



Photo F. Mauris, EDF

Drones and Hydraulics

At the service of water professions

International Conference

Paris, April 2015

1st ANNOUNCEMENT and CALL for PAPERS

DESCRIPTION

Current measurement and test techniques in the water field are essentially used at ground level or from space. Part way between, the development and increasing reliability of drones in both air and water make possible the fast, mass acquisition of all types of information, whether global or detailed, visual or digital.

Civil drones are growing in importance, through the number of manufacturers and operators (about 350 in France), their technical characteristics and their field of applications. If applications are largely oriented towards events, agriculture and industry, those in the field of hydraulics and aquatic environments are more and more numerous.

Events on civil drones are mainly centred on the "platform" or "system" technology, on cross-functional themes such as regulation or safety. Discussions are not focused on specialist instrumentation. The idea of a seminar centred on the application of drones to hydraulics has an innovative side arising from its focus on applications.

Furthermore, the different airborne or spaceborne approaches are going to be complementary and not opposed to each other, through remote sensing. Drones allow work on multiple scales, and crossing information of different types.

As real vectors for progress, civil drones allow viewing inaccessible zones, reinforcing the safety of activities and improving the quality of surveillance methods, whilst being quick to implement and low cost.

The envisaged seminar proposes to highlight this specific contribution from drones, with the possible consequences in scientific and operational progress.

You are invited to submit a paper proposal before November 15, 2014

SCOPE

FREE SURFACE HYDRAULICS

- Subjects can be theoretical or applied:
- Monitoring surface speed fields: scale effects, uncertainty propagation, thermal and pollutant diffusion, and numerical model calibration.
- Solitary wave monitoring
- Equipment, image processing, fixed or drifting sensors communicating with drones.

SOLID TRANSPORT, EROSION

- Terrain and bank (pebble, sand) volume digital

models, and movement monitoring. Suspended material estimates.

- Coast line monitoring, multi-scale models
- Watercourse morphological monitoring.

AEREAULICS

- Calibration of atmospheric diffusion and dilution models (smoke, chemical or radioactive pollution, volcanic eruptions, etc.)
- Crisis management

ENGINEERING, HYDRO-ECOLOGY

- Topographic and soil occupation data construction (for rain-flow models)
- Airborne radar bathymetry.
- Monitoring flood zones, their extent and altimetric classification by colours.
- River and tidal zone characterisation: hydraulic, morphological, flora, and habitats.
- Surface water quality: pollution recognition, algal monitoring.
- Aquatic environment monitoring (sea grass development).

HYDRAULIC STRUCTURE ASSET MANAGEMENT

Emphasis on the role of water: leaks, saturation, erosion, corrosion, and cyclic constraints. Imaging conditions, Lidar use, data processing, change detection.

- Dams, forced pipelines
- Dikes, canals, bank protection stability
- Locks, currents and scouring around piles and walls
- Water towers and other structures (e.g. viaducts)

STANDS AND POSTERS

Aside the Scientific conference content, exhibitors are welcome to present their latest news and products. A space will also be dedicated to Posters.

ELECTION OF AN INNOVATIVE PROJECT

Depending on the number of candidates, a vote during the Colloquium will award the project considered as the most innovative.

CALENDAR:

1st Call for presentations: June 2014

Submission

- Complete presentations (up to 8 pages) but also developed summaries (3 pages at least) can be proposed for unique selection **until November 15th, 2014**
- Notification of selection: JANUARY 2015
- Post-publication (in the journal "La Houille Blanche") may be possible after selection and reviewing by the Scientific committee.

Colloquium languages: French, and English.

ORGANIZING COMMITTEE (June 2014)

Jérôme LOYER, Veolia, chair of the conference

Paul Henri FAURE, Compagnie Nationale du Rhône

Catherine FREISSINET, Artelia

Florian MAURIS, EDF /DTG

Jean-Michel TANGUY, MEDDE, Commissariat Général au Développement Durable.

With the board of the SHF Scientific and Technical Committee (President M. Pierre-Louis VIOLLET)

With the participation of the Fédération Professionnelle des Drones Civils (FPDC - Civil Drones Professional Federation).

SUPPORT CIRCLE

A group of ambassadors, organisers or project sponsors is open; its members will be correspondents for the promotion of the event. Open registration with the organising committee.

NAUTICAL AND SUBMARINE DRONES

Extension to maritime hydraulics, water column, sedimentation, stratification, chemical and biological cycle observations, fauna and flora.

Aquatic drones for bathymetry, bottom observation (lakes and reservoirs, rivers, sea), flow rate measurements.

Subaquatic drones for civil engineering inspections (e.g. inspection of submerged facings).

Aspects to be highlighted in feedback of experiences

Technological aspects: choice of drone & sensor solution

- Drone accessories: samplers, sounders, beacons
- Economic aspects. Drones versus other data collection modes, complementarity.
- Safety, Regulations
- Data processing and archiving methods.
- Intellectual property.
- Interface with remote sensing.

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