and Atmospheric Circulation in the Arctic during Winter**
J. P. Blanchet*, E. Girard, P. Grenier, R. Munoz-Alpizar
Université du Québec à Montréal, Canada

1445 J02.6/22309 **Impacts of Improved Cloud Microphysics and Surface Flux Schemes on WRF Simulations in the Arctic**
P.O.G. Persson*, A. Solomon, M. Shupe, J.-W. Bao, H. Morrison
CIRES/NOAA/ESRL, University of Colorado, Boulder, USA

1330-1500 **525ab**
Session: Regional Climate Modelling
Chair: Louis-Philippe Caron

1330 J12.37/22310 **Regional Climate Model Sensitivity to Domain Size for Summer and Winter Periods**
M. Leduc*, R. Laprise, M. Moretti-Poisson, J.-P. Morin
Canadian Regional Climate Modelling and Diagnostics (CRCMD) Network - ESCER Centre - Université du Québec à Montréal, Montréal, Canada

1345 J12.38/22310 **Daily Statistics of Precipitation as Simulated by a RCM and a GCM**
A. Di Luca*, R. de Elia, R. Laprise
Université du Québec à Montréal, Canada

1400 J12.39/22310 **Difficulties of Arctic Climate Simulation and their Solutions Using a Regional Climate Model**
M. Qian*, C. Jones, L. Sushama, K. Winger
Université du Quebéc à Montréal, Canada

1415 J12.40/22310 **A Special Convolution Filter for the Polar Stretched Grid**
D. Surcel*, R. Laprise
ESCER - Université du Québec à Montréal, Canada

1430 J12.41/22310 **Assesment of Climate Change Impacts on Canadian Rivers Streamflows Using Regional Climate Model Projections**
V. Poitras*, L. Sushama, F. Seglanieks
R. Solis
Université du Québec à Montréal, Canada

1445 J12.42/22310 **A Statistical Downscaling Model for Southern Australia Winter Rainfall**
Y. Li*, I. Smith
CSIRO, Perth, Australia

1330-1500 **516c**
Session: Effects of Interactions among Atmosphere, Ocean, Land Surface, Cryosphere, and Biosphere, including Human Activities, on Monsoons
Chair: Bin Wang

1330 J17.37/22311 **Delay of the North Africa Monsoon in Response to Increasing Greenhouse Gases**
M. Biasutti*, A.H. Sobel
Lamont-Doherty Earth Observatory, Palisades, NY, USA

1345 J17.38/22311 **Effects of Aerosol and Greenhouse Gasses on the Summertime Asian Monsoon Rainfall Trend in the 20th Century**
M. Arai*, T. Miyasaka, T. Nozawa
T. Nagashima, M. Kimoto
Center for Climate System Research, University of Tokyo, Japan

1400 J17.39/22311 **Potential Future Changes in the Indian Summer Monsoon associated with a Global "2°C-stabilization" Scenario**
W. May*
Danish Meteorological Institute, Copenhagen, Denmark

1415 J17.40/22311 **The Possible Aerosol Direct Forcing on Asian Summer Monsoon: A Model Study**
J. Li*, Y. Liu, G. Wu, Tyuuuuu
State Key Laboratory of Atmospheric Science and Geophysical Fluid Dynamics (LASG), Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China

1430 J17.41/22311 **Impact of East Asian Summer Monsoon on Seasonal Variations of Aerosols over Eastern China**
J.P. Li*, L. Zhang, H. Liao
LASG, Institute of Atmosphere Physics (IAP), Chinese Academy of Sciences (CAS), Beijing, China

1445 J17.42/22311 **Increasing Trend of Synoptic Activity and its Relationship with Extreme Rain Events over Central India**
R.S. Ajayamohan*, W.J. Merryfield, V.V. Kharin
Canadian Center for Climate Modelling and Analysis, University of Victoria, Canada

1330-1500 **516b**
Session: Lakes, Rivers and Permafrost
Chair: Greg Flato

1330 C01.13/22313 **The Response of Lake Ice Cover to Climate Change in Canada**
C.R. Duguay*
University of Waterloo, Canada

1400 C01.15/22313 **Response of Permafrost in Canada to a Changing Climate**
A.G. Lewkowicz*, S.L. Smith, C.R. Burn
University of Ottawa, Canada

1430 C01.17/22313 **River Ice: Responses to Climate Variability and Change**
T.D. Prowse*
W-CIRC, Environment Canada, University of Victoria, Victoria, BC, Canada

1330-1500 **518ab**
Session: Aerosols
Chair: Howard Barker

1330 M13.49/22301 **Aerosol Size Distribution Variability as a Function of Distance to Caribbean Trade Wind Cumulus Clouds**
M Colon-Robles*, R.M. Rauber
J.B. Jensen, L. Di Girolamo
University of Illinois at Urbana-Champaign, Urbana, IL, USA

1345 M13.50/22301 **Dust Aerosol-Cloud-Radiation-Precipitation Interactions over East Asia**
J. Huang*, P. Minnis, W. Wang, B. Chen, Q. Fu, J. Su
College of Atmospheric Sciences, Lanzhou University, China

1400 M13.51/22301 **A Hygroscopic Parameter for Ambient Organic Aerosol**
R.Y.-W. Chang*, P.S.K. Liu, J.G. Slowik, N.C. Shantz, J.P.D. Abbatt, W.R. Leaitch
University of Toronto, Toronto, Canada

1415 M13.52/22301 **Phase Transitions of Sea Salt Aerosol and Aged Marine Aerosol Proxies**
C.F. Braban*, T. Lebold, E. Sada-Labella, C.L. Badger, P.T. Griffiths, R.A. Cox
Centre for Ecology and Hydrology Edinburgh, UK

1430 M13.53/22301 **Pre-Monsoon Dust Transport over the Himalayan-Gangetic region and Long-term Regional Climate Implications**
R. Gautam*, N.C. Hsu, K.-M. Lau
S.-C. Tsay
Goddard Earth Science and Technology Center, University of Maryland, Baltimore County, USA

1330-1500 **518c**
Session: 3D Radiative Transfer in the Atmosphere
Chair: Anthony Davis

1330 M14.13/22302 **MODIS Observations of 3-D Radiative Effects in Clear Areas Near Clouds**
T. Varnai*, A. Marshak
University of Maryland, Baltimore County, USA

1400 M14.15/22302 **Effects of Inhomogeneous Cloud on Radiative Distribution of Atmosphere by 3D Radiative Transfer Model Simulation**
J. Huo*, D. Lu
LAGEO, Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China

1415 M14.16/22302 **Development and Utility of a Radiance Model for Rapid Computation of Actinic and Surface Irradiance**
J. Streicher*, D. Wong
U.S. Environmental Protection Agency, Research Triangle Park, USA

1430 M14.17/22302 **Heterogeneity Effects in Optical Cloud Liquid Water Path Retrievals**
A. Horvath*, S. Chellappan
Max Planck Institute for Meteorology, Hamburg, Germany

1445 M14.18/22302 **On Reduction of the 3D Cloud-Induced Radiative Effects on Aerosol Optical Depth Retrievals**
E. Kassianov*, M. Ovtchinnikov, L.K. Berg, S.A. McFarlane, C. Flynn
Pacific Northwest National Laboratory, Richland, USA

*Denotes presenting author.

1330-1500 **524ab**
Session: Gravity Waves (1)
Chair: Hye-Yeong Chun

1330 M01.49/22303 **Gravity Waves in the Stratosphere**
M.J. Alexander*
NWRA, Colorado Research Associates Division, Boulder, USA

1400 M01.51/22303 **A Global Analysis of Gravity Wave Activity in the Upper Troposphere and Lower Stratosphere Region derived from GPS Radio Occultation Data**
T. Schmidt*, A. De La Torre, S. Heise
J. Wickert
GFZ German Research Centre for Geosciences, Potsdam, Germany

1415 M01.52/22303 **Global Gravity Wave Variances from Aura MLS: Characteristics and Interpretation**
D.L. Wu*, S.D. Eckermann
Jet Propulsion Laboratory, California Institute of Technology, Pasadena, USA

1430 M01.53/22303 **The Contribution of Kelvin Waves in the Forcing of the QBO Derived from SABER and ECMWF Temperatures**
M. Ern*, P. Preusse, S. Griessbach, M. Riese
Forschungszentrum Juelich, Juelich, Germany

1445 M01.54/22303 **On the Wave Spectrum Generated by Latent Heating**
M. J. Alexander*, D. Ortland
Northwest Research Associates, Redmond WA, USA

1330-1500 **524c**
Session: Dynamical Implications of Aerosol-Cloud-Climate Interactions
Chair: Wojciech Grabowski/Johannes Quaas

1330 M11.13/22304 **Cloud System Resolving Modelling of the Tropical Atmosphere**
B.S. Love*, S.J. Woolnough, M. Blackburn, C.E. Holloway, T.H. Stein, K.J. Pearson, G.M.S. Lister, N.S. Dixon, H. Wells
University of East Anglia, Norwich, UK

1400 M11.15/22304 **Aerosol Induced Cloud Microphysics/Dynamics Interactions in Mesoscale Convective Systems**
X. Li*, W.-K. Tao
GEST Center, University of Maryland, Baltimore County, Greenbelt, USA

1415 M11.16/22304 **The Effect of Polluted Aerosol on the Structure and Precipitation of Convective Cloud: Measurement and Model Study**
X. Guo*, D. Fu
Chinese Academy of Meteorological Sciences, Beijing, China

1330-1500 **516d**
Session: Boundary Mixing, Stirring, and the Meridional Overturning
Chair: Anna Wåhlin

1330 P06.37/22315 **The Effect of Rotation on Gravity Current Entrainment**
L. Umlauf*, L. Arneborg, H. Burchard
Leibniz-Institute for Baltic Sea Research (IOW), Germany

1400 P06.39/22315 **Evidence for Boundary Layer Mixing in Regions of Rough Topography**
A.M. Thurnherr*, L. Armi
Lamont-Doherty Earth Observatory, Palisades, NY, USA

1415 P06.40/22315 **Eddy-induced Mixing in the Southern Ocean**
A.C. Naveira Garabato*, R. Ferrari
K.L. Polzin, M. Nikurashin
National Oceanography Centre, Southampton, UK

1430 P06.41/22315 **Turbulent Diapycnal Diffusion and Mixing Efficiency in Horizontal Convection**
R. Tailleux*
University of Reading, Reading, UK

1445 P06.42/22315 **Laboratory and Numerical Modeling Studies of Stirring by Small-Scale Geostrophic Motions**
M. A. Sundermeyer*, G. A. Stuart
D. Hebert
University of Massachusetts, Dartmouth, USA

1330-1500 **516e**
Session: Invited Talks
Chair: Gordon Swaters

1330 P04.1/22316 **Mixing of the Faroe Bank Channel Overflow**
I. Fer*
Geophysical Institute, University of Bergen and Bjerknes Centre for Climate Research, Bergen, Norway

1400 P04.3/22316 **The Impact of Improved Representation of Overflows on the Large-Scale Circulation in Ocean Climate Models**
S. Legg*
Princeton University, Princeton, USA

1430 P04.5/22316 **A Review the Hydraulic Control Concept with Application to Flows through Ocean Gaps**
J.A. Whitehead*
Woods Hole Oceanographic Institution, Woods Hole, USA

1630-1800 **519ab**
Session: Atlantic Multidecadal Variability
Chair: Paul Kushner

1630 J09.19/22405 **North Atlantic Multidecadal Variability Linking Worlds Apart**
Y. Kushnir*, R. Seager, M. Ting, M. Stein
Lamont-Doherty Earth Observatory, Palisades, NY, USA

1645 J09.20/22405 **20th Century Sahel Rainfall Variability in IPCC Model Simulations and Future Projections: Natural Variability versus Anthropogenic Forcing**
M. Ting*, Y. Kushnir, R. Seager, C. Li
Columbia University, Lamont Doherty Earth Observatory, New York, USA

1700 J09.21/22405 **The Sensitivity of the North Atlantic Oscillation Daily Autocorrelation to Interannual Variability**
S.P.E. Keeley*, R.T. Sutton, L.C. Shaffrey
NCAS-Climate, Dept. of Meteorology, University of Reading, UK

1715 J09.22/22405 **Changes of Interannual NAO Variability in Response to Greenhouse Gases Forcing**
B. Dong*, R.T. Sutton
National Centre for Atmospheric Sciences, University of Reading, Reading, UK

1730 J09.23/22405 **Influence of the Gulf Stream on the Troposphere and its Relation to the Atlantic Multidecadal Oscillation**
S. Minobe*, A. Kuwano-Yoshida
N. Komori, S.-P. Xie, R.J. Small
M. Urasawa
Graduate School of Science, Hokkaido University, Sapporo, Japan

1745 J09.24/22405 **Variability of the Asian Anticyclonic Activity in relation to the Arctic Oscillation**
L. Ioannidou*, P. Yau
McGill University, Montréal, Canada

1630-1800 **520f**
Session: Biogeochemistry and Climate
Chair: John Burrows

1630 J13.7/22406 **The Nutrient Increment: A Way to Improve Nutrient Distributions in a Data Assimilating Ocean Model**
J. While*, K. Haines
ESSC, University of Reading, Reading, UK

1645 J13.8/22406 **Ocean Biogeochemistry and Ecosystem Feedbacks; their Impact on Climate Change**
D. Smythe-Wright*
National Oceanography Centre, Southampton, UK

1700 J13.9/22406 **The Link between the Biological Oceanic Activity and Marine Aerosol**
M.C. Facchini*, M. Rinaldi, S. Decesari
E. Finessi, C. Carbone, S. Fuzzi
D. Ceburnis, C.D. O' Dowd, E. Vignati
Institute of Atmospheric Sciences and Climate, National Research Council, Bologna (CNR-ISAC), Italy

1715 J13.10/22406 **The Importance of Saharan Dust Storms for Oceanic Nitrogen Fixation**
J. LaRoche*, R. Langlois, P. Croot
Leibniz-Institut Fuer Meereswissenschaften, Kiel, Germany

1745 J13.12/22406 **Study on the Integrated Indicators of the Ecological Environment Evaluation on Karst Rock Desertification**
G. Xiaoping*, Y. Fei, L. Yuxiang
Guizhou Institute of Mountainous Climate, China

1630-1800 **520b**
Session: Use of Observations
Chair: Richard Swinbank

1630 J21.1/22407 **Measuring the Impact of Observations on Analyses and Forecasts: an Intercomparison Experiment**
P. Gauthier*
Dept of Earth and Atmospheric Sciences, Université du Québec à Montréal, Canada

1700 J21.3/22407 **New Applications of Observing System Simulation Experiments**
Y. Nezlin*, Y.J. Rochon, M. Reszka
S. Polavarapu
University of Toronto, Canada

1715 J21.4/22407 **Global Assessment of NCEP/NCAR Reanalysis Winds Using MISR-Derived Winds**
L. Di Girolamo*, W.L. Chapman
University of Illinois, Urbana, USA

1730 J21.5/22407 **Multiscale Four Dimensional Data Assimilation and Short-term Forecasting for Different NAMMA Eastern Atlantic Tropical Storm Events**
J. Mejia*, M. Douglas
CIMMS, Norman, USA

1630-1800 **520c**
Session: Recent Warming Trends in the High Polar Regions
Chair: David Reusch

1630 J01.7/22408 **Recent Climate Change in Iceland**
H. Björnsson*, T. Jonsson
Icelandic Meteorological Office, Reykjavik, Iceland

1645 J01.8/22408 **Air Temperature Changes in Svalbard from 1861 to 1920**
R. Przybylak*, J. Jankowska
Nicolaus Copernicus University, Torun, Poland

*Denotes presenting author.

1700 J01.9/22408 **Recent Climate Change Observed in Svalbard since Fourty Years in Ny Alesund (79ºN)**
M. Griselin*, C. Marlin, D. Laffly
E. Bernard, E. Delangle
University de Franche-Comté, CNRS UMR ThéMA, Besançon, France

1715 J01.10/22408 **Recent Atmospheric Warming at High Latitudes**
S. Sherwood*, R. Allen, P. Thorne
Climate Change Research Centre, University of New South Wales, Sydney Australia

1730 J01.11/22408 **Interpreting Ice Core Records of Inter-annual Temperature Change across the Antarctic Peninsula**
L. Sime*, G. Marshall
British Antarctic Survey, Cambridge, UK

1745 J01.12/22408 **South-north Inhomogeneous Warming and Precipitation Trends under Global Warming**
X. Dai*, P. Wang
Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China

1630-1800 **520de**
Session: Arctic Atmosphere and Ocean Modeling
Chair: David Holland

1630 J02.7/22409 **State of Arctic Climate**
W. Maslowski*
Naval Postgraduate School, USA

1645 J02.8/22409 **Impact of Arctic Drifting Buoys on the AFES-LETKF Experimental Ensemble Reanalysis (ALERA)**
J. Inoue*, T. Enomoto, T. Miyoshi
S. Yamane
Institute of Observational Research for Global Change, Japan Agency for Marine-Earth Science and Technology, Yokosuka, Japan

1700 J02.9/22409 **Impacts of Improved High-Latitude Land Surface Boundary Conditions in the Weather and Research Forecasting Model (WRF)**
A.G. Slater*, D.N. Kindig, M.C. Serreze, M.H. Savoie, M. Barlage, K. Hines
NSIDC/CIRES University of Colorado, Boulder, USA

1715 J02.10/22409 **Variability of Arctic Climate and Its Extremes Based On Observations and RCM Simulations**
A. Rinke*, H. Matthes, K. Dethloff
Alfred Wegener Institute for Polar and Marine Research, Potsdam, Germany

1730 J02.11/22409 **AOMIP: Coordinated Activities to Improve Models and Model Predictions**
A. Proshutinsky*, R. Gerdes, D. Holland
G. Holloway, M. Steele
Woods Hole Oceanographic Institution, Woods Hole, USA

1745 J02.12/22409 **Climate and Forecast Mode Simulations for Antarctic: Implications for Temperature and Wind - A Case Study for the Davis Station Using HIRHAM**
Y. Xin*, A. Rinke, L. Bian, K. Dethloff
C. Xiao
Chinese Academy of Meteorological Science, Beijing, China

1630-1800 **525ab**
Session: Regional Climate Modelling
Chair: Marco Braun

1630 J12.43/22410 **High Resolution Regional Climate Modelling: Validation and Climate Change Signal in Radiation Parameters**
T. Halenka*, M. Janouch, M. Belda
J. Miksovsky
Dept. of Meteorology and Environment Protection, Fac. of Mathematics and Physics, Charles University, Czech Republic

1645 J12.44/22410 **Improving Regional Climate Change Projections of Temperature for Halifax, Nova Scotia via Statistical Downscaling.**
L. Titus*, R.J. Greatbatch, I. Folkins
J. Sheng
Environment Canada, Dartmouth, Canada

1700 J12.45/22410 **Future Climate Projections of Extreme Precipitation and Temperature Distributions by using an Extreme Value Theory Non-Stationary Model**
B. Casati*, L. Lefaivre
Ouranos, Montreal, Canada

1715 J12.46/22410 **The Sensitivity of Regional Climate Simulations to Domain Size and Large-Scale Nudging**
D. Kornic*, R. Laprise
Université du Québec à Montréal, Canada

1730 J12.47/22410 **The Surface Radiation Budget over North America: Gridded Data Assessment and Evaluation of Regional Climate Models**
M. Markovic*, C.G. Jones, K. Winger
D. Paquin
Université du Québec à Montréal, Canada

1630-1800 **516c**
Session: Characteristics and Mechanism of Monsoon Variability from Various Time Scales
Chair: Takeshi Izumo

1630 J17.43/22411 **The Role of Indian Ocean Dipole in Climate Variability and Predictability**
S. Behera*, J. Luo, T. Izumo, V. Ratnam, W. Sasaki, Y. Masumoto, T. Yamagata
Frontier Research Center for Global Change/JAMSTEC, Japan

*Denotes presenting author.

1700 J17.45/22411 **Objective Definition of the Indian Summer Monsoon Onset**
B. Wang*, Q. Ding, P.V. Joseph
International Pacific Research Center, University of Hawaii at Manoa, Honolulu, USA

1715 J17.46/22411 **Towards a Physical Basis for Intraseasonal Oscillations of the Asian Monsoon**
P. Webster*
Georgia Institute of Technology, Atlanta, USA

1745 J17.48/22411 **Interannual Variabilities of Atmospheric Heat Sources and Moisture Sinks over the Low-latitude Regions and Related Relationship with the Onset of South China Sea Summer Monsoon**
Z.P. Wen*, H.Y. He, R.H. Huang
Sun Yat-Sen University, Guangzhou, P.R. China

1630-1800 **516b**
Session: Arctic ecosystems and global modelling
Chair: Ross Brown

1630 C01.19/22413 **Arctic Ice Shelves and their Ecosystems: Vulnerability and Loss in a Warming Climate**
D.R. Mueller*, L. Copland, W.F. Vincent, M.O. Jeffries
Trent University, Peterborough, Canada

1700 C01.21/22413 **Protecting Arctic Sea Ice Habitat**
S. Pfirman*, B. Tremblay, C. Fowler
R. Newton
Barnard College, NY, USA

1730 C01.23/22413 **Representation of the Cryosphere in Global Climate Models**
G.M. Flato*
Canadian Centre for Climate Modelling and Analysis, Environment Canada, Victoria, Canada

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1630-1800 **518c**
Session: 3D Radiative Transfer in the Atmosphere
Chair: Evgueni Kassianov

1630 M14.19/22402 **The Fourth RAdiative Transfer Model Intercomparison (RAMI) Exercise**
J.-L. Widlowski*, B. Pinty, M.M. Verstraete
Institute for Environment and Sustainability, Joint Research

1700 M14.21/22402 **Polarized Radiative Transfer Simulations in 3D Domains**
C. Emde*, B. Mayer, M. Blumthaler
Deutsches Zentrum für Luft- und Raumfahrt, Oberpfaffenhofen, Germany

1715 M14.22/22402 **Single and Multiple Scattering in Thick Multifractal Clouds**
B.P. Watson*, S. Lovejoy, Y. Grosdidier
D. Schertzer
St. Lawrence University, Canton, USA

1730 M14.23/22402 **The NIMO Monte Carlo Radiative Transfer Model for MAX-DOAS Air-Mass Factor and Radiance Calculations**
G.E. Bodeker*, T.D. Hay, K. Kreher, R. Schofield, M. Scherer, A. McDonald
NIWA, Lauder, New Zealand

1630-1800 **524ab**
Session: Gravity Waves (2)
Chair: David Ortland

1630 M01.55/22403 **Gravity Wave Generation and Propagation in the Middle Atmosphere Revealed by a High-Resolution GCM**
K. Sato*, S. Watanabe, Y. Kawatani
Y. Tomikawa, K. Miyazaki, S. Tateno
M. Takahashi
University of Tokyo, Tokyo, Japan

1700 M01.57/22403 **The Impact of Conservation of Momentum in Gravity Wave Drag Parameterization on Planetary Wave Structure and Variability**
T A Shaw*, T G Shepherd
University of Toronto, Canada

1715 M01.58/22403 **A Ray-based Parameterization of Convective Gravity Waves and Its Sensitivity to Wave-propagation Direction**
H.-Y. Chun*, H.-J. Choi
Yonsei University, Japan

1730 M01.59/22403 **Testing Lagrangian Theories of Internal Wave Spectra**
G.P. Klaassen*
York University, Toronto, Canada

1745 M01.60/22403 **Quasi-Optic Approximation for Orographic Gravity Waves**
M. Pulido*, C. Rodas
University of Toronto, Canada

1630-1800 **516d**
Session: The Variable Atlantic Meridional Overturning Circulation- Characteristics, Causes and Consequences for Climate
Chair: Torsten Kanzow

1630 P10.1/22415 **The North-eastern AMOC: Stability of the Deep and Shallow Exchanges through the Iceland-Scotland Gap**
B. Hansen*, H. Hatun, S. Østerhus
D. Quadfasel, B. Turrell, S. Hughes
B. Berx, T. Sherwin, S.M. Olsen
A.B. Sand
Faroese Fisheries Laboratory, Torshavn, Faroe Islands

*Denotes presenting author.

1700 P10.3/22415 **Convection Variability in the Labrador Sea: Causes, Signatures and Consequences**
I. Yashayaev*, J. Fischer, D. Kieke
J. Loder, S. Prinsenberg, M. Rhein
C. Tang, M. Visbeck, Y. Wu
Bedford Institute of Oceanography, Dartmouth, Canada

1715 P10.4/22415 **The Effect of Including both Salinity and Temperature in the Watermass Transformation in a Marginal Sea Boundary Current**
A.K. Wdhlin*, H.L. Johnson, A. Levermann
University of Gothenburg, Sweden

1730 P10.5/22415 **Oscillatory Sensitivity of Atlantic Overturning to High-latitude Forcing**
D. Marshall*, L. Czeschel, H. Johnson
University of Oxford, Oxford, United Kingdom

1745 P10.6/22415 **On the Density Compensation and Variability of the North Atlantic: Implications for the Atlantic Meridional Overturning Circulation**
M.S. Lozier*, R.G. Williams, V. Roussenov, M.S.C. Reed
Duke University, Durham, North Carolina, USA

1630-1800 **516e**
Session: Exchange Flows and Abyssal Overflows
Chair: Gordon Swaters

1630 P04.7/22416 **Hydraulic Criticality of Complex Overflows and Exchange Flows**
L.J. Pratt*, G. Sannino, A. Carillo
R. Pickart, M. Gregg
Woods Hole Oceanographic Institution, Woods Hole, USA

1645 P04.8/22416 **Hydraulic Criticality of the Exchange Flow through the Strait of Gibraltar**
G. Sannino*, L.J. Pratt, A. Carillo
ENEA, Ocean Modelling Unit, Rome, Italy

1700 P04.9/22416 **Flow of Dense Pacific Water into the Western Arctic Ocean through Herald Canyon**
L.J. Pratt*, R.S. Pickart
Woods Hole Oceanographic Institution, Woods Hole, MA USA

1715 P04.10/22416 **About the Interannual Variability of the Mediterranean Outflow as Observed in Espartel Sill, Western Strait of Gibraltar**
J. Garcia Lafuente*, J. Delgado
A. Sanchez Roman, J.C. Sanchez Garrido
G. Sannino, F. Criado Aldeanueva
L. Carracedo, J. Del Rio, J.M. Vargas
J. Soto
University of Malaga, Spain

1730 P04.11/22416 **Climatology and Interannual Variability of Denmark Strait Overflow Eddies**
J.B. Girton*, K. Yousoufian
Applied Physics Laboratory, University of Washington, Seattle, USA

1745 P04.12/22416 **Forcing and Control of the Faroe Bank Channel Overflow**
B. Hansen*, S. Østerhus, D. Quadfasel, S.M. Olsen
Faroese Fisheries Laboratory, Torshavn, Faroe Islands

1500-1630 **Exhibit Hall**
Poster board numbers are listed in the left margin

J270 J01.1/22417 **Extraction of Climatic Data Characteristics Measured in Antarctica for 50 Years**
G. Autret*, F. Rémy, S. Roques
Laboratoire d'Etudes en Géophysique et Océanographie Spatiales (LEGOS) - Université de Toulouse - CNRS, Toulouse, France

J271 J01.2/22417 **Mid-tropospheric Temperature Variability in Antarctica since the IGY**
A.J. Monaghan*, D.H. Bromwich, S.R. Colwell
Research Applications Laboratory, National Center for Atmospheric Research, Boulder, USA

J272 J01.3/22417 **Components of the Surface Energy Budget at Dome C, Antarctica from Observations and Numerical Models**
M.S. Town*, H. Castebrunet, C. Genthon, T. Travouillon, A. Bouchard, F. Rabier
LGGE/UJF, St Martin d'Hères, France

J273 J01.4/22417 **Historical and Future Severe Weather Events in the Eastern Canadian Arctic**
D. Desjardins*, J. Hanesiak, R. Stewart
University of Manitoba, Winnipeg, Manitoba, Canada

J274 J01.5/22417 **A Statistical Classification of Cyclone Tracks in High Latitudes of the Southern Hemisphere: Preliminary Results**
M. Lucini*, M. Pulido, S. Pelozo
University of Toronto, Toronto, Canada

J275 J01.6/22417 **Long-term Monitoring of Aerosol Optical Properties by Ground-based Remote-sensing at Bi-polar Sites**
M. Shiobara*, M. Yabuki, M. Yamano, K. Aoki, H. Kobayashi
National Institute of Polar Research, Tokyo, Japan

J276 J01.7/22417 **The Freshwater Composition of the East Greenland Current Derived from Delta 18O and N:P Ratio Measurements**
P. A. Dodd*, E. Hansen
The Norwegian Polar Institute, Norway

J277 J01.8/22417 **Satellite-derived Climate Monitoring Products for the Inner Arctic**
F. Kaspar*, R. Hollmann, M. Lockhoff, K.-G. Karlsson, P. Fuchs
Satellite Application Facility on Climate Monitoring, Deutscher Wetterdienst, Offenbach, Germany

J278 J01.9/22417 **Satellite and Airborne Data for Change Detection in the Arctic Cryosphere**
S. Hanson*, H. Skourup, S.M. Hvidegaard, L. Stenseng, L.S. Soerensen, R. Forsberg
DTU Space National Space Institute, Copenhagen, Denmark

J279 J01.10/22417 **Trends in Long-term Synoptic Observations of Clouds and Precipitation at Vernadsky, Antarctica**
A. Kirchgäßner*
British Antarctic Survey, Cambridge, UK

J282 J02.1/22417 **An Evaluation of Cloud and Radiation Processes Simulated by GEM-LAM for the Arctic SHEBA Year**
D. Simjanovski*, E. Girard, C. Jones, P. Du
UQAM, Montréal, Canada

J283 J02.2/22417 **Evaluation of Four Bulk Microphysics Schemes for the Simulation of Arctic Mixed-Phase Clouds Observed During M-PACE.**
J. Dorais*, E. Girard, P. Du
UQAM, Montréal, Canada

J284 J02.3/22417 **Evaluating Polar WRF over Arctic Land**
K.M. Hines*, D.H. Bromwich, L.-S. Bai, M. Barlage, A.S. Slater
Polar Meteorology Group, Byrd Polar Research Center, Ohio State University, Columbus, USA

J285 J02.4/22417 **Estimation of Model Error in a General Circulation Model of the Arctic and North Atlantic Oceans**
E. Demirov*, S. Graham, J. Zhu
Department of Physics and Physical Oceanography, Memorial University of Newfoundland, St. John's, Canada

J286 J02.5/22417 **Temperature and Vorticity Terms Related to CAM3.0 Arctic Surface Climate Simulation Bias**
R. Grotjahn*, L.L. Pan
University of California, Davis, USA

J287 J02.6/22417 **Case Study of GEM-LAM over Southern Baffin Island**
Z. Liu*, J. Hanesiak, R. Martin, R. Goodson, R. Stewart, D. Deacu, A. Zadra,
Centre for Earth Observation Science (CEOS), University of Manitoba, Winnipeg, Canada

J288 J02.7/22417 **Comparison of Arctic storm simulations with in situ and remotely sensed observations**
L. Zhang*, W. Perrie, B. Zhang, Z. Long
Nanjing University, Nanjing, China

J289 J02.8/22417 **A Sensitivity Study on Dense Shelf Water Formation in the Okhotsk Sea**
Y. Sasajima*, H. Hasumi, T. Nakamura
Center for Climate System Research, University of Tokyo, Kashiwa, Japan

J290 J02.9/22417 **Wind-Driven Polynya Dynamics with a Mass and Momentum Conserving, One-Dimensional Model**
M.A. Morales Maqueda*, A.J. Willmott, I.A. Walkington
Proudman Oceanographic Laboratory, NERC, Liverpool, UK

*Denotes presenting author.

J291 J02.10/22417 **Non-Newtonian Rheologies to Simulate Strain Localization in the Sea Ice Cover**
S. Bouillon*, V. Legat, T. Fichefet
Institut d'Astronomie et de Géophysique Georges Lemaître (UCL-ASTR), Louvain-La-Neuve, Belgium

J292 J02.11/22417 **Towards a Multi-analysis Ensemble**
M. Lucini*, T.G. Shepherd, S. Polavarapu, N. McFarlane
University of Toronto, Toronto, Canada

J293 J02.12/22417 **A Decade of Model Climatological Data for Antarctica and the Surrounding Southern Ocean**
N. Adams*
Australian Bureau of Meteorology, and the Antarctic Climate and Ecosystems Cooperative Research Centre, Hobart Tasmania, Australia

J294 J02.13/22417 **Foehn Winds in the McMurdo Dry Valleys of Antarctica**
D.F. Steinhoff*, J. Speirs, D.H. Bromwich, A.J. Monaghan
Ohio State University, Columbus, USA

J295 J02.14/22417 **Antarctic Peninsula Climate Variability and Atmospheric Circulation Change**
V. Tymofeyev*
Ukrainian Hydrometeorological Research Institute, Kiev, Ukraine

J296 J02.15/22417 **Time Evolution of a High Pressure System over East Antarctic Ice Sheet after a Blocking Event**
N. Hirasawa*, H. Motoyama, M. Hayashi
National Institute of Polar Research, Tokyo, Japan

J297 J02.16/22417 **Study of Cold Lows in Arctic Observed and Simulated by GEM Models**
Y.M. Melin*
Université du Québec à Montréal, Canada

J308 J08.1/22417 **Impact of Source Region on the del18O Signal in Snow: A Case Study from Mount Wrangell Alaska**
G.W.K. Moore*, R. Field, C. Benson
University of Toronto, Toronto, Canada

J309 J08.2/22417 **How Representative is a Unique Deep Ice Core Extracted from High Summit Glacier: The Case of San Valentin (Chilean Patagonia)**
P. Ginot*, G. Casassa, N. Patris, I. Moreno, J. Herreros, M. de Angelis, O. Magand, F. Vimeux
IRD/IHH, La Paz, Bolivia

J310 J08.3/22417 **On the Bifurcation Inducing the 40-to-100 kyr Transition of the Pliocene/ Pleistocene Glacial Cycles**
D.M. Sonechkin*
P.P. Shirshov Oceanology Institute, RAS, Moscow, Russia

J311 J08.4/22417 **Two Branches of Indian Monsoon and their Boundary Revealed by Comparison of Accumulation Rate Recorded in the Dasuopu Ice Core from the Middle Himalayas with Meteorological Records**
N. Wang*, T. Yao, L.G. Thompson, M.E. Davis, B. Xu, L. Tian, K. Duan, J. Pu
Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences, Beijing, China

J312 J08.5/22417 **20th Century Temperature Reconstitution in a High Altitude Tropical Site from Illimani (6340m, Bolivia) Englacial Temperature and Surface Melting Quantification**
P. Ginot*, A. Gilbert, P. Wagnon, Ch. Vincent
IRD/IHH, La Paz, Bolivia

J313 J08.6/22417 **Summer Temperature Record of an Ice Core from Miaoergou Glacier in the East Tian Shan, China**
Y.T. Wang*, S.G. Hou, Y.P. Liu
Cold and Arid Regions Environmental and Engineering Research Institute, CAS, Lanzhou, Gansu Province, China

J314 J08.8/22417 **Centennial Periodicity of Dust Injections to Antarctica from South Hemispheric Deserts**
X. Cunde*
State Key Laboratory of Cryospheric Sciences, CAREERI, CAS, Lanzhou and Institute of Climate System, Chinese Academy of Meteorological Sciences, Beijing, China

J315 J08.9/22417 **Deuterium Excess in Polar Ice: Insight from a Zonally-Averaged Ocean-Atmosphere Model**
L.A. Mysak*, A. Antico, O. Marchal
Department of Atmospheric and Oceanic Sciences, McGill University, Montréal, Canada

J316 J08.10/22417 **A New Promising Ice Core Site for Paleoclimate Reconstructions in Antarctic Peninsula**
A.S. Alencar*, J.C. Simões, H. Evangelista, D. Introne, S.B. Snned, M.J. Handrey, M. Potocki, A.V. Kurbatov, P.A. Mayewski
Universidade de São Paulo, São Paulo, Brazil

J317 J08.11/22417 **Interpreting Orbital Signals in East Antarctic Ice Cores**
L. Sime*, M. Hutterli
British Antarctic Survey, Cambridge, UK

J320 J09.1/22417 **Relationship of North Atlantic Oscillation to the Total Seasonal Rainfall over Libya**
T.A. Sharif*, A.G. Eljadid
Department of Atmospheric Science, Faculty of Science, Alfateh University, Tripoli, Libya

J321 J09.2/22417 **Spectral Analysis of Climatologically Data in Order to Investigate the Climate Variability in Iran**
F. Taghavi*
University of Tehran, Institute of Geophysics, Tehran, Iran

J322 J09.3/22417 **Nonlinear Climate Response to Solar Forcing**
H. Weng*
LASG, Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China

J323 J09.4/22417 **Effects of Bias-Correction on the Precipitation Trend Over China**
Y. Ding*, B. Ye, D. Yang
Cold & Arid Regions Environmental and Engineering Research Institute,Chinese Academy of Sciences, Lanzhou, P.R. China

J324 J09.5/22417 **Trends Ands and Interdecadal Changes of Weather Predictability during 1950s-1990s**
R.Q. Ding*, J.P. Li, K.J. Ha
National Key Laboratory of Numerical Modeling for Atmospheric Sciences and Geophysical Fluid Dynamics (LASG), Institute of Atmospheric Physics (IAP), Chinese Academy of Sciences (CAS), Beijing, China

J325 J09.6/22417 **A New Nonlinear Synthesis: The Space-time Stochastic Cascade Structure of the Atmosphere and its Numerical Models**
S. Lovejoy*, D. Schertzer
McGill University, Montréal, Canada

J326 J09.7/22417 **North Atlantic Climate Variability and Seasonal Predictability: Sensitivity to Model Resolution**
S.P.E. Keeley*, R.T. Sutton, L.C. Shaffrey
NCAS-Climate, Dept. of Meteorology, University of Reading, UK

J327 J09.8/22417 **Recent Synchronized Abrupt Warming and Change in Dominant Decadal Mode**
H.-H. Hsu*, T.-T. Lo
National Taiwan University, Taiwan

J328 J09.9/22417 **Impact of Model Errors in the Gulf Stream on NAO Variability**
S.P.E. Keeley*, R.T. Sutton, L.C. Shaffrey
NCAS-Climate, Dept. of Meteorology, University of Reading

J329 J09.10/22417 **An Observed Rapid Warming of the North Atlantic in the 1990s**
J.I. Robson*, K. Lohmann, R.T. Sutton
Walker Institute, University of Reading, Reading, UK

J330 J09.11/22417 **The Use of a Peaks-Over-Threshold Model to Identify Interdecadal Variability in Temperature Extremes**
B. Tencer*, M. Rusticucci
FCEN, Universidad de Buenos Aires, Argentina

J331 J09.12/22417 **Seasonal Prediction of Winter Extreme Precipitation over Canada by Support Vector Regression**
W.W. Hsieh*, Z. Zeng, A. Shabbar
University of British Columbia, Vancouver, Canada

J332 J09.13/22417 **Ensemble Generation Method for Decadal Climate Prediction**
Y. Chikamoto*, M. Kimoto, M. Watanabe, M. Mori, M. Ishii, T. Mochizuki
Center for Climate System Research,Kashiwa, Japan

J378 J12.1/22417 **Rainfall Variability over Southern Africa: Assessment of a Climate Model to Reproduce Daily Extremes**
C.J.R. Williams*, D.R. Kniveton, R Layberry
University of Reading, Reading, UK

J379 J12.2/22417 **A Proposed Modification to the Robert-Asselin Time Filter**
P.D. Williams*
University of Reading, UK

J380 J12.3/22417 **Regional Climate Atmospheric Model for the Labrador Sea**
Y. Zhang*, E. Demirov
Memorial University of Newfoundland, St. John's, Canada

J381 J12.4/22417 **Vegetation Fraction Effect on Early Summer Large Rain Band in East Asia**
T. Yoshikane*, M. Hara, H. Kawase, F. Kimura
JAMSTEC, Yokohama, Japan

J382 J12.5/22417 **Water, Life and Civilisation: Regional Climate Modelling in the Eastern Mediterranean**
D.J. Brayshaw*, B. Hoskins, J. Slingo, E. Black
Reading University, Reading, UK

J383 J12.6/22417 **Atmospheric Water Budget Study by Scale Decomposition with the Canadian Regional Climate Model over North America**
R. Bresson*, R. Laprise
Canadian Regional Climate Modeling and Diagnostics Network, UQAM, Montréal, Canada

J386 J13.1/22417 **Estimating the Net Contribution of Historical Land-Use Changes to Atmospheric CO2 Increases Using a Dynamic Land-Use Scheme**
A. Matveev*, H.D. Matthews
Concordia University, Montréal, Canada

J387 J13.2/22417 **Climate Model Reliability in Simulating Enhanced Forest Productivity Resulting from CO2 Fertilization**
A. Pinsonneault*, H.D. Matthews
Concordia University, Montréal, Canada

J388 J13.3/22417 **Characterizing CO2 Fluxes in Tangguala Apline Meadow Ecosystem on the Qinghai-Tibet Plateau**
Y.-H. Zhao*, L. Zhao, E. Du
Cold and Arid Regions Environment and Engineering Research Instute,CAS;Observation and Research Station of Qinghai-Tibet Plateau, CAREERI, CAS, Lanzhou, China

*Denotes presenting author.

J389 J13.4/22417 **Importance of Atmospheric Deposition of Nitrogen and Phosphorus for the Marine Ecosystem of the Cretan Sea**
N. Mihalopoulos*, G. Petihatkis, S. Christodoulaki, M. Kanakidou
ECPL, University of Crete, Heraklion, Greece

J390 J13.5/22417 **Climate Change and Desertification Risks assessment in Aurès Region (Eastern of Algeria) by Using of Geomatic Data**
H. Chenchouni*, A. Arar, M.C. Benabderrahmane
University of Batna, Algeria

J393 J15.1/22417 **The Development of Coupled Snow and Frozen Soil**
S.F. Sun*, Y. Chu
Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China

J394 J15.2/22417 **The Influence of Climate Changes on Interaction between the Atmosphere - Snow Cover - Permafrost in Arctica and Antarctica**
N. Osokin*, A. Sosnovsky
Institute of Geography RAS, Moscow, Russia

J395 J15.3/22417 **New Method for Assessing Humidity Function in Combined Stomatal-Photosynthesis Models**
S. Wang*, Y. Yang, X. Geng
Canada Centre for Remote Sensing, Ottawa, Canada

J396 J15.4/22417 **Modelling the Runoff Regime of the Aconcagua River Basin Using a Distributed Hydrological Model: Simulations of Glacier and Snow Melt Contributions to Streamflow.**
F. Pellicciotti*, D. Molnar, S. Rimkus, J. Helbing, M. Carenzo, A. Rivera, P. Burlando,
Institute of Environmental Engineering (ETH), Zurich, Switzerland

J397 J15.5/22417 **Modeling Water, Energy, and CO2 Fluxes in Arctic Region with a Coupled Hydrological and Biogeochemical Model**
H. Park*, Y. Iijima, H. Yabuki, T. Ohata
JAMSTEC, Yokosuka, Japan

J398 J15.6/22417 **The Impact of Frozen Soil Parameterization on Simulation of Water and Energy Balances in Cold Region**
X. Zhang*
Key Laboratory of Regional Climate-Environment Research for Template East Asia, Institute of Atmospheric Physics, Chinese Academy of Science, Beijing, China

J399 J15.7/22417 **Spatial and Temporal Lake and Wetland Distribution Model, Yukon River Watershed**
R. Bryan*, L.D. Hinzman
University of Alaska Fairbanks, Fairbanks, USA

J400 J15.9/22417 **Recent Vegetation Change on a Proglacial Area (Spitsberg, 79°N): Comparing Results from Direct Monitoring and Modelling Approach**
D. Laffly*, M. Moreau, T. Brossard
Université de Toulouse (GEODE - CNRS), Toulouse, France

J401 J15.10/22417 **A Comparative Study of Parameterization Schemes for Snow Cover Fraction in Climate Models**
W.P. Li*, X. Liu
National Climate Center, China Meteorological Administration, Beijing, China

J402 J15.11/22417 **Use of Satellite Data to Estimate Regional Surface Energy Budget and Analysis of Lake Cover Impact over Northern Canada**
V. Ikani*, A. Royer
CARTEL-Université de Sherbrooke, Canada

J403 J15.12/22417 **Subsurface Freeze/Thaw Processes and Near-surface Hydroclimate by Climate Modeling**
K. Saito*
International Arctic Research Center, University of Alaska Fairbanks, Fairbanks, USA

C473 C01.1/22417 **A Regional Model to Predict the Distribution Patterns of Alpine Permafrost in the Western Part of Qilian Mountains, Northeastern the Qinghai-Tibetan Plateau**
J. Li*, Y. Sheng
Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences, Lanzhou, China

C474 C01.2/22417 **Recent Changes in Ice Shelves and Ice Plugs along Northern Nunavut, Canada**
C. A. Mortimer*, S. Pope, L. Copland, D.R Mueller, B. Alt
University of Ottawa, Ottawa, Canada

M508 M01.1/22417 **The Effect of the Middle Atmosphere on Climate Simulations of the Troposphere during Northern Hemisphere Winter: A study Using Low-Top and High-Top GCMs**
F. Sassi*, R.R. Garcia, D. Marsh
National Center for Atmospheric Research, Boulder, CO, USA

M509 M01.2/22417 **Coupling of Large-Scale Atmospheric Waves in Stratospheric/Mesospheric Temperature at Middle and High Latitudes: COSMIC GPS vs MLS-Aura Observations**
M.G. Shepherd*, S.P. Alexander, T. Tsuda
York University, Toronto, Canada

M510 M01.3/22417 **Pan-Arctic Study of the Circulation of the Arctic Middle Atmosphere during the IPY**
R.L. Collins*, V.L Harvey, B. Thurairajah, D.E. Atkinson, G. Baumgarten, M. Gerding, J.M. Livingston, F.-J. Lübken, K. Mizutani, R.J. Sica
Geophysical Institute, University of Alaska Fairbanks, Fairbanks, USA

M511 M01.4/22417 **Characterizing Tropopause Region over Polar and Tibetan Plateau with COSMIC Radio Occultation Measurements**
X. Wang*, D.-R. Lu
Key Laboratory of Middle Atmosphere and Global Environment Observation (LAGEO), Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China

M512 M01.5/22417 **Ultra Fast Kelvin Wave Observed in Equatorial Mesosphere**
A. Guharay*, P. Pant, B. Pande, K. Pandey
Aryabhatta Research Institute of Observational Sciences (ARIES), Nainital, India

M513 M01.6/22417 **On the Three-dimensional Residual Circulation and Wave Activity Flux of the Primitive Equations**
T. Kinoshita*, Y. Tomikawa, K. Sato
University of Tokyo, Tokyo, Japan

M514 M01.7/22417 **Stratospheric Response to Latitudinally Varied Surface Warming**
B. Winter*, M. Bourqui
McGill University, Montréal, Canada

M515 M01.9/22417 **Zonal Wind Vacillations in Potential-Vorticity-Based Numerical Models of the Shallow Water Equations for the Stratosphere**
S.M. Mir Rokni*, A.R. Mohebalhojeh, F. Ahmadi Guivi
University of Tehran, Tehran, Iran

M516 M01.10/22417 **The Response to Changes in Horizontal Resolution of the Stratosphere Resolving MetUM L60**
L. Gray*, S. Osprey, N. Butchart, S. Hardimann
NCAS, University of Oxford, UK

M547 M11.1/22417 **Using MERRA Data to Study Aerosol-Cloud Relationship under Different Meteorological Conditions**
S. Shen*, G. Leptoukh, S. Berrick, D. Ostrenga, Y. Zhang, S. Kempler
GMU/NASA GSFC, Greenbelt, USA

M548 M11.2/22417 **A New Explanation for Cumulus Cloud Formation with Respect to Cloud Droplet Spectra Broadening**
J. Sun*, P.A. Ariya, H.G. Leighton, M.K. Yau
McGill University, Montréal, Canada

M549 M11.3/22417 **Global Error Maps of Aerosol Optical Properties: An Error Propagation Analysis**
K. Tsigaridis*, Y. Balkanski, M. Schulz, A. Benedetti
Laboratoire des Sciences du Climat et de l'Environnement, Gif-sur-Yvette, France

M550 M11.4/22417 **Cirrus Clouds Formed by a Time-Dependent Flow over Mountains - A Multiscale Approach**
F. Fusina*, P. Spichtinger
Institute for Atmospheric and Climate Science, ETH Zurich, Zurich, Switzerland

P577 P04.1/22417 **The Kuroshio Extension Northern Recirculation Gyre: Profiling Float Measurements and Forcing Mechanism**
B. Qiu*, S. Chen, P. Hacker, N. Hogg, S. Jayne, H. Sasaki
University of Hawaii at Manoa, Honolulu, USA

P578 P04.2/22417 **The East Greenland Current System South of Denmark Strait**
J.A. Brearley*, R.S. Pickart
National Oceanography Centre Southampton, Southampton, UK

P579 P04.3/22417 **Regional Simulations of the Faroe Bank Channel Overflow using a Sigma-Coordinate Ocean Model**
K.S. Seim*, I. Fer, J. Berntsen
Department of Marine Technology, Norwegian University of Science and Technology, Trondheim, Norway

P580 P04.4/22417 **How Important is the Overflow Across the Iceland-Faroe Ridge?**
G. Voet*, M. Vogt, D. Quadfasel
Centre for Marine and Atmospheric Sciences, Germany

P581 P04.5/22417 **On the Behavior of the Bransfield Current as a Gravity Current**
M. Hernández-Arencibia*, C. Gordo, P. Sangrà, A. Marrero-Díaz, C. Salinas Nuñez
University of Las Palmas de Gran Canaria, Las Palmas de Gran Canaria, Spain

P584 P06.1/22417 **Internal Wave Induced Dispersion and Mixing on a Sloping Boundary**
T.J. Sherwin*, M.E. Inall, C.R. Griffiths
Scottish Association for Marine Science, Oban, UK

P585 P06.2/22417 **Lagrangian Coherent Structures and Transport in the Philippine Archipelago Region**
L.J. Pratt*, I.I. Rypina, J.D. Pullen, J.C. Levin
Woods Hole Oceanographic Institution, Woods Hole, USA

P586 P06.3/22417 **The Southern Ocean Finestructure (SOFINE) project**
A. Naveira Garabato*, N. Bindoff, M. Broadbridge, G. Damerell, A. Meyer, H. Phillips, K. Polzin, B. Sloyan, D. Stevens, S. Waterman
National Oceanography Centre, Southampton, UK

P587 P06.4/22417 **Mixing Impact of Submesoscale Structures on Physical-biological Interactions**
P. Klein*, G. Lapeyre
LPO IFREMER, Plouzané, France

*Denotes presenting author.

0830-1000 **517ab**
Session: Plenary
Chair:

0830 PLEN.1/23101 **Atmospheric Composition Changes in the Global Environment**
M. Kanakidou*
Environmental Chemical Processes Laboratory, Chemistry Dept., University of Crete, Greece

0900 PLEN.2/23101 **Future Climate Scenarios Predicted by the MIT Integrated Global System Model**
P. Malanotte-Rizzoli*
Massachusetts Institute of Technology, USA

0930 PLEN.3/23101 **Waking Giants: Ice Sheets in a Warming World**
R. Bindschadler*
NASA, Goddard Space Flight Center, USA

1030-1200 **519ab**
Session: Tropical Variability
Chair: Ichiro Yasuda

1030 J09.25/23205 **Interannual and Secular Warming of the Tropical Indian Ocean: Mechanisms and Climate Effects**
S.-P. Xie*, X.-T. Zheng, Y. Du, G.A. Vecchi
University of Hawaii, USA

1100 J09.27/23205 **Toward an Empirical Model of Interannual and Interdecadal Tropical Ocean Dynamics**
M. Newman*, M. Alexander, J. Scott
CIRES Climate Diagnostics Center, University of Colorado and Physical Sciences Division/NOAA Earth System Research Laboratory, USA

1115 J09.28/23205 **The Physical Mechanism for the Tropical Atlantic Influence on African and Indian Monsoon Rainfall**
A. Bracco*, F. Kucharski, J.-H. Yoo, A. Tompkins
EAS - Georgia Tech, USA

1130 J09.29/23205 **ENSO Hindcast Experiments Using a Coupled GCM**
Y. Yu*, L. Yan
LASG, Institute of Atmospheric Physics, China

1145 J09.30/23205 **A Tropical Mechanism for ENSO Modulation**
B. Dewitte*, S.-I. An, D. Gushchina
IMARPE, Peru

1030-1200 **520f**
Session: Biogeochemistry and Climate
Chair: Leif Anderson

1030 J13.13/23206 **Dust In, Gases Out. Exchange of Gases in the Tropical Eastern North Atlantic**
D.W.R. Wallace*, A. Körtzinger, H. Bange, B. Quack, T. Steinhoff, M. Heimann, W. Michaelis, E. Balmann, U. Platt
Leibniz-Institut fuer Meereswissenschaften (IFM-GEOMAR), Germany

1100 J13.15/23206 **Biogeochemical Ocean Feedbacks to the Atmosphere Implied from Simultaneous chlorophyll-a, BrO, IO and CHOCHO observations over the tropical Pacific Ocean**
R. Volkamer*, S. Coburn, B. Dix, R. Sinreich, R. Thalman, E. Waxman
Dept of Chemistry and Biochemistry, University of Colorado, USA

1115 J13.16/23206 **On the Significance of Atmospheric Inputs of Dissolved and Particulate Trace Metals to the Eastern Mediterranean Seawater**
N. Mihalopoulos*, C. Theodosi, Z. Markaki
University of Crete, Greece

1130 J13.17/23206 **Recent Changes in North Atlantic Carbon Uptake in an Isopycnic Ocean Carbon Cycle Model**
K.M. Assmann*, C. Heinze, M. Bentsen, A. Olsen
Bjerknes Centre for Climate Research, Norway

1145 J13.18/23206 **Variability of North Atlantic Sea Surface pCO2 and Air-Sea Flux of CO2**
U. Schuster*, CARBOOCEAN Team
University of East Anglia, UK

1030-1200 **520b**
Session: Use of Observations / Assimilation Algorithms
Chair: Paola Rizzoli

1030 J21.7/23207 **Assimilation of IASI radiances in the new Global Canadian Forecast System**
S. Heilliette*, L. Garand
Environnement Canada, Canada

1045 J21.8/23207 **Assimilation of Satellite Data in the Framework of the Concordiasi Campaign**
A Bouchard*, F Rabier, V Guidard, F Karbou, S Guedj
Météo France/CNRS, France

1100 J21.9/23207 **Applications of Conditional Nonlinear Optimal Perturbations to Target Observations for Tropical Cyclone Prediction**
M. Mu*, F.F. Zhou, H.L. Wang, F.H. Ge
Chinese Academy of Sciences, China

1115 J21.10/23207 **Preliminary Application of CNOP Obtained by a Fast Algorithm to Identify the Sensitive Area in Targeting for Tropical Cyclone Prediction**
X. Tan*, B. Wang
LASG, Institute of Atmospheric Physics, Chinese Academy of Sciences, China

1130 J21.11/23207 **4DSVD Scheme for Chaotic-Attractor-Theory Oriented Data Assimilation**
J.P. Li*, J.C. Wang
LASG, Institute of Atmospheric Physics, Chinese Academy of Sciences, China

1145 J21.12/23207 **A Reduced Dimension Conjugate Gradient-like Method for Data Assimilation Problems**
J. Tshimanga*, S. Gratton
CERFACS, France

1030-1200 520c
Session: Changing Properties of the Ocean and Cryosphere
Chair: Peter Haugen

1030 J01.13/23208 **Environmental Impacts of a Shrinking Arctic Sea Ice Cover**
M. Serreze*
CIRES/NSIDC, University of Colorado, USA

1100 J01.15/23208 **Identification, Characterization and Change of the Near-surface Temperature Maximum in the Canada Basin, 1993-2008**
J.M. Jackson*, E.C. Carmack, F.A. McLaughlin, S.E. Allen, R.G. Ingram
University of British Columbia, Canada

1115 J01.16/23208 **Sustaining Arctic and Southern Ocean Observing Systems as Legacies of the International Polar Year**
K. Alverson*
Intergovernmental Oceanographic Commission, France

1130 J01.17/23208 **Sea Level Changes in the Arctic: 1954-2008**
A. Proshutinsky*, I. Ashik
Woods Hole Oceanographic Institution, USA

1145 J01.18/23208 **The Norwegian Sea One Hundred Year After**
S. Østerhus*, E. Falch
Bjerknes Centre for Climate Research, Norway

1030-1200 520de
Session: Basic Dynamics
Chair: Roger Smith

1030 J19.1/23209 **Some Recent Developments in Tropical Cyclone Dynamics**
M.T. Montgomery*
Naval Postgraduate School, USA

1100 J19.3/23209 **Dynamic and Thermodynamic Aspects of Tropical Cyclones in Vertical Shear and the 'Stationary Band Complex'**
M. Riemer*, M.T. Montgomery, M.E. Nicholls
Naval Postgraduate School, USA

1115 J19.4/23209 **Boundary Layer Turbulence in a Simulated Hurricane**
Y. Chen*, R. Rotunno, C. Davis, W. Wang, J. Dudhia, G. Holland
York University, Canada

1130 J19.5/23209 **Time Evolution of a Balanced Circular Vortex**
M.V. Kurgansky*
University of Concepcion, Concepcion, Chile and A.M. Obukhov Institute of Atmospheric Physics, Russian Academy of Sciences, Russia

1145 J19.6/23209 **On the Dynamics of Hurricane Secondary Eyewall Formation**
Y. Martinez*, G. Brunet, M.K. Yau, X. Wang
McGill University, Canada

1030-1200 525ab
Session: Comparison of Projected Future Climate Change to Warm Intervals in Earth History I
Chair: Alan Haywood / Arne Winguth

1030 J07.1/23210 **Regional Warmth, Stability and Duration of Pleistocene Interglacial Climates**
J.F. McManus*, D.W. Oppo, J.L. Cullen
Lamont-Doherty Earth Observatory, USA

1100 J07.3/23210 **Polar Warmth, Ice Sheet Stability, and Sea Level Rise at the Last Interglacial**
B.L. Otto-Bliesner*, N. Rosenbloom, J.T. Overpeck, S.J. Marshall, G.H. Miller
National Center for Atmospheric Research, USA

1130 J07.5/23210 **Evidence for Warmer Interglacials in East Antarctic Ice Cores**
L.C. Sime*, E.W. Wolff, K.I.C. Oliver, J.C. Tindall
British Antarctic Survey, UK

1145 J07.6/23210 **A Climate Feedback between Hurricanes and the Wind-driven Circulation of the Tropical Ocean: Implications for the Pliocene Warm Period and Contemporary Climate Change**
A.V. Fedorov*, C. Brierley, G. Manucharyan, K. Emanuel
Yale University, USA

1030-1200 516c
Session: Characteristics and Mechanism of Monsoon Variability from Various Time Scales
Chair: Takehiko Satomura

1030 J17.49/23211 **Interannual Variability in the Seasonal Northward Excursion of the Baiu Front**
T. Tomita*, M. Nonaka, T. Yamaura
Graduate School of Science and Technology, Kumamoto University, Japan

*Denotes presenting author.

1045 J17.50/23211 **Biweekly and 21-30 Day Variabilities of the Subtropical East Asian Monsoon over the Lower Reach of Yangtze River Basin**
J. Yang*, B. Wang, B. Wang, Q. Bao
State Key Laboratory of Earth Surface Processes and Resource Ecology, Beijing Normal University, China

1100 J17.51/23211 **Contribution of Tropical Cyclones to the Interannual Variation of Precipitation in the Western North Pacific**
M. Hattori*, K. Tsuboki
JAMSTEC, Japan

1115 J17.52/23211 **Interannual-Interdecadal Variability of South China Sea Summer Monsoon Onset**
D.X. Hu*, L.J. Yu
Institute of Oceanology, Chinese Academy of Sciences, China

1130 J17.53/23211 **Regionalization of Interannual Precipitation and Temperature Regimes and Regional Predictability of Seasonal Means over China**
L. Chen*, D. Chen, W. Gu
National Climate Center/CMA, China

1145 J17.54/23211 **MJO Forecasting Based on SSA-AR Model**
Z. Jiang*, H. Zhu
Nanjing University of Information Science & Technology , Key Laboratory of Meteorological Disaster of Ministry of Education, China

1030-1200 516a
Session: Inter-grain Processes and Porous Material
Chair: Ilka Hamann

1030 C03.1/23212 **Advanced Microstructural Characterization of Snow, Firn and Ice**
I. Baker*
Dartmouth College, Thayer School of Engineering, USA

1100 C03.3/23212 **Evolution of Snow Microstructure: New Insights into Properties and Processes**
T.U. Kaempfer*, B. Pinzer, J. Spiegel, M. Schneebeli
CRREL, USA

1115 C03.4/23212 **Indentation and Friction of Snow: Effects of Microstructure**
J.H. Lee*, D. Huang
University of Alaska Fairbanks, USA

1130 C03.5/23212 **Snow Settling as a Result of Curvature-driven Vapor Exchanges: 3D Modeling from Tomographic Images**
A. Dufour*, F. Flin, B. Lesaffre, L. Gilibert, M. Schneebeli
Météo-France/GAME-CNRM/CEN, France

1145 C03.6/23212 **Snow Microstructure and Solar Radiative Transfer: Perspectives Drawn from MISR Observations**
L. Di Girolamo*, M.J. Wilson
University of Illinois, USA

1030-1200 516b
Session: Changes in Glaciers in Different Climate Regimes
Chair: Liss M. Andreassen/Bruce Raup

1030 C04.1/23213 **Are Glaciers Shrinking More Rapidly Now than Formerly?**
J.G. Cogley*
Trent University, Canada

1100 C04.3/23213 **Glacier Retreat and Regional Climate around Potanin Glacier, Western Mongolia**
K. Konya*, T. Kadota, T. Ohata
Japan Agency for Marine-Earth Science and Technology (JAMSTEC), Japan

1115 C04.4/23213 **Topographic Influences on Recent Changes of Very Small Glaciers in the Monashee Mountains, British Columbia, Canada**
C.M. DeBeer*, M.J. Sharp
University of Saskatchewan, Canada

1130 C04.5/23213 **Recent Glacier Shrinkage and Hydrological Response of Hailuogou Glacier, A Monsoon Temperate Glacier on the East Slop of Mt. Gongga**
L. Qiao*, L. Shiyin, W. Xin, Z. Yingsong, G. Wanqing
State Key Laboratory of Cryosphere Science, Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences, China

1145 C04.6/23213 **Assessment of Changes in Glaciated Area in the Mountains of Russia since the mid-20th Century Using Satellite Images and Historical Data**
T. Khromova*, G. Nosenko, M. Shahgedanova
Institute of Geography, Russian Academy of Science, Russia

1030-1200 518c
Session: Comparative Atmospheres of the Giant Planets and their Satellites
Chair: Darrell Strobel

1030 M18.1/23202 **The Thermal Structure of Pluto's Atmosphere**
D.F. Strobel*, X. Zhu
Johns Hopkins University, USA

1100 M18.3/23202 **The Atmospheric Dynamics of Jupiter, Saturn, and Titan**
F.M. Flasar*
NASA/Goddard Space Flight Center, USA

1130 M18.5/23202 **Formation Mechanisms of Jets and Equatorial Superrotation on Giant Planets**
T. Schneider*, J. Liu
California Institute of Technology, USA

1145 M18.6/23202 **Chemical Reactions in Titan's Upper Ionosphere**
D.L. Huestis*
SRI International, USA

1030-1200 **524ab**
Session: Gravity Waves/Tides
Chair: Bruce Sutherland

1030 M01.61/23203 **Observed and Modeled Variability of the Migrating and Non-migrating Diurnal Tides**
R.R. Garcia*, D.R. Marsh, A.K. Smith
National Center for Atmospheric Research, USA

1100 M01.63/23203 **Meteor Radar Observation of Gravity Wave-Tidal Interaction in the MLT region over Low Latitude**
T.M. Antonita*, V.S.G. Ramkumar, K. Kishore Kumar
Space Physics Laboratory, Vikram Sarabhai Space Center, ISRO, India

1115 M01.64/23203 **The Roles of 3-dimensional Propagating Gravity Waves and Equatorial Trapped Gravity Waves on Driving the Quasi Biennial Oscillation: A study of High Resolution Atmospheric General Circulation Model**
Y. Kawatani*, K. Sato, T.J. Dunkerton, S. Miyahara, M. Takahashi, S. Watanabe
Frontier Research Center for Global Change, Japan Agency for Marine-Earth Science and Technology (FRCGC/JAMSTEC), Japan

1130 M01.65/23203 **Measurements of Short Period Gravity Wave Variances and Momentum Fluxes Generated by Deep Tropical Convective Events using Gadanki MST Radar**
P.V. Kumar*, G. Dutta
Geethanjali Institute of Science and Technology, India

1145 M01.66/23203 **Gravity Wave Characteristics using High-resolution GPS-sonde Ascents over Tropical Marine Region (5-22 N, 57-93°E)**
D.P. Alappattu*, T.M. Anonita, P.K. Kunhikrishnan
Space Physics Laboratory, Vikram Sarabhai Space Center, India

1030-1200 **524c**
Session: Laboratory Studies
Chair: Paul DeMott

1030 M12.1/23204 **Laboratory Studies of Ice Nucleation on Mineral Dust Particles**
A.K. Bertram*, M.L. M. L. Eastwood, S. Cremel, M. Wheeler, D. Chernoff, B.J. Murray, E. Girard
University of British Columbia, Canada

1100 M12.3/23204 **Ice Formation via Deposition Mode Nucleation Onto Dust and Organic Particulates**
Z.A. Kanji*, J.P.D. Abbatt
University of Toronto, Canada

1115 M12.4/23204 **The Effect of Coating Layers on the Heterogeneous Ice Nucleation Efficiency of Dust Particles at Mixed-phase Cloud Temperatures**
O. Möhler*, P. Connolly
Forschungszentrum Karlsruhe, Institute for Meteorology and Climate Change, Germany

1130 M12.5/23204 **FROST – Freezing and Activation Abilities of Coated and Uncoated Dust Particles**
D. Niedermeier*, F. Stratmann, R. A. Shaw, D. Covert, Th. F. Mentel, J. Schneider, L. Poulain, E. Hallbauer, H. Wex, FROST-Team
Leibniz Institute for Tropospheric Research, Germany

1145 M12.6/23204 **The Impact of Sulfuric Acid Coatings on the Deposition Ice Nucleation of Mineral Dust Aerosols**
M. Niemand*, O. Möhler, S. Benz, H. Bunz, T. Leisner
Forschungszentrum Karlsruhe, Germany

1030-1200 **520a**
Session: The Southern Ocean: Its Physics, Chemistry, Biology and Links to the Global Climate System
Chair: Zhaomin Wang

1030 P07.1/23214 **Characterizing the Rates of Eddy Stirring in the Southern Ocean**
J. Marshall*
Massachusetts Institute of Technology, USA

1100 P07.3/23214 **Parameterizing Eddy Fluxes in the Antarctic Circumpolar Current: Lessons from Subsurface Floats Deployed in an Eddying Model**
A. Griesel*, S.T. Gille, J. Sprintall, J.L. McClean, J.H. LaCasce, M.E. Maltrud
Scripps Institution of Oceanography, University of San Diego, USA

1115 P07.4/23214 **Equilibrium State, Spin-up and Adjustment of the Antarctic Circumpolar Current**
D. Marshall*, L. Allison, H. Johnson, D. Munday
University of Oxford, UK

1130 P07.5/23214 **Basin and Channel Contributions to a Model Antarctic Circumpolar Current**
L.-P. Nadeau*, D.N. Straub
McGill University, Canada

1145 P07.6/23214 **Observations of Bottom Currents in Drake Passage from cDrake**
T.K. Chereskin*, K.A. Donohue, D.R. Watts, K.L. Tracey, Y.L. Firing, A.L. Fearing
Scripps Institution of Oceanography, USA

*Denotes presenting author.

1030-1200 **516d**
Session: The Variable Atlantic Meridional Overturning Circulation- Characteristics, Causes and Consequences for Climate
Chair: Torsten Kanzow

1030 P10.7/23215 **Multi-decadal Variability of AMOC in the Community Climate System Model Version 3**
Y.-O. Kwon*, C. Frankignoul
Woods Hole Oceanographic Institution, USA

1045 P10.8/23215 **Multidecadal Variability of the North Brazil Current and its Connection to AMOC**
D. Zhang*, M. McPhaden
JISAO/UW and NOAA/PMEL, USA

1100 P10.9/23215 **On the Variability of Gulf Stream Transport from Seasonal to Decadal Timescales**
T. Rossby*, C. Flagg, K. Donohue
University of Rhode Island, USA

1115 P10.10/23215 **The Warm-water Route through the Intra-Americas Sea: Transports of the Yucatan and Florida Currents**
L.M. Beal*, C. Rousset
University of Miami, USA

1130 P10.11/23215 **Deconstructing the Conveyor Belt**
M.S. Lozier*, A.S. Bower, S.F. Gary, C.W. Boning
Duke University, USA

1030-1200 **516e**
Session: Laboratory and Modelling Studies
Chair: James Girton

1030 P04.13/23216 **The Relationship between Downstream and Transverse Velocity Structure, and Vertical Eddy Viscosity, in a Deep Oceanic Density Current in a Narrow Channel**
T.J. Sherwin*
Scottish Association for Marine Science, UK

1045 P04.14/23216 **Plumes vs. Gravity Currents in Oceanic Downslope Flows**
P.G. Baines*
University of Melbourne, Australia and QUEST, Bristol University, UK

1100 P04.15/23216 **The Relationship between Flux Coefficient Gamma and Entrainment Ratio E in Density Currents**
M.G. Wells*, C. Cenedese, C.P. Caulfield
University of Toronto, Canada

1115 P04.16/23216 **Simulation of Dense Water Overflows in an Adaptive Mesh Ocean Model**
L.M. Bricheno*, D.P. Marshall
Atmospheric, Oceanic and Planetary Physics, University of Oxford, UK

1130 P04.17/23216 **Laboratory Models of Dense Flows Under Ice Shelves**
G.F. Lane-Serff*, J.J.H. Buck
University of Manchester, UK

1145 P04.18/23216 **Gravity Currents and Intrusions with Variable Inflow in a Linearly Stratified Ambient**
M. Ungarish*
Technion, Israel

1330-1500 **518ab**
Session: Biogeochemistry and Climate
Chair:TBD

1330 J13.19/23301 **CO2 and O2 Continuous Atmospheric Monitoring in Southern Greenland: New Constraints on Oceanic and Land Biotic Carbon Sinks**
M. Delmotte*, J.-V. Lavric, A.C. Manning, L. Bopp, M. Ramonet, M. Schmidt, W.A. Brand
LSCE (CNRS/CEA/UVSQ), France

1345 J13.20/23301 **Carbon Dioxide and Methane Column-averaged Mixing Ratios from SCIAMACHY**
J.P. Burrows*, M. Buchwitz, O. Schneising, M. Reuter, H. Bovensamnn
Center for Ecology and Hydrology, UK

1400 J13.21/23301 **Inverse Modeling of Methane Flux Using Ground- and Space-Based Measurerments**
L. Neef*, M. van Weele, P. van Velthoven
Royal Dutch Meteorological Institute, The Netherlands

1330-1500 **519ab**
Session: Tropical Variability
Chair: Shang-Ping Xie

1330 J09.31/23305 **Roles of Coupled Ocean-atmosphere Dynamics in the Decadal Variability of Tropic and North Pacific**
F.-F. Jin*
Department of Meteorology, University of Hawaii, USA

1400 J09.33/23305 **The Low-frequency Approximation: A Rigorous Framework for Describing the Dynamics of ENSO and Decadal Climate Variability in the Tropics**
A. Fedorov*
Yale University, USA

1415 J09.34/23305 **Interdecadal Changes in Southern Hemisphere Circulation, Storms and Rainfall**
J.S. Frederiksen*, C.S. Frederiksen
CSIRO Marine and Atmospheric Research, Australia

1330-1500 **520f**
Session: Arctic Ocean Modeling
Chair: Andrey Proshutinsky

1330 J02.13/23306 **Effect of Physical Description of Sea-ice on the Modeling Capabilities of the Recent Changes in the Arctic Ocean**
J Haapala*, I Heiler
Finnish Meteorological Institute, Finland

1345 J02.14/23306 **Simulating the Mass Balance and Salinity of Arctic and Antarctic Sea Ice with NEMO-LIM3**
T. Fichefet*, M. Vancoppenolle, H. Goosse, S. Bouillon, G. Madec, M.A. Morales Maqueda
Université Catholique de Louvain, Institut d'Astronomie et de Géophysique Georges Lemaître, Belgium

1400 J02.15/23306 **Grease Ice in Ocean Models - Why it Should be Done and How to Do It**
L.H. Smedsrud*, J. Debernard
Bjerknes Centre for Climate Research, Norway

1415 J02.16/23306 **Arctic Oscillation and Dipole Anomaly and their Contribution to Sea Ice Export: A Climate Modeling Study for the Period 1900-2010**
J. Wang*, E. Watanabe
NOAA Great Lakes Environmental Research Laboratory, USA

1430 J02.17/23306 **Present and Future Roles of the Atmospheric Forcing on Fram Strait sea ice export.**
M. Tsukernik*, C. Deser, M. Alexander, R. Tomas
NCAR, USA

1445 J02.18/23306 **Reproduction of Ocean and Sea Ice Variability in the Labrador Sea: 1992-2004**
I. Fenty*, P. Heimbach, C. Wunsch
Massachusettes Institute of Technology, USA

1330-1500 **520b**
Session: Ensemble Data Assimilation
Chair: Richard Swinbank

1330 J21.13/23307 **Advanced Data Assimilation: EnKF potential**
E. Kalnay*, H. Li, J. Liu, J.-S. Kang, S.-C. Yang
University of Maryland, USA

1400 J21.15/23307 **Intercomparison of Variational and Ensemble Kalman Filter Data Assimilation Approaches in the Context of Deterministic NWP**
M. Buehner*, P.L. Houtekamer, C. Charette, H.L. Mitchell, B. He
Environment Canada, Canada

1430 J21.17/23307 **Maintaining a Representative Ensemble with the Ensemble Kalman Filter**
H.L. Mitchell*, P.L. Houtekamer
Environment Canada, Canada

1445 J21.18/23307 **Localization of Satellite Radiances for Ensemble Kalman Filters**
W.F. Campbell*, C.H. Bishop
Naval Research Laboratory, USA

1330-1500 **520c**
Session: Atmospheric, Oceanic and Cryospheric Observations of Change
Chair: Shelley Knuth

1330 J01.19/23308 **Atmospheric Circulation Signatures in the Recent Rapid Arctic Climate System Changes: A Synthetic Analysis of Multidisciplinary Data Sets**
X. Zhang*, A. Sorteberg, J. Zhang, R. Gerdes, J.C. Comiso
International Arctic Research Center, University of Alaska Fairbanks, USA

1345 J01.20/23308 **An Observational Climatology of the Terra Nova Bay Region of Antarctica**
S.L. Knuth*, J.J. Cassano
University of Colorado, USA

1400 J01.21/23308 **The Riiser-Larsen Ice Shelf, Antarctica: Satellite Observations and Ice Dynamics Modeling**
M.A. Lange*, S. Klauke, C. Oelke, T. Kleiner
Energy, Environment and Water Research Center, The Cyprus Institute, Cyprus

1415 J01.22/23308 **Spatial Distribution of Accumulation in the Adélie Land - Comparison of the Antarctic GLACIOCLIM-SAMBA Observation Data with Remote Sensing Techniques and High-resolution Climate Models**
C. Agosta*, C. Genthon, V. Favier, G. Krinner, H. Gallée, G. Picard, D. Six
Laboratoire de Glaciologie et Géophysique de l'Environnement CNRS/UJF, France

1430 J01.23/23308 **A Major Storm Event over Southern Baffin Island During the STAR Campaign**
R.E. Martin*, J. Hanesiak
University of Manitoba, Canada

1330-1500 **520de**
Session: Ocean Aspects
Chair: Michael Montgomery

1330 J19.7/23309 **The Fundamental Role of Buoyancy in Tropical Cyclones**
R.K. Smith*, M.T. Montgomery
University of Munich, Germany

1345 J19.8/23309 **Air-Sea Interactions in Tropical Cyclones**
L.K. Shay*
MPO, RSMAS, University of Miami, USA

1415 J19.10/23309 **Tropical Cyclones and Ocean Heat Transport**
R. Ferrari*, M. Jansen
Massachusetts Institute of Technology, USA

*Denotes presenting author.

1430 J19.11/23309 **Intensification of Tropical Cyclones in the Eastern Pacific and its Relationship with Ocean Eddies**
F. Oropeza*, G.B. Raga
Centro de Ciencias de la Atmosfera, Universidad Nacional Autonoma de México, Mexico

1445 J19.12/23309 **The Impact of Tropical Cyclones in Northwest Pacific on the Upper Ocean**
J. Jiang*, Q. Qian, Y. Zhou
Nanjing University, China

1330-1500 525ab
Session: Comparison of Projected Future Climate Change to Warm Intervals in Earth History II
Chair: Alan Haywood / Arne Winguth

1330 J07.7/23310 **Modelling the Glacial-Interglacial Cycle**
P.J. Valdes*, J.S. Singarayer
School of Geographical Sciences, University of Bristol, UK

1352 J07.9/23310 **Pliocene (mid-Piacenzian) Warmth and the Relationship to Future Climate**
H. Dowsett*, M. Robinson, A. Haywood, M. Chandler, K. Foley, D. Hill, D. Lunt, U. Salzmann, L. Sohl, M. Williams,
US Geological Survey, USA

1415 J07.10/23310 **A Taxonomy of Climate Sensitivities**
G. Schmidt*
NASA GISS, USA

1430 J07.11/23310 **Warm Paleocene/Eocene Climate and its Sensitivity to Atmospheric pCO2 as Simulated in ECHAM5/MPI-OM**
M. Heinemann*, J. Jungclaus, J. Marotzke
Max Planck Institute for Meteorology, Germany

1445 J07.12/23310 **A Re-examination of Paleocene-Eocene Thermal Maximum Carbon Emission Estimates**
D.A. Carozza*, L.A. Mysak
McGill University, Canada

1330-1500 516c
Session: Characteristics and Mechanism of Monsoon Variability from Various Time Scales
Chair: Tomohiko Tomita

1330 J17.55/23311 **A Metric to Evaluate Simulations of the Tropical Intraseasonal Variability**
J.P. Duvel*, P.K. Xavier, F. Doblas Reyes
LMD, France

1345 J17.56/23311 **The Intraseasonal Variability of the Indian Summer Monsoon in the High-Resolution HadKPP Coupled Model**
N.P. Klingaman*, H. Weller, S.J. Woolnough, P.M. Inness, J.M. Slingo
University of Reading, UK

1400 J17.57/23311 **Definition and Predictability of Monsoon Intraseasonal Oscillation Index**
J.-Y. Lee*, B. Wang, X. Fu, D. Waliser, H.-M. Kim
UH/IPRC, USA

1415 J17.58/23311 **Radar Observation of Nocturnally Developed Coastal Convections along Sumatera Island, Indonesia, and Its Comparison to Coastal Heavy Rain bands in Asian Monsoon Region**
S. Mori*, N. Sakurai, J.-I. Hamada, H. Hashiguchi, M. Kawashima, J. Matsumoto, F. Syamsudin, M.D. Yamanaka
JAMSTEC, Japan

1430 J17.59/23311 **Moving Precipitation Systems over the Northern Bay of Bengal**
T. Satomura*
Graduate School of Science, Kyoto University, Japan

1445 J17.60/23311 **Seasonal March, Intraseasonal Variations and Diurnal Cycles over the Maritime Continent Observed by HARIMAU Radar-Profiler Network**
M.D. Yamanaka*, H. Hashiguchi, S. Mori, P.-M. Wu, F. Syamsudin, T. Manik, J.-I. Hamada, N. Sakurai, M. Kawashima, Y. Fujiyoshi
IORGC/JAMSTEC, Japan

1330-1500 516a
Session: Intracrystalline Processes
Chair: Thomas Kaempfer

1330 C03.7/23312 **Behavior of Dislocations and other Lattice Defects in Ice Sheets: Toward Nanoglaciology**
T. Hondoh*
Institute of Low Temperature Science, Hokkaido University, Japan

1400 C03.9/23312 **An X-ray Study of Dry-snow Deformation Mechanisms at the Grain Scale**
J. Meyssonnier*, A. Philip, S. Rolland du Roscoat, W. Lüdwig, F. Flin, B. Lesaffre
LGGE, CNRS-UJF, France

1430 C03.11/23312 **Deformation and Recrystallization Microstructures in Polar Ice (EPICA-DML ice core)**
I. Weikusat*, A. Miyamoto, M. Drury, S. Kipfstuhl, S.H. Faria, N. Azuma
AWI, Germany

1445 C03.12/23312 **Recrystallization Regimes in Cold Basal Ice from Antarctic Glaciers**
D. Samyn*, A. Svensson, S.J. Fitzsimons
Université Libre de Bruxelles, Belgium

1330-1500 **516b**
Session: Changes in Glaciers in Different Climate Regimes
Chair: Michael Kuhn

1330 C04.7/23313 **Spaceborne Remote Sensing of Glacier Mass Changes and Glacier Dynamics. Methods, Accuracies and Applications**
A. Kääb*
University of Oslo, Norway

1400 C04.9/23313 **Monitoring Area Changes of Norwegian Glaciers using Landsat Imagery- An Overview**
L.M. Andreassen*, J.E. Hausberg, F. Paul
Norwegian Water Resources and Energy Directorate, Norway

1415 C04.10/23313 **Variability of Glacier Changes under Different Climatic Regimes - A Comparison of the Canadian Cordilleran with the Mountains of High Asia**
T. Bolch*, B. Menounos, R. Wheate, M.F. Buchroithner
TU Dresden, Germany

1430 C04.11/23313 **Recent Retreat of Brown Glacier. Heard Island**
S. Donoghue*, I. Allison
Antarctic Climate and Ecosystem Cooperative Research Centre, Australia

1445 C04.12/23313 **Climate and Glacier Changes in the Peruvian Andes and the Nepal Himalayas using Remote Sensing, GIS Methods and Field-based Measurements**
A. Racoviteanu*, Y. Arnaud, M. Williams
Dept of Geography and INSTAAR, USA

1330-1500 **518c**
Session: Comparative Atmospheres of the Giant Planets and their Satellites
Chair: Athena Coustenis

1330 M18.7/23302 **Titan's Detached Haze Layer and Aerosol Formation**
P. Lavvas*, R.V. Yelle, V. Vuitton
Lunar and Planetary Laboratory, University of Arizona, USA

1400 M18.9/23302 **Experimental Simulations of the Initial Steps of the Ion-Molecule Reactions Occurring in the Ionosphere of Titan**
V. Vuitton*, R. Thissen, O. Dutuit, P. Lavvas, M.A. Smith, P. Pernot, J. Lemaire, C. Dehon, D. Catone, S. Turchini
Université J. Fourier & CNRS, France

1415 M18.10/23302 **Modelling Chemistry Variations in Titan's Neutral Atmosphere**
A. Coustenis*, D.E. Jennings, C.A. Nixon, S. Vinatier, G. Bjoraker, P. Lavvas, N. Teanby, E. Lellouch, M. Flasar, A. Simon-Miller
LESIA, Paris-Meudon Observatory, France

1430 M18.11/23302 **The Origin, Evolution, and Cycles of Volatiles on Titan**
S.K. Atreya*, H.B. Niemann
University of Michigan, USA

1330-1500 **524ab**
Session: Gravity Waves (3)
Chair: Rolando Garcia

1330 M01.67/23303 **Gravity Wave Activity in the Arctic Middle Atmosphere during the 2003-2004 Winter**
R.L. Collins*, B. Thurairajah, V.L. Harvey, R.S. Lieberman
Geophysical Institute, University of Alaska, USA

1345 M01.68/23303 **Internal Waves Generated by Convective Plumes**
B.R. Sutherland*, J.K. Ansong
University of Alberta, Canada

1400 M01.69/23303 **Gravity Waves Produced by Potential Vorticity Anomalies**
F. Lott*, R. Plougonven, J. Vanneste
Ecole Normale Supérieure, France

1415 M01.70/23303 **Observations of Variability in the Polar Upper Troposphere and Stratosphere Using GPS Radio Occultation Data**
K.M. Grise*, D.W.J. Thompson
Colorado State University, USA

1430 M01.71/23303 **The Waves and Coupling Processes Theme at the Polar Environment Atmospheric Research Laboratory (PEARL): Instrumentation, Observations and Science**
W.E. Ward*, A. Manson, Y.-M. Cho, C. Meek, D. Veselinovic, D.Y. Wang, M. Shepherd, R.J. Sica, K. Strawbridge, K. Strong
University of New Brunswick, Canada

1445 M01.72/23303 **Characteristics of High Frequency Gravity Waves Generated by Tropical Deep Convection: Case Studies**
M.C. Ajay Kumar*, G. Dutta
Vanjari Seethaiah Memorial Engineering College, India

1330-1500 **524c**
Session: Laboratory and Ground-based Studies
Chair: Ottmar Möhler

1330 M12.7/23304 **Investigating the Ice Nucleation Behavior of Dust Particles**
G. Kulkarni*, S. Dobbie, D. Cziczo
Pacific Northwest National Laboratory, USA

1345 M12.8/23304 **A Comparison Between Ice Nucleation Activities of Bacteria Isolated from Snow and Organic/Inorganic Substrates**
R. Mortazavi*, C.T. Hayes, P.A. Ariya
McGill University, Canada

*Denotes presenting author.

1400 M12.9/23304 **Modeling Heterogeneous Ice Nucleation of Meteoritic Smoke Particle Surrogates**
P. Connolly*, M.W. Gallagher, R. Saunders, J. Plane, O. Moehler, M. Schnaiter
Centre for Atmospheric Science SEAES University of Manchester, UK

1415 M12.10/23304 **Water Uptake Impedance of Glassy Organic Aerosols**
B. Zobrist*, U.K. Krieger, B.P. Luo, T. Koop, C. Marcolli, V. Soonsin, Th. Peter
Institute for Atmospheric and Climate Science, ETH Zurich, Switzerland

1430 M12.11/23304 **Characterization of Ice Nuclei, Ice Particle Residuals and Ambient Aerosol at the High-Alpine Site Jungfraujoch**
J. Curtius*, M. Kamphus, J. Schneider, S. Walter, B. Nillius, U. Bundke, S. Borrmann, D.J. Cziczo, L. Keller, S. Mertes, A. Worringen, M. Ebert, S. Weinbruch, M. Gysel, E. Weingartner, U. Baltensperger, K. Bower, M. Flynn, M. Gallagher
University of Frankfurt, Frankfurt a. M., Germany

1330-1500 **520a**
Session: The Southern Ocean: Its Physics, Chemistry, Biology and Links to the Global Climate System
Chair: David Marshall

1330 P07.7/23314 **Climate Signals in the Antarctic Circumpolar Current: The Role of Meridional Migration**
S.T. Gille*
Scripps Institution of Oceanography, University of California San Diego, USA

1400 P07.9/23314 **The Representation of the Antarctic Circumpolar Current in the IPCC AR4 Climate Models**
T Kuhlbrodt*, J Gregory
Department of Meteorology, NCAS-Climate, University of Reading, UK

1415 P07.10/23314 **The Antarctic Circumpolar Current at the Conrad Rise**
I.J. Ansorge*, J.V. Durgadoo, J.R.E Lutjeharms, A. Biastoch
University of Cape Town, Oceanography, South Africa

1430 P07.11/23314 **Cold Climate Westerly Winds over the Southern Ocean**
L.C. Sime*, C. Le Quere, E.W. Wolff, W.M. Connolley, A. De Boer, L. Bopp
British Antarctic Survey, UK

1445 P07.12/23314 **A Model for Rotating Nonlinear Vortical Patterns and the Antarctic Circumpolar Wave**
O. Derzho*, B. de Young
Institute of Thermophysics, Russia

1330-1500 **516d**
Session: The Variable Atlantic Meridional Overturning Circulation- Characteristics, Causes and Consequences for Climate
Chair: Arne Biastoch

1330 P10.13/23315 **Transports Across and North of the A25-OVIDE Section between 1997 and 2006**
P. Lherminier*, H. Mercier, C. Gourcuff, N. Daniault, F.F. Pérez
Ifremer, France

1345 P10.14/23315 **Continuous, Array-based Estimates of Atlantic Ocean Heat Transport at 26.5°N**
L. Beal*, W. Johns, M. Baringer, T. Kanzow, H. Bryden, S. Cunningham, J. Hirschi, J. Marotzke, C. Meinen, R. Curry
Rosenstiel School of Marine and Atmospheric Science, University of Miami, USA

1400 P10.15/23315 **Variability of the Atlantic Meridional Overturning Circulation Observed at 16 N**
U. Send*, M. Lankhorst, T. Kanzow
Scripps Institution of Oceanography, USA

1415 P10.16/23315 **Subseasonal to Seasonal Variability of the Atlantic Meridional Overturning Circulation at 26.5 N**
T. Kanzow*, S.A. Cunningham, J.J-M. Hirschi, H.L. Bryden, W.E. Johns, L.M. Beal, M.O Baringer, C.S. Meinen, J. Marotzke, M-P. Chidichimo
Leibniz-Institut für Meereswissenschaften, Germany

1430 P10.17/23315 **Variability of the Oceanic Heat Transport in the Subtropical and Subpolar Gyre**
S. Hüttl-Kabus*, M. Rhein
Institut für Umweltphysik, Universität Bremen, Germany

1445 P10.18/23315 **Spacebased Observation of Atlantic Meridional Heat Transport**
W.T. Liu*, X. Xie
Jet Propulsion Laboratory - Caltech, USA

1330-1500 **516e**
Session: Abyssal Overflows and Currents
Chair: James Girton

1330 P04.19/23316 **Topographic Effects on Bottom Water Formation in the Southern Weddell Sea**
Y. Matsumura*, H. Hasumi
Center for Climate System Research, University of Tokyo, Japan

1345 P04.20/23316 **Impact of Tides on a Dense Water Outflow from the Antarctic Continental Shelf**
L. Padman*, R.D. Muench, S.L. Howard
Earth and Space Research, USA

1400 P04.21/23316 **Competing Overflows into the Deep Sulu Sea**
A.L. Gordon*, Z. Tessler
Lamont-Doherty Earth Observatory, USA

1415 P04.22/23316 **Panay Strait Overflow Strength and Variability**
Z. Tessler*, A.L. Gordon
Columbia University, USA

1430 P04.23/23316 **Wind and Buoyancy Forcings of the Simulated Deep Circulation in the Japan/East Sea**
O. Trusenkova*
Pacific Oceanological Institute, Russia

1445 P04.24/23316 **Mixing and Dynamics in the Orkney Passage Outflow**
K.L. Polzin*, A.C. Naveira Garabato
Woods Hole Oceanographic Institution, USA

1630-1800 **519ab**
Session: Tropical Variability
Chair: Masami Nonaka

1630 J09.37/23405 **Application of Conditional Nonlinear Optimal Perturbation to the Study of 'Spring Predictability Barrier' for ENSO events**
W. Duan*, Y. Yu, M. Mu
LASG, Institute of Atmospheric Physics, Chinese Academy of Sciences, China

1645 J09.38/23405 **Central-Pacific ENSO: Generation Mechanism and Inter-basin Interaction**
J.-Y. Yu*, H.-Y. Kao
University of California-Irvine, USA

1700 J09.39/23405 **Observed Tropical Atmosphere-Ocean Interactions in a Conceptual Framework**
D. Dommenget*, M.F. Jansen, N. Keenlyside
MIT, USA

1715 J09.40/23405 **Pacific Climate Variability and Possible Impact on Global Surface CO2 Flux**
H. Okajima*, M. Kawamiya
FRCGC/JAMSTEC, Japan

1630-1800 **520f**
Session: Antarctic Climate Modeling
Chair: John Cassano

1630 J02.19/23406 **The Effects of Tides on Dense Water Formation in Arctic Shelf Seas**
M.A. Morales Maqueda*, C.F. Postlethwaite, G.R. Tattersall, J. Holt, A.J. Willmott
Proudman Oceanographic Laboratory, NERC, UK

1645 J02.20/23406 **The Simulation of Recent Antarctic Climate Change**
J. Turner*
British Antarctic Survey, UK

1715 J02.22/23406 **Antarctic Climate Simulations of the 20th and 21st Centuries Using Modele Atmospherique Regional Forced with LMDZ GCM Output**
I.V. Gorodetskaya*, H. Gallée, G. Krinner
LGGE/CNRS, France

1730 J02.23/23406 **Intra-annual Relationships between Polar Ozone and the SAM in Observations and a Chemistry Climate Model**
J. Perlwitz*, R.L. Fogt, S. Pawson, M.A. Olsen
NOAA Earth System Research Laboratory, USA

1745 J02.24/23406 **Can the Increase of Polar Stratospheric Clouds Explain the Antarctic Winter Tropospheric Warming?**
T.A. Lachlan-Cope*
British Antarctic Survey, UK

1630-1800 **520b**
Session: Mesoscale and Earth System Applications
Chair: William Lahoz

1630 J21.19/23407 **Application of an Ensemble-Kalman Filter in Mesoscale and Regional-scale Data Assimilation**
Z. Meng*, F. Zhang, Y. Weng
Peking University, China

1700 J21.21/23407 **The Ensemble Kalman Filter Data Assimilation System at the Naval Research Laboratory**
Q. Zhao*, K. Sashegyi, T. Holt, C. Bishop, F. Zhang, Q. Xu
Naval Research Laboratory, USA

1715 J21.22/23407 **Short-term Explicit Forecasting and Nowcasting of Convection Systems with WRF a Hybrid Radar Data Assimilation Scheme**
W. Yu*, Y. Liu, T.T. Warner, J. Sun, Q. Xiao, J. Pace
National Center for Atmospheric Research, USA

1730 J21.23/23407 **Calibration Methodologies for Computationally Expensive Earth System Models**
T. Hauser*, L. Tarasov
Memorial University Newfoundland, Canada

1745 J21.24/23407 **Optimizing Land Surface Parameters through Assimilating Remotely Sensed Data with Ensemble Kalman Filter**
X. Mo*
Institute of Geographical Sciences and Natural Resources Research, CAS, China

*Denotes presenting author.

1630-1800 **520de**
Session: Climate Aspects
Chair: Nick Shay

1630 J19.13/23409 **The Horizontal Advection on the Upper Ocean due to Tropic Cyclone**
L. Sun*, Y.-J. Yang, Y.-F. Fu, Q. Liu
Laboratory of Satellite Remote Sensing and Climate Environment, School of Earth and Space Sciences, University of Science and Technology of China, China

1645 J19.14/23409 **Responses of Coastal Waves on a Typhoon Intensified under Warming of Sea Surface Temperature**
W. Sasaki*, S. Suzuki, S. Shimizu
Frontier Research Center for Global Change, JAMSTEC, Japan

1700 J19.15/23409 **Hurricanes and Global Warming: A Review of Recent Science Advances**
T.R. Knutson*
GFDL/NOAA, USA

1715 J19.16/23409 **Study on the Differences Among Three Tropical Cyclone Datasets for the Northwest Pacific**
F. Ren*, G. Wu, J. Liang
National Climate Center, P.R. China

1730 J19.17/23409 **Climate Variation and Prediction of Rapid Intensification in Tropical Cyclones in the Western North Pacific**
B. Wang*, X. Zhou
UH/IPRC, USA

1745 J19.18/23409 **The Effect of Typhoon-Wave Interaction on the Wind Structure of Typhoon in the South China Sea**
C. Liu*, Y. Qi
LED, South China Sea Institute of Oceanology, Chinese Academy of Sciences, China

1630-1800 **525ab**
Session: Model Evaluation Metrics and Analysis Techniques
Chair: Vladimir Kattsov / Neil Holbrook

1630 J11.1/23410 **The Purpose, Design and Limitations of Performance Metrics for Climate Models**
P.J. Gleckler*, K.E. Taylor
Lawrence Livermore National Laboratory, USA

1700 J11.3/23410 **Assessing the Marine Biogeochemistry Component of Coupled Carbon-Climate Models**
A. Oschlies*, I. Kriest, S. Khatiwala
IFM-GEOMAR, Germany

1730 J11.5/23410 **Improved Regional Climate Change Projections Based on a New Set of Regions**
I. Mahlstein*, R. Knutti
Institute for Atmospheric and Climate Science, ETH, Switzerland

1745 J11.6/23410 **The Role of the Climate Models Mean State Biases in Climate Sensitivity Uncertainties**
D. Dommenget*
IFM-GEOMAR, Germany

1630-1800 **516c**
Session: Monsoon Observations, Modelling and Prediction
Chair: June-Yi Lee

1630 J17.61/23411 **Trigger Mechanisms of Rainfall Events in China Induced by Dry Intrusion during Monsoon Period**
S. Gao*
Institute of Atmospheric Physics, Chinese Academy of Sciences, China

1645 J17.62/23411 **Structure and Evolution of Precipitation Systems during the Onset of the 2008 Western North Pacific Summer Monsoon**
B. Geng*, K. Yoneyama, R. Shirooka, M. Yoshizaki
Japan Agency for Marine-Earth Science and Technology, Japan

1700 J17.63/23411 **Relationships between Gulf of California Moisture Surges and Mesoscale Convection Derived from Multi-Year Goes Imagery Archives and North American Regional Reanalysis Data**
J. Mejia*, M. Douglas
CIMMS, USA

1715 J17.64/23411 **The South China Sea Summer Monsoon Onset in 2006 Triggered by the Typhoon Chanchu**
J. Mao*, G. Wu
LASG, Institute of Atmospheric Physics, Chinese Academy of Sciences, China

1730 J17.65/23411 **Monsoon Moisture Transport and Precipitation Jump in Sahel**
W. T. Liu*, X. Xie
Jet Propulsion Laboratory - Caltech, USA

1630-1800 **516a**
Session: Inter-grain and Intracrystalline Processes
Chair: Denis Samyn

1630 C03.13/23412 **On the Interpretation of Crystal Orientation Fabric and Crystal Size Change in the Upper Layers of Polar Ice Masses**
T.H. Jacka*
Australia

1700 C03.15/23412 **Predicting Cone Resistance in Dry Snow via Cavity Expansion**
A.B. McCallum*
Scott Polar Research Institute, UK

1715 C03.16/23412 **Meteoric and Marine Ice Crystal Orientation Fabric Observations from the Amery Ice Shelf, East Antarctica**
A. Treverrow*, R.C. Warner, W.F. Budd, M. Craven
Institute for Antarctic and Southern Ocean Studies, Australia

1730 C03.17/23412 **Snowpack Forecasting for Areas of Sparse Observations**
M. Smith*, B. Jamieson, C. Fierz, M. Lehning
University of Calgary, Canada

1630-1800 516b
Session: Changes in Glaciers in Different Climate Regimes
Chair: Jon Ove Hagen

1630 C04.13/23413 **Glacier Wastage in the Wrangell Mountains, Alaska, USA, using Airborne Laser Altimetry and Mass Balance Modeling**
R. Hock*, I. Das, T. Schuler
Geophysical Institute, University of Alaska, USA,

1645 C04.14/23413 **Changes in Mass Balance, Snow Cover and Runoff in the Austrian Alps, 1961 - 2005**
M. Kuhn*, M. Olefs, J. Abermann, A. Fischer
Institute of Meteorology and Geophysics, University of Innsbruck, Austria

1700 C04.15/23413 **Changes with Elevation in the Energy Balance of an Andean Glacier, Juncal Norte Glacier, Dry Andes of Central Chile**
F. Pellicciotti*, M. Carenzo, J. Helbing, R. Garrido, P. Burlando
Institute of Environmental Engineering (ETH), Switzerland

1715 C04.16/23413 **Distributed Modelling of the Energy Balance and Ablation on Juncal Norte Glacier, Dry Andes of Central Chile**
M. Carenzo*, R. Dadic, F. Pellicciotti, J. Helbing, J. Marin, J. Araos, A. Rivera
Institute of Environmental Engineering (ETH), Switzerland

1730 C04.17/23413 **A Process-Based Study of Glacier Changes on Kilimanjaro (Equatorial Africa)**
T. Moelg*, N.J. Cullen, D.R. Hardy, G. Kaser
University of Innsbruck, Austria

1745 C04.18/23413 **Mass Balance Determination of Hinarche Glacier, Bagrot Valley, Karakoram, Pakistan**
F. Bashir*, G. Rasul
Pakistan Meteorological Department, Pakistan

1630-1800 518c
Session: Comparative Atmospheres of the Giant Planets and their Satellites
Chair: Sushil Atreya

1630 M18.13/23402 **Ice-Hydrocarbons Interaction under Titan-like Conditions: Implications for the Carbon Cycle on Titan**
C. Sotin*, M. Choukroun, C. Neish, M. Barmatz, J. Lunine, K. Mitchell, R. Mielke
Jet Propulsion Laboratory - Caltech, USA

1653 M18.14/23402 **Spatial and Temporal Variability in the Atmospheres of Uranus and Neptune from Spitzer and Ground-Based Thermal Infrared Observations**
G. Orton*, L. Fletcher, A. Mainzer, M. Line, C. Merlet, T. Encrenaz, C. Leyrat, P. Yanamandra-Fisher, O. Mousis, J. Moses
Jet Propulsion Laboratory - Caltech, USA

1715 M18.16/23402 **Connecting Atmospheres and Astrobiology in the Jovian System**
K. Hand*
Jet Propulsion Laboratory - Caltech, USA

1745 M18.18/23402 **Odin Monitoring of H_2O in the Stratosphere of Jupiter: Constraints on its Origin**
T. Cavalié*, P. Hartogh, N. Biver, M. Dobrijevic, F. Billebaud, E. Lellouch, A. Sandqvist, The Odin Team
Max Planck Institute for Solar System Research, Germany

1630-1800 524ab
Session: Stratosphere-troposphere Coupling (1)
Chair: Theodore Shepherd

1630 M05.1/23403 **Stratosphere-Troposphere Coupling: The Long-Term Perspective**
S. Brönnimann*, A. Fischer
Institute for Atmospheric and Climate Science, ETH Zurich, Switzerland

1700 M05.3/23403 **Inter-hemispheric Stratosphere-troposphere Coupling in the Polar and Equatorial Regions**
K. Kodera*, M. Inaba
Solar-Terrestrial Environment Laboratory, Nagoya University, Japan

1730 M05.5/23403 **Stratosphere-troposphere Dynamical Coupling: A Robust Coupled Mode of the Earth's Atmosphere?**
U. Langematz*, P. Sinigoj, T. Spangehl, U. Cubasch
Freie Universität Berlin, Germany

1745 M05.6/23403 **Observed Stratospheric Downward Reflection, and its Relation to Upward Pulses of Wave Activity**
N. Harnik*
Tel Aviv University, Israel

*Denotes presenting author.

1630-1800 **524c**
Session: Field Studies
Chair: Andrew Heymsfield

1630 M12.13/23404 **Measurements of IN Properties at the High Alpine Station Jungfraujoch**
C. Chou*, O. Stetzer, U. Lohmann
Institute for Atmospheric and Climate Science, ETH Zurich, Switzerland

1645 M12.14/23404 **Insights into Ice Nucleation from Comparisons of Flight-based Measurements of Aerosol Chemistry and Ice Nuclei Concentrations**
K.A. Pratt*, P.J. DeMott, S.M. Murphy, C.H. Twohy, J.H. Seinfeld, K.A. Prather
University of California, USA

1700 M12.15/23404 **Ice Crystal Habits in AIDA Obtained with the HOLographic Instrument for Microscopic Objects (HOLIMO) Related to Depolarization Measurements**
P. Amsler*, O. Stetzer, U. Lohmann, M. Schnaiter
ETH Zurich, Switzerland

1715 M12.16/23404 **Multi-Project Analyses of Ice Nuclei Relation to Other Aerosols and Ice in Clouds**
P.J. DeMott*, A.J. Prenni, T. Eidhammer, C.H. Twohy, J.L. Stith, M.D. Petters, D.C. Rogers, S.M. Kreidenweis, M.S. Richardson, A.J. Heymsfield
Colorado State University, USA

1730 M12.17/23404 **Are Deposition and Condensation Freezing Relevant Atmospheric Processes? Lidar Observations in Tropical Altocumulus During SAMUM 2008**
A. Ansmann*, M. Tesche, P. Seifert, D. Althausen, D. Müller, R. Engelmann, J. Fruntke
Leibniz Institute for Tropospheric Research, Germany

1745 M12.18/23404 **Observations of the Ice Particle Fluxes Falling from Persistent Supercooled Layer Clouds and Implications for Nucleation Processes**
A.J. Illingworth*, C.D. Westbrook
University of Reading, UK

1630-1800 **520a**
Session: The Southern Ocean: Its Physics, Chemistry, Biology and Links to the Global Climate System
Chair: Mike Meredith

1630 P07.13/23414 **Changes in the Weddell Sea Outflow**
K.J. Heywood*, A.F. Thompson, E. Fahrbach
University of East Anglia, UK

1700 P07.15/23414 **Evidence of Decadal Fluctuations in the Water Mass Properties in the Weddell Sea**
E. Fahrbach*, O. Boebel, M. Hoppema, O. Klatt, G. Rohardt, A. Wisotzki
Alfred-Wegener-Institut für Polar- und Meeresforschung, Germany

1730 P07.17/23414 **Antarctic Bottom Water Production from the Ross Sea during Feb 2006 - Feb 2008**
A. Bergamasco*, S. Aliani, K. Schroeder
CNR-ISMAR, Italy

1745 P07.18/23414 **Surface Heat Budgets in the Ross and Weddell Seas and their Relationship to Global Climate**
G. Fusco*, G. Aulicino, G. Budillon, Y. Cotroneo, G. Spezie
Università degli Studi di Napoli 'Parthenope', Italy

1630-1800 **516d**
Session: The Variable Atlantic Meridional Overturning Circulation- Characteristics, Causes and Consequences for Climate
Chair: Susan Lozier

1630 P10.19/23415 **On the Energetics of the Ocean Thermohaline Circulation**
R. Tailleux*, J.M. Gregory
University of Reading, UK

1645 P10.20/23415 **Consistency of AMOC State Estimated by Various Ocean Data Assimilation Products**
T. Lee*
Jet Propulsion Laboratory - Caltech, USA

1700 P10.21/23415 **Agulhas Leakage: A Neglected Player in the Variability of the Atlantic Meridional Overturning Circulation**
A. Biastoch*, C.W. Böning, J.R.E. Lutjeharms
Leibniz-Institut Für Meereswissenschaften (IFM-GEOMAR), Germany

1730 P10.23/23415 **Influence of Enhanced Mixing within Southern Ocean Fronts on the Overturning Circulation**
O.A. Saenko*
Canadian Centre for Climate Modelling and Analysis, Canada

1745 P10.24/23415 **Assessment of the Impact of In Situ Data Assimilation on the Atlantic Meridional Overturning Circulation Using the RAPID/MOCHA Array**
G.C. Smith*, K. Haines, T. Kanzow, S. Cunningham
University of Reading, UK

1630-1800 **516e**
Session: Coastal Currents and Large Marine Ecosystems
Chair: Tarsicio Antezana Jerez

1630 P08.1/23416 **Establishing a Basis for Ecosystem Management in the Western Indian Ocean - The Agulhas and Somali Current Large Marine Ecosystem**
I.J. Ansorge*, J.R.E. Lutjeharms, D. Vousden
University of Cape Town, South Africa

1645 P08.2/23416 **The Leeuwin Current and the Oligotrophic Marine Environment off the West Coast of Western Australia**
M. Feng*, A. Waite, P. Thompson
CSIRO Marine and Atmospheric Research, Australia

1700 P08.3/23416 **Four Years of Slope Sea Data from the Oleander's New OS75 ADCP**
C.N. Flagg*, H.T. Rossby, K. Donohue
SoMAS, Stony Brook University, USA

1715 P08.4/23416 **Oceanographic and Biogeographic Divisions along the Latitudinal Range of the Humboldt Current**
T. Antezana*
University of Concepcion, Chile

1730 P08.5/23416 **Coastal Upwelling in Western Boundary Current Regions**
E.J.D. Campos*
University of Sao Paulo, Brazil

*Denotes presenting author.

1500-1630 Exhibit Hall
Poster board numbers are listed in the left margin

J300 J07.1/23417 **Response of Eocene Climate to Greenhouse Gas Forcing – A Model Study with CCSM3**
A. Winguth*, C. Winguth
Dept. of Earth & Environmental Sciences, Arlington, TX, USA

J301 J07.2/23417 **A Carbon Cycle Box Model Study of the Role of Methane during the Paleocene-Eocene Thermal Maximum**
D.A. Carozza*, L.A. Mysak
McGill University, Montréal, Canada

J302 J07.3/23417 **A New Sea-Surface Temperature Perspective on the MIS 11 Based on the Multi-planktonic Foraminiferal Mg/Ca Measurements from the North Atlantic**
H. Rashid*, S. Lodestro, B. Rodgers, M. Smith
Ohio State University, Columbus, USA

J303 J07.4/23417 **Extratropical Teleconnections under an El Padre State during the Middle Pliocene**
S.P. Shukla*, M.A. Chandler, D. Rind, L.E. Sohl, J. Jonas, J. Lerner
Goddard Institute for Space Studies at Columbia University, New York, USA

J304 J07.5/23417 **High Southern Latitude Pliocene Palaeoseasonality Preserved in Shallow Marine Austrochlamys (bivalvia) from the Northern Antarctic Peninsula**
M. Williams*, A. Nelson, J. Smellie, M. Leng, D. Jarram, A. Johnson, A. Haywood, V. Peck, J. Zalasiewicz, C. Bennett
Department of Geology, University of Leicester, Leicester, UK

J305 J07.6/23417 **Simulating the Mid-Pliocene Warm Period: How Similar are the Models?**
A.M. Haywood*, M.A. Chandler, P.J. Valdes, U. Salzmann, B. Otto-Bliesner, N. Rosenbloom, D.J. Lunt, H.J. Dowsett
School of Earth and Environment, University of Leeds, Leeds, UK

J335 J09.1/23417 **Southern Hemisphere Tropical and Extratropical Cyclone Transition and Weather Extremes**
A.B. Pezza*, I. Simmons
University of Melbourne, Australia

J336 J09.2/23417 **An Investigation of Climate Changes Effects by Zooning of Dry Ecosystems**
T. Ensafi Moghaddam*
Research Institute of Forests and Rangelands, Tehran, Iran

J337 J09.3/23417 **Detection of Trends and Abrupt Changes in the Great Lakes Hydro-climatic Variables**
E. Ehsanzadeh*, H.S. Moussa, T.B.M.J. Ouarda, D.H. Burn, O. Seidou, C. Charron, Al. Pietroniro, P. Pilon, D. Lee, T. Yuzyk
Hydro-Quebec/NSERC, University of Quebec, INRS-ETE, Quebec, Canada

J338 J09.4/23417 **Observed and CAM3 GCM Meridional Moisture Transport over South America during Austral Summer: El Niño and PDO Phase Relationship**
G.A.M. da Silva*, T. Ambrizzi
Institute of Astronomy, Geophysics and Atmospheric Sciences, University of São Paulo, Brazil

J339 J09.5/23417 **Key Dynamical Features of the 2005/06 European Winter**
M. Croci-Maspoli*, H.C. Davies
Federal Office of Meteorology and Climatology MeteoSwiss, Zurich, Switzerland

J340 J09.6/23417 **Trends in Extreme Daily Temperature in South West of Iran During Recent Decades**
A. Shakiba*, E. Khalili, A. Dashte Bozorgi
Shahid Beheshti University, Tehran, Iran

J341 J09.7/23417 **Present-day Rainfall Variability over Southern Africa: Influence of Atlantic SST**
C.J.R. Williams*, D.R. Kniveton, R. Layberry
University of Reading, Reading, UK

J342 J09.8/23417 **Inter-Annual, Inter-Decadal and Multi-Decadal Nature of Climate Anomalies Africa: A Theoretical Analysis**
A. Adedoyin*
University of Botswana, Gaborone, Botswana

J343 J09.9/23417 **Contributions of Heat and Wind Forcing to Global Ocean Variations during 1958-2006**
Y. Lu*, D.G. Wright, Z. Wang, F. Dupont
Bedford Institute of Oceanography, Fisheries and Oceans, Dartmouth, Canada

J344 J09.10/23417 **Decadal Variation in the Spring Water Cycle over Southeast China**
R. Zhao*, G. Wu, W. Li
National Meterological Center, China Meteorological Administration, Beijing, China

J345 J09.11/23417 **A Modelling Study of the Responses to MJO Wind Forcing in the Tropical Pacific Ocean**
X. Zhang*, Y. Lu, K. Thompson, J. Jiang, H. Ritchie
Nanjing University, Nanjing, China

J346 J09.12/23417 **Trends and Decadal-Scale Variability of Precipitation in South-East South America during the Last 50 Years in Observations and Models**
M. Khodri*
LOCEAN (IRD), Paris, France

J347 J09.13/23417 **Climate Change Impact on Frequency Analysis of Wind Speed**
S. Eslamian*, H. Hassanzade
Isfahan University of Technology, Iran

J348 J09.14/23417 **A Large-Scale Dynamical Analysis of Global Climate Anomalies in Winter 2007-08**
F. Hosseinpour*, A. Mohebalhojeh, F. Ahmadigivi, E. Erfani
Institute of Geophysics, University of Tehran, Tehran, Iran

J406 J17.1/23417 **Classification of the African Monsoon Dynamics in the Holocene**
W.P. Zheng*, P. Braconnot
Laboratoire des Sciences du Climat et de l'Environnement, UMR 1572 CNRS, CEA UVSQ, Gif-sur-Yvette, France

J407 J17.2/23417 **Decadal Shift at Mid-1990s of the South China Sea Monsoon System**
F. Huang*, S.N. Huang, Y.N. Li, J.S. Dong, B. Wang
Ocean University of China, Qingdao, China

J408 J17.3/23417 **Did the East Asian Westerly Jet Experience a Poleward Displacement during the Past Decades?**
Y. Zhang*
School of Atmospheric Sciences, Nanjing University, Nanjing, China

J409 J17.4/23417 **Impact of QBO on the Onset of South China Sea Summer Monsoon**
M. Jian*, W. Liang
Research Center for Monsoon and Environment,Department of Atmospheric Sciences, Sun Yat-Sen University, Guangzhou, China

J410 J17.5/23417 **Interannual Variations of Low-Frequency Madden-Julian Oscillation in Austral Summer**
T. Izumo*, S. Masson, J. Vialard, C. de Boyer Montegut, S.K. Behera, G. Madec, K. Takahashi, T. Yamagata
FRCGC/JAMSTEC, Yokohama, Japan

J411 J17.6/23417 **Interdecadal Variability of Tropical Cyclone Landfall in the Philippines from 1902 to 2005**
H. Kubota*, J.C.L. Chan
Japan Agency for Marine-Earth Science and Technology, Yokosuka, Japan

J412 J17.7/23417 **Three-dimensional Climatological Distribution of Seasonal Diabatic Heating and Transient Heating**
L.L. Zhang*, X.Q. Yang
Nanjing University, Nanjing, China

J413 J17.8/23417 **Variations of the South China Sea Summer Monsoon Intensity and Its Influences on Summer Precipitation in China**
Z. Yanfeng*, D. Yihui
National Climate Center, China Meteorological Administration, Beijing, China

J414 J17.9/23417 **Seasonal Variability of Stable Isotopes in Precipitation over Indochina Related to the Asian Summer Monsoon**
K. Ichiyanagi*, K. Yoshimura, M.D. Yamanaka, J. Matsumoto
Kumamoto University, Kumamoto, Japan

J415 J17.10/23417 **Vertical Variation of Intra-Seasonal Oscillations during Monsoon: A Wind Profiler Study**
S.M. Deshpande*, P. Ernest Raj, M. Konwar
Indian Institute of Tropical Meteorology, Pune, India

J416 J17.11/23417 **Diurnal Variations in Precipitation Over and Around the Indochina Peninsula Associated with the Large-scale Disturbances**
H.G. Takahashi*
Japan Agency for Marine-Earth Science and Technology (JAMSTEC), Frontier Research Center for Global Change (FRCGC), Yokohama, Japan

J417 J17.12/23417 **Diurnal Variations of Precipitation over the South China Sea Using TRMM Observations**
W. Li*, C. Luo, D. Wang, T. Lei, Z. Liu
Sun Yat-Sen University, Guangzhou, China

J418 J17.13/23417 **Nighttime Precipitation Maximum Observed by Vientian Radar during Boreal Summer Monsoon Period**
T. Satomura*, K. Yamamoto
Graduate School of Science, Kyoto University, Kyoto, Japan

J419 J17.14/23417 **Impact of Latent Heat Flux on Southwest Monsoon during El Nino/La Nina Years**
M.V. Subrahmanyam*, D. Wang
LED, South China Sea Institute of Oceanology, Chinese Academy of Science, Guangzhou, China

J420 J17.15/23417 **Raindrop Size Distributions over a Tropical Station, Pune**
V. Gopalakrishnan*
Indian Institute of Tropical Meteorology, Pune, India

J421 J17.16/23417 **Reinvestigations on East Asian Subtropical Monsoon and Tropical Monsoon**
L. Qi*, J. He
Nanjing University of Information Science and Technology, Jiangsu, China

J422 J17.17/23417 **Surface Observation Network for Heavy Rainfall around Cherrapunji, India**
F. Murata*, T. Terao, Y. Yamane, T. Hayashi, H.J. Syiemlieh, S. Singh, A. Habib,
Kochi University, Kochi, Japan

J423 J17.18/23417 **The Asian Summer Monsoon Simulation using the BCC-CSM Model**
T. Wu*, L. Wang, Z. Wang, W. Li, L. Zhang
Beijing Climate Center, China Meteorological Administration, Beijing, China

*Denotes presenting author.

J424 J17.19/23417 **The Simulation of South American Monsoon System by CPTEC/COLA AGCM**
I. Cavalcanti*, A. Raia
Center for Weather Forecast and Climate Studies, Cachoeira Paulista, SP, Brazil

J425 J17.20/23417 **Two Types of Extreme Winter Cooling in Southern China and their Association with the Stratospheric Polar Vortex**
K. Wei*, W. Chen
Institute of Atmospheric Physics, Beijing, China

J426 J17.21/23417 **Long Range Forecast (LRF) of the Monsoon Rainfall in Nepal**
L.P. Devkota*
Trobhuvan University, Kathmandu, Nepal

J443 J19.1/23417 **A 10-year Comparison between Gravity-Wave Energy and Tropical Cyclone Activities in the South-West Indian Basin**
F. Chane Ming*, C. Ibrahim, Y. Kuleshov, C. Barthe, M. Plu
Laboratoire de l'Atmosphère et de Cyclones (LACy), La Réunion, France

J444 J19.2/23417 **A Dynamically-Based Method for Forecasting Tropical Cyclogenesis Location Using Global Model Products**
Z. Wang*, M.T. Montgomery, T.J. Dunkerton
Naval Postgraduate School, Monterey, USA

J445 J19.3/23417 **Application of an Objective Discriminating Method in the Evolution of Tropical Cyclone during Extratropical Transition Process**
Y. Zhang*, S. Zhang, F. Wang
Hebei Meteorological Observatory, Shijiazhuang, China

J446 J19.4/23417 **Electric Hurricanes**
C. Price*, M. Asfur, Y. Yair
Tel Aviv University, Tel Aviv, Israel

J447 J19.5/23417 **The Possible Role of Aerosols in Reducing Hurricane Intensity by Suppressing Warm Rain**
D. Rosenfeld*, A. Khain, W.L. Woodley, J.H. Golden
The Hebrew University of Jerusalem, Jerusalem, Israel

J448 J19.6/23417 **Cyclonic Precipitation Simulated and Observed**
A. S. Daloz*, F. Chauvin, F. Roux
CNRM (GMGEC), France

J449 J19.7/23417 **Possible Control of Near-surface Wind Distributions in Typhoons by Environmental Vertical Wind Shear**
M. Ueno*
Meteorological Research Institute, Tsukuba, Japan

J450 J19.8/23417 **Relating Distributions of Vertical Velocity and Microphysics to Rapid Intensity Changes of Hurricane Dennis (2005)**
E.C. Meyers*, G.M. McFarquhar, B.F. Jewett, S.W. Nesbitt
University of Illinois at Urbana-Champaign, Urbana, USA

J453 J21.1/23417 **Data Assimilation Experiments for AMMA, Using Radiosonde Observations and Satellite Observations Over Land**
A. Bouchard*, F. Karbou, C. Faccani, F. Rabier, N. Fourrie, A. Agusti-Panareda, J-P Lafore, M-F Nuret-Hdidou, J-L Redelsperger, O. Bock
Meteo France/CNRS, France

J454 J21.2/23417 **The Development of 1D-Var Cloud Microphysics Data Assimilation System (CMDAS) and its Application for Retrieving Cloud Parameter over the Medjerda Basin by AMSR-E Satellite Data Integration**
C. Raza Mirza*, T. Koike, K. Yang, T. Graf
School of Engineering, University of Tokyo, Tokyo, Japan

J455 J21.3/23417 **The Resolution Dependence of Sensitive Areas in Targeted Observations for Tropical Cyclones**
F.F. Zhou*, M. Mu
Chinese Academy of Sciences, Beijing, China

J456 J21.4/23417 **Estimation of fAPAR in Canadian Prairie Using Radiation Model and MODIS Data**
Y. Yang*, S. Wang, Y. Luo, A.P. Trishchenko
Natural Resources Canada, Ottawa, Canada

J457 J21.5/23417 **Monte Carlo Approach to the Decay Rate of a Metastable System with an Arbitrarily Shaped Barrier**
J. Bao*, L. Bi, Y. Jia
Beijing Normal University, Beijing, China

C477 C03.1/23417 **Studying the Microstructural Evolution of Natural Snow Using X-Ray Microtomography and Scanning Electron Microscopy**
S. Chen*, I. Baker
Dartmouth College, Hanover, USA

C478 C03.2/23417 **Combined Seismic and Radar Investigation to Define Ice Properties and Structure of a Cold Alpine Site**
P. Bohleber*, O. Eisen, R. Drews, A. Heilig, C. Hofstede
Institute for Environmental Physics, University of Heidelberg, Heidelberg, Germany

C479 C03.3/23417 **Flow Induced Microstructure in an Alpine Glacier: Ice Core Study of Upper Fremont Glacier, Wyoming**
R. Obbard*, K. Aho, T. Cassano, I. Baker
Dartmouth College, Hanover, New Hampshire, USA

C480 C03.4/23417 **Phase-field Modeling of Dry Snow Metamorphism**
T.U. Kaempfer*, M. Plapp
CRREL, Hanover, USA

C483 C04.1/23417 **Derivation of High Temporal and Spatial Resolution Temperature Fields on and around an Andean Glacier and Their Implication for Ablation Modelling**
F. Pellicciotti*, M. Carenzo, J. Helbing, R. Garrido, P. Burlando
Institute of Environmental Engineering (ETH), Zurich, Switzerland

C484 C04.2/23417 **The GLIMS Glacier Database: Status and Summary Analysis**
B. Raup*, R. Armstrong, S.J.S. Khalsa, A. Racoviteanu
University of Colorado / NSIDC, Boulder, Colorado, USA

C485 C04.3/23417 **Polythermal Structure of some South Shetland Island Glaciers, Antarctica, Inferred from Radio-echo Sounding, Numerical Modelling and Geomorphological Observations**
F.J. Navarro*, M.I. Corcuera, M.L. Cuadrado, J.J. Lapazaran, J. Otero
Universidad Politécnica de Madrid, Madrid, Spain

C486 C04.4/23417 **Mapping the World's Glaciers from Space: First Results from the Project GlobGlacier**
A. Kääb*, F. Paul, G. Bippus, K. Casey, H. Frey, R. LeBris, E. Rinne, H. Rott, A. Shepherd, T. Strozzi
University of Zurich, Zurich, Switzerland

C487 C04.5/23417 **Ice Wastage on the Kerguelen Islands (49°S, 69°E) between 1963 and 2006**
E. Berthier*, R. Le Bris, L. Mabileau, L. Testut, F. Rémy
CNRS-LEGOS, Toulouse, France

C488 C04.6/23417 **Updating Ice Inventories in Glaciers of Central and Southern Chilean Andes**
F. Bown*, A. Rivera, P. Zenteno, C. Bravo
Centro de Estudios Cientificos (CECS), Valdivia, Chile

C489 C04.7/23417 **The Energy Balance and Ablation Regime of Tapado Glacier, in the Arid Andes of Chile**
M. Carenzo*, J. Marin, R. Garrido, F. Pellicciotti, J. Helbing, L. Nicholson, J. Araos, R. Ponce, J.L. Castro, P. Burlando
Institute of Environmental Engineering (ETH), Zurich, Switzerland

C490 C04.8/23417 **On the Ability of Ablation Models to Reproduce the Energy Balance and Ablation Regime at Different Elevations Along a Glacier in the Dry Andes of Central Chile: Results From Two Ablation Seasons**
M. Carenzo*, F. Pellicciotti, J. Helbing, R. Garrido, P. Burlando
Institute of Environmental Engineering (ETH), Zurich, Switzerland

C491 C04.9/23417 **IRD/LGGE Glacier Study Network: Bolivian, Andean and Worldwide Data**
P. Ginot*, B. Francou, E. Ramirez, P. Wagnon, T. Condom, M. Zapata, M. Villacis, E. Cadier, Y. Arnaud, Ch. Vincent
IRD, La Paz, Bolivia

C492 C04.10/23417 **Snow and Ice Working Group of the International Hydrological Programme for Latin America and the Caribbean - UNESCO: Activities and Recent Initiatives**
P. Ginot*, R. Iturraspe, E. Ramirez, J. Simoes, R. Ribeiro, J. Ramirez, F. Bown, B. Caceres, H. Delgado, M. Zapata, E. Carrillo, M.C. Donoso
IRD/IHH, La Paz, Bolivia

C493 C04.11/23417 **Variations in Seasonal Runoff from Juncal Norte Glacier, Dry Andes of Central Chile, and its Implications for Glacier Runoff Modelling**
J. Helbing*, F. Pellicciotti, P. Schneider, M. Carenzo, P. Burlando
Swiss Federal Institute of Aquatic Science and Technology (Eawag), Switzerland

C494 C04.12/23417 **Characterizing the Glacial Contributions to the Headwaters of the Columbia River Basin: Field Studies of the Glaciological and Hydro-meteorological Regime of the Illecillewaet Icefield, British Columbia, Canada**
J.M.R. Hirose*, S.J. Marshall
University of Calgary, Canada

C495 C04.13/23417 **A Mountain Glacier Scheme and Its Preliminary Application in China**
D.Y. Ji*, Y.J. Dai
State Key Laboratory of Earth Surface Processes and Resource Ecology, Beijing Normal University, Beijing, China

C496 C04.14/23417 **A Distributed Surface Energy-Balance Model for Complex Topography and Its Application to Qiyi Glacier in Qilian Mountains, China during the Ablation Season**
X. Jiang*, N.L. Wang, J.Q. He, X.B. Wu
Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences, Lanzhou, China

C497 C04.15/23417 **Modeling Snowdrift Sublimation on Antarctica**
J.T.M. Lenaerts*, M.R. Van den Broeke
IMAU, Utrecht, The Netherlands

C498 C04.16/23417 **Study on the Change of Keqikaer Glacier during the last 30 years, Mt. Tuomuer, Western China**
C. Xie*, L. Zhao, T. Wu
Cold and Arid Regions Environmental and Engineering, Lanzhou, China

*Denotes presenting author.

C499 C04.17/23417 **Glacier Hydrology of the Rio Nef Basin (Northern Patagonia Icefield - Chile)**
G. Casassa*, P. Lopez, F. Delclaux, B. Pouyaud
Centro de Estudios Cientificos (CECS), Valdivia/ Montpellier, France

C500 C04.18/23417 **A Research on Glacial Variability on Tibetan Plateau over the Last Century**
J.C. Pu*, T.D. Yao, N.L. Wang, Z. Su
Cold and Arid Regions Environmental and Engineering Research Institute, CAS, Lanzhou, China

C501 C04.19/23417 **Characteristics of Winter Mass Balance of Glacier No.1 at the Headwaters of the Urumqi River, Tianshan Mountains**
H. Tianding*, D. Yongjian, Y. Baisheng, J. Keqin
Cold and Arid Regions Environmental and Engineering Research Institute, CAS, Lanzhou, Gansu, China

C502 C04.20/23417 **The Experimental Simulation of Snowmelt Runoff in the Keqicar Baqi Glacier Basin, Southwestern Tianshan Mountains**
J. Li*, S. Liu, Y. Zhang, Q. Liu, J. Xu, Y. Zhang, P. Yu,
State Key Laboratory of Cryosphere Science Cold & Arid Regions Environmental & Engineering Research Institute, Chinese Academy of Sciences, Lanzhou, China

C503 C04.21/23417 **The Glacier Recession in the Sierra Nevada de Merida. Venezuelan Western Retroceso Glaciar en la Sierra Nevada de Mérida. Occidente de Venezuela**
O.A. Guerrero*, G. Guerrero C., L.J. Quintero D., O. Guerrero C
Universidad de los Andes, Mérida, Venezuela

C504 C04.22/23417 **Movement and Variation of Several Typical Glaciers in China under the Background of Climate Change**
J. Zhefan*, W. Ninglian, Q. Xiang
Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences, Lanzhou, Gansu, China

C505 C04.23/23417 **Glacier Decline between 1963 and 2006 in the Cordillera Real, Bolivia**
A. Soruco*, C. Vincent, B. Francou, J.F. Gonzalez
Institut de Recherche pour le Développement, Saint Martin d'Hères, France

M519 M01.1/23417 **Weakly Nonlinear Internal Gravity Waves in an Anelastic Fluid**
H.V. Dosser*, B.R. Sutherland
University of Alberta, Edmonton, Canada

M520 M01.2/23417 **High Resolution Observations of Turbulence in the Troposphere and Lower Stratosphere over Gadanki**
H. Aleem Basha*, M.K.A. Afsar, S. Md, G. Dutta
Maulana Azad National Urdu University, Gachibowli, Hyderabad, India

M521 M01.3/23417 **Long -Term Mean Vertical Velocity Measured by MST Radar at Gadanki (13.5 °N, 79.2 °E)**
P.V. Rao*, G. Dutta
Vasavi College of Engineering, Hyderabad, India

M522 M01.4/23417 **On the Estimation of Uncertainties of Wave Activity in the Upper Troposphere and Lower Stratosphere and its Application to a Relative Temperature Variance Climatology**
A. de La Torre*, P. Llamedo, P. Alexander, T. Schmidt, J. Wickert
CONICET, FCEN, Universidad de Buenos Aires, Argentina

M523 M01.5/23417 **Observed Characteristics of Gravity Waves in the Southern Polar Stratosphere, and Implications for their Parameterization in Global Circulation Models**
A. Hertzog*, F. Lott, R. Plougonven, F. Vial, R. Vincent, Ph. Cocquerez
Laboratoire de météorologie dynamique, Palaiseau, France

M524 M01.6/23417 **Diurnal and Semidiurnal Tides Observed by an MF Radar at Syowa Antarctic Station**
Y. Tomikawa*, M. Tsutsumi
National Institute of Polar Research, Tokyo, Japan

M525 M01.7/23417 **Investigations on the MLT Region Horizontal Structures within the Radar Volume using All-sky SKiYMET Meteor Wind Radar at Trivandrum (8.5 N, 77 E)**
M. Antonita*, K. Kishore Kumar
Space Physics Laboratory, Vikram Sarabhai Space Center, ISRO, Thiruvananthapuram, India

M526 M01.8/23417 **Gravity Wave and Planetary Wave Interactions in the Low Latitude MLT region: A Study using Meteor Radar Observations**
T.M. Antonita*, G. Ramkumar, K. Kishore Kumar
Space Physics Laboratory, Vikram Sarabhai Space Center, Thiruvananthapura, India

M527 M01.9/23417 **A Numerical Study on Gravity Waves Generated by Typhoon Saomai (2006) and Comparison with Observations**
H.-Y. Chun*, S.-Y. Kim
Department of Atmospheric Sciences, Yonsei University

M528 M01.10/23417 **Sources and Propagation of the Mesospheric Gravity Waves Observed by Airglow in Korea**
Y.-H. Kim*, H.-Y. Chun
Yonsei University, Seoul, South Korea

M529 M01.11/23417 **New Perspectives on Gravity Wave Remote Sensing by Spaceborne Infrared Limb Imaging**
M. Riese*, P. Preusse, S. Schroeder, L. Hoffmann, M. Ern, F. Friedl-Vallon, H. Oelhaf, H. Fischer
Forschungszentrum Juelich, Juelich, Germany

M553 M12.1/23417 **Wave Cloud Scavenging of Black Carbon**
D. Baumgardner*, R. Subramanian, C. Twohy, G. Kok
Droplet Measurement Technologies, Boulder, USA

M554 M12.2/23417 **Ice Discrimination with the NIXE-CAPS: Results from AIDA**
D. Baumgardner*, M. Krämer, J. Meyer, A. Afchine, R. Newton, M. Schnaiter
Droplet Measurement Technologies, Boulder, USA

M555 M12.3/23417 **The Influence of a Secondary Ice Process on the Dynamics and Microphysics of Mixed-phase Layer Cloud**
P. Connolly*, C. Dearden, T. Choularton, K. Bower, M. Gallagher, C. Westbrook, A. Illingworth,
University of Manchester, Manchester, UK

M556 M12.4/23417 **Microphysics in a Stratiform Cloud and Possible Mechanisms for the Production of High Ice and Raindrop Concentrations**
Z. Hu*, H. Lei, T. Hou, Z. Shen
Laboratory of Cloud Precipitation Physics and Sever Storms (LACS), Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China

M557 M12.5/23417 **Simulation of Wintertime Precipitating Ice Crystals in the Arctic using a New Parameterization for Deposition Ice Nucleation on Kaolinite Particles**
E. Girard*, G. Dueymes, A. Stefanof, A.K. Bertram
UQAM, Montréal, Canada

M558 M12.6/23417 **Black Carbon Effects on Cloud Nucleation from the PACDEX Campaign**
S. Lee*, S.-C. Yoon, S.-W. Kim
School of Earth and Environmental Sciences, Seoul National University, Seoul, Korea

M559 M12.7/23417 **Heterogeneity in Cirrus Clouds Dynamics and Impact on Ice Crystal Concentrations**
M. Monier*, V. Giraud, F. Szczap, J.F. Gayet
Laboratoire de Météorologie Physique, OPGC/CNRS, Université Blaise Pascal, Clermont-Ferrand, France

M560 M12.8/23417 **Homogeneous Freezing of Sulfuric Acid Aerosol**
O. Möhler*, S. Benz, R. Wagner, H. Bunz, H. Saathoff, M. Schnaiter, T. Leisner,
Forschungszentrum Karlsruhe, Karlsruhe, Germany

M561 M12.9/23417 **Weekly Variations of Hailfalls Intensity in Kakheti Region of Georgia**
A. Amiranashvili*
Mikheil Nodia Institute of Geophysics, Tbilisi, Georgia

M562 M12.10/23417 **The Influence of Asian Dust Particles on the Microphysical Structures of Orographic Snow Clouds**
M. Murakami*, N. Orikasa, T. Tajiri, A. Saito, K. Yamashita
Meteorological Research Institute, Japan

M565 M18.1/23417 **Modeling TitanÆs Clouds**
M. Hirtzig*, P. Rannou, A. Coustenis, T. Tokano
LESIA, Meudon, France

M566 M18.2/23417 **Titan Saturn System Mission (TSSM) Enables Comparative Climatology with Earth**
D. Matson*, J. Lunine, A. Coustenis, K. Reh, P. Beauchamp, C. Erd, J-P. Lebreton,
Jet Propulsion Laboratory, California Institute of Technology, Pasadena, USA

P590 P07.1/23417 **Use of the Triads to Characterize the Bottom Waters in the Southern Ocean (Ross Sea, Antarctica)**
M. Capello*, L. Cutroneo, S. Tucci, G. Budillon
University of Genoa, Genoa, Italy

P591 P07.2/23417 **Daily Intensity of Extreme Rainfall in Argentina and their Relationship with the Southern Ocean Sea Surface Temperature**
F. A. Robledo*, O. C. Penalba, M. L. Betolli
IAPSO and Departamento de Ciencias de La Atmosfera Y Los Océanos, FCEN, UBA

P592 P07.3/23417 **Climate Forcing of Interannual Variability of Weddell Sea Bottom Water**
D. McKee*, X. Yuan, A. Gordon, B. Huber
Lamont-Doherty Earth Observatory of Columbia University, Palisades, NY, USA

P593 P07.4/23417 **The Role of Modified Circumpolar Deep Water in the Biogeochemistry of the Amundsen Sea based on the Icebreaker Oden Cruise in 2008**
R. Sambrotto*, X. Yuan, K. Abrahamsson, A.K. Wåhlin, A. Fransson, M. Chierci, E. Ingall, C. Nohr
Lamont-Doherty Earth Observatory of Columbia University, Palisades, USA

P594 P07.5/23417 **Seasonal to Decadal Variations of Upper Layer Waters in the South Indian Ocean Along 32 degree-S**
T. Kobayashi*, K. Mizuno, T. Suga
IORGC-JAMSTEC, Yokosuka, Japan

P595 P07.6/23417 **Physical Structure of the STC and its Influence on the Biogeographical Transition between Subantarctic and Subtropical Regimes**
C.D. George*, I.J. Ansorge, P.W. Froneman, C. Whittle
University of Cape Town, Cape Town, South Africa

P598 P10.1/23417 **Sources of Low-Frequency Variability in the Labradorsea**
J. Körper*, T. Spangehl, U. Cubasch
Institute for Meteorology, Freie Universität, Berlin, Germany

P599 P10.2/23417 **Variability in the Temperature and Salinityof the Deep Western Boundary Flows in the Northwest Atlantic**
J. Loder*, I. Yashayaev, E. Colbourne, Y. Geshelin, E. Horne, C. Hughes, M.A. Maqueda,
Fisheries and Oceans Canada, Bedford Institute of Oceanography, Dartmouth, Canada

*Denotes presenting author.

P600 P10.3/23417 **Rapid Restratification of the Labrador Sea: It is All About the Eddies!**
R. Gelderloos*, C.A. Katsman, S.S. Drijfhout
KNMI, de Bilt, The Netherlands

P601 P10.4/23417 **The West Greenland Current and the Labrador Sea**
P.G. Myers*, M.H. Ribergaard
University of Alberta, Edmonton, Canada

P602 P10.5/23417 **Dynamics of the Descending Branch of the Atlantic Meridional Overturning Circulation**
F. Schloesser*, J.P. McCreary, R. Furue, A. Timmermann
International Pacific Research Center, University of Hawaii, Honolulu, USA

P603 P10.6/23417 **Sustainable Long Term Observing System for the High Latitude Limb of the Atlantic Meridional Overturning Circulation**
S. Østerhus*
Bjerknes Centre for Climate Research, Bergen, Norway

P604 P10.7/23417 **The Contribution of Density Variations at the Eastern Boundary of the North Atlantic to the Meridional Overturning Circulation at 26.5N**
M.P. Chidichimo*, T. Kanzow, S.A. Cunningham, W.E. Johns, J. Marotzke
Max Planck Institute for Meteorology, Hamburg, Germany

P605 P10.8/23417 **Ocean Heat Transport Crossing AR7W in the Labrador Sea**
M.M. Hall*, D.J. Torres
Woods Hole Oceanographic Institution, Woods Hole, MA, USA

P606 P10.9/23417 **Role of Gyration in Basin-scale Circulation and Poleward Heat Flux in the Pacific**
H. Jiang*, R.X. Huang, H. Wang
Institute of Climate System, Chinese Academy of Meteorological Sciences

P607 P10.10/23417 **Virtual OSSE for the Atlantic Meridional Overturning Circulation**
W.C. Thacker*, G.R. Halliwell, H. Yang
CIMAS, University of Miami, Miami, FL, USA

P608 P10.11/23417 **Uncertainties of the Atlantic Meridional Overturning Circulation**
H. Yang*, W.C. Thacker, G.R. Halliwell
CIMAS, University of Miami, Miami, FL, USA

P609 P10.12/23417 **Stability of the Atlantic Meridional Overturning Circulation in a 2D Latitude-depth Model**
F. Sevellec*, A.V. Fedorov
Yale University, New Haven, USA

P610 P10.13/23417 **Impact of Nonlinear Equation of State on the Sensitivity of the Thermohaline Circulation in a Simple Model**
L. Sun*, M. Mu
School of Earth and Space Sciences, University of Science and Technology of China, Hefei, Anhui, China

P611 P10.14/23417 **Simulated Evolution of the Atlantic Meridional Overturning Circulation in the Last Millennium and Two IPCC Scenarios. Modes of Variability and Forced Response.**
M. Montoya*, P. Ortega, J.F. González-Rouco
Dpto. Astrofèsica Y Ciencias de La Atmosfera, Universidad Complutense de Madrid, Spain

P612 P10.15/23417 **Variability of the Atlantic Meridional Overturning Circulation Induced by Wind Stress in an Eddy-permitting OGCM Simulation**
T.T. Sakamoto*, H. Hasumi, T. Suzuki
Japan Agency for Marine-Earth Science and Technology (JAMSTEC), Yokohama, Japan

0830-1000 **519ab**
Session: Stratosphere-Troposphere
Chair: Mathew Newman

0830 J09.43/24105 **Possible Impact of the Stratosphere on the Predictability of Near Surface Climate**
J. Perlwitz*
University of Colorado, Boulder and NOAA Earth System Research Laboratory, Boulder, USA

0900 J09.45/24105 **The Role of the Stratosphere in the European Climate Response to El Nino**
S. Ineson*, A.A. Scaife
Met Office Hadley Centre, Exeter, UK

0915 J09.46/24105 **Interannual Variability as Simulated in a Global High-Resolution Coupled Atmosphere-Ocean GCM**
N. Komori*, B. Taguchi, A. Kuwano-Yoshida, M. Nonaka, M. Honda, K. Takaya, A. Ishida, Y. Masumoto, W. Ohfuchi, H. Nakamura,
Earth Simulator Center, JAMSTEC, Yokohama, Japan

0930 J09.47/24105 **Running Hot and Cold: Decadal Fluctuations in Planetary Wave Forcing Modulate Global Warming in Late Boreal Winter**
J. Cohen*, M. Barlow, K. Saito
AER, Inc., Lexington, USA

0945 J09.48/24105 **Influence of Summertime Arctic Sea-Ice Reduction on Wintertime Eurasian Coldness**
M. Honda*, J. Inoue, S. Yamane
Japan Agency for Marine-Earth Science and Technology Center, Yokohama, Japan

0830-1000 **520b**
Session: Ocean Applications
Chair: Paola Malanotte-Rizzoli

0830 J21.25/24107 **Uncertainty Prediction and Intelligent Sampling**
P.F.J. Lermusiaux*
Massachusetts Institute of Technology, Cambridge MA, USA

0900 J21.27/24107 **Production of ECCO-GODAE Ocean State Estimates and their Application to Studies of Decadal Variability**
P. Heimbach*, G. Forget, I. Fenty, M. Mazloff, R.M. Ponte, C. Wunsch
MIT, EAPS, Cambridge, USA

0915 J21.28/24107 **On the Influence of Random Wind Stress Errors on the Four-Dimensional, Mid-Latitude Ocean Inverse Problem**
T. Wakamatsu*, M.G.G. Foreman, P.F. Cummins, J.Y. Cherniawsky
Fisheries and Oceans Canada, Institute of Ocean Sciences, Sidney, Canada

0930 J21.29/24107 **Application of EnKF to ENSO Ensemble Prediction with an Intermediate Coupled Model**
F. Zheng*, J. Zhu, R.-H. Zhang
Institute of Atmospheric Physics, Beijing, China

0830-1000 **520c**
Session: Estimating Regional Feedbacks
Chair: Natalia Andronova

0830 J10.1/24108 **Geographical Aspects of Energy and Carbon Feedbacks**
G.J. Boer*
Canadian Centre for Climate Modelling and Analysis, Victoria, Canada

0845 J10.2/24108 **Quantifying Uncertainty in Allowable Emissions Consistent with Temperature Targets**
K. Zickfeld*, M. Eby, H.D. Matthews, A.J. Weaver
Canadian Centre for Climate Modelling and Analysis, Victoria, Canada

0900 J10.3/24108 **Constraining Regional Climate Responses with Observations**
A. Hall*, J. Boé, X. Qu
UCLA Dept of Atmospheric and Oceanic Sciences, Los Angeles, CA, USA

0915 J10.4/24108 **Understanding Land-sea Warming Contrast in Response to Increasing Greenhouse Gases**
B. Dong*, R.T. Sutton, J.M. Gregory
National Centre for Atmospheric Science, University of Reading, Reading, UK

0930 J10.5/24108 **The Potential to Narrow Uncertainty in Regional Climate Predictions**
R. Sutton*, E. Hawkins
NCAS - Climate, University of Reading, UK

0945 J10.6/24108 **How Strongly Can Aerosol Cooling Mask High Climate Sensitivity?**
T. Schneider Von Deimling*, A. Ganopolski, H. Held, S. Rahmstorf
Potsdam Institute for Climate Impact Research, Potsdam, Germany

0830-1000 **520de**
Session: Climate Aspects
Chair: Chun Chieh Wu

0830 J19.19/24109 **A Climate Feedback between Tropical Cyclones and Ocean Circulation: Do Climate Models Underestimate Changes in the Tropics in a Warmer World?**
C.M. Brierley*, A.V. Fedorov
Yale University, New Haven, USA

*Denotes presenting author.

0845 J19.20/24109 **Tropical Cyclone in a Warmer Climate: A Global Cloud-Resolving Approach**
K. Oouchi*, Y. Yamada, H. Tomita, W. Yanase, M. Satoh, A. Noda
Japan Agency for Marine-Earth Science and Technology, Yokohama, Japan

0900 J19.21/24109 **Influence of Regional Climate Modes on Tropical Cyclone Development**
A. Maharaj*, A. Werner, N.J. Holbrook, K.K.W. Cheung
Macquarie University, Sydney, Australia

0915 J19.22/24109 **Changes in the Frequency and Intensity of Tropical Disturbances in the Bay of Bengal and the Arabian Sea**
O.P. Singh*
India Meteorological Department, Mausam Bhawan, New Delhi India

0930 J19.23/24109 **Tropical Cyclones in the SW Indian Ocean and Climate Variability Relatio**
C.J.C. Reason*
University of Cape Town, Rondebosch, South Africa

0945 J19.24/24109 **What Changed the Proportion of Intense Hurricanes over the Last 30 Years?**
L. Wu*
Nanjing University of Information Science and Technology, Nanjing, China

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0830-1000 **525ab**
Session: AOGCMs
Chair: Dietmar Dommenget

0830 J11.7/24110 **Developments in the North Atlantic/Arctic Ocean Fresh Water Balance in CMIP3 Model Results for the 21st Century**
R. Gerdes*, C. Köberle
Alfred Wegener Institute for Polar and Marine Research, Bremerhaven, Germany

0845 J11.8/24110 **Northern Sea Route and Northwest Passage: Multi-model Estimates for the 21st Century**
I.I. Mokhov*, V.C. Khon
A.M. Obukhov Institute of Atmospheric Physics RAS, Moscow, Russia

0900 J11.9/24110 **Covariability of SST and Surface Heat Fluxes in Reanalyses and CMIP3 Climate Models**
B. Yu*, W.J. Merryfield, G.J. Boer, F.W. Zwiers
Environment Canada, CRD, Toronto, Canada

0915 J11.10/24110 **Atmospheric Circulation and Its Variability over the Summertime Northwestern Pacific Simulated in the CMIP3 Climate Models**
Y. Kosaka*, H. Nakamura
Department of Earth and Planetary Science, University of Tokyo, Tokyo, Japan

0930 J11.11/24110 **Climate Model Intercomparison and Multi-model Based Future Projection on Tropical Cyclogenesis Distribution over the Western North Pacific**
S. Yokoi*, Y.N. Takayabu
University of Tokyo, Kashiwa, Japan

0945 J11.12/24110 **Thirteen Coupled Models' Performance on Mean State and Intraseasonal to Seasonal Climate Prediction**
J.-Y. Lee*, B. Wang, I,-S. Kang, J. Shukla, C.-K. Park, H.-M. Kim
UH/IPRC, China

0830-1000 **516c**
Session: Monsoon Observations, Modelling and Prediction

Chair: Jianping Li

0830 J17.67/24111 **Global Extratropical Response to Diabatic Heating Variability of the Asian Summer Monsoon**
H. Lin*
Environment Canada, Dorval, Canada

0845 J17.68/24111 **Major Deficiency and Possibility for Long-Lead Prediction of the East Asian Summer Monsoon in NCEP CFS**
S.S. Lee*, J.Y. Lee, K.J. Ha, B. Wang
Pusan National University, Busan, Korea

0915 J17.69/24111 **Stochastic Models and Their Applications to Estimate the Recurrence Period of Monsoon Rainfall**
C.V. Singh*
Indian Institute of Technology, New Delhi, India

0830-1000 **516b**
Session: Changes in Glaciers in Different Climate Regimes
Chair: Bruce Raup

0830 C04.19/24113 **Regional Sea Level Variations due to Glacier Melt over the Period 1961-2003**
A.B.A. Slangen*, F. Overes, R.S.W. van de Wal, L.L.A. Vermeersen
IMAU, Utrecht, The Netherlands

0845 C04.20/24113 **Contribution of Glaciers in Closed River Basins to the Ocean Level: New Concept and Evaluations**
V.G. Konovalov*
Institute of Geography, Moscow, Russia

0900 C04.21/24113 **Modeling the 20th Century and Future Evolution of Hoffellsjökull, Southeast Iceland**
G. Adalgeirsdottir*, H. Bjornsson, S. Gudmundsson, F. Palsson, S.Th. Sigurdsson
Institute of Earth Sciences, University of Iceland, Reykjavik, Iceland

0915 C04.22/24113 **Glacier Response to Climate Change and Climate Variability**
E.E. Burke*, G.H. Roe
University of Washington, Seattle, USA

0930 C04.23/24113 **Assessment of the Glacier Runoff for Sub-Arctic and Temperate Zones on the Russian Part of Eurasia for Present and Nearest Future**
K. Ananicheva*, A. Krenke
Institute of Geography RAS, Moscow, Russia

0945 C04.24/24113 **Glacier-Climate Interactions in the European Alps in the 21st Century**
S. Kotlarski*, F. Paul
Institute for Atmospheric and Climate Science, ETH, Zürich, Switzerland

0830-1000 **524ab**
Session: Stratosphere-troposphere Coupling (2)
Chair: Ulrich Cubasch

0830 M05.7/24103 **Eddy Feedback Mechanisms Driving the Tropospheric Response to Stratospheric Heating Perturbations**
I.R. Simpson*, M. Blackburn, J.D. Haigh, S. Sparrow
Imperial College London, London, UK

0900 M05.9/24103 **Solar Influence on Climate: Top Down or Bottom Up?**
K. Matthes*, G. Meehl, R. Garcia, J. Arblaster, D. Marsh, F. Sassi, H. van Loon
Helmholtz Centre Potsdam - GFZ German Research Centre for Geosciences, Potsdam, Germany

0930 M05.11/24103 **The Annular Mode-like Response to SST Anomalies in an Aqua-planet GCM**
G. Chen*, A. Plumb, J. Lu
Program of Atmospheres, Oceans and Climate, MIT, Cambridge, USA

0945 M05.12/24103 **Variability of the Northern Hemisphere Polar Stratospheric Cloud Potential: The Role of North Pacific Disturbances**
Y. Orsolini*, G. Nikulin, A. Karpechko
Norwegian Institute for Air Reseach, Kjeller, Norway

0830-1000 **524c**
Session: Field/Modeling Studies
Chair: Paul Connolly

0830 M12.19/24104 **Supercooled Liquid Water and Homogeneous Ice Nucleation in Vigorous Tropical Maritime Convection**
A. Heymsfield*
NCAR, Boulder, CO, USA

0900 M12.21/24104 **Investigations of Cloud-Aerosol Interactions in Mixed Phase Boundary Layer and Frontal Clouds.**
K.N. Bower*, T.W. Choularton, M.W. Gallagher, J. Crosier, J.R. Dorsey, I. Crawford, P.I. Williams, C. Westbrook, R. Hogan, A.J. Illingworth,
Centre for Atmospheric Science, SEAES, University of Manchester, Manchester, UK

0915 M12.22/24104 **Aerosol Changing Glaciation of Convective Clouds**
T. Yuan*, L.A. Remer, J.V. Martins, Z. Li
Climate and Radiation Branch, NASA Goddard Space Flight Center, Greenbelt, MD, USA

0930 M12.23/24104 **Parameterization of Aircraft Induced Cloudiness in the Regional Climate Model CCLM**
A. Ferrone*, P. Marbaix, R. Lescroart, J.-P. van Ypersele
Institut d'astronomie et de géophysique G. Lemaître, Université catholique de Louvain, Louvain-la-Neuve, Belgium

0945 M12.24/24104 **Simulations of Mixed-Phase Orographic Clouds: Kinematic vs. Dynamical Aspects**
A. Muhlbauer*, W.W. Grabowski, U. Lohmann
Joint Institute for the Study of the Atmosphere and Ocean, University of Washington, Seattle, USA

0830-1000 **520a**
Session: The Southern Ocean: Its Physics, Chemistry, Biology and Links to the Global Climate System
Chair: Eberhard Fahrbach

0830 P07.19/24114 **Seasonal and Interannual Fluctuations of Weddell Sea Bottom Water Outflow**
A.L. Gordon*, B. Huber
Lamont-Doherty Earth Observatory, Palisades, USA

0845 P07.20/24114 **Changes in the Outflow of Dense Waters from the Weddell Sea toward the Abyssal Atlantic**
M.P. Meredith*, A.C. Naveira Garabato, Z. Wang, A.L. Gordon, G.C. Johnson
British Antarctic Survey, Cambridge, UK

0915 P07.22/24114 **Spin-up of Southern Hemisphere Subpolar Gyres in a Warming Climate**
Z. Wang*, M.P. Meredith
British Antarctic Survey, Cambridge, UK

0930 P07.23/24114 **Excitation and Decay of Barotropic Modes in the Australia-Antarctic Basin**
W. Weijer*, S.T. Gille, F. Vivier
Los Alamos National Laboratory, Los Alamos, USA

0945 P07.24/24114 **Abyssal Waters in the Scotia Sea and Drake Passage**
R. Yu. Tarakanov*
P.P. Shirshov Institute of Oceanology, Moscow, Russia

*Denotes presenting author.

0830-1000 **516d**
Session: The Variable Atlantic Meridional Overturning Circulation- Characteristics, Causes and Consequences for Climate
Chair: Lisa Beal

0830 P10.25/24115 **Evolution of GPE and APE Diagnosed from a Mass-conserved Oceanic Model**
R.X. Huang*
Woods Hole Oceanographic Institution, Woods Hole, USA

0845 P10.26/24115 **Poleward Heat Transport by Meridional Overturning Circulation under the Energy Constraint**
Y.P. Guan*, R.X. Huang
LED, South China Sea Institute of Oceanology, CAS, Guangzhou, China

0900 P10.27/24115 **Stability of the MOC in a Global Eddy-Resolving Model**
W. Weijer*, H.A. Dijkstra, M.W. Hecht, M.A. Kliphuis, M. Maltrud
Los Alamos National Laboratory, Los Alamos, USA

0915 P10.28/24115 **The Permanent Thermocline Properties and Stratification. Future Warming through Infrequent but Very Effective Mixing Episodes?**
C. González-Pola *, R. Somavilla, E. Prieto, J. Fernández-Díaz, A. Lavín
Spanish Institute of Oceanography, Gijon, Spain

0930 P10.29/24115 **Will Europe Cool or Warm Due to a Slowing Atlantic Meridional Overturning Cell?**
D. Nof*
Florida State University, USA

0945 P10.30/24115 **Mechanisms of the Impact of Late 19th Century Volcanoes on the AMOC**
L. Hermanson*, A.M. Iwi, K. Haines, R.T. Sutton
STFC, Rutherford Laboratory, Didcot, UK

0830-1000 **516e**
Session: Effects of Climate Variability on Nearshore Coastal Environments: Physical, Geomorphologic and Biological Interactions
Chair: Cintia Piccolo

0830 P02.7/24116 **Response of Barrier Beach and Dune Systems in the Gulf of St. Lawrence to Climate Variability, Climate Change and Sea Level Rise: An Assessment of Vulnerability and Constraints**
R. Davidson-Arnott*
University of Guelph, Canada

0900 P02.9/24116 **The Effects of Climate Change on Sediment Transport on the North Shore of Prince Edward Island, Canada**
G.K. Manson*
University of Guelph, Guelph and Geological Survey of Canada, Dartmouth, Canada

0915 P02.10/24116 **Biological Influence on Mud Deposition under Wave Action on a Mud-Salt Marsh Interface (Bahia Blanca Estuary, Argentina)**
G.M.E. Perillo*, P.D. Pratolongo, M.C. Piccolo, M.M. Perillo
Instituto Argentino de Oceanografia (CONICET - UNS), Bahia Blanca, Argentina

0930 P02.11/24116 **Lack of Migration of Acartia tonsa in an Homogeneous Temperate Estuary (Bahia Blanca, Argentina)**
M.C. Piccolo*, E.J. Garibotti, P.M. Cervellini
Instituto Argentino de Oceanografia, Bahia Blanca, Argentina

0945 P02.12/24116 **Monitoring of the Soya Warm Current Using HF Ocean Radars, Satellite Altimetry, Coastal Tide Gauges and Bottom-Mounted ADCP**
N. Ebuchi*, Y. Fukamachi, K.I. Ohshima, M. Wakatsuchi
Hokkaido University, Sapporo, Japan

1030-1200 **519ab**
Session: General Circulation/Drought
Chair: Clara Deser

1030 J09.49/24205 **Tropical Linkages to Trends and Decadal Variations in Fall Hydroclimate over the United States 1948 - 2006**
D. Small*, S. Islam, M. Ting
Tufts University, Medford, USA

1045 J09.50/24205 **Summertime Variability of European Climate and its Drivers**
I.I. Zveryaev*, I.A. Rudeva, R.P. Allan
P.P. Shirshov Institute of Oceanology, RAS, Moscow, Russia

1100 J09.51/24205 **Model Sudy of Interannual and Decadal Variability of the Labrador Sea from 1950 to 2005**
J. Zhu*, E. Demirov
Memorial University of Newfoundland, St. John's, Canada

1115 J09.52/24205 **Interannual and Interdecadal Variability of the Western North Pacific Subtropical High**
P. H. Chung*, C. H. Sui, T. Li
Taipei Municipal University of Education, Taipei, Taiwan

1130 J09.53/24205 **Temporal Power-Law Behaviour of the Atmospheric Circulation in Current Generation Climate Models**
P.J. Kushner*, D.I. Vyushin
University of Toronto, Canada

1145 J09.54/24205 **Likelihood and Predictability of Cooling Episodes in a Warming Climate**
W.J. Merryfield*, R.S. Ajayamohan
Canadian Centre for Climate Modelling and Analysis, Victoria, Canada

1030-1200 **520b**
Session: Ice and Ocean Applications
Chair: Andrew Roberts

1030 J21.31/24207 **Operational Application of the EnKF in the TOPAZ Ice-ocean System**
L. Bertino*, P. Sakov, F. Counillon, K.A. Lisæter
Nansen Environmental and Remote Sensing Center, Bergen, Norway

1100 J21.33/24207 **Three-dimensional Variational Data Assimilation in a Coupled Ice-ocean Model**
A. Caya*, M. Buehner, T. Carrieres
Meteorological Research Division, Environment Canada, Dorval, Canada

1115 J21.34/24207 **Direct Assimilation of AMSR-E Brightness Temperatures for Estimating Sea Ice Concentration**
K. A. Scott*, M. Buehner, T. Carrieres, A. Caya
Environment Canada, Dorval, Canada

1130 J21.35/24207 **Global Ocean and Sea Ice State Estimation in the Presence of Eddies**
D. Menemenlis*, H. Zhang, G. Forget, P. Heimbach, C. Hill
Jet Propulsion Laboratory – Caltech, Pasadena, USA

1145 J21.36/24207 **Variational Assimilation of Sea Ice Concentration Observations**
I Fenty*, P Heimbach, C Wunsch
Massachusetts Institute of Technology, Cambridge, USA

1030-1200 **520c**
Session: Climate Sensitivity and Feedbacks
Chair: Kirsten Zickfeld

1030 J10.7/24208 **Climate-carbon Sensitivity: A New Metric for the Climate Response to Carbon Emissions**
H.D. Matthews*, N. Gillett, P.A. Stott, K. Zickfeld
Concordia University, Montréal, Canada

1045 J10.8/24208 **Water Vapour and Its Feedback: Where do we Stand?**
S. Sherwood*, R. Roca, L. Moyer, B. Soden, T. Weckwerth, N. Andronova
University of New South Wales, Sydney Australia

1100 J10.9/24208 **Circulation Responses to Snow Albedo Feedback in Climate Change**
P. Kushner*, C. Fletcher, A. Hall, X. Qu
University of Toronto, Canada

1115 J10.10/24208 **Constraining Mean Atmospheric Water Vapor Feedback from Observations and Model Simulations**
N. Andronova*
University of Michigan, Ann Arbor, USA

1130 J10.11/24208 **The Role of Radiative Feedbacks in the Response of Climate to Orbital Forcing**
A.J. Broccoli*, M.P. Erb
Rutgers University, New Brunswick, NJ, USA

1145 J10.12/24208 **Conceptual Understanding of the Climate Change Pattern and Feedbacks with a Simple Model**
D. Dommenget*, J. Floeter
IFM-GEOMAR, Kiel, Germany

1030-1200 **520de**
Session: Genesis
Chair: Tom Knutson

1030 J19.25/24209 **Genesis of Hurricane Felix (2007) and the Role of Wave Critical Layer**
Z. Wang*, M. Montgomery, T. Dunkerton
Naval Postgraduate School, Monterey CA, USA

1045 J19.26/24209 **On the Relative Roles of Vortex Merger, Axisymmetrization, Diabatic Heating, and Mid-Level Moistening in Tropical Cyclogenesis**
D.S. Nolan*, M. Iskandarani
Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, USA

1100 J19.27/24209 **Tropical Cyclogenesis in a Tropical Wave Critical Layer: Easterly Waves**
T.J. Dunkerton*, M.T. Montgomery, Z. Wang
NorthWest Research Associates, USA

1115 J19.28/24209 **Environmental Influences on Tropical Cyclone Behaviour: A Review**
N.E. Davidson*, K. Tory, J. Kepert, J. McBride, M. Nguyen
Centre for Australian Weather and Climate Research, Australia

1145 J19.30/24209 **Environmental Control of Tropical Cyclogenesis in High Resolution Numerical Simulations**
E.D. Rappin*, D.S. Nolan, K.A. Emanuel
Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, USA

1030-1200 **525ab**
Session: AOGCMs (cont.)
Chair: Ruediger Gerdes

1030 J11.13/24210 **Assessment of the APCC/CliPAS 14-Model Ensemble Retrospective Seasonal Prediction (1980-2004)**
B. Wang*, J.-Y. Lee, I.-S. Kang, J. Shukla, C.-K. Park
School of Ocean & Earth Science & Technology, University of Hawaii, USA

1045 J11.14/24210 **North Atlantic 20th Century Climate Variability in Coupled Climate Models**
I. Medhaug*, T. Furevik
University of Bergen, Bergen, Norway

1100 J11.15/24210 **Intercomparisons of Wind Speeds over China during the Latter Half of the 20th Century by the Multi-models with the Full Forcing**
Z.-C. Zhao*, Y. Jiang, Y. Luo
National Climate Center, China Meteorological Administration, Beijing, China

*Denotes presenting author.

1115 J11.16/24210 **ENSO Modulation and Vertical Temperature Low Frequency Variability in the IPCC AR4 Simulations**
B. Dewitte*, S.-W. Yeh, Y.-K. Lee, A. Belmadani
IMARPE, Callao, Peru

1130 J11.17/24210 **Changes of Pacific STCs under Global Warming**
Y. Luo*
University of Rhode Island, Narragansett, USA

1145 J11.18/24210 **Assessment of AR4 Modeled 20th Century Decadal Rainfall Variability across Eastern Australia**
C. Rakich*
Macquarie University and NSW Department of Environment and Climate Change, Sydney, Australia

1030-1200 **516c**
Session: Risk and Vulnerability: General Assessments and Complex Events
Chair: Uwe Ulbrich

1030 J18.1/24211 **Minimising Risk, Maximising Awareness: The Hazards Theme of the International Year of Planet Earth**
T. Beer*
CSIRO Marine and Atmospheric Research, Aspendale, Australia

1045 J18.2/24211 **Vulnerability of Eastern Quebec Coastal Communities to the Impacts of Climate Change: A Participative Approach to Facilitate Adaptation**
J.-P. Savard*, A. Bourque
Consortium Ouranos sur la Climatologie Régionale et l'Adaptation aux Changements Climatiques, Montréal, Canada

1100 J18.3/24211 **Flood, Heavy Rainfall and their Effects to the Infectious Diseases in Bangladesh**
T. Hayashi*, M. Hashizume, Y. Wagatsuma, T. Terao, F. Murata, M. Yunus, A. Habib, Y. Yamane
DPRI, Kyoto University, Uji, Japan

1115 J18.4/24211 **Remote Sensing for Monitoring Climate Change Impacts on Glacier and Permafrost Hazards in High Mountains**
A. Kääb*
University of Oslo, Oslo, Norway

1130 J18.5/24211 **Tsunami Detection from NOAA Deep-sea Tsunameter Network**
R. Bouchard*, C. Kohler, P. Lessing
NOAA's National Data Buoy Center, Stennis Space Center, USA

1145 J18.6/24211 **Recent Glacier Dammed Lake Outburst Floods and Glacier changes in Yarkant River, China-Karakoram**
J. Liu*, N. Wang, K. Hewitt, L. Hu
Institute of Tibetan Plateau Research, Chinese Academy of Sciences, Beijing, China

1030-1200 **516b**
Session: Changes in Glaciers in Different Climate Regimes
Chair: Al Rasmussen

030 C04.25/24213 **Correcting the Internal-Accumulation Bias at Large Spatial Scales**
T. Clerac*, J.G. Cogley
Trent University, Peterborough, Canada

1045 C04.26/24213 **Geodetic Determination of Volumetric Changes and Comparison with In-situ Mass Balance Measurements at Storglaciären, Sweden**
M. Zemp*, I. Gärnter-Roer, W. Haeberli, P. Holmlund, P. Jansson, P. Thee, T. Koblet
University of Zurich, Switzerland

1100 C04.27/24213 **Regional Modelling of Glacier Melt: Challenges and Innovations**
J.M. Shea*, R.D. Moore
University of British Columbia, Vancouver, Canada

1115 C04.28/24213 **Estimation of Glacier Melting Rate using Distributed Hydrological Modeling of the Santa Isabel Volcano, Colombia**
J.J. Velez*, B.A. Botero, E. Duque
Universidad Nacional de Colombia, sede Manizales, IDEA, Manizales, Colombia

1130 C04.29/24213 **Mass Balance Variability of Storglaciären, Northern Sweden, on Short to Long Timescales Related to Atmospheric and Ocean Circulation**
H.W. Linderholm*, P. Jansson
University of Gothenburg, Gothenburg, Sweden

1145 C04.30/24213 **Changes in Surface Elevations of Keqicar Baqi Glacier in Tienshan Mountains, China by Using GPS-RTK, Remote Sensing, and History Data**
S. Donghui*, L. Shiyin, D. Yongjian
Chinese Academy of Sciences, Lanzhou, China

1030-1200 **524ab**
Session: Southern Hemisphere and Ozone
Chair: Elisa Manzini

030 M05.13/24203 **The Need for a Coupled Stratosphere-Troposphere-Ocean Modeling System to Assess the Climate Importance of the Montréal Protocol**
J. Perlwitz*, R.L. Fogt, P.A. Newman, W.D. Neff, J.E. Nielsen, L.D. Oman, S. Pawson
University of Colorado, Boulder, USA

1100 M05.15/24203 **Southern Hemisphere Climate Response to Natural and Anthropogenic Forcings**
J.M. Arblaster*, G.A. Meehl, K. Matthes, F. Sassi
National Center for Atmospheric Research, Boulder, USA

1130 M05.17/24203 **Antarctic Stratospheric Warming Induced by SST Warming**
Y. Hu*, Q. Fu
Peking University, Beijing, China

1145 M05.18/24203 **The Ozone Hole and Southern Hemisphere Climate Change**
S.-W. Son*, N.F. Tandon, L.M. Polvani, D.W. Waugh
McGill University, Montréal, Canada

1030-1200 **524c**
Session: Modeling Studies
Chair: Marie Monier

1030 M12.25/24204 **Impact of Aerosols on Mixed-Phase and Cirrus Clouds: Results from Global Climate Model Studies**
U. Lohmann*
ETH Zurich, Institute for Atmosphere and Climate Science, Zurich, Switzerland

1100 M12.27/24204 **Meridional Variation in the Radiative Forcing from Doubling the Current Ice Nuclei Concentration**
X. Zeng*, W.-K. Tao, M. Zhang, A. Hou, S. Xie, S. Lang, X. Li, D. Starr, X. Li
NASA Goddard Space Flight Center, Greenbelt, USA

1115 M12.28/24204 **Modelling Study of Ice Formation Processes in Precipitating Shallow Cumulus Clouds Triggered by Ice-nucleating Bioaerosols**
J. Sun*, P.A. Ariya, H.G. Leighton, M.K. Yau
McGill University, Montréal, Canada

1130 M12.29/24204 **The Potential Impact of Mineral Dust on Cirrus Cloud Formation: A Trajectory Modeling Perspective**
A. Wiacek*, T. Peter, M. Taddeo
Department of Physics and Atmospheric Science, Dalhousie University, Halifax, Canada

1145 M12.30/24204 **Numerical Study on Effects of Sand Aerosols on Cloud and Precipitation in North China**
S.Y. Zhang*, F.Q. Kang, Y. Yin, Q. Zhang, Y.X. Han
Gan Su Meteorological Bureau, Lanzhou, China

1030-1200 **520a**
Session: The Southern Ocean: Its Physics, Chemistry, Biology and Links to the Global Climate System
Chair: Till Kuhlbrodt

1030 P07.25/24214 **Detecting and Diagnosing Change in the Southern Ocean**
S. Sokolov*, S.R. Rintoul
Centre for Australian Weather and Climate Research, Hobart, Tasmania, Australia

1100 P07.27/24214 **An Intensive Hydrographic Survey of the Subantarctic Front at the Northern Edge of the Kerguelen Plateau**
H. Phillips*, N. Bindoff
University of Tasmania, Hobart, Australia

1115 P07.28/24214 **From HSSW to AABW: Pathway from Terra Nova Bay to the Balleny Area**
S. Aliani*, A. Bergamasco, G. Budillon
CNR ISMAR, La Spezia, Italy

1130 P07.29/24214 **Global Climate Impacts of Changes in Antarctic Intermediate Water**
J. Graham*, K. Heywood, D. Stevens, Z. Wang
University of East Anglia, Norwich, UK

1145 P07.30/24214 **Estimating Antarctic Freshwater contribution to the Southern Ocean in the ECCO2 data synthesis**
M. P. Schodlok*, D. Menemenlis
Jet Propulsion Laboratory – Caltech, Pasadena, USA

1330-1500 **519ab**
Session: Drought
Chair: Shoshiro Minobe

1330 J09.55/24305 **Mechanisms of Tropical Pacific and Tropical Atlantic Forcing of North American Hydroclimate**
Y. Kushnir*, R. Seager, N. Naik, M. Ting, N. Harnik, M. Cane
Lamont Doherty Earth Observatory, Columbia University, Palisades, USA

1400 J09.57/24305 **The Attribution of Causes of Current Decadal Droughts**
P.G. Baines*
University of Melbourne, Australia and QUEST, Bristol, UK

1415 J09.58/24305 **The Dust Bowl as an Analog for Midwest Droughts?**
A. Stickler*, S. Brönnimann
Institute for Atmospheric and Climate Science, Zurich, Switzerland

1430 J09.59/24305 **Biosphere-Atmosphere Interactions as a Mechanism for the Multi-Decadal Variability of Precipitation in South America**
G. L. Wang*, S. S. Sun
University of Connecticut, USA

1445 J09.60/24305 **Relationship between Decadal Precipitation Anomalies in the Southwestern U.S. and Global SSTs: Insights from the IPCC Multi-Model Ensemble**
A. Capotondi*
NOAA/ESRL/PSD, Boulder and University of Colorado/CIRES, Boulder, USA

1330-1500 **520b**
Session: Stratosphere and Constituents
Chair: William Lahoz

1330 J21.37/24307 **Overview of Recent Progress in Stratospheric and Mesospheric Data Assimilation**
S. Polavarapu*
Environment Canada, Toronto and University of Toronto, Toronto, Canada

*Denotes presenting author.

1400 J21.39/24307 **ADM-Aeolus Vertical Sampling Strategy for Stratospheric Wind Analysis**
H. Körnich*
University of Stockholm, Sweden

1415 J21.40/24307 **Spatial and Temporal Resolution of Assimilated Ozone Data**
I. Stajner*, K. Wargan, S Pawson
Noblis, USA

1430 J21.41/24307 **Analyses and Medium Range Forecast of Middle Atmosphere Consituents using a Coupled Chemistry-Dynamics Data Assimilation System.**
J. de Grandpré*, C.A. McLinden, R. Ménard, C. Charette, A. Robichaud, Y.J. Rochon, S. Chabrillat
Environment Canada, Dorval, Canada

1445 J21.42/24307 **Aspects of Resolution-Dependent Analysis in Chemical Data Assimilation**
V. Yudin*, A. Arellano, D. Edwards
National Center for Atmospheric Research, Boulder, Colorado, USA

1330-1500 **520c**
Session: Climate Change Issues
Chair: Hans Linderholm

1330 J10.13/24308 **Do We Know Enough About Black Carbon to Consider it as a Short-Term Climate Mitigation Candidate?**
S. E. Bauer*, D. Koch
Columbia University, USA

1345 J10.14/24308 **Ice on Kilimanjaro (East Africa): A Particular Example of Regional Responses to Climate Change**
G. Kaser*, N.J. Cullen, T. Moelg, M. Winkler
University of Innsbruck, Innsbruck, Austria

1400 J10.15/24308 **20th Century SST Trends in Observations and AR4 Simulations**
M. Newman*
CIRES Climate Diagnostics Center, University of Colorado, USA

1415 J10.16/24308 **Regional Climate Changes associated with a Global '2°C-stabilization' Scenario**
W. May*
Danish Climate Centre, Danish Meteorological Institute, Copenhagen, Denmark

1430 J10.17/24308 **Global Warming, Large-scale Processes in the Ocean-Atmosphere System, Thermohaline Catastrophe and their Impact on Climate of the North Atlantic Region**
A.B. Polonsky*
Marine Hydrophysical Institute, Sevastopol, Ukraine

1330-1500 **520de**
Session: Numerical Weather Prediction
Chair: Noel Davidson

1330 J19.31/24309 **Distribution and Intensity of Convection in Tropical Cyclones in Global Basins as Seen from TRMM**
H. Jiang*, E.J. Zipser
University of Utah, Salt Lake City, UT, USA

1345 J19.32/24309 **Old and New Methods for Measuring Environmental Favorability for Tropical Cyclogenesis: Genesis Parameters and Point-Downscaling**
M. McGauley*, D.S. Nolan, E.D. Rappin
Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, Florida, USA

1400 J19.33/24309 **Simulations of Global Hurricane Climatology, Inter-annual Variability, and Response to Global Warming using a 50km Resolution GCM**
M. Zhao*, I.M. Held, S.J. Lin, G. Vecchi
Geophysical Fluid Dynamics Laboratory / NOAA, Princeton, USA

1415 J19.34/24309 **Observation and Simulation of the Genesis of Typhoon Fengshen (2008) in the Tropical Western Pacific**
H. Yamada*, W. Yanase, R. Shirooka, K. Yoneyama, M. Satoh, M. Yoshizaki
Japan Agency for Marine-Earth Science and Technology, Yokosuka, Japan

1430 J19.35/24309 **A New Approach for Tropical Cyclone Initialization based on EnKF**
C.-C. Wu*, K.-Y. Lien, F. Zhang
National Taiwan University, Taipei, Taiwan

1330-1500 **525ab**
Session: RCMs and Other Intercomparisons
Chair: Neil Holbrook

1330 J11.19/24310 **Intercomparaison of Regional Climate Models Simulations over North America**
R. Laprise*, S. Biner, R. de Elia, NARCCAP Simulation Team
Université du Québec à Montréal, Canada

1400 J11.21/24310 **Modeling Semi-arid Sahel Climate and Feedback: First WAMME (West African Monsoon Modeling and Evaluation Project) Model Intercomparison**
Y. Xue*, W. Lau, K Cook, D. Rowell, A. Boone, J. Feng, A. Konare, F. De Sales, WAMME Team
University of California, Los Angeles, USA

1415 J11.22/24310 **Transferability Intercomparison: Regional Climate Model Simulations over Multiple Domains**
Z. Kothavala*, C.G. Jones, B. Rockel, D. Pacquin
University of Quebec at Montréal, Montréal, Canada

1430 J11.23/24310 **The Aqua-Planet Experiment: Comparison of Atmospheric GCM Simulations on a Water-Covered Earth**
M. Blackburn*, B.J. Hoskins, D.L. Williamson, Y-Y. Hayashi, K. Nakajima, 14 APE Modelling Groups
University of Reading, UK

1445 J11.24/24310 **Sensitivity of ITCZ Structure to Cumulus Convection Parameterizations on an Aqua Planet**
Y. M. Liu*, G. Guo, Z. Z. Wang, G. Wu
LASG, Institute of Atmospheric Physics,CAS, China

1330-1500 **516c**
Session: Mediterranean Events and Flash Floods
Chair: Andreas Kääb

1330 J18.7/24311 **Destructive Meteotsunamis along the Eastern Adriatic Coast**
I. Vilibic*, J. Sepic
Institute of Oceanography and Fisheries, Split, Croatia

1345 J18.8/24311 **Climate Extremes in the Mediterranean Region**
P. Lionello*, R.-F. Garcia-Herrera
University of Salento, Lecce, Italy

1400 J18.9/24311 **Meteorological Characteristics which Induced Severe Flash Floods in Romania**
G. Stancalie*, C. Oprea, B. Antonescu, A. Irimescu, A. Dumitrescu
National Meteorological Administration, Bucharest, Romania

1415 J18.10/24311 **Flood Early Warning with Integration of Hydrologic and Hydraulic Models, RS and GIS. (Case study: Madarsoo basin, Iran)**
H. Azari*, A.A. Matkan, A. Shakiba, P. Hossein
Shahid Beheshti University, Tehran, Iran

1430 J18.11/24311 **Poster Introduction I**
U. Ulbrich*

1445 J18.12/24311 **Poster Introduction II**
U. Ulbrich*

1330-1500 **516b**
Session: Changes in Glaciers in Different Climate Regimes
Chair: Liss Andreassen

1330 C04.31/24313 **Damming and Draining of Glacial Lake Ahtna and Formation of Other Glacier Lakes in the Copper River Basin, Alaska**
J. Kargel*, J. Pelletier, R. Furfaro, G. Leonard, L. Fischer, M. Hoelzle, C. Huggel, I. Roer, D. Wolfe
University of Arizona, Tucson, Arizona, USA

1345 C04.32/24313 **Decline of Glaciers Consequences on Glacial Lake Growth in Nepal: A Case Study of Tamor and Dudh Koshi Sub-basins from 1970 to 2000**
S.R. Bajracharya*
International Centre for Integrated Mountain Development (ICIMOD), Kathmandu, Nepal

1400 C04.33/24313 **Integration of Glacier Databases within the Global Terrestrial Network for Glaciers (GTN-G)**
B.H. Raup*, M. Zemp, R. Armstrong, L. Ballagh, I. Gärtner-Roer, W. Haeberli, M. Hoelzle, A. Kääb, J. Kargel, F. Paul,
World Glacier Monitoring Service, University of Zurich, Zurich, Switzerland

1330-1500 **524ab**
Session: Seasonal to Centennial Variability (1)
Chair: Diane Pendlebury

1330 M05.19/24303 **The Impact of Initial Conditions on Decadal-scale Climate Predictions**
D.M. Smith*, N. Dunstone, R. Eade, J.M. Murphy, H. Pohlmann
UK Met Office Hadley Centre, Exeter, UK

1400 M05.21/24303 **Impact of Stratospheric Resolution on Seasonal Forecast Skill for Europe**
A.G. Marshall*, A.A. Scaife
Met Office Hadley Centre, Exeter, UK

1430 M05.23/24303 **Role of the Sea Surface Temperature Variability in the Simulation of the Quasi Biennial Oscillation in an Atmosphere-Ocean Coupled Model**
C. Cagnazzo*, E. Manzini, P. G. Fogli
Centro Euro-Mediterraneo per i Cambiamenti Climatici, Bologna, Italy

1330-1500 **520a**
Session: The Southern Ocean: Its Physics, Chemistry, Biology and Links to the Global Climate System
Chair: Isabelle Ansorge

1330 P07.31/24314 **Processes Affecting the Southern Ocean CO2 Sink**
D. Bakker*, M. Hoppema
School of Environmental Sciences, University of East Anglia, Norwich, UK

1400 P07.33/24314 **The ESASSI-08 Cruise in the South Scotia Ridge Region: Preliminary Analysis of Hydrodynamic and Biogeochemical Data**
D. Gomis*, M. Flexas, M. Palmer, G. Jorda, A.H. Orsi, S.A. Yvon-Lewis
IMEDEA(UIB-CSIC), Mallorca, Spain

1415 P07.34/24314 **How Well does Iron Fertilization in the Southern Ocean Enhance Carbon Export?**
M. Lucas*, R. Pollard, I. Salter, R. Mills, M. Moore, R. Sanders, H. Planquette
Zoology Department, University of Cape Town, Rondebosch, South Africa

*Denotes presenting author.

1630-1800 **520b**
Session: Constituents
Chair: Mu Mu

1630 J21.43/24407 **Emission Rate and Chemical State Estimation by 4-Dimensional Variational Inversion**
H. Elbern*, A. Strunk, O. Talagrand
Rhenis Institute for Chemistry and Geodynamics, Research Centre Jülich, Germany

1700 J21.45/24407 **Data Assimilation: A Tool for Evaluating Chemistry Models**
W.A. Lahoz*, Q. Errera, R. Muller, M. von Hobe
Norwegian Institute for Air Research (NILU); Kjeller, Norway

1715 J21.46/24407 **Inverse Modeling of Methane Emissions Using 4D-Var**
L. Neef*
Royal Dutch Meteorological Institute, De Bilt, The Netherlands

1730 J21.47/24407 **Performance of Local Ensemble Transform Kalman Filter Data Assimilation System on Analysis of Long-lived Tracer Distributions in the Troposphere and Stratosphere**
K. Miyazaki*
Japan Agency for Marine-Earth Science and Technology, Yokohama, Japan

1745 J21.48/24407 **GEMS-Aerosol at ECMWF: Results from Aerosol Analysis and Forecast**
J.-J. Morcrette*, A. Benedetti, O. Boucher, L. Jones, J. W. Kaiser, M. Razinger, D. Salmond, M. Suttie
ECMWF, Reading, UK

1630-1800 **520c**
Session: Climate Sensitivity, Climate Feedbacks and Regional Responses to Global Forcing
Chair: Steven Sherwood

1630 J10.19/24408 **Estimating the Impact of Ocean's Mixing Processes on Uncertainties in Global Surface Warming and Ocean Heat Uptake from Thousands of Models**
K.M. Yamazaki*, D.A. Stone, M.R. Allen
University of Oxford, UK

1645 J10.20/24408 **A Total Linear Response (TLR) Model for Assessing Climate Change Impact on Annual Runoff Over Large River Basins**
L. Wen*, C.A. Lin, Z.Y. Wu, Q. Li
McGill University, Montréal, Canada

1700 J10.21/24408 **Fuzzy Modeling and the Climate Change Problem**
C. Gay-Garcia*, B. Martinez-Lopez
Universidad Nacional Autonoma De Mexico, Mexico

1630-1800 **520de**
Session: Microphysics
Chair: Dave Nolan

1630 J19.37/24409 **Impacts of Evaporation from Raindrop on Tropical Cyclone**
M. Sawada*, T. Iwasaki
Graduate School of Science, Tohoku University, Sendai, Japan

1645 J19.38/24409 **Structure and Pressure-Fall Process of a Developing Typhoon Simulated by the Cloud-Resolving Model**
T. Hioki*, K. Tsuboki
Nagoya University, Nagoya, Japan

1700 J19.39/24409 **Tropical Cyclone Track and Structure Characteristics Near Landfall**
J.C.L. Chan*
City University of Hong Kong, Hong Kong, China

1715 J19.40/24409 **Structure of a Typhoon Spiral Rainband Observed by Dual-Doppler Radar**
H. Zhou*
Chinese Academy of Meteorological Science, Beijing, China

1730 J19.41/24409 **Analyzing the Structure of Typhoon 'Haitang' Based on GPS Dropsonde Data**
S. Shu*, Y. Wang
Key Laboratory of Mesoscale Severe Weather of Ministry of Education (LMSWE/MOE), Nanjing University, Naijing, China

1630-1800 **525ab**
Session: Other Intercomparisons or Model Evaluations
Chair: Igor Mokhov

1630 J11.25/24410 **CCSM3's Representation of the South Bipolar Seesaw during Heinrich Event 2**
K.A. Pingree*, L.A. Doner, C. Morrill, T.R. Boucher
Plymouth State University, Plymouth, NH, USA

1645 J11.26/24410 **Overturning Analysis of the Meridional Energy Transport in the Atmosphere**
K. Döös*, J. Nilsson
Stockholm University, Stockholm, Sweden

1700 J11.27/24410 **The Tropical Cyclone Climate Model Intercomparison Project (TC-MIP)**
K. Walsh*, D. Abbs, L. Bengtsson, S. Camargo, R. Cechet, J. Chan, J. Elsner, K. Emanuel, K. Hodges, G. Holland, M. Huddleston, T. Jagger, T. Knutson, L. Leslie, R. McDonald, K. McGuffie, H. Murakami, K. Nguyen, K. Oouchi, J.-F. Royer, M. Satoh, S. Schubert, E. Scoccimarro, M. Sugi, Y. Takayabu, K. Trenberth, J. Tsutsui, F. Vitart, Y. Wang, J. Yoshimura, M. Zhao
University of Melbourne, Parkville, Australia

*Denotes presenting author.

1715 J11.28/24410 **How Well do Atmospheric General Circulation Models Capture the Leading Modes of the Interannual Variability of Asian-Australian Monsoon?**
B. Wu*, T. Zhou, B. Wang
Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China

1730 J11.29/24410 **How Well are Southern Hemisphere Teleconnection Patterns Predicted by Seasonal Climate Models?**
T. Ambrizzi*, S.T. Ferraz, M.A. Luna
University of São Paulo, São Paulo, Brazil

1745 J11.30/24410 **Initial Results from the UK RAPID THC Model Intercomparison Project**
B. Balan Sarojini*, J. Gregory, R. Tailleux
National Centre for Atmospheric Science-Climate Division, University of Reading, UK

1630-1800 **516c**
Session: Wind Storms and Droughts
Chair: Piero Lionello

1630 J18.13/24411 **European Wind Storms in Climate Change Simulations: Estimation of Occurrence and Impacts in Multi-Model Simulations**
M.G. Donat*, G.C. Leckebusch, J.G. Pinto, S. Wild, U. Ulbrich
Freie Universität Berlin, Institut Für Meteorologie, Germany

1645 J18.14/24411 **Impacts of Climate Change on Storminess and Coastal Erosion in the Gulf of St-Lawrence**
J.-P. Savard*, P. Gachon, A. Bourque
Consortium Ouranos sur la Climatologie Régionale et L'Adaptation aux Changements Climatiques, Montréal, Canada

1700 J18.15/24411 **Human Amplification of Drought-induced Fire Disasters in Indonesia since 1960**
R.D. Field*, G.R. van der Werf, S.S.P. Shen
University of Toronto, Toronto, Canada

1630-1800 **524ab**
Session: Seasonal to Centennial Variability (2)
Chair: Charles McLandress

1630 M05.25/24403 **North Atlantic Decadal Variability: Mechanisms, Impacts, and Prediction**
N. Keenlyside*, N.-E. Omrani, J. Ba, M. Latif, J. Mecking, W. Park, V. Semenov
IFM-GEOMAR, Kiel, Germany

1700 M05.27/24403 **Stratospheric Influence On Tropospheric Climate Change**
M. Sigmond*, J. Scinocca
University of Toronto, Canada

1730 M05.29/24403 **Influence of Stratospheric Sudden Warming and Vortex Intensification on the Tropical Troposphere**
Y. Kuroda*
Meteorological Research Institute, Tsukuba, Japan

1745 M05.30/24403 **The Response of Northern Hemisphere Stratospheric Sudden Warmings to Changes in CO2**
C.J. Bell*, L.J. Gray, J.A. Kettleborough
Walker Institute, University of Reading, Reading, UK

*Denotes presenting author.

1500-1630 Exhibit Hall
Poster board numbers are listed in the left margin

J351 J10.1/24417 **Economic Impact of Climate Change on Israeli Agriculture**
D.A. Asamoah*, D. Haim
Kwabina Yeboah ENT./WICO Africa, Accra, Ghana

J352 J10.2/24417 **Impact of Climate Change on Different Facets of Life in India**
S. Nair*
Nansen Environmental Research Centre - India

J353 J10.3/24417 **Regional Features of Permafrost in Mahan Mountain and their Relationship to the Environment**
C. Xie*, L. Zhao, T. Wu
Cold and Arid Regions Environmental and Engineering, Lanzhou, China

J354 J10.4/24417 **Paleosols Development as Cryogenic Process and their Chronology**
J.Y. Kim*, D.Y. Yang
Korea Institute of Geoscience and Mineral Resources, Teajeon, Korea

J355 J10.5/24417 **Recent Investigation and Monitoring on Permafrost and its Environment over Qinghai-Xizang (Tibet) Plateau, China**
L. Zhao*, Y. Ding, G. Cheng
CRS-QXT, Cold and Arid Regions Environmental and Engineering Research Institute, CAS, Lanzhou, China

J356 J10.6/24417 **Fluctuation of a Mountain Glacier-fed Lake and Climate Change in Recent 30 years, Tibet- Himalaya**
J. Liu*, X. Ma, H. Wang, J. Xu, Y. Xie
Institute of Tibetan Plateau Research, Chinese Academy of Sciences, Beijing, China

J357 J10.7/24417 **Changes of Interannual Variability in Surface Temperature in the Northern Hemisphere in Response to Global Warming**
D. Sakai*, H. Itoh, S. Yukimoto
Kyushu University, Fukuoka, Japan

J358 J10.8/24417 **Interdecadal Variability of the Structure of the Tsushima Warm Current in the Japan Sea**
T. Watanabe*, Y. Igeta
Japan Sea National Fisheries Research Institute, Fisheries Research Agency, Niigata, Japan

J359 J10.9/24417 **Emission Scenario Dependences in Climate Change Assessments on Hydrological Cycle**
H. Shiogama*, N. Hanasaki, Y. Masutomi, T. Nagashima, T. Ogura, K. Takahashi, Y. Hijioka, T. Takemura, T. Nozawa, S. Emori
National Institute for Environmental Studies, Tsukuba, Japan

J360 J10.10/24417 **Regional Peculiarities of Response to Controlled Sulphur Emissions in the Stratosphere (Geoengineering)**
I.I. Mokhov*, A.V. Eliseev, A.A. Karpenko
A.M. Obukhov Institute of Atmospheric Physics RAS, Moscow, Russia

J361 J10.11/24417 **A New Feedback on Climate Change from the Hydrological Cycle**
P.D. Williams*, E. Guilyardi, R.T. Sutton, J.M. Gregory, G. Madec
University of Reading, UK

J362 J10.12/24417 **Soil Thermal Regime of Active Layer in Wudaoliang Region of the Yangzi Rive Source**
R. Li*, L. Zhao, Y. Ding
Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences, China

J363 J10.13/24417 **Scenarios of Future Emissions of CO2 derived by Means of Fuzzy Control**
B. Martinez-Lopez*, C. Gay-Garcia
Universidad Nacional Autonoma de México, México

J366 J11.1/24417 **The Improvement of MOM4 by Adding the Process of Wave-induced Mixing**
Q. Shu*, F. Qiao, Z. Song, C. Xia, Y. Yang
The First Intitute of Oceanography, SOA, Qingdao, China

J367 J11.2/24417 **Evaluation of the Moisture Transport and Convergence in Southern South America in the WCRP-CMIP3 Multimodel Dataset**
C. Gulizia*, I. Camilloni, M. Doyle
University of Buenos Aires, Buenos Aires, Argentina

J368 J11.3/24417 **Analysis of Precipitable Water Using the NCEP Reanalysis Data and from the Ground Humidity Parameters**
W. Wang*, S. Zhang
Weather Modification Office of Sichuan Province, Chengdu, China

J369 J11.4/24417 **An Intercomparison of Performance of Statistical Downscaling and Regional Climate Models**
R. Huth*, J. Miksovský, P. Stepánek
Institute of Atmospheric Physics, Prague, Czech Republic

J370 J11.5/24417 **Improvement of Seasonal Prediction Skill by Weighting Different Climate Models over Iran**
Sh. Ghandhari*, I. Babaeian, M. Habibi.N, A. Ghiamee, M. Karimyan, R. Modiryan, F. Z.Abasi, Sh. Malboosi, L. Khazanehdari
Climatology Research Institute, Mashad, Iran

J371 J11.6/24417 **Climatic Impacts of Stochastic Air-Sea Fluxes in a Coupled GCM**
P.D. Williams*
University of Reading, UK

J372 J11.7/24417 **Atmospheric Freshwater Transport in Three Generations of the Hadley Centre Model (HadCM3, HadGEM1, HadGEM2-AO)**
J.M. Rodríguez*, T.C. Johns, R.B. Thorpe
Met Office Hadley Centre for Climate Prediction and Research, Met Office, Exeter, UK

J373 J11.8/24417 **Analysis of Global Circulation Models Ability to Simulate Predictor Variables Over Iran**
S. Samadi*, M. Habibi Nokhandan, G. Farmani
Climatological Research Institute(CRI), Mashhad, Iran

J374 J11.9/24417 **CMIP3 Multi-model Comparison on the Interannual Variability of the Upper Ocean Heat Content in the Tropical Pacific**
T. Yasuda*, T. Hasegawa
Meteorological Research Institute, Tsukuba, Japan

J375 J11.10/24417 **Climate Model Discrimination for Ensemble Projections**
V. Kattsov*
Voeikov Main Geophysical Observatory, St. Petersburg, Russia

J429 J18.1/24417 **Using CBERS-2B Data for Identification of Risk Zones in the Central Andes**
J. Arigony-Neto*, R.R. Ribeiro, C.W. Mendes Junior, J.C. Simoes, E. Ramirez
Universidade Federal do Rio Grande, Rio Grande, Brazil

J430 J18.2/24417 **Understanding of Land-Ocean-Atmosphere Coupling Associated with Natural Hazards Using Multi Sensor Data**
R. Gautam*, R.P. Singh, A.K. Prasad, M. Kafatos
Chapman University, Orange, USA

J431 J18.3/24417 **Satellite Retrieved Cloud Microstructure Applied to Detecting Developing Severe Convective Storms**
D. Rosenfeld*, W.L. Woodley, G. Kelman, J.H. Golden
The Hebrew University of Jerusalem, Jerusalem, Israel

J432 J18.4/24417 **Now-casting Lightning Clusters in the Mediterranean Region using WDSS-II**
C. Price*, M. Kohn, E. Galanti, K. Lagouvardos, V. Kotroni
Tel Aviv University, Tel-Aviv, Israel

J433 J18.5/24417 **ENSO and Extreme Events of Rainfall and Streamflow in South America**
A. Grimm*, R.G. Tedeschi
Federal University of Parana, Curitiba, Brazil

J434 J18.6/24417 **The Combination Anomaly of Generation Circulations in "0801" Event of Cold Air, Freezing Rain and Snow over Southern China**
C. Miao*, J. Wang, L. Wang
College of Atmospheric Science, Nanjing University of Information Science & Technology, Nanjing, China

J435 J18.7/24417 **Seasonal Predictability of Winter Storms in the North Atlantic/European Region**
D. Renggli*, G.C. Leckebusch, U. Ulbrich, E. Faust
Insitut of Meteorology, Freie Universitaet Berlin, Germany

J436 J18.8/24417 **Extreme Climate Events and Atmospheric Blocking in the Euro-Atlantic Domain**
M. Croci-Maspoli*, J. Sillmann
Max Planck Institute for Meteorology, Hamburg, Germany

J437 J18.9/24417 **Estimation of Extreme Wind Speeds in the Mixed Strong Wind Climate of South Africa**
A.C. Kruger*, S. Sekele, A.M. Goliger, J.V. Retief
South African Weather Service, Pretoria, South Africa

J438 J18.10/24417 **Influence of the Climate on Coastal Erosion in Temperate Regions: Gulf of St. Lawrence, Quebec, Canada**
C. Fraser*, P. Bernatchez, Y. Jolivet, S. Friesinger, S. Dugas
Laboratoire de dynamique et de gestion intégrée des zones côtières, Module de géographie, Université du Québec à Rimouski, Canada

J439 J18.11/24417 **Analysis of Zone of Vulnerability and Impact of Forest Fires in Forest Ecosystem in North Algeria by using Alsat-1 data**
Z. Ahmed*
Centre of Spaces Techniques, Arzew, Algeria

J440 J18.12/24417 **Data-Driven Approach to Model-Based Precipitation Type Classification**
P. Musilek, E.P. Lozowski, D. Arnold*
University of Alberta, Canada

J460 J21.1/24417 **Ocean Data Assimilation in GloSea4: UKMO's New Seasonal Forecast System**
K.A. Peterson*, A. Arribas, M.J. Martin, D. Lea
UK MetOffice, Exeter, UK

J461 J21.2/24417 **Data Assimilation into an Eddy-permitting Model of the North Atlantic**
E. Demirov*, J.-M. Brancart, J. Zhu
Department of Physics and Physical Oceanography, Memorial University of Newfoundland, St. John's, Canada

J462 J21.3/24417 **Parameter Estimation for Data Assimilation with a Coupled Ocean-Atmosphere System**
S. Skachko*, P. Gauthier, J.-M. Bélanger
Department of Earth and Atmospheric Sciences, Université du Québec à Montréal, Canada

J463 J21.4/24417 **Optimization of the Phytoplankton Parameters of the 1D PISCES Biogeochemical Model version Using an Adjoin Method: Application to Some both JGOFS Stations and Impacts on Global 3D Model**
A. Kane*, C. Moulin, S. Thiria, A. Tagliabue, L. Bopp, M. Berrada, F. Badran,
IPSL/LSCE, Gif sur Yvette, France

J464 J21.5/24417 **False Static Instability in Ocean (T, S) Data Assimilation**
P.C. Chu*
Naval Postgraduate School, Monterey, USA

*Denotes presenting author.

J465 J21.6/24417 **Parameter Estimation for Gravity Wave Schemes Using a Genetic Algorithm**
M. Pulido*, S. Polavarapu, T. Shepherd, J. Thuburn
University of Toronto, Toronto, Canada

J466 J21.7/24417 **Impact of Interaction between Assimilated and Non-Assimilated Constituents - Assimilation Experiments with MIPAS Measurements**
Y. Yang*, Y.J. Rochon, S. Chabrillat, A. Robichaud, T. von Clarmann, R. Ménard, C. Charette, J. de Grandpre, P. Gauthier
Air Quality Research Division, Environment Canada, Toronto, Canada

J467 J21.8/24417 **Development of an MRI Chemistry-climate Model Coupled with Data Assimilation System for Ozone Forecasts**
K. Shibata*, M. Deushi
Meteorological Research Institute, Tsukuba, Japan

J468 J21.9/24417 **Testing Ensemble-based Chemical-Dynamical Data Assimilation in the Stratosphere**
T. Milewski*, M.S. Bourqui
McGill University, Montréal, Canada

J469 J21.10/24417 **Aerosol Data Assimilation with an Ensemble Kalman Filter Using CALIPSO and Ground-Based Lidar Observations**
T.T. Sekiyama*, T.Y. Tanaka, A. Shimizu, T. Miyoshi
Meteorological Research Institute, Tsukuba, Japan

J470 J21.11/24417 **Gustiness as Predictor for Lifting Sea-salt and Dust Aerosols in the ECMWF IFS**
J.-J. Morcrette*, A. Beljaars, A. Benedetti, L. Jones, O. Boucher
ECMWF, Reading, UK

M532 M05.1/24417 **Effect of Global Dimming and Brightening and 1970s Climate Shift on Stratospheric Cooling**
K. Mohanakumar*, P.A. Pillai, N. Viswambaran
Cochin University of Science and Technology, Cochin, India

M533 M05.2/24417 **Decadal Variations of the Stratospheric Wave Activity and SST Anomalies in the North Pacific**
E.A. Jadin*
P.P. Shirshov Institute of Oceanology, Moscow, Russia

M534 M05.3/24417 **Influence of Lower Stratospheric Ozone Variation on Tropospheric Temperature and Mean Meridional Circulation in the Northern Hemisphere Summer in the Recent Past**
T. Nakamura*, H. Akiyoshi, Y. Yamashita
National Institute for Environmental Studies, Tsukuba, Japan

M535 M05.4/24417 **Modeling the Coupled Stratosphere-Troposphere Stationary Wave Response to Climate Change**
L. Wang*, P. Kushner
University of Toronto, Canada

M536 M05.5/24417 **Atmospheric Response to the Gulf Stream in an AGCM**
A. Kuwano-Yoshida*, S. Minobe, S.-P. Xie
JAMSTEC, Yokohama, Japan

M537 M05.6/24417 **Saturation of Equatorial Waves Seen in The SABER/TIMED Temperature Data**
Z.-Y. Chen*
LAGEO / Institute of Atmospheric Physics / Chinese Academy of Sciences, Beijing, China

M538 M05.7/24417 **Propagation Properties of the Northern Hemispheric Polar Vortex Oscillations in data and GCM Simulation**
R.-C. Ren*, M. Cai, G. Wu
LASG, Institute of Atmospheric Physics, CAS, Beijing, China

M539 M05.8/24417 **Stratospheric Circulation in ENSEMBLES Models: Implications for Seasonal Forecasting**
S.P.E. Keeley*, A.C. Maycock, A.J. Charlton-Perez, F. Doblas-Reyes
University of Reading, Reading,UK

M540 M05.9/24417 **Impacts of the Stratospheric Seasonal Cycle on the Planetary Waves and Annular Modes**
G. Chen*, A. Plumb
Program of Atmospheres, Oceans and Climate, Massachusetts Institute of Technology, Cambridge, USA

M541 M05.10/24417 **Stratospheric Precursors of Cold Air Outbreaks**
E.W. Kolstad*, T. Breiteig, A.A. Scaife
Bjerknes Centre for Climate Research, Bergen, Norway

M542 M05.11/24417 **Diabatic Effects on Troposphere/ Stratosphere Exchange**
M. Caian*
National Meteorological Administration Bucharest, Romania

M543 M05.12/24417 **Stratosphere/troposphere Coupling Process in the Lifecycles of Submonthly Northern and Southern Annular Modes**
X.F. Li*, J.P. Li
LASG, Institute of Atmospheric Physics (IAP), Chinese Academy of Sciences, Beijing, China

M544 M05.13/24417 **Atmospheric Response to Atlantic Multidecadal Ocean Variability: The Role of the Ocean Mixed Layer and Stratosphere**
N.-E. Omrani*, N. Keenlyside, M. Latif
IFM-GEOMAR, Kiel, Germany

P569 P02.1/24417 **Preliminary Analysis of the Temperature Variability in the Bahía Blanca Estuary, Argentina**
M.C. Piccolo*, D. Beigt
Instituto Argentino de Oceanografía, Bahía Blanca, Argentina

P570 P02.2/24417 **Effect of Vegetation on a Summer Heat Balance in an Argentine Coastal Wetland**
M.C. Piccolo*, A. Vitale, G.M.E. Perillo, C. Delrieux
Instituto Argentino de Oceanografía (CONICET-UNS), Bahía Blanca, Argentina

P571 P02.3/24417 **The Teleconnection between Sea Surface Temperature Analysis from In Situ Data at East Mole, Lagos and Global Warming**
O. Ediang*, A. Ediang
Nigerian Meteorological Agency, Oshodi Lagos, Nigeria

P572 P02.4/24417 **Vulnérabilité des Systèmes Côtiers à l'élévation du Niveau Marin entre la Volta et le Mono dans le Golfe du Bénin (Afrique de l'Ouest)**
P. Adjoussi*, A.B. Blivi
Cgile/Université de Lomé, Lomé, Togo

P573 P02.5/24417 **Inter-annual and Decadal Changes in Hydrography and Sea Level in the Yellow Sea**
Y. Lu*, H. Wei, J. Shi, R. Zhao, S. Feng
Physical Oceanography Lab, Ocean University of China, Qingdao, Shandong, China

P574 P02.6/24417 **Assessing Groundwater Vulnerability to Sea Level Rise and Impact on Livelihood: A Case of Lakshasdweep Islands, Indian Ocean**
S. Sreekesh*, J. Sundaresan
Jawaharlal Nehru University, New Delhi, India

*Denotes presenting author.

0830-1000 **518a**
Session: UTLS Structure and Transport
Chair: Laura Pan

0830 M02.1/27101 **Evolving Understanding of the Global Tropopause**
W. Randel*
NCAR, USA

0900 M02.3/27101 **Trends in the Global Tropopause Estimated from CHAMP GPS Radio Occultation Data**
T. Schmidt*, S. Heise, J. Wickert
GFZ German Research Centre for Geosciences, Germany

0915 M02.4/27101 **Increase of Upper Troposphere/ Lower Stratosphere Wave Baroclinicity: Trends in the Baroclic Wave Energies and in the Frequency of Multiple Tropopause Events**
J.M. Castanheira*, J.C. Antuña, J.A. Añel, M.L.R. Liberato, L. de la Torre, L. Gimeno
CESAM, Portugal

0930 M02.5/27101 **Climatological Features of the Upper Troposphere and Stratosphere in the GEOS-5 'Merra' Analyses (1979-2008)**
S. Pawson*, M. Bosilovich, H.-C. Liu, N. McKee, M. Rienecker
Global Modeling and Assimilation Office, NASA GSFC, USA

0945 M02.6/27101 **Stratospheric and Tropospheric Jet Characterization and Analyses of Aura and ACE Data in the Context of Jet Structure and Evolution**
G.L. Manney*, M.I. Hegglin, W.H. Daffer, M.L. Santee, K.A. Walker, P.F. Bernath, J.C. Gille, N.J. Livesey, B. Nardi, S. Pawson
Jet Propulsion Laboratory, California Institute of Technology, USA

0830-1000 **518bc**
Session: TSI Measurements and Modelling
Chair: Tom Woods

0830 M03.1/27102 **Total Solar Irradiance Measurements from the Total Irradiance Monitor**
G. Kopp*, J. Lean, D. Harber, K. Heuerman
LASP / University of Colorado, USA

0852 M03.2/27102 **The TSI Measurements of PMOD/ WRC**
W. Finsterle*, S. Dewitte, A. Fehlmann, C. Fröhlich, W. Schmutz
PMOD/WRC, Switzerland

0915 M03.4/27102 **TSIS: The Total and Spectral Solar Irradiance Sensor**
P. Pilewskie*, G Kopp, E. Richard, J. Harder, J. Fontenla, T. Woods
University of Colorado, Laboratory for Atmospheric and Space Physics, USA

0930 M03.5/27102 **RMIB TSI Composite and Solar Minima**
S. Mekaoui*, S. Dewitte
Royal Meteorological Institute of Belgium, Belgium

0830-1000 **519ab**
Session: Tropical Circulations
Chair: Mike Blackburn

0830 M10.1/27103 **ITCZ Splitting, Multiple-States and Long-term Memory: Tropical Mean States on an Earth-type Aqua-Planet**
H. Borth*
KlimaCampus, University of Hamburg, Germany

0900 M10.3/27103 **On the Scaling of the Width of Hadley Cell in Moist Atmosphere**
J. Lu*, D. Frierson, G. Chen
George Mason University, USA

0915 M10.4/27103 **The Varieties of Tropical Precipitation Patterns Forced by a Localized Sea Surface Temperature Anomaly on the Equator: Some Expectations and APE Results**
K. Nakajima*, Y. Yamada, Y. Takahashi, M. Ishiwatari, W. Ohfuchi, Y.Y. Hayashi
Kyushu University, Japan

0930 M10.5/27103 **Global Tropical-Extratropical Teleconnection during the Northern Hemisphere Summer: Observational Analysis**
B. Wang*, Q. Ding
University of Hawaii at Manoa, USA

0945 M10.6/27103 **Interaction between the Hadley and the Walker Circulation in an Aqua-planet GCM**
M. Mori*, M. Watanabe
University of Tokyo, Japan

0830-1000 **524c**
Session: Lightning Characteristics
Chair: Vladimir Rakov

0830 M17.1/27105 **Geographical Variations of Lightning Characteristics**
O. Pinto Jr.*
Brazilian Institute of Space Research, Brazil

0900 M17.3/27105 **High-Speed Video Observations of Positive Lightning in Brazil, USA and Austria**
M.M.F. Saba*, T.A. Warner, W. Schulz, K.L. Cummins, L.Z.S. Campos, O. Pinto Jr
INPE, National Institute for Space Research, Brazil

0915 M17.4/27105 **Characteristics of Multiple-ground Terminations Lightning Flash Discharges**
Y. Zhao*, X.Z. Kong, X.S. Qie, G.S. Zhang, T. Zhang
Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences, China

0930 M17.5/27105 **Parameters of Compact Intracloud Discharges Inferred From Their Electromagnetic Signatures**
V.A. Rakov*, A. Nag, D. Tsalikis, J.A. Cramer
University of Florida, USA

0945 M17.6/27105 **Channel Characteristics of NBE as Inferred From Narrow Bipolar Radiation Field**
B.Y. Zhu*, H.L. Zhou, M. Ma
University of Science and Technology of China, China

1030-1200 518a
Session: UTLS Structure and Transport
Chair: Piers Foster

1030 M02.7/27201 **Representation of the TTL in a New Convective Parameterization**
I. Folkins*
Dalhousie University, Canada

1100 M02.9/27201 **Importance of Convective Overshooting Troposphere to Stratosphere Transport in the Tropics at the Global Scale**
J-P. Pommereau*, J.P. Vernier, P. Ricaud
LATMOS, CNRS, Université de Versailles, France

1115 M02.10/27201 **Transport Across the TTL and Stratospheric Water Vapor Inferred from ERA-Interim Trajectories**
F. Ploeger*, P. Konopka, G. Guenther, J.-U. Grooss, C. Schiller, R. Mueller
Forschungszentrum Juelich, Germany

1130 M02.11/27201 **Overshooting Clouds as Observed by A-Train with Physical Relationship and their Statistics**
T. Yuan*, L.A. Remer, J.V. Martins
Climate and Radiation Branch, NASA Goddard Space Flight Center, USA

1145 M02.12/27201 **Tropical Upper Troposphere Ozone from GOME1, SCIAMACHY, and GOME2 (1995-present)**
M. Weber*, T. Patel, J. Burrows
Institute of Environmental Physics, University of Bremen FB1, Germany

1030-1200 518bc
Session: SSI Measurements and Modelling
Chair: Werner Schmutz

1030 M03.7/27202 **The Solar Spectrum: Methods of Measurements Calibration, and Recent Results**
G. Thuillier*
LATMOS-CNRS, France

1052 M03.9/27202 **Solar Spectral Irradiance Modeling: Rotational to Solar-cycle Timescales**
Y.C. Unruh*, W.T. Ball, N.A. Krivova, S.K. Solanki
Astrophysics Group, Imperial College London, UK

1115 M03.10/27202 **Trends in Solar Spectral Irradiance Variability in the Visible and Infrared**
J. Harder*, J. Fontenal, P. Pilewskie, E. Richard, T. Woods
Laboratory for Atmospheric and Space Physics, University of Colorado, USA

1130 M03.11/27202 **Solar UV/visible/IR Irradiance Changes in Terrestrial Atmospheric bands derived from SUSIM, SCIAMACHY, and SIM Satellite Observations**
M. Weber*, J.A. Pagaran, L. Floyd, M.T. DeLand, N. Krivova, S. Solanki, J. Harder, J. Burrows
Institute of Environmental Physics (IUP), Germany

1145 M03.12/27202 **Solar Irradiance Reference Spectra for 2008 Minimum: Is this Minimum Lower?**
T.N. Woods*, P.C. Chamberlin, J.W. Harder, R.A. Hock, M. Snow, F.G. Eparvier, J. Fontenla, W.E. McClintock, E.C. Richard
Laboratory for Atmospheric and Space Physics (LASP), University of Colorado, USA

1030-1200 519ab
Session: Tropical Circulations
Chair: Brian Hoskins

1030 M10.7/27203 **Idealized Studies of the ITCZ and its Multi-Level Circulations**
D.S. Nolan*, S.W. Powell, C. Zhang
Rosenstiel School of Marine and Atmospheric Science, University of Miami, USA

1045 M10.8/27203 **Tropical Convective Margins**
J. D. Neelin*, B. Lintner
UCLA Dept. of Atmospheric and Oceanic Sciences and Institute of Geophysics and Planetary Physics, USA

1115 M10.10/27203 **Long Coastlines of Indonesian Maritime Continent Governing the Global Climate**
M.D. Yamanaka*, S. Mori, P.-M. Wu, J.-I. Hamada, N. Endo, Y. Tachibana, J. Matsumoto, F. Syamsudin
IORGC/JAMSTEC, Yokosuka, and DEPS-CPS/Kobe University, Japan

1130 M10.11/27203 **Sensitivity of Intensities of Subtropical Jet and Hadley Circulation on Resolutions of Atmospheric General Circulation Models**
W. Ohfuchi*, Y. Yamada, T. Sampe, Y.O. Takahashi, M.K. Yoshioka, K. Nakajima, M. Ishiwatari, Y.-Y. Hayashi
Japan Agency for Marine-Earth Science and Technology, Japan

1030-1200 524ab
Session: Impacts of Megacities on Atmospheric Chemistry
Chair: Maria Kanakidou

1030 M15.1/27204 **The Impacts of Megacities on Air Quality and Climate Change**
T. Zhu*
Peking University, China

*Denotes presenting author.

1100 M15.3/27204 **The CityZen Project - Bridging the Scales with Focus on Megacities**
M. Gauss*, M. Kanakidou, Ø. Hov, M. Amann, C. Granier, A. Maurizi, P. Monks, A. Richter, M. Schultz, L. Rouil,
Norwegian Meteorological Institute, Norway

1115 M15.4/27204 **Spatial and Temporal Characteristics in Aerosol Properties over India: Hot Spots and Attributions**
S. Dey*, L. Di Girolamo
University of Illinois at Urbana Champaign, USA

1130 M15.5/27204 **Layered Structure of Aerosol Particles and Their Optical Properties in the Boundary Layer at Beijing, China**
B. Chen*, G.Y. Shi, Y. Iwasaka, D. Zhang, M. Hayashi, A. Matsuki, K. Yamashita, A. Shimizu, N. Sigimoto, M. Yamada
Institute of Atmospheric Physics, Chinese Academy of Sciences, China

1030-1200 **524c**
Session: Lightning and Man-Made Structures
Chair: C. Bouquegneau

1030 M17.7/27205 **On the Measurement and Calculation Methods of Lightning Horizontal Electric Fields**
F. Rachidi*, M. Rubinstein, A. Shoory, R. Thottappillil
Swiss Federal Institute of Technology (EPFL), Switzerland

1100 M17.9/27205 **On the Lightning Protection of High Structures**
D. Wang*, N. Takagi, W. Lu, Y. Zhang
Gifu University of Japan, Japan

1115 M17.10/27205 **The Use of High-speed Video Records to Distinguish between Leader/Return Stroke and M-component Modes of Charge Transfer in Upward Lightning**
F.H. Heidler*, V.A. Rakov, D. Flache, W. Zischank, R. Thottappillil
University of Florida, USA

1130 M17.11/27205 **Calculation of Electric and Magnetic Fields at the CN Tower in Cartesian Coordinates**
I. Boev*, W. Janischewskyj
University of Toronto, Canada

1145 M17.12/27205 **An Improved Antenna Theory Model for the Evaluation of Radiated Electromagnetic Fields due to Lightning Strikes to Tall Towers**
R. Moini*, S.H.H. Sadeghi, B. Kordi, S.H. Seyed Moosavi
Department of Electrical Engineering, Amirkabir University of Technology, Iran

1330-1500 **518a**
Session: UTLS Structure and Transport
Chair: Karen Rosenlof

1330 M02.13/27301 **The Seasonality of the Composition of Air in the Tropical Tropopause Layer (TTL): Impact of the Asian Monsoon**
P. Konopka*, M. Park, J.-U. Grooss, G. Guenther, R. Walter, F. Ploeger, R. Mueller, W.J. Randel
Forschungszentrum Juelich, Germany

1400 M02.15/27301 **Transport and Mixing in the Extratropical UTLS Observed During the START08 Experiment**
L.L. Pan*, K.P. Bowman, E. Atlas
NCAR, USA

1415 M02.16/27301 **Identification of Transport Pathways using Modeled and Observed CO-O3 Correlations**
P. Konopka*, B. Vogel, E. Atlas, K.P. Bowman, T. Campos, B. Hall, R. Müller, I. Pollack, A. Weinheimer, L. Pan,
Research Center Jülich, Institute for Stratospheric Research (ICG-I), Germany

1430 M02.17/27301 **Satellite Observations and Simulation of Subvortex Processing and Related Upper Troposphere/Lower Stratosphere (UTLS) Transport**
M.L. Santee*, G.L. Manney, W.G. Read, N.J. Livesey, R.S. Harwood, K.A. Walker
Jet Propulsion Laboratory, California Institute of Technology, USA

1445 M02.18/27301 **The Lyapunov Diffusivity: A New Diagnostic to Detect Local Mixing Events in the UTLS**
E.F. Shuckburgh*, F. d'Ovidio, B. Legras
British Antarctic Survey, UK

1330-1500 **518bc**
Session: Energetic Particles
Chair: Victor Fomichev

1330 M03.13/27302 **A Correlation between Cirrus Clouds and Galactic Cosmic Rays? - Findings from MIPAS-E and SAGE II**
S. Rohs*, R. Spang, F. Rohrer, C. Schiller, H. Vos
Forschungszentrum Juelich, Germany

1345 M03.14/27302 **Effects in Chemical Composition of the Middle Atmosphere over both Polar Regions after SPE of October 2003: 3D Model Simulations**
A.A. Krivolutsky*, T.Yu. Vyushkova, A.A. Kukoleva, A.A. Kuminov, G.R. Zakharov, I.N. Myagkova
Central Aerological Observatory, Russia

1400 M03.15/27302 **Impact of Ionizing Particle Precipitation on the Middle Atmosphere**
K. Semeniuk*, V.I. Fomichev, C. Fu, S.M.L. Melo
York University, Canada

1430 M03.17/27302 **Odd Nitrogen Variability Caused by Energetic Particle Precipitation: What Have We Learned from MIPAS?**
B. Funke*, M. Lopez-Puertas, G.P. Stiller, T. von Clarmann, U. Grabowski, A. Linden, S. Kellmann
Instituto de Astrofísica de Andalucía (CSIC), Spain

1330-1500 **519ab**
Session: Intraseasonal Variations
Chair: David Nolan

1330 M10.13/27303 **Multiscale Organization of Equatorial Waves**
G.N. Kiladis*, S.N. Tulich
Earth System Research Laboratory, NOAA, USA

1400 M10.15/27303 **The Modulation of Tropopause-level Wave Breaking by the Madden Julian Oscillation**
O. Martius*, R.W. Moore, T. Spengler, H.C. Davies
Naval Postgraduate School, USA

1415 M10.16/27303 **Genesis of Tropical Waves and Intraseasonal Oscillations**
J.S. Frederiksen*
CSIRO Marine and Atmospheric Research, Australia

1430 M10.17/27303 **Interaction of Equatorial Waves through Resonance with Moist Convection: The Impact of the Diurnal Cycle of Heating**
C.F.M. Raupp*, P.L. Silva Dias
Instituto de Física Teórica / Universidade Estadual Paulista, Brazil

1330-1500 **524ab**
Session: Emissions
Chair: Jim Drummond

1330 M15.7/27304 **Emission Inventory in Belarus: Methodology, Emission Trends and Projection**
S. Kakareka*, A. Malchykhina
Institute for Nature Management, National Academy of Sciences, Belarus

1345 M15.8/27304 **Model Analysis of Fine Particle Pollution in Beijing during the 2008 Olympic Games**
M. Zhang*, L. Zhu, Y. Wang, W. Liu
LAPC, Institute of Atmospheric Physics, Chinese Academy of Sciences, China

1400 M15.9/27304 **Landscape-Scale Study of Large Ammonia Point Sources: Characterisation of Source Strength, Variability, and Flows of Ammonia Using Measurement and Modelling Approaches**
C.F. Braban*, E. Vogt, U. Dragosits, M.A. Sutton
Centre for Ecology and Hydrology Edinburgh, UK

1415 M15.10/27304 **Emission of Trace Gases and their Outflow from South Asia: A Satellite Perspective**
S.D. Ghude*, G. Beig
Indian Institute of Tropical Meteorology, India

1430 M15.11/27304 **Impacts of Summer Biomass Burning in Australia on Carbon Monoxide, Ozone and Aerosols in the Troposphere of Darwin**
Y. Yin*, P. Qu, A.. Heymsfield, A. Grant
CMA Key Lab for Atmospheric Physics and Environment (NUIST), China

1445 M15.12/27304 **1850-2300 Non-CO2 Emissions for IPCC AR5**
J.-F. Lamarque*, T. Bond, V. Eyring, C. Granier, M. Kainuma, C. Liousse, A. Mieville, K. Riahi, M. Schultz, S. Smith, D. Stevenson, A. Thomson, J. Van Aardenne D. Van Vuuren
National Center for Atmospheric Research, USA

1330-1500 **524c**
Session: Lightning Locating and Warning
Chair:

1330 M17.13/27305 **An Evaluation of Cloud-to-Ground (CG) Lightning Warnings based on LF/VLF Cloud-to-Ground and VHF Total Lightning Mapping Network Data**
N.W.S. Demetriades*
Vaisala, Inc., USA

1400 M17.15/27305 **Experience on Thunderstorm Tracking and Cloud-to-ground Lightning Warning for Human Life Protection in Brazil**
K.P. Naccarato*, O. Pinto Jr., H.H. Ferreira Jr.
National Institute of Space Research (INPE), Brazil

1415 M17.16/27305 **The Surface Electric Field-Recovery Curves of the Lightning Discharges Occurring in the Dissipation Stage of Thunderstorms**
S.D. Pawar*, A.K. Kamra
Indian Institute of Tropical Meteorology, India

1430 M17.17/27305 **VLF-VHF Dual Band Lightning Detection and Location Network (LDLN): Find Where the Lightning Radiation Events Occurred**
T. Wang*, W.S. Dong, Y.J. Zhang, H.Y. Liu
Laboratory of Lightning Physics and Protection Engineering, Chinese Academy of Meteorological Sciences, China

1630-1800 **518a**
Session: UTLS Structure and Transport
Chair: Greg Bodeker

1630 M02.19/27401 **Potential Vorticity as a Barrier to Exchange between the Troposphere and Lowermost Stratosphere**
J. Gille*, S. Karol, V. Yudin, D. Kinnison, B. Nardi
University of Colorado, USA

*Denotes presenting author.

1645 M02.20/27401 **Modelling the Cirrus Occurrence at Mid-latitudes through the Isentropic Transport**
N. Montoux*, P. Keckhut, A. Hauchecorne, H. Brogniez, C. David
LATMOS, France

1700 M02.21/27401 **Interannual Variability of Dynamical Barriers in the Stratosphere: Statistical Diagnostics to Satellite Observations**
F. Fierli*, E. Palazzi, S. Bekki, F. Cairo, G. Di Donfrancesco
Institute of Atmospheric Sciences and Climate-CNR, Italy

1715 M02.22/27401 **Simulation of the Atmospheric Tape Recorder Signal in HCN**
R. Müller*, R. Walter, J.-U. Grooß, P. Konopka, G. Günther, A. Heil, M. Schultz, H. Pumphrey, M. Riese
Forschungszentrum Jülich, ICG-1, Germany

1730 M02.23/27401 **Increase of Total Stratospheric NO2 in the Tropics After 2001**
M. Pastel*, F. Goutail, J.-P. Pommereau, A. Pazmiño, G. Held
LATMOS, CNRS, France

1745 M02.24/27401 **Influence of Stratospheric Transport on Total Column Bromine: The Importance of Very Short Lived Halocarbons**
R.J. Salawitch*, T. Canty, Q. Liang, T. Kurosu, K. Chance, X. Liu, G. Huey, R. Stickel, D. Tanner, A. Weinheimer,
University of Maryland, USA

1630-1800 **518bc**
Session: Solar Signal in the Thermosphere, Mesosphere and Stratosphere I
Chair: Alexei Krivolutsky

1630 M03.19/27402 **Solar Signals in Temperature and Chemistry of the Mesosphere and Lower Thermosphere**
H. Schmidt*
Max Planck Institute for Meteorology, Germany

1700 M03.21/27402 **The 11-year Solar Cycle in the Stratosphere**
L.J. Gray*, C. Bell, T. Frame, M. Rigby, S. Rumbold, K. Shine
University of Reading, UK

1730 M03.23/27402 **Influence of Solar Spectral Irradiance Variability on Atmospheric Heating Rates**
E.C. Richard*, P. Pilewskie, J.W. Harder, J. Fontenla, N. Shanbhag
Laboratory for Atmospheric and Space Physics (LASP), USA

1745 M03.24/27402 **Possible Solar Wind Effect on the Northern Annular Mode and Northern Hemispheric Circulation during Winter and Spring**
H. Lu*, M.J. Jarvis, R.E. Hibbins
British Antarctic Survey, UK

1630-1800 **519ab**
Session: Madden-Julian Oscillation
Chair: Nicholas Klingaman

1630 M10.19/27403 **Origins of Moisture Development Leading MJO Convective Burst**
H. Masunaga*
Nagoya University, Japan

1645 M10.20/27403 **Effects of the Equatorial Rossby Wave to Convective Onset and Development in the Madden-Julian Oscillation**
C. Takahashi*, K. Yoneyama, R. Shirooka, Y. Takayabu
Institute of Observational Research for Global Change (IORGC/JAMSTEC), Japan

1700 M10.21/27403 **Using Data Assimilation to Understand Model Errors Associated with the MJO**
M.J. Rodwell*, T. Jung
European Centre for Medium-range Weather Forecasts, UK

1715 M10.22/27403 **Understanding the MJO via a Data Assimilating Model**
B. Mapes*, J. Bacmeister
Rosenstiel School (RSMAS), University of Miami, USA

1730 M10.23/27403 **Convection in a Parametrized and Super-parametrized Model and Its Role in the Representation of the MJO**
H. Zhu*, H. Hendon, C. Jakob
CAWCAR, Bureau of Meteorology, Australia

1745 M10.24/27403 **Temporal and Spatial Variability of Cirrus Clouds over the Indian Ocean during Boreal Summer**
H. Ichikawa*, H. Masunaga, H. Kanzawa
Graduate School of Environmental Studies, Nagoya University, Japan

1630-1800 **524ab**
Session: Oxydizing Capacity of the Troposphere
Chair: Tong Zhu

1630 M15.13/27404 **Oxidant and Particle Photochemical Production Processes above a South-East Asian Tropical Rainforest**
A.R. MacKenzie*, C.N. Hewitt
Lancaster Environment Centre, UK

1645 M15.14/27404 **Multifunctional Organic Nitrates and Tropospheric Ozone: Perspectives from Laboratory, Smog Chamber and Field Observations**
R.C. Cohen*
University of California-Berkeley, USA

1700 M15.15/27404 **Increase in Springtime Tropospheric Ozone at a Mountainous Site in Japan for the Period 1998-2006**
H. Tanimoto*
National Institute for Environmental Studies, Japan

1715 M15.16/27404 **Severe Ozone Air Pollution in the Persian Gulf Region**
J. Lelieveld*, P. Hoor, P. Joeckel, A. Pozzer, P. Hadjinicolaou, J.-P. Cammas, S. Beirle
Max Planck Institute for Chemistry, Germany

1630-1800 **524c**
Session: Triggered Lightning and Other Topics
Chair: Daohong Wang

1630 M17.19/27405 **Characteristics of Initial Stage of a Rocket-triggered Lightning Flash**
Y. Zhao*, X.S. Qie, X.Z. Kong, G.S. Zhang, T. Zhang, Q.L. Zhang
Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences, China

1700 M17.21/27405 **Correlation between Electrical Current and Light Intensity of a Rocket-triggered Lightning Flash**
W. Lu*, Y. Zhang, D. Wang, D. Zheng, S. Chen, Y. Lan, E. Zhou, Y. Shi
Laboratory of Lightning Physics and Protection Engineering, Chinese Academy of Meteorological Sciences, China

1730 M17.23/27405 **Characteristics of Negative Cloud-To-Ground Lightning Flashes From VLF/LF Bandwidth Field Observation**
B.Y. Zhu*, Y.J. Dong, H.L. Zhou, M. Ma
University of Science and Technology of China, China

1745 M17.24/27405 **A MoM-AOM Approach for Frequency Domain Analysis of Indirect Lightning Strike Effects on Transmission Lines Terminated by Lightning Arresters**
V. Mashayekhi*, R. Moini, S.H.H. Sadeghi, K. Sheshyekani, H.R. Karami
Amirkabir University of Technology, Iran

*Denotes presenting author.

1500-1630 **520abc**
Poster board numbers are listed in the left margin

M630 M03.1/27417 **Investigating Solar Irradiance Variability Using the Spectral Irradiance Monitor**
W. T. Ball*, Y. C. Unruh, J. W. Harder
Imperial College London, London, UK

M631 M03.2/27417 **SORCE Solar Irradiance Data Products**
D. Lindholm*, C.K. Pankratz, B.G. Knapp, J. Fontenla, J.W. Harder, W.E. McClintock, G. Kopp, M. Snow, T.N. Woods
Laboratory for Atmospheric and Space Physics (LASP), University of Colorado, Boulder, CO, USA

M632 M03.3/27417 **TSI Absolute Level from DIARAD/SOVIM on the International Space Station**
S. Mekaoui*, S. Dewitte
Royal Meteorological Institute of Belgium, Belgium

M633 M03.4/27417 **The SOLSTICE Composite MgII Index Dataset**
M. Snow*, W.E. McClintock, T.N. Woods
LASP/University of Colorado, Boulder, USA

M634 M03.5/27417 **Solar Irradiance Modeling: Facular and Network Contrasts from Magneto-Convection Simulations**
Y C Unruh*, N Afram, S K Solanki, M Schüssler, A V Vögler
Astrophysics Group, Imperial College London

M635 M03.6/27417 **The Novel Possible Mechanism of Warming and its Influence Today**
S.V. Avakyan*, N.A. Voronin
All-Russian Scientific Center S.I. Vavilov State Optical Institute, St. Petersburg, Russia

M636 M03.7/27417 **Life Cycle of the QBO-modulated 11-year Solar Cycle Signals in the Northern Hemispheric Winter**
H. Lu*, L.J. Gray, M.P. Baldwin, M.J. Jarvis
British Antarctic Survey, Cambridge, UK

M677 M10.1/27417 **Structures and Propagations of Biennial, Annual, Semiannual and Intraseasonal Variations around Maritime Continent based on 11-year Hourly Satellite Cloud Observations**
M.D. Yamanaka*, M. Nakamoto
DEPS-CPS/Kobe University, Kobe and IORGC/JAMSTEC, Yokosuka, Japan

M678 M10.2/27417 **Characteristics of Deep Convection Associated with MJO**
T. Inoue*, M. Satoh, H. Miura, B. Mapes
CCSR/University of Tokyo, Kashiwa, Japan

M679 M10.3/27417 **Moisture Variability over the Central Equatorial Indian Ocean**
K. Yoneyama*, K. Yasunaga, M. Katsumata
Japan Agency for Marine-Earth Science and Technology, Yokosuka, Japan

M680 M10.4/27417 **Mechanisms of Climate Change over South America during the LGM in Coupled Ocean-Atmosphere Model Simulations. Focus on High Latitudes-Tropics and Tropics-Tropics Teleconnexions**
M. Khodri*, M. Kageyama, D. Roche
LOCEAN (IRD), Paris, France

M690 M15.1/27417 **Spring Maximum in Ozone in the Central Himalayas: Influence of Regional Pollution and Long Range Transport**
R. Kumar*, M. Naja, S. Venkatramani, P. Pant, K. P. Singh, N. Ojha
Aryabhatta Research Institute of Observational Sciences,Nainital, India

M691 M15.2/27417 **Studying the Fluctuations of Urban Mixed Layer Height**
S. Sabetghadam*, F. Ahmadi
Geophysics Institute of Tehran University, Tehran, Iran

M692 M15.3/27417 **Numerical Simulations of the Effect of Organic Carbon on Regional Climate in East Asia**
Y. Yin*, M. Xu
Key Lab of Meteorological Disaster of Ministry of Education (NUIST), Nanjing, China

M693 M15.4/27417 **Estimating and Understanding Contemporary Large-scale CO2 Sources and Sinks using Inverse Transport Modelling Applied to CO2, CO and CH4**
C. Wilson*, M. Chipperfield, E. Gloor
University of Leeds, UK

M694 M15.5/27417 **Long-term Trends in Sunshine Duration Over Yunnan-Guizhou Plateau in Southwest China for 1961-2005**
X. Zheng*, W. Kang, T. Zhao, Y. Luo
Guizhou Institute of Mountainous Climate and Environment, Guiyang, China

M695 M15.6/27417 **A Quantitative Evaluation Study of Two Emission Inventories in China**
X.Q. An*, G.L. Cao, S.L. Gong, X.Y. Zhang, W.L. Lin
Centre for Atmosphere Watch and Services, Chinese Academy of Meteorological Sciences, China Meteorological Administration, Beijing, China

M696 M15.7/27417 **A New International Cooperation Framework for Dryland Development under 'Public-Private-Academia' Partnershp - An Example with Jatropha Project**
D.A. Asamoah*, A. Takayuki
Arid Land Research Center (ALRC0), Tottori University, Tottori, Japan and Women International Coalition Organization, Accra, Ghana

M697 M15.8/27417 **Monitoring Air Pollution from Space: The Major Urban Areas of the Eastern Mediterranean Basin**
M. Vrekoussis*, A. Richter, F. Wittrock, J.P. Burrows, E. Gerasopoulos, M. Petrakis, C. Zerefos, S. Myriokefalitakis, M. Kanakidou, N. Mihalopoulos, V. Amiridis
Institute of Environmental Physics and Remote Sensing, University of Bremen, Bremen, Germany

M698 M15.9/27417 **Satellite Observations of NO2 over Megacities**
J. Leitao*, A. Hilboll, A. Richter, J. P. Burrows, K. Noguchi, S. Hayashida
University of Bremen, Bremen, Germany

M699 M15.10/27417 **Chemical Speciation of Airborne Mercury Compounds**
D.A. Deeds*, F. Raofie, P.A. Ariya
McGill University, Montréal, Quebec

M700 M15.11/27417 **Determination of Formaldehyde in Ambient Air Using Solid Phase Micro Extraction (SPME)**
V. Kanthasamy*, P.A. Ariya
McGill University, Montréal, Canada

M701 M15.12/27417 **Evolution of the GAW/METEO-FRANCE Network**
A. Mezdour*, C. Thibord, J. Duvernoy
METEO FRANCE/Direction Des Systèmes D'Observation, Trappes, France

M702 M15.13/27417 **Formaldehyde in Urban Air of Belarus: Monitoring, Sources and Air Quality Impacts**
S. Kakareka*
Institute for Nature Management, National Academy of Sciences, Minsk, Belarus

M703 M15.14/27417 **Major Gaseous Pollutants at three WMO GAW Regional Background Stations in China: Observational Level and Trends**
W. Lin*, X. Xu
Chinese Academy of Meteorological Sciences, Beijing, China

M704 M15.15/27417 **On the Definition of a 'Continental' Baseline for Climate Altering Compounds**
M. Maione*, U. Giostra, J. Arduini, F. Furlani
Università Degli Studi Di Urbino, Italy

M705 M15.16/27417 **Remote Measurements of Tropospheric NO2 Vertical Column Density in an Urban Area Using Multi-Axis DOAS Technique**
Y. Sohn*, H. Y. Jeoung, J. H. Baek, J. H. Chong, H. Lee, Y. J. Kim, C. Lee,
Advanced Environmental Monitoring Research Center (ADEMRC), Department of Environmental Science and Engineering, Gwangju Institute of Science and Technology (GIST), China

M706 M15.17/27417 **Site-specific Mass Absorption Efficiency of EC in Atmospheric Aerosols from Urban, Rural and High-altitude Sites in India**
M. Sarin*
Physical Research Laboratory, India

M707 M15.18/27417 **Tropospheric Ozone Columns and Ozone Profiles for Kiev in 2006-2007**
I.I. Syniavskyi*, Ya.V. Pavlenko, A.A. Veles, M.G. Sosonkin, V.A. Sheminova, A.V. Shavrina
Main Astronomical Observatory of NASU, Kiev, Ukraine

M708 M15.19/27417 **Spatial and Temporal Variability of O3, CO, NO2, HCHO Inferred from Satellite, Ground Based Observations and Modeling Above North East Europe: Role of Pollution Sources**
M. Kanakidou*, E.V. Dermitzaki, M. Vrekoussis, S. Myriokefalitakis, N. Mihalopoulos, A. Ladstätter-Weißenmayer
ECPL, University of Crete, Heraklion, Greece

M709 M15.20/27417 **Uncertainties in Radical Production, SOA Precursors, and Aerosol Optical Properties in Urban Air**
R. Volkamer*, B. Dix, R. Sinreich, P. Sheehy, W. Lei, L. Molina
University of Colorado, Boulder, USA

M710 M15.21/27417 **Chemical and Hygroscopic Properties of Anthropogenic Aerosols From Asian Continent: Estimation of Long-Range Transport Flux**
J. S. Jung*, M. G. Cayetano, T. Batmunkh, D. D. An, K. Y. Lee, D. K. Kim, Y. J. Kim,
Department of Environmental Science and Engineering, Gwangju Institute of Science and Technology, China

M711 M15.22/27417 **Estimation of Urban Mixed Layer Height in Zanjan Using LIDAR Observations and MM5 Modeling**
M. Khoshsima*, A.A. Bidokhti, S. Sabetghadam, H.M. Khalesifar
Institute of Geophysics, University of Tehran, Tehran, Iran

M712 M15.23/27417 **Impact of Dust and Pollution Transport on Aerosol Particles at a High Altitude Himalayan Site (5079 m a.s.l.)**
M.C. Facchini*, S. Decesari, S. Fuzzi, P. Bonasoni, P. Cristofanelli, A. Marinoni, P. Laj, E. Vuillermoz
Institute of Atmospheric Sciences and Climate, National Research Council, Bologna (ISAC-CNR), Bologna, Italy

M713 M15.24/27417 **Investigations of Ship-plume Chemistry using a Newly Developed Ship-plume Model**
K.M. Han*, H.S. Kim, C.H. Song
Gwangju Institute of Science and Technology (GIST), Gwangju, Korea

*Denotes presenting author.

M714 M15.25/27417 **Experimental Study of the Oxidation of Gaseous Elemental Mercury by Bromine Radicals**
E.-A. Guérette*, P.A. Ariya
McGill University, Montréal, Canada

M715 M15.26/27417 **Global Sources of Organic Aerosols in the Atmosphere: Reconciling model results with observations**
M. Kanakidou*, S. Myriokefalitakis, K. Tsigaridis, N. Daskalakis
University of Crete, Greece

M716 M15.27/27417 **Reaction Probabilities of Sulfate/Nitrate-precursors onto Internally/Externally-mixed Anthropogenic Urban Particles and Mineral Dust in Northeast Asia**
K.M. Han*, C.H. Song, M.K. Lee, J.S. Han, J.E. Nam
Gwangju Institute of Science and Technology (GIST), Gwangju, Korea

M717 M15.28/27417 **Observations of Excess Absorption over the French Mediterranean Coast**
A. Saha*, M. Mallet, J. Piazzola, S. Despiau
CARTEL, Université de Sherbrooke, Canada

M718 M15.29/27417 **VOCs and SVOCs Reduction by Heterogeneous Nanomaterials and Photolysis**
N. Eltouny*, P.A. Ariya
McGill University, Montréal, Canada

M719 M15.30/27417 **Evolution of Anthropogenic Pollution at the Top of the Regional Mixed Layer of the Central Mexico Plateau**
D. Baumgardner*, M. Grutter, J. Allan, C. Ochoa, B. Rappenglueck, L.M. Russell
UNAM, Centro de Ciencias de la Atmosfera, Mexico City, Mexico

M735 M17.1/27417 **Small Negative Cloud-To-Ground Lightning Reports at the KSC-ER**
J.G. Wilson*, K.L. Cummins, E.P. Krider
NASA Kennedy Space Center, Kennedy Space Center, USA

M736 M17.2/27417 **M-components Parameters in Natural Negative Cloud-to-Ground Lightning from Electric Fields and High-Speed Videos**
E. Ferraz*, L. Campos, M. Saba, O. Pinto Jr.
INPE, National Institute for Space Research, São José dos Campos, Brazil

M737 M17.3/27417 **Current and Close Electromagnetic Fields of Triggered Lightning during SHATLE, China**
X. Qie*, G. Zhang, J. Yang, Y. Zhao, X. Kong, T. Zhang
LAGEO, Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China

M738 M17.4/27417 **Positive Charge Region in Lower Part of Thunderstorm and Preliminary Breakdown Process of Negative Cloud-to-ground Lightning**
Y. Zhang*, P.R. Krehbiel, M. Qing, L. Weitao, Z. Dong
Chinese Academy of Meteorological Sciences, Beijing, China

M739 M17.5/27417 **Broadband Electric Field Measurements and Mapping of 3-D Lightning Radiation Sources and their Associated Radar Echos**
Y.J. Li*, G.S. Zhang, T. Zhang, Y.H. Wang, Y.X. Zhao, G.L. Feng
Cold & Arid Regions Environmental & Engineering Research, Lanzhou, China

M740 M17.6/27417 **The Relationship between Narrow Bipolar Pulse Events and Lightning Discharges in Thunderstorm**
W. Yanhui*, Z. Guangshu, Q. Xiushu, Z. Tong, Z. Yuxiang, L. Yajun, Z. Tinglong,
Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences, Lanzhou, China

M741 M17.7/27417 **A New VLF-VHF Dual Band Lightning Detection and Location System in China and the Preliminary Results**
W.S. Dong*, Y.J. Zhang, T. Wang, H.Y. Liu
Laboratory of Lightning Physics and Protection Engineering, Chinese Academy of Meteorological Sciences, Beijing, China

0830-1000 **518a**
Session: Stratospheric Circulation
Chair: John Austin

0830 M02.25/28101 **The Brewer-Dobson Circulation: Its Response to Changes in Anthropogenic Forcings and Implications for Climate Change and Stratospheric Composition**
N. Butchart*
Met Office, UK

0900 M02.27/28101 **Simulated Anthropogenic Changes in the Brewer-Dobson Circulation, Including its Extension to High Latitudes**
C. McLandress*, T.G. Shepherd
University of Toronto, Canada

0915 M02.28/28101 **Impact of SSTs on the Stratospheric Circulation**
H. Garny*, M. Dameris, A. Stenke
Deutsches Zentrum fuer Luft- und Raumfahrt (DLR), Institut fuer Physik der Atmosphaere, Germany

0930 M02.29/28101 **Three-dimensional Eliassen-Palm Fluxes in the Lower Stratosphere**
Y.A. Zyulyaeva*, E.A. Jadin
P.P. Shirshov Institute of Oceanology RAS, Russia

0945 M02.30/28101 **Inter-hemispheric Comparison of the Stratospheric Polar Vortex Oscillations from the Contrast between Climatology and Variability**
R.-C. Ren*, M. Cai
LASG, Institute of Atmospheric Physics, CAS, China

0830-1000 **518bc**
Session: Solar Signal in the Thermosphere, Mesosphere and Stratosphere II
Chair: Ulrike Langematz

0830 M03.25/28102 **Solar-QBO Interactions in the Middle Atmosphere: an Overview**
K. Matthes*
Helmholtz Centre Potsdam - GFZ German Research Centre for Geosciences, Germany

0900 M03.27/28102 **Relative Change of Global Cloud Condensation Nuclei Abundance during a Solar Cycle: Spatial Distribution and Implication**
F. Yu*, G. Luo
Atmospheric Sciences Research Center, University at Albany, USA

0915 M03.28/28102 **Solar Cycle and ENSO Variability of the Tropical Stratosphere: Observational and Model Studies**
L.L. Hood*, B.E. Soukharev, J.P. McCormack
University of Arizona, USA

0930 M03.29/28102 **Modelling the Influence of the 11-year Solar Cycle on the Atmosphere - A Comparison between Equilibrium and Transient Simulations**
A. Kubin*, U. Langematz, A. Baumgaertner, C. Bruehl, P. Joeckel
Freie Universitaet Berlin, Germany

0830-1000 **519ab**
Session: Madden-Julian Oscillation
Chair: Adam Sobel

0830 M10.25/28103 **Effects of Idealized Ocean-Atmosphere Coupling on MJO Structure in the Superparameterized CAM**
J.J. Benedict*, D.A. Randall
Colorado State University, USA

0845 M10.26/28103 **The Impact of Sub-Daily Atmosphere-Ocean Coupling on Tropical Intraseasonal Variability**
N.P. Klingaman*, S.J. Woolnough, J.M. Slingo
University of Reading, UK

0900 M10.27/28103 **Role of Ocean Diurnal Warm Layers in Tropical Intraseasonal Oscillations**
H. Bellenger*, J.P. Duvel
LMD, France

0915 M10.28/28103 **Surface-atmosphere Interaction in the Monsoon Intraseasonal Oscillation in an Idealized Model**
G. Bellon*
Centre National de Recherches Météorologiques, Centre National de Recherches Scientifiques and Météo-France, France

0930 M10.29/28103 **How Important Is Air-Sea Coupling in ENSO and MJO Evolution?**
M. Newman*, P. Sardeshmukh, C. Penland
CIRES Climate Diagnostics Center, University of Colorado and Physical Sciences Division/NOAA Earth System Research Laboratory, USA

0945 M10.30/28103 **A Coupled GCM Analysis of MJO Activity at the Onset to El Niño**
A.G. Marshall*, O. Alves, H.H. Hendon
Met Office, UK

0830-1000 **524ab**
Session: Tropospheric Observations
Chair: Maria Cristina Facchini

0830 M15.19/28104 **Seasonal Variation of Nitrogen Isotopic Ratios and Nitrogen Species in the Asian Aerosols Collected at Gosan Site, Jeju Island**
S. Kundu*, K. Kawamura, M. Lee
Institute of Low Temperature Science, Graduate School of Environmental Sciences, Hokkaido University, Japan

*Denotes presenting author.

0845 M15.20/28104 **Atmospheric Mineral Dust in Western India: Temporal Variability of Coarse and Fine Size Fractions and Elemental Characteristics**
M.M. Sarin*, A. Kumar
Physical Research Laboratory, India

0900 M15.21/28104 **Direct Observations of Reactive Trace Gases over the Tropical Pacific Ocean: Indication of Novel Chemistry at the Ocean Atmosphere Interface**
R. Volkamer*, S. Coburn, B. Dix, R. Sinreich
Dept of Chemistry and Biochemistry, University of Colorado, USA

0915 M15.22/28104 **Free and Combined Amino Acids in Marine Aerosols over the Eastern Mediterranean**
E.G. Stephanou*, M. Mandalakis, M. Apostolaki
Environmental Chemical Processes Laboratory, Department of Chemistry, University of Crete, Greece

0930 M15.23/28104 **Size Distributions of Water-Soluble Organic Acids and Major Ions in the Marine Aerosols Collected at Cape Hedo, Okinawa, Japan, in 2008 Spring**
K. Kawamura*, M. Lazaar, E. Tachibana
Institute of Low Temperature Science, Hokkaido University, Japan

0945 M15.24/28104 **Intercontinental Monitoring of the Atmospheric Composition over Russia on the Base of TROICA Mobile Observatory: Summary of Twelve Expeditions**
N. Pankratova*, N. Elansky, I. Belikov, E. Berezina, O. Lavrova, A. Safronov, R. Shumsky, A. Skorokhod
A.M. Obukhov Institute of Atmospheric Physics RAS, Russia

0830-1000 **524c**
Session: Thunderstorms and Meteorological Context of Lightning
Chair: Earle Williams

0830 M16.1/28105 **Micro-Structure of Thundercloud and Lightning Discharge**
Z. Kawasaki*
Osaka University, Japan

0900 M16.3/28105 **Lightning Observations from Tornado-spawning Storm Complexes in the State of Sao Paulo, Brazil**
G. Held*, K.P. Naccarato, A.M. Gomes
Instituto de Pesquisas Meteorologicas, Universidade Estadual Paulista, Brazil

0915 M16.4/28105 **Observations of Lightning and Radar Characteristics of Thunderstorms in the South of Brazil During the Warm Season - Preliminary Results**
C. Beneti*, A.J. Pereira Filho, L. Calvetti, M. Jusevicius
SIMEPAR Technological Institute, Brazil

0930 M16.5/28105 **Long Continuing Luminosity in Observations of Cloud-to-Ground Flashes in an Urban Area of Brazil**
R.B.B. Gin*, C.A. Beneti, A.J. Pereira Filho, M. Jusevicius
University of FEI, Brazil

0945 M16.6/28105 **Charge Structure Inside an Isolated Thunderstorm Based on First Electric Field Soundings in Chinese Inland Plateau**
Q. Xiushu*, Z. Zhongkuo, Z. Tinglong, Z. Tong, W. Yong
LAGEO, Institute of Atmospheric Physics, Chinese Academy of Sciences, China

1030-1200 **518a**
Session: Chemistry and Climate
Chair: Martin Dameris

1030 M02.31/28201 **The Use of Measurements and Models in the Detection and Attribution of Stratospheric Change**
G.E. Bodeker*
National Institute of Water and Atmospheric Research (NIWA), New Zealand

1100 M02.33/28201 **Chemistry-climate Studies with the New UK Community Model: Understanding Past and Future Ozone Changes with UKCA**
P. Telford*, P. Braesicke, J. Pyle, O. Morgenstern, A. Bushell, C. Johnson
University of Cambridge, UK

1115 M02.34/28201 **Sensitivity of the Antarctic Ozone Hole to Chemistry and Climate Forcings**
J. Austin*, R.J. Wilson
University Corporation for Atmospheric Research, USA

1130 M02.35/28201 **Interaction of Climate Processes and Aviation Impact**
S. Matthes*, K. Dahlmann, V. Grewe, M. Dameris
DLR, Institute Atmospheric Physics, Germany

1145 M02.36/28201 **The Climate Impact of Very Large Volcanic Eruptions: An Earth System Model Approach**
H. Schmidt*, C. Timmreck, U. Niemeier, S. Lorenz, J. Jungclaus, the SV group
Max Planck Institute for Meteorology, Germany

1030-1200 **518bc**
Session: Solar Signal in the Troposphere
Chair: Joanna Haigh

1030 M03.31/28202 **Conceptual Model for the Solar Influence from the Stratosphere**
K. Kodera*, Y. Kuroda
Solar-Terrestrial Environment Laboratory, Nagoya University, Japan

1100 M03.33/28202 **Solar Effects on the Cyclonic and Blocking Activity in the Euro-Atlantic Sector**
R. Huth*, D. Barriopedro, I.F. Trigo, R.M. Trigo
Institute of Atmospheric Physics, Czech Republic

1115 M03.34/28202 **Detecting Solar Forcing Signals in MISR Cloud Data**
D.L. Wu*, J.N. Lee
Jet Propulsion Laboratory-Caltec, USA

1130 M03.35/28202 **The Possible Impact of the Solar Activity on the Summer Rainfall Anomaly of Eastern China**
J. Pan*, C. Li, W. Gu
LASG, Institute of Atmospheric Physics, Chinese Academy of Sciences, China

1145 M03.36/28202 **Solar Signals in the Troposphere: How Much Can We Find?**
J.N. Lee*, D.T. Shindell, D.L. Wu
NASA Postdoctoral Program Fellow, Jet Propulsion Laboratory, USA

1030-1200 **519ab**
Session: Tropical Variations
Chair: George Kiladis

1030 M10.31/28203 **Interannual Climate Variability in the South-Eastern Tropical Pacific and its Relation with ENSO**
T. Toniazzo*
NCAS-Climate, University of Reading, UK

1045 M10.32/28203 **Thermodynamical Coupled Modes in the Tropical Atmosphere-Ocean: An Analytical Solution**
F. Wang*
Institute of Oceanology, Chinese Academy of Sciences, China

1100 M10.33/28203 **Interactions between the Madden-Julian Oscillation and the North Atlantic Oscillation**
H. Lin*, G. Brunet, J. Derome
Environment Canada, Canada

1115 M10.34/28203 **Relationships between the MJO and NAM Higher Frequency Synoptic Variability**
J. Mejia*, M. Douglas
CIMMS, USA

1130 M10.35/28203 **Life Cycle of Convective Systems over Western Colombia**
M. Sakamoto*, T. Ambrizzi, G. Poveda
Universidade de Sao Paulo, Brazil

1145 M10.36/28203 **Propagation of the Impact Signal of the Additionally-Assimilated Observations Over the Indian Ocean through Tropical Waves**
Q. Moteki*, K. Yoneyama, R. Shirooka, M. Katsumata, M. Yoshizaki, T. Enomoto, T. Miyoshi, S. Yamane
Institute of Observational Research for Global Change, Japan Agency for Marine-Earth Science and Technology, Japan

1030-1200 **524ab**
Session: Remote Sensing of the Tropospheric Composition
Chair: John P. Burrows

1030 M15.25/28204 **The Future of Measurements of Pollution in the Troposphere (MOPITT)**
J.R. Drummond*
Dalhousie University, Canada

1045 M15.26/28204 **The Variability of Carbon Monoxide in the Southern Hemisphere: A Comparison of Observations from Satellite and Groundbased Remote Sensing**
D.P. Edwards*, N. Jones, C. Murphy, G. Guerova, D. Griffith
National Center for Atmospheric Research, USA

1100 M15.27/28204 **Seasonal Variation in Nitrogen Oxides at Northern Midlatitudes as Inferred from Ground-based and Satellite-based Observations**
L.N. Lamsal*, R.V. Martin, A. van Donkelaar, K.F. Boersma, R. Dirksen, E.A. Celarier, E.J. Bucsela, J.F. Gleason
Dalhousie University, Canada

1115 M15.28/28204 **Satellite Measurements of Formaldehyde from Shipping Emissions**
T. Marbach*, S. Beirle, U. Platt, P. Hoor, F. Wittrock, A. Richter, M. Vrekoussis, M. Grzegorski, J. Burrows, T. Wagner
Max-Planck Institute for Chemistry, Germany

1130 M15.29/28204 **Global Observations of Sulphur Dioxide from GOME-2: An Optimal Estimation Approach**
C. R. Nowlan*, K. Chance, X. Liu, T. Kurosu, C. Lee, R. V. Martin
Harvard-Smithsonian Center for Astrophysics, USA

1145 M15.30/28204 **GOME-2 Observations of Ozone and Minor Trace Gases**
N. Hao*, P. Valks, D. Loyola, M. Rix, J-C. Lambert, G. Pinardi, M.V. Roozendael, N. They
German Aerospace Center, Remote Sensing Technology Institute, Germany

1030-1200 **524c**
Session: Urban Effects on Lightning and Other Connections
Chair: Colin Price

1030 M16.7/28205 **Observation of Tornadic Thunderstorms Occurred over Japan**
F. Kobayashi*
National Defense Academy, Japan

1045 M16.8/28205 **Lightning Activity in the 50 Years as Inferred from Thunderstorm Day Data**
I.R.C.A. Pinto*, O. Pinto Jr.
Brazilian Institute of Space Research, Brazil

*Denotes presenting author.

1100 M16.9/28205 **Aviation Related Meteorological Changes of Thunderstorm in Southern Nigeria**
Y.S. Onifade*
Crescent University, Nigeria

1115 M16.10/28205 **Urban Effects on Lightning Flash Density in Two Metropolitan Areas in Israel**
C. Price*, G. Binshtok, Y. Yair
Tel Aviv University, Israel

1130 M16.11/28205 **Role of Drop Distortion in Enhancing the Lightning Activity in Clouds Formed over Cities**
A.K. Kamra*, R.V. Bhalwankar
Indian Institute of Tropical Meteorology, India

1330-1500 **518a**
Session: Chemistry and Climate
Chair: Rolf Mueller

1330 M02.37/28301 **The Impact of an Improved Representation of Stratospheric Ozone on Climate Model Simulations**
L. Gray*, M. Dall'Amico, P.A. Stott, A.A. Scaife, K.H. Rosenlof, K.P. Shine
University of Reading, UK

1400 M02.39/28301 **Yearly Course of Total Ozone in the Northern Hemisphere and Its Trend.**
P. Krizan*
Institute of Atmospheric Physics, Czech Republic

1415 M02.40/28301 **Trends in UTLS Water Vapor and Ozone in a Changing Climate**
M.I. Hegglin*, T. Birner
University of Toronto, Canada

1430 M02.41/28301 **Poster Introduction II by Laura Pan**
L.L. Pan*
NCAR, USA

1445 M02.42/28302 **Poster Introduction I by Laura Pan**
L.L. Pan*
NCAR, USA

1330-1500 **518bc**
Session: Solar Signal in the Ocean and Atmosphere-Ocean Coupling
Chair: Lon Hood

1330 M03.37/28302 **The Role of SSTs for the Decadal Atmospheric Solar Signal in Model Studies**
D. Rind*
NASA/Goddard Institute for Space Studies, USA

1400 M03.39/28302 **Modeling the Wavelength and Time Dependence of Solar Forcing of Earth's Atmosphere and Ocean Mixed Layer Using RCMs and GISS GCM**
R.F. Cahalan*, G. Wen, P. Pilewskie, J.W. Harder
NASA Goddard Space Flight Center, USA

1415 M03.40/28302 **Solar Signals in SST and SLP**
I. Roy*, J.D. Haigh
Imperial College, UK

1430 M03.41/28302 **Non-Linear Alignment of El Nino to the 11-yr Solar Cycle in Observations and Models**
W.B. White*, Z. Liu
Scripps Institution of Oceanography, University of California San Diego, USA

1330-1500 **519ab**
Session: Convection Waves
Chair: Brian Mapes

1330 M10.37/28303 **Convectively Coupled Equatorial Waves**
B.J. Hoskins*, G.Y. Yang
Grantham Insitute, Imperial College, UK

1400 M10.39/28303 **The Behaviour of Equatorial Waves in Different QBO Phases**
G.-Y. Yang*, B.J. Hoskins, J.M. Slingo
National Centre for Atmospheric Science, UK

1415 M10.40/28303 **The Varieties of Spontaneously Generated Tropical Precipitation Patterns Found in APE Results**
K. Nakajima*, Y.Y. Hayashi, Y. Yamada, Y. Takahashi, M. Ishiwatari, W. Ohfuchi
Kobe University, Japan

1430 M10.41/28303 **Cloud Modulation by Tropical Waves and the MJO**
E. Riley*, B. Mapes
University of Miami, USA

1445 M10.42/28303 **The Composite Relationship between Convectively Coupled Kelvin Waves, the MJO, and Mid Latitude Baroclinic Rossby Waves**
P.E. Roundy*, J.R. Kravitz
SUNY at Albany, USA

1330-1500 **524ab**
Session: Transport and Transformation
Chair: David Edwards

1330 M15.31/28304 **Regional Ozone and Aerosol Pollution in Central East China: Integration of Field Observations with Modeling, Remote Sensing, and Laboratory Investigations**
Y. Kanaya*
Frontier Research Center for Global Change (FRCGC), Japan Agency for Marine-Earth Science and Technology (JAMSTEC), Japan

1400 M15.33/28304 **Influence of Forest Fires on Ozone and Black Carbon in the Central Himalayas during Spring**
R. Kumar*, M. Naja, N. Ojha, P. Pant, S. Lal, S. Venkatramani
Aryabhatta Research Institute of Observational Sciences, India

1415 M15.34/28304 **Anthropogenic and Biogenic Influences on Aerosol Composition at a Semirural Site in Southern Ontario**
J.G. Slowik*, A. Vlasenko, N.C. Shantz, P. Brickell, W.R. Leaitch, J.P.D. Abbatt
University of Toronto, Canada

1430 M15.35/28304 **Transport and Vertical Structure of Aerosols and Water Vapor over West Africa during the African Monsoon Dry Season**
S.-W. Kim*, P. Chazette, F. Dulac, J. Sanak, B. Johnson, S.-C. Yoon
School of Earth and Environmental Sciences, Seoul National University, Korea

1445 M15.36/28304 **Lidar Atmospheric Aerosol Transport Measurement Results in the Frame of Indian Monsoon TIGER-Z NASA Campaign**
S. Lolli*, L. Sauvage, F. Faijan
Leosphere, France

1330-1500 524c
Session: Energetic Particles and Atmospheric Chemistry in Thunderstorms
Chair: Ken Pickering

1330 M16.13/28305 **Runaway Electron Production inside Thunderclouds**
J.R. Dwyer*
Florida Institute of Technology, USA

1400 M16.15/28305 **Generation of Elementary Particles by Thunderclouds**
A.S. Lidvansky*, N.S. Khaerdinov
Institute for Nuclear Research, Russian Academy of Sciences, Russia

1415 M16.16/28305 **Lightning NOx Production in the Tropics**
K. Pickering*, T. Huntemann, J. Cipriani, E. Bucsela, D. Allen, M. Barth, W. Skamarock
NASA Goddard Space Flight Center, USA

1430 M16.17/28305 **The Regional Distribution of Tropospheric NO_2 Column Density over Northern China**
P. Wang*, H. Yu, X. Zong, X. Li, D. Lu
LAGEO, Institute of Atmospheric Physics, Chinese Academy of Sciences, China

1445 M16.18/28305 **Lightning Activity and Nox Production (LNOx) in a Hector Blow-Up: First Observations During SCOUT-O3/ACTIVE**
H. Huntrieser*, H. Schlager, A. Roiger, H. Höller, K. Schmidt, G. Allen, S. Viciani, A. Ulanovsky, F. Ravegnani, D. Brunner
Institut für Physik der Atmosphäre, Deutsches Zentrum für Luft- und Raumfahrt (DLR), Germany

1630-1800 518a
Session: Water Vapor
Chair: Bill Randel

1630 M02.43/28401 **Changes in Stratospheric Water on Long-term and Seasonal Time Scales, and the Relation to Dynamical Parameters in the UTLS**
K.H. Rosenlof*, S. Davis, E. Ray, G. Reid, S. Oltmans, D. Hurst
NOAA ESRL, USA

1700 M02.45/28401 **The Water Vapor Tape Recorder in High Vertical Resolution: A Comparison of Balloonsonde Measurements from Costa Rica with MLS**
H. Selkirk*, M. Schoeberl, H. Vömel, J. Valverde, W. Read
Goddard Earth Sciences and Technology Center, University of Maryland-Baltimore, USA

1715 M02.46/28401 **Modelling the Effect of Stratospheric Water Vapour Increases in the 21st Century on Extratropical Weather and Climate**
M. Joshi*, S. Fueglistaler
NCAS Climate, University of Reading, UK

1730 M02.47/28401 **Recent Evolution of Stratospheric Water Vapour, Ozone and Related Trace Gases Derived from Satellite Measurements**
J. Urban*, A. Jones, S. Brohede, C. Sanchez, D.P. Murtagh
Chalmers University of Technology, Sweden

1745 M02.48/28401 **Analysis of the Upper Tropospheric Humidity Trend from Radiosondes at Uccle**
R. Van Malderen*, H. De Backer
Royal Meteorological Institute of Belgium, Belgium

1630-1800 518bc
Session: Solar Impact on Centennial and Millenial Timescales (Reconstructions and Modelling)
Chair: Ulrike Langematz

1630 M03.43/28402 **Reconstructing Solar Variability with Cosmogenic Radionuclides and the Sun-Climate Link on Centennial to Millennial Time Scales**
R. Muscheler*
Lund University, Sweden

1700 M03.45/28402 **Solar Impact on Earth's Climate at Centennial and Millennial Timescales**
U. Cubasch*, S. Schimanke, T. Spangehl, S. Wagner
Meteorologisches Institut, FU Berlin, Germany

1730 M03.47/28402 **Reconstruction of Spectral and Total Solar Irradiance Back to the Year 1610**
W. Schmutz*, M. Schöll
PMOD/WRC, Switzerland

*Denotes presenting author.

1745 M03.49/28402 **Observational Evidence for a Long-Term Trend in Total Solar Irradiance and What it Means for Solar Irradiance Reconstructions**
C. Fröhlich*
PMOD/WRC, Swtzerland

1630-1800 519ab
Session: Subtropical Highs
Chair: Ulrike Langematz

1630 M10.43/28403 **Dynamics of the North Pacific Summertime Subtropical Anticyclone and Interannual Variability in its Western Portion**
H. Nakamura*, T. Miyasaka, Y. Kosaka
University of Tokyo, Japan

1700 M10.45/28403 **Structure and Dynamics of a Summertime Teleconnection Pattern Associated with Anomalous Convective Activity over the Tropical Northwestern Pacific**
Y. Kosaka*, H. Nakamura
Department of Earth and Planetary Science, University of Tokyo, Japan

1715 M10.46/28403 **On Observed Associations between the Subtropical Highs and Diabatic Heating**
R. Grotjahn*, L.L. Pan
University of California, USA

1730 M10.47/28403 **Role of Subtropical Precipitation Anomalies in Maintaining the Summertime Meridional Teleconnection over the Western North Pacific and East Asia**
R. Lu*, Z. Lin
Institute of Atmospheric Physics, Chinese Academy of Sciences, China

1745 M10.48/28403 **Structure and Mechanisms of the Southern Hemisphere Summertime Subtropical Anticyclones**
H. Nakamura*, T. Miyasaka
University of Tokyo, Japan

1630-1800 524ab
Session: Transpsort and Transformation
Chair: Rainer Volkamer

1630 M15.37/28404 **Quantifying the Effects of Aircraft on Climate With a Model That Treats the Subgrid Evolution of Contrails From All Flights Worldwide**
M.Z. Jacobson*, J.T. Wilkerson, A.D. Naiman, S.K. Lele
Stanford University, USA

1645 M15.38/28404 **An Investigation into Seasonal and Regional Aerosol Characteristics in East Asia using Model-predicted and Remotely-sensed Aerosol Properties**
C.H. Song*, M.E. Park, K.H. Lee, H.J. Ahn, Y. Lee, J.Y. Kim, K.M. Han, J. Kim, Y.S. Ghim, Y.J. Kim
Gwangju Institute of Science and Technology, Korea

1700 M15.39/28404 **A Global Aerosol Assimilation System**
N.A.J. Schutgens*, T. Nakajima, M. Mukai, T. Miyoshi, T. Takemura
Tokyo University, Japan

1715 M15.40/28404 **Simplicity Versus Accuracy In Global Secondary Organic Aerosol Modeling**
K. Tsigaridis*, M. Kanakidou, S. Myriokefalitakis
NASA Goddard Institute for Space Studies, USA

1730 M15.41/28404 **Uncertain Representations of Sub-Grid Pollutant Transport in Chemistry-Transport Models and Impacts on Long-Range Transport and Global Composition**
S. Pawson*, Z. Zhu, L.E. Ott, A. Molod, B.N. Duncan, J.E. Nielsen
Global Modeling and Assimilation Office, NASA GSFC, USA

1745 M15.42/28404 **Long Range Atmospheric Transport of Aerosols: First ARCTIC Measurements using Quadruple Aerosol Mass Spectrometer**
A. Bacak*, J. Sloan
University of Waterloo, Canada

1630-1800 524c
Session: Sprites and Electromagnetic Potpourri
Chair: Xiushu Qie

1630 M16.19/28405 **Impact of Lightning-NO Emissions on North American Photochemistry as Determined Using the GMI Model**
D. Allen*, K. Pickering, M. Damon, S. Strahan, J. Rodriguez, B. Duncan
University of Maryland College Park, USA

1645 M16.20/28405 **First Results of Sprites, Lightning Activities and Thunderstorms in Chinese Mainland**
J. Yang*, X. Qie, G. Zhang
Key Laboratory of Middle Atmosphere and Global Environment Observation (LAGEO), Institute of Atmospheric Physics, Chinese Academy of Sciences, China

1700 M16.21/28405 **Ground-Based Detection of Sprites and their Parent Lightning Flashes over Africa during the 2006 AMMA Campaign**
E. Williams*, W. Lyons, Y. Hobara, V. Mushtak, N. Asencio, R. Boldi, J. Bór, S. Cummer, E. Greenberg, M. Hayakawa, R. Holzworth, V. Kotroni, J. Li, C. Morales, T. Nelson, C. Price, B. Russell, M. Sato, G. Sátori, K. Shirahata, Y. Takahashi, K. Yamashita
Massachusetts Institute of Technology, USA

1715 M16.22/28405 **A New Method for Locating Lightning Strokes Based on Single-Station Observations**
M.-I. Chen*
Hong Kong Polytechnic University, China

1730 M16.23/28405 **To the Numerical Simulation of Transient Electric Fields from 2D current Sources in the Atmosphere: Equivalent Electrical Circuit and the Current Budget**
A.E. Sorokin*
Institute of Applied Physics, RAS, Russia

1745 M16.24/28405 **Thunderstorms, Lightning, Transient Luminous Events and Whistler-mode Radio Waves**
D. Siingh*, R.P. Singh
Indian Institute of Tropical Meteorology, India

*Denotes presenting author.

1500-1630 **520abc**
Poster board numbers are listed in the left margin

M615 M02.1/28417 **Prof. Zahar Makhover: A Major Contributor to Early Tropopause Studies**
J.A. Añel*, J.C. Antuña, A. Sterin, L. Gimeno
CESAM, Universidade de Aveiro, Aveiro, Portugal

M616 M02.2/28417 **The Feature of Tropopause Inversion Layers over China**
J. Bian*
LAGEO, Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China

M617 M02.3/28417 **Understanding the Variability of Stratospheric Water Vapour in the Revised Boulder Balloon Series**
L. de la Torre*, J. Castanheira, J.A. Añel
CESAM, Aveiro, Portugal

M618 M02.4/28417 **Estimation of the Thickness of the Extra-Tropical Tropopause Layer from In-situ Observations**
F. Fierli*, I. Pisso, K. Law, E. Palazzi
ISAC-CNR, Bologna, Italy

M619 M02.5/28417 **TRODIM Project and the PATXI Dataset**
L. de la Torre*, J.A. Añel, L. Gimeno, R. García-Herrera, J.A. García, P. Ribera, A. Redaño,
CESAM, Aveiro, Portugal

M620 M02.6/28417 **Potential Vorticity Perspective on the Stratospheric Origin of Cold Surge in East Asia**
B.M. Kim*, J.H. Jeong, S.J. Kim
Korea Polar Research Institute, Seoul, Korea

M621 M02.7/28417 **Impact of Ozone Intrusions in the UTLS region during the Stratospheric Warming events**
Y. Liu*, C.X. Liu, X.X. Tie, D. Kinnison, G. Brasseur
Key Laboratory of the Middle Atmosphere and Global Environmental Observation, Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China

M622 M02.8/28417 **Interpretation of Ozone Trend Analysis in Data with Different Vertical Resolution.**
I. Petropavlovskikh*, P. Disterhoft, S. Oltmans, R. Evans, V. Fioletov, L. Flynn, J. Liu, R. McPeters, K. Miyagawa, M. Stanek
CIRES, University of Colorado, Boulder, CO, USA

M623 M02.9/28417 **Wave Driving in the Tropical Lower Stratosphere as Simulated by WACCM: Annual Cycle and ENSO-Induced Changes**
M. Taguchi*
Aichi University of Education, Kariya, Japan

M624 M02.10/28417 **Stratospheric Aerosols from the CALIPSO Lidar as Tracers of the Brewer-Dobson Circulation**
J.P. Vernier*, J.P. Pommereau, A. Garnier, J. Pelon
LATMOS, CNRS, Université de Versaiilles St Quentin, Verrières le Buisson, France

M625 M02.11/28417 **Geomagnetic Perturbations on Stratospheric Circulation in Late Winter and Spring**
H. Lu*, M.A. Clilverd, A. Seppälä, L.L. Hood
British Antarctic Survey, Cambridge, UK

M626 M02.12/28417 **Cutoff-Low Systems in the Southern Hemisphere**
M.S. Reboita*, R. Nieto, L. Gimeno, R.P. da Rocha, T. Ambrizzi
University of São Paulo, São Paulo, Brazil

M627 M02.13/28417 **Dynamic and Thermodynamic Transformations in the Atmosphere Associated with Precipitaion over West Africa**
R. Ewanlen*
International Civil Aviation Organization (ICAO), Kabul, Afghanistan

M639 M03.1/28417 **Some Indications of Solar Influence on Lunar Variation of Precipitation**
L. Hejkrlik*
Czech Hydrometeorological Institute, Usti nad Labem, Czech Republic

M640 M03.2/28417 **The Interdecadal Variation of East-Asian Summer Monsoon and its Association with Solar Activity**
T. Xiao*, Z. Sun, Y. Li
College of Atmospheric Sciences, Chengdu University of Information Technology, Chengdu, China

M641 M03.3/28417 **Solar Variability Studies Using the Canadian Middle Atmosphere Model**
K. Semeniuk*, V.I. Fomichev, S.M.L. Melo
York University, Toronto, Canada

M642 M03.4/28417 **Decadal Solar Cycle Variability in Middle Atmospheric Ozone and Temperature**
S. Fadnavis*, G. Beig
Indian Institute of Tropical Meteorology, Pune, India

M643 M03.5/28417 **The Effect of the 11-Year Solar Cycle on the Temperature in the Lower Stratosphere**
C. Cagnazzo*, C. Claud, P. Keckhut
Centro Euro-Mediterraneo Per I Cambiamenti Climatici, Bologna, Italy

M644 M03.6/28417 **Variation in 27-day Solar Signatures on Tropical Stratospheric Ozone from SCIAMACHY (2002-present) and ECMWF Temperature Data**
M. Weber*, S. Dikty, J.P. Burrows
Institute for Environmental Physics, University of Bremen

M645 M03.7/28417 **11-Year Solar Cycle Experiments Using Idealized Forcings of TSI, SSI and Ozone**
S. Schimanke*, T. Spangehl, U. Cubasch
Institute for Meteorology, Freie Universität, Berlin, Germany

*Denotes presenting author.

M646 M03.8/28417 **Reconstruction of Total Solar Irradiance since the Maunder Minimum using the Open Solar Magnetic Field inferred from Cosmogenic Radionuclides**
C. Fröhlich*, J. Beer, F. Steinhilber, J. Abreu
PMOD/WRC, Davos Dorf, Switzerland

M647 M03.9/28417 **Modelling the Climate of the Last Millennium: The Relative Influences of Volcanism vs. Solar Radiative Forcings on Natural, Internal Variability**
M. Khodri*, J. Servonnat, P. Yiou, D. Swingedouw
LOCEAN (IRD), Paris, France

M683 M10.1/28417 **Long-Term Variability of Hadley and Walker Circulation Intensities Shown in Water Vapor Transport Field**
B.J. Sohn*, S.C. Park
Seoul National University, Seoul, Korea

M684 M10.2/28417 **A Lagrangian Identification of Sources of Moisture over the Brazilian 'Polígono das Secas' during the Rainy Season**
T. Ambrizzi*, R. Nieto, L. Gimeno, A. Drumond, R. Trigo
University of Sao Paulo, Sao Paulo, Brazil

M685 M10.3/28417 **The Oceanic Response to the Madden-Julian Oscillation and ENSO**
A. Seiki*, Y.N. Takayabu, K. Yoneyama, N. Sato, M. Yoshizaki
Japan Agency for Marine-Earth Science and Technology, Yokosuka, Japan

M686 M10.4/28417 **Three Kelvin-Type Disturbances Observed from October to December in 2006**
K. Yasunaga*, K. Yoneyama, Y.N. Takayabu, M. Yoshizaki
Japan Agency for Marine-Earth Science and Technology, Yokosuka, Japan

M687 M10.5/28417 **A Simple Model of Slow and Fast Modes Appearing in the Equatorial Zonal Direction**
M. Yoshizaki*
Institute of Observational Research for Global Change, Japan Agency for Marine-Earth Science and Technology, Yokosuka, Japan

M722 M16.1/28417 **Lightning Effect on Intensity of Secondary Cosmic Rays during Thunderstorms**
A.S. Lidvansky*, N.S. Khaerdinov
Institute for Nuclear Research, Russian Academy of Sciences, Moscow, Russia

M723 M16.2/28417 **Propagation of ELF Waves from Lightning in the Earth-ionosphere Cavity**
J. Rai*, R. Chand, M. Israil, K. Kamakshi
Indian Institute of Technology Roorkee, Uttaranchal, India

M724 M16.3/28417 **Model Study of Effects of Relative Humidity in Low Level and Vertical Wind to Lightning Activity in Cloud**
W. Fei*, D. Wansheng, Z. Yijun
Chinese Academy of Meteorological Sciences, Beijing, China

M725 M16.4/28417 **Thunderstorm Observation in the Metropolitan Area of São Paulo: Warm Season 2004-2008**
R.B.B. Gin*, A.J. Pereira Filho, C.A. Beneti, M. Jusevicius
University of FEI, São Paulo, Brazil

M726 M16.5/28417 **Lightning Activity and Electric Structure in a Rainstorm System**
D. Zheng*, Y.J. Zhang, Q. Meng, M. Zhong, W.T. Lu
Laboratory of Lightning Physics and Protection Engineering, Chinese Academy of Meteorological Sciences, Beijing, China

M727 M16.6/28417 **Case Study on the Relationship of Radar Echo and Lightning of Severe Thunderstorm in Beijing using VIPS Data**
J.I. Liu*, Y.H. Shen, D.B. Su, D.R. Lu
Key Laboratory for Middle Atmosphere and Global Environment Observation(LAGEO), Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China

M728 M16.7/28417 **Numerical Simulation of Tornadogenesis in a Realistic Condition: Importance of Near-Surface Conditions**
K. Shimose*, T. Kawano
Kyushu University, Fukuoka, Japan

M729 M16.8/28417 **Estimation of Small ion Concentration Near the Earth's Surface: Theoretical Approach**
S.D. Pawar*, K. Nagaraja, B.S.N. Prasad, P. Murugavel, V. Gopalakrishnan
Bangalore University, Jnanabarathi, Bangalore, India

M730 M16.9/28417 **The Optical TLE Observations with Satellite and Radar Data Support in Poland**
R. Iwanski*, M. Pajek, Z. Dziewit, J. Konarski
Satellite Remote Sensing Centre, Institute of Meteorology and Water Management, Krakow, Poland

M731 M16.10/28417 **On the Spatial-Temporal Monitoring of the Global Lightning Charge Production from Schumann Resonance Observations**
V. Mushtak*, E. Williams
Massachusetts Institute of Technology, Cambridge, USA

M732 M16.11/28417 **Features of Lightning Discharge Radiated Radio Wave Atmospherics/Tweeks Observed at Low Latitude Indian Station**
D. Siingh*, R. Singh, B. Veenadhari, A.K. Maurya
Indian Institute of Tropical Meteorology, Pune, India

*Denotes presenting author.

0830-1000 **518a**
Session: UV and Men
Chair: Mario Blumthaler

0830 M04.1/29101 **A Reference to Assess Individual UV Exposure Levels in the Population**
P. Knuschke*, M. Janssen, G. Ott
Technische Universität Dresden, Germany

0845 M04.2/29101 **Solar UV Exposures Measured Simultaneously to all Arbitrarily Oriented Leaves on a Plant**
A.V. Parisi*, P. Schouten, N.J. Downs, J. Turner
University of Southern Queensland, Australia

0900 M04.3/29101 **Measurement of the Vitamin D3 dose using Broadband Ultraviolet Radiometers**
G. Huelsen*, J. Groebner
Physikalisch-Meteorologische Observatorium Davos, World Radiation Center (PMOD/WRC), Switzerland

0915 M04.4/29101 **Vitamin D Action Spectrum Weighted Solar UV Irradiance over the US and Canada**
V.E. Fioletov*, L.J.B. McArthur, T.W. Mathews, L. Marrett
Environment Canada, Canada

0930 M04.5/29101 **Ultra Violet Radiation and Human Health**
A. Webb*
University of Manchester, UK

0830-1000 **519ab**
Session: Monsoon / Teleconnections
Chair: Guojun Gu

0830 M10.49/29103 **Impact of Asymmetric Instability Induced by Diabatic Heating on the Quasi-Biweekly Oscillation of the South Asian High and Asian Extreme Climate Event**
Y.M. Liu*, G. Liang, X.P. Yao, G. X. Wu, B.J. Hoskins, M. Blackburn
LASG,Institute of Atmospheric Physics, China

0845 M10.50/29103 **Relationships between Summer Rainfall Anomalies in Xinjiang and Indian Rainfall**
Y. Lianmei*, Z. Qingyun
Institute of Desert Meteorology, China Meteorological Administration, China

0900 M10.51/29103 **Interdecadal Change in Circulation Anomalies Associated with the Meridional Displacement of the East Asian Jet Stream in June**
Z. Lin*, R. Lu, W. Zhou
Institute of Atmospheric Physics, Chinese Academy of Sciences, China

0915 M10.52/29103 **A Dynamical Influence of the Himalayas on the Winter Monsoon Over Southeastern Asia**
S. Mailler*, F. Lott
Ecole Normale Supérieure, France

0930 M10.53/29103 **Influences of Northerly Surges on the Large-Scale Circulation and Convection over the Eastern Indian Ocean during Northern Winter**
Y. Fukutomi*, T. Yasunari
Frontier Research Center for Global Change, Japan Agency for Marine-Earth Science and Technology, Japan

0945 M10.54/29103 **The Characteristics of the South Asia High Seasonal Mutation Processes from April to May and their Possible Mechanism**
H. Jinhai*, L. Boqi
Nanjing University of Information Science and Technology, China

0830-1000 **524ab**
Session: Atmospheric Composition Change: Air Pollution in the Global Environment
Chair: Manhoman Sarin

0830 M15.43/29104 **The Effect of Atmospheric Brown Clouds (ABC) on the Radiative Balance of the East Rongbuk Glacier (ERG) on the Northern Slope of the Himalayas**
J. Ming*, C. Xiao, D. Qin
National Climate Center, China Meteorological Administration, China

0845 M15.44/29104 **Radiative Impact of Aerosol on the State of the Atmosphere on the Regional Scale**
H. Vogel*, B. Vogel, R. Rinke, M. Bangert, T. Stanelle, K. Lundgren
Institut Für Meteorologie Und Klimaforschung, Universität Karlsruhe, Germany

0900 M15.45/29104 **Coordinating and Integrating European Research on Atmospheric Composition Change: the ACCENT Experience**
M. Maione*, S. Fuzzi
University of Urbino, Italy

0915 M15.46/29104 **Long-range Transport and its Impact on Trace Gas Variability at Selected GAW Stations**
S. Henne*, D. Brunner, J. Klausen, B. Buchmann
Empa, Dübendorf, Switzerland

0930 M15.47/29104 **CUACE and its Performance in Summer Season in 2008**
C.H. Zhou*, S. Gong, X.Y. Zhang, H.L. Liu, M. Xue, Y.Q. Wang, X.Q. An
Centre for Atmosphere Watch & Services (CAWAS),Chinese Academy of Meteorological Sciences, CMA, China

0945 M15.48/29104 **Climate Change Impact on Air Quality in High Resolution Simulations**
T. Halenka*, P. Huszar, M. Belda
Dept. of Meteorology and Environment Protection, Fac. of Mathematics and Physics, Charles University, Czech Republic

*Denotes presenting author.

0830-1000 **524c**
Session: Overview Subsession
Chair: Kenneth Gage

0830 M09.1/29105 **A Development of Quantified Precipitation Climatology over the Himalayas by using TRMM/PR and a Dense Network of Rain-Gauges**
A. Yatagai*
Research Institute for Humanity and Nature, Japan

0900 M09.3/29105 **Mountain Weather Modification in the Tibet/Himalayas**
K. Ueno*, S. Sugimoto, G. Tartari
Graduate School of Life and Environmental Sciences, Univ. Tsukuba, Japan

0930 M09.5/29105 **The Influence of Greenland on Cyclogenesis**
J.E. Kristjansson*, S. Thorsteinsson, H. McInnes, E. Kolstad
University of Oslo, Norway

1030-1200 **518a**
Session: UV Measurement
Chair: Nataly Chubarova

1030 M04.7/29201 **Measuring Solar Ultraviolet Radiation and Ozone Depletion**
C.T. McElroy*
Environment Canada, Downsview, University of Toronto and York University, Canada

1100 M04.9/29201 **The Quality Assurance Program for Spectral UV Measurements in Europe**
J. Gröbner*, G. Hülsen
Physikalisch-Meteorologisches Observatorium Davos, World Radiation Center, Switzerland

1115 M04.10/29201 **A New UV Spectroradiometer for the Primary Arctic NDACC Site Ny Ålesund**
J. Gröbner*, S. Wuttke, O. Schrems, A. Kreuter, M. Blumthaler
Alfred Wegener Institute for Polar and Marine Research, Germany

1130 M04.11/29201 **Influence of Aerosols and Ground Albedo on Polarized Clear Sky Radiance**
A. Kreuter*, M. Blumthaler, C. Emde
Medizinsche Universität Innsbruck, Austria

1145 M04.12/29201 **Albedo Effect on UV Irradiance**
M. Blumthaler*, A. Kreuter, A. Webb, A. Bais, R. Kift, N. Kouremeti
Innsbruck Medical University, Austria

1030-1200 **519ab**
Session: Monsoon / Teleconnections
Chair: Brian Mapes

1030 M10.55/29203 **Subseasonal-Seasonal Rainfall Variability in the Tropical Atlantic-West Africa**
G. Gu*, R.F. Adler
NASA/GSFC and UMBC/GEST, USA

1045 M10.56/29203 **The Role of the Midlatitudes in Forcing Variability in the Duration of the African Monsoon**
M. Biasutti*, A. Giannini
Lamont-Doherty Earth Observatory, USA

1100 M10.57/29203 **Storm-storm and Storm-environment Interactions during the 2008 North Atlantic Hurricane Season**
L.F. Bosart*, T.J. Galarneau Jr., J.M. Cordeira
University At Albany/SUNY, USA

1111 M10.58/29203 **Seasonal Climate Variability and Predictability Issues Associated with Recurving Tropical Cyclones, an Extreme Arctic Ridge, and a Land-falling Atmospheric River from 27 November to 5 December 2007**
J.M. Cordeira*, L.F. Bosart
University At Albany/SUNY, USA

1030-1200 **524ab**
Session: Atmospheric Composition Change: Air Pollution in the Global Environment
Chair: Kimi Kawamura

1030 M15.49/29204 **Manganese-catalyzed Oxidation of Sulfite. New Look at the Reaction Mechanism**
I. Larin*, A. Yermakov
IEPCP / RAS, Russia

1045 M15.50/29204 **Descent of Deep Stratospheric Intrusions in the Troposphere**
M.S. Bourqui*, P.-Y. Trépanier
McGill University, Canada

1100 M15.51/29204 **Air Pollution due to Methane Emission from Coal Mines**
V. Palchik*
Ben-Gurion University of the Negev, Israel

1115 M15.52/29204 **The Role of Natural and Anthropogenic Particles in the Eastern Mediterranean Basin Aerosol Levels Based on Multi-year TOMS and MODIS Satellite Data**
N. Mihalopoulos*, N. Hatzianastassiou, A. Gkikas, O. Torres, B. D. Katsoulis
Laboratory of Meteorology, Department of Physics, University of Ioannina, Greece

1130 M15.53/29204 **Development of a Size-Resolved Model for Below-cloud Scavenging of Aerosols by Snowfall**
J. Feng*
Canadian Meteorological Centre, Meteorological Service of Canada, Environment Canada, Canada

1145 M15.54/29204 **Analysis of Geophysical Data Requirements for AQ Satellite Missions**
R. Ménard*, Y. Yang, I. Paunova, J. Kaminski
Environment Canada, Canada

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1030-1200 **524c**
Session: Precipitation and Clouds Subsession
Chair: Kenneth Gage

1030 M09.7/29205 **Effects of Mesoscale Mountains on Precipitation over the Asian Summer Monsoon Region**
H. Xu*, S. Zhu, M. Xu
Nanjing University of Information Science and Technology, China

1045 M09.8/29205 **Characterization of Upslope Precipitation over the Cumberland Sound Peninsula in the Eastern Canadian Arctic, Using a Research Aircraft**
S.E. Fargey*, J.M. Hanesiak
University of Manitoba, Canada

1100 M09.9/29205 **Orographic Cirrus Clouds in a Future Climate**
H. Joos*, P. Spichtinger, U. Lohmann
Institute for Atmospheric and Climate Science, ETH Zurich, Switzerland

1130 M09.11/29205 **Horizontal and Vertical Distributions of Clouds over Eastern China**
Y. Li*, Z. Wang
Nanjing University, China

1145 M09.12/29205 **The Modulation of Tropical Cloudiness by the Underlying Topography and the Use of MODIS-based 'Cloud Climatologies'**
M.W. Douglas*, J.F. Mejia, A. Dominguez
National Severe Storms Laboratory, USA

1330-1500 **518a**
Session: UV Models and Atmospheric Parameters
Chair: Mario Blumthaler

1330 M04.13/29301 **Aerosol Properties over Europe and Their Impact on UV Irradiance**
N.Ye. Chubarova*
Moscow State University, Russia

1345 M04.14/29301 **Distribution and Evolution of Surface Reflectivity and Regional Snow Cover in Switzerland between 1980 and 2008**
D. Walker*, L. Vuilleumier, C. Marty, S. Broennimann, U. Lohmann
Federal Office of Meteorology and Climatology MeteoSwiss, Switzerland

1400 M04.15/29301 **Ozone Monitoring Instrument UV Irradiance Product Improvement Using a Global Aerosol Climatology**
A. Lindfors*, A. Arola, S. Kazadzis, J. Tamminen, A. Bais, A. di Sarra, J.M. Villaplana, C. Brogniez, A. M. Siani, M. Janouch, P. Weihs, A. Redondas-Marrero, T. Koskela, N. Kouremeti, V. Buchard, F. Auriol, D. Meloni, I. Ialongo, M. Stanek, M. Fitzka, S. Kinne, A. Webb, A. Smedley
Finnish Meteorological Institute, Kuopio Unit, Finland

1415 M04.16/29301 **An Empirical Model for Estimating Erythemal Ultraviolet Irradiance from Satellite Retrieval for Clear Sky Conditions**
S. Buntoung*, A.R. Webb
Silpakorn University, Thailand

1430 M04.17/29301 **Daily Solar UV-B Radiation Evaluated from Meteorological Variables**
J. Bilbao*, A. de Miguel, D. Mateos
Valladolid University, Spain

1445 M04.18/29301 **Climatology and Trend Estimated of Solar UV Radiation in Cuba on Basis of Total Ozone and Cloud Cover**
E. Martinez Chapman*
Meteorological Institute, Cuba

1330-1500 **524c**
Session: Large Scale Circulation Subsession
Chair: Xhe-Min Tan

1330 M09.13/29305 **Equatorial Mountain Torques and Large-Scale Mountain Flow Dynamics**
S. Mailler*, F. Lott
Ecole Normale Supérieure, France

1400 M09.15/29305 **Transient Eddy Response to Large-Scale Thermal Forcing over North America**
G. Gong*, S. Sobolowski, M. Ting
Columbia University, USA

1415 M09.16/29305 **The Effect of Topography on Storm Track Intensity in a Relatively Simple General Circulation Model**
S.-W. Son*, M. Ting, L.M. Polvani
McGill University, Canada

1430 M09.17/29305 **Impacts of Land-Sea Breeze Circulation on Large-scale Vertical Motions in the Subtropics**
X. Zhu*, G. Wu, Y. Liu
LASG, Insitute of Atmospheric Physics, Chinese Academy of Sciences, China

1445 M09.18/29305 **Long-term Meteorological Observations in High Mountain Region on the Tibetan Plateau**
M. Du*, S. Kawashima, S. Yonemura, X. Zhang, J. Liu, Y. Li, S. Gu, L. Zhao, Y. Tang
National Institute for Agro-Environmental Sciences, Japan

1630-1800 **524c**
Session: Regional Scale Subsession
Chair: John Nielsen-Gammon

1630 M09.19/29405 **An Overview of Barrier Winds off Southeastern Greenland during the Greenland Flow Distortion Experiment**
I.A. Renfrew*, G.N. Petersen, G.W.K. Moore
University of East Anglia, UK

1645 M09.20/29405 **Modeling Study of a Winter Extreme Cold Weather Episode in the Internal Alaska Basin Using the NCAR WRF-RTFDDA System**
Y. Liu*, W. Wu, G. Roux, T. Warner, S. Swerdlin, E. Astling, J. Pace
National Center for Atmposperic Research, USA

1700 M09.21/29405 **Three Causes of Low-Level Jets and Their Manifestation in Eastern Texas**
J.W. Nielsen-Gammon*, A.P. McNeel, A. Weissmann, J.P. Tobin
Texas A&M University, College Station, USA

1715 M09.22/29405 **Gap Winds in Hudson Strait: A High Resolution Climatology of Inflow and Outflow Jets**
G.W.K. Moore*
University of Toronto, Canada

1730 M09.23/29405 **The Orographic Influence of Law Dome on the Weather and Climate of Casey Station in East Antarctica.**
N. Adams*
Australian Bureau of Meteorology, and the Antarctic Climate and Ecosystems Cooperative Research Centre, Australia

1745 M09.24/29405 **A Case Study of the Interaction of Mid-tropospheric Vortices in the Caspian Sea and Alborz Mountains in 2007-2008 Winter**
E. Erfani*, A. Mohebalhojeh, M.M. Farahani, F. Hosseinpour
Institute of Geophysics, University of Tehran, Iran

*Denotes presenting author.

1500-1630 **520abc**
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M650 M04.1/29417 **All-sky Model for Erythemal Ultraviolet Radiation (UV) in Switzerland**
D. Walker*, L. Vuilleumier, S. Broennimann
Federal Office of Meteorology and Climatology MeteoSwiss, Payerne, Switzerland

M651 M04.2/29417 **Aerosol Single Scattering Albedo Retrieval in the UV Range: An Application to OMI UV Products Validation**
I. Ialongo*, V. Buchard, C. Brogniez, G.R. Casale, M. Siani
Sapienza University of Rome, Italy

M652 M04.3/29417 **Aerosol Single Scattering Albedo Retrieval with Various Techniques In The UV and Visible Wavelength Range**
M. Blumthaler*, A. Kazantzidis, N. Krotkov, A. Bais, S. Kazadzis, D. Balis, E. Giannakaki, R. Schmidhauser, A. Arola, N. Kouremeti
Division for Biomedical Physics, Innsbruck Medical University, Innsbruck, Austria

M653 M04.4/29417 **Empirical Models of Solar Ultraviolet Total Radiation**
D. Mateos*, J. Bilbao, A. de Miguel
Valladolid University, Valladolid, Spain

M654 M04.5/29417 **Monitoring of UV Irradiance 300-380 nm in Moscow with Different Instruments Since 1968**
N.Ye. Chubarova*, Ye.I. Nezval
Moscow State University, Moscow, Russia

M655 M04.6/29417 **Long Term Variability of UV Index Reconstructed from Hourly Global Radiation Data in Poland**
B. Lapeta*, J. Walawender, A. Curylo, Z. Litynska, B. Bogdanska
Satellite Remote Sensing Centre, Institute of Meteorology and Water Management, Krakow, Poland

M656 M04.7/29417 **Spatial and Temporal Distribution of UV Radiation for Previtamin D3 Synthesis over Poland**
J. Biszczuk-Jakubowska*, B. Lapeta, A. Curylo, Z. Litynska, J. Walawender, B. Bogdanska
Centre of Aerology, Institute of Meteorology and Water Management, Legionowo, Poland

M657 M04.8/29417 **Solar UV Radiation Exposure in Outdoor Occupational Activities: A Pilot Study on a Population of Vineyard Workers in Tuscany(Italy)**
A.M. Siani*, G.R. Casale, A. Colosimo, M.G. Kimlin, C.A. Lang, R. Sisto, M. Borra,
Sapienza University of Rome, Rome, Italy

M658 M04.9/29417 **Variations of UV Radiation Weighted with Action Spectra: Erythemal, DNA Damage and SCUP-H over Poland from the Period 1985-2001**
J. Biszczuk-Jakubowska*, A. Curylo, Z. Litynska, B. Bogdanska
Centre of Aerology, Institute of Meteorology and Water Management, Legionowo, Poland

M659 M04.10/29417 **Time Series of Daily Erythemal UVB Doses, Global Irradiation, Total Ozone and Aerosol Optical Depth at Uccle Belgium**
H. de Backer*, R. Van Malderen
Royal Metorological Institute of Belgium, Brussels

M660 M04.11/29417 **Monitoring and Forecasting the UV-B Radiation along the Chilean Territory**
J.F. Carrasco*, M. González, G. Torres, S. Sanchez
Direccion Meteorologica de Chile, Estacion Central, Chile

M661 M04.12/29417 **Studies on UV Radiation and Human Health in France: The RISC-UV Project**
M.P. Correa*, S. Godin-Beekmann, M. Haeffelin, P. Saiag, E. Mahe, C. Brogniez, J.C. Dupont, A. Pazmino, F. Auriol, B. Bonnel
LATMOS, Institut Pierre Simon Laplace, Paris, France

M664 M09.1/29417 **Variation of Temperature and Its Effect on the Water Resources of Nepal**
P.C. Shakti*, A. Pokhrel
Katholieke Universiteit, Leuven, Belgium

M665 M09.2/29417 **Investigation of Beech Growth in Different Elevation Levels with the Climatic Changes Trend in Northern mountain forests of Iran (Case study: Asalem basin)**
A. Eslami*, M. Rroshani
College of Agriculture, Islamic Azad University, Rasht, Iran

M666 M09.3/29417 **Micro Climate Change and Risk to Livelihood Security in Western Himalaya**
B.W. Pandey*
University of Delhi, New Delhi, India

M667 M09.4/29417 **Multiscale Features of Line-Shaped Precipitation Band Generation in Central Japan during Late Baiu Season**
K. Higashi*, Y. Kiyohara, M.D. Yamanaka, Y. Shibagaki, M. Kusuda, T. Fujii
Kobe University, Kobe, Japan

M668 M09.5/29417 **Numerical Study on Fine Structure of Downslope Wind in the Lee of Zao Mountain**
M. Sawada*, T. Iwasaki, T. Yamazaki, W. Sha, H. Iwai, S. Ishii, K. Mizutani, T. Itabe, I. Yamada, D. Matsushima
Graduate School of Science, Tohoku University, Sendai, Japan

M669 M09.6/29417 **Impact of Shear and Curvature on Surface Gravity Wave Stress**
P.M.A. Miranda*, J.P.A. Martins, M.A.C. Teixeira
University of Lisbon, CGUL, IDL, Lisbon, Portugal

M670 M09.7/29417 **Influence of Orography of Western Ghats on the Climate of Peninsular India**
L. Rajanayagam*, R. Janardanan, H. S. Ram Mohan
Department of Atmospheric Sciences, India

M671 M09.8/29417 **A Reverse Tip Jet off Cape Farewell, Greenland: Observations, Simulations and Dynamics**
I. A. Renfrew*, SD Outten
University of East Anglia, U.K.

M672 M09.9/29417 **Development of Ultra-High Resolution Atmospheric Model**
H. Yamazaki*, T. Satomura
Kyoto University, Kyoto, Japan

M673 M09.10/29417 **Reliability of NCEP/NCAR Reanalysis Temperature in the Zhongshan Station-Dome A Region**
A. Xie*, C. Xiao, J. Ren
State Key Laboratory of Cryospheric Sciences, Cold and Arid Regions Environment and Engineering Research Institute, CAS, China

M674 M09.11/29417 **Buoy Observations from the Windiest Location in the World Ocean, Cape Farewell, Greenland**
G.W.K. Moore*, R.S. Pickart, I.A. Renfew
University of Toronto, Toronto, Canada

*Denotes presenting author.

Author Index

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