SimHydro 2019
which models for extreme situations and crisis management?
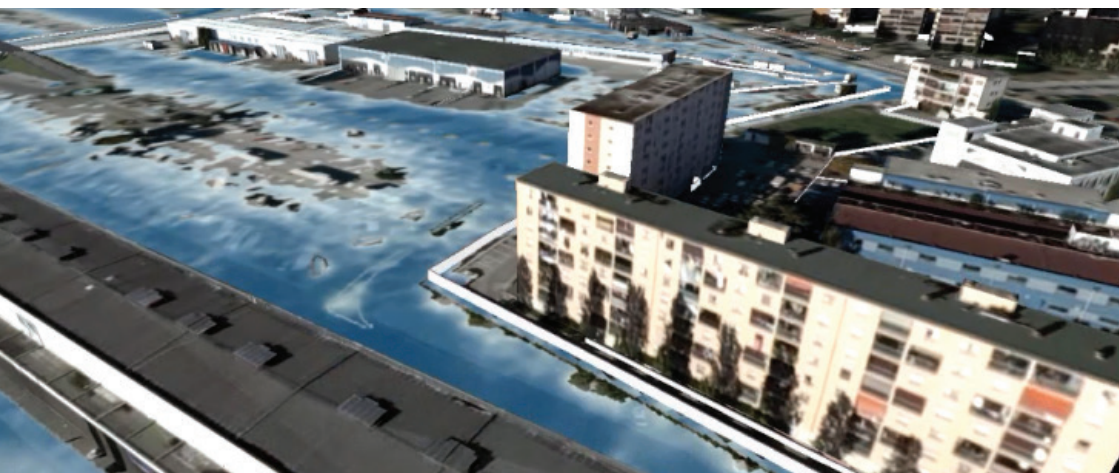
Program Book

S.H.F.

Université Nice Sophia Antipolis

POLYTECH NICE-SOPHIA

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GENERAL INFORMATION

Welcome!

SimHydro 2019 seeks to create a forum for exchanging ideas, for promoting ground-breaking technologies, for proposing new extensive collaborations, for finding new solutions for water issues and modelling approaches.
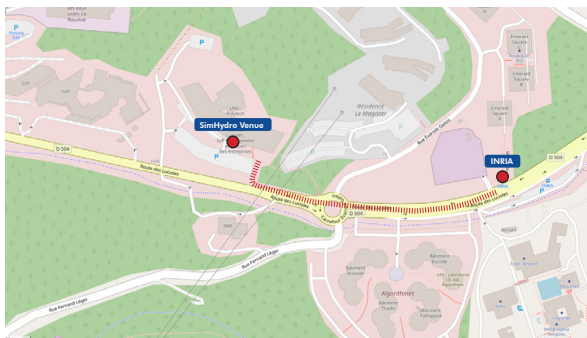
The general theme of the conference will be focused on *"Which models for extreme situations and crisis management?"*. Hydraulics and related issues are frequently concerned with extreme situations that request to be understood accurately before to imitate actions and the definition of relevant mitigation measures. Under these particular situations, the models currently used could be partly irrelevant due to the new physical phenomena involved, the scale of the processes, the hypothesis included within the different numerical tools, etc. The design and the operation of relevant models represents a challenging task for the modeller who is responsible of the knowledge part of a global system that is dedicated to support the decision makers. The various sessions will cover a wide spectrum of subjects and offer to the participants the possibility to share and exchange with scientists, practitioners and decision makers.

The conference is targeting an international audience and endeavours to collect high value papers that will be published in scientific journals and a specific book (Advances in Hydroinformatics).

SimHydro 2019 will be held in Polytech Nice Sophia, located at **1645 Route des Lucioles, 06410 Biot Sophia Antipolis**. You can reach Polytech Nice Sophia by:

Bus: The bus stop for Polytech Nice Sophia Campus is Inria (Biot).
From Nice   : Line 230 "Sophia Express"
From Antibes: Envibus network (envibus.fr)

Train: The station for SophiaTech Campus is Gare SNCF Antibes.
From Gare SNCF Antibes, take Bus line 1 and alight at Bus stop "Inria"

PROGRAM AT A GLANCE

Time	12th June	13th June	14th June
0830 hrs	Registration		
0900 hrs	Openning Ceremony / Keynote Speech	Planery Session / Special Session / SHF Jean Valembois Award Ceremony	Planery Session / Keynote Speech
0930 hrs			
1000 hrs			
1030 hrs	Parallel Sessions I		Parallel Sessions VI
1100 hrs			
1130 hrs			
1200 hrs			
1230 hrs	Lunch	Lunch	Lunch
1300 hrs		Poster Session	
1330 hrs	Poster Session	Parallel Sessions IV	Poster Session
1400 hrs	Parallel Sessions II		Parallel Sessions VII
1430 hrs			
1500 hrs			
1530 hrs			
1600 hrs			
1630 hrs	Parallel Sessions III	Parallel Sessions V	End of Conference
1700 hrs			
1730 hrs			
1800 hrs			
1900 hrs		Dinner * refer to page 14	

LEGEND

- Methods and Models for Hydrology and Climate Change
- Decision Making Support System - DSS
- Urban Hydrology and Water Services
- Model reduction & uncertainties identification
- CRISIS
- Hydro Environmental Issues
- Hydraulic Models
- Reservoir Optimization
- HPC: Methods and Applications
- Flood Forecasting

PROGRAM SCHEDULE

DAY 1| JUNE 12

Openning Ceremony & Keynote Speech	Amphi 1

Time	
0900 - 0915	**Openning Speech**
	by Prof. Philippe Gourbesville. University of Nice Sophia Antipolis
0915 - 1000	**Keynote Address**
	"Possible Roles of Artificial Neural Networks in Hydraulics and Hydrological Models"
	by Prof. Shie Yui Liong - National University Singapore
1000 - 1030	**Coffee Break**

Parallel Session I

Time	
1030 - 1200	**Methods and Models for Hydrology and Climate Change (I)** **Decision Making Support System - DSS (I)** **Urban Hydrology and Water Services (I)**

Urban Hydrology and Water Services (I)	Amphi 1

Time	Session Chair: Manuel Gomez Valentin
1030 - 1045	**Smart water management for energy saving on water supply system by machine learning technology and water storage facilities** by Ilpyo Hong, Seongjoon Byeon
1050 - 1110	**Application of Smart Water Grid technologies at Kathmandu Valley in Nepal** by Gyewoon Choi, Dongwoo Jang, Hyoseon Park
1110 - 1130	**Implementation Process of Smart Water Grid Technologies at Beni City In Nepal** by Dongwoo Jang , Gyewoon Choi, Yoonsik Hong
1130 - 1150	**Hybridizing optimization method and artificial neural network for urban drainage system design** by Soon Ho Kwon, Donghwi Jung, Joong Hoon Kim
1150 - 1210	**Multi-objective optima design of water distribution system considering redundancy indices** by Young Hwan Choi, Donghwi Jung, Joong Hoon Kim

Decision Making Support System - DSS (I) Amphi 2

Time	Session Chair: Shie-Yui LIONG
1030 - 1045	**Which models for decision support systems? Proposal for a methodology** by Philippe Gourbesville
1050 - 1110	**Aquavar: decision support system for surface and groundwater management at the catchment scale** by Qiang Ma, Philippe Gourbesville, Marc Gaetano
1110 - 1130	**Visualization of flood simulation with microsoft hololens** by Jianrong Wang, Shanyu Wang
1130 - 1150	**Model improvement for effect evaluation of low impact development measures** by Yuting Meng, Na Li, Jing Wang, Qian Yu, Nianqiang Zhang
1150 - 1210	**Potential application of lid techniques to reduce urban flooding in different rainfall patterns, case study for Quy Nhon, Viet Nam** by Nguyen Duc Phuoc Vo, Thi Thu Tram Huynh, Trung Dung Vo

Methods and Models for Hydrology and Climate Change (I) Room C3

Time	Session Chair: Natalie Bertrand
1030 - 1050	**Multi-models approach for reducing predictive uncertainties in rainfall-runoff models** by Cynthian Andraos and Wajdi Najem
1050 - 1110	**Numerical modeling of extreme flooding and flood risk assessment in Tra Bong river catchment** by Manh Trinh Xuan, Frank Molkenthin
1110 - 1130	**Rainfall-runoff modeling to investigate flash floods and mitigation measures in the Wadi Bili catchment** by Franziska Tügel, Abdelrahman Ali Ahmed Abdelrahman, Ilhan Özgen-Xian, Ahmed Hadidi / Reinhard Hinkelmann
1130 - 1150	**The uncertainty of spatial rainfall distribution - A case study for Binh Dinh province Vietnam** by Ngoc Duong Vo, Philippe Gourbesville
1150 - 1210	**Innovative solutions for climate-resilient flood management in the poorer and vulnerable province of Leyte** by Jihyeon Park, Ilpyo Hong

1210 - 1340 Lunch

1255 - 1340 Poster Session

Parallel Session II

Time	
1340 - 1520	**Model Reduction & Uncertainties Identification (I)** **Decision Making Support System - DSS (II)** **Urban Hydrology and Water Services (II)**

Model Reduction & Uncertainties Identification (I) Amphi 1

Time	Session Chair: Nicole Goutal
1340 - 1400	**A predictive data-driven approach based on reduced order models for the morphodynamic study of a coastal water intake** by Rem-Sophia Mouradi, Cédric Goeury, Olivier Thual, Fabrice Zaou, Pablo Tassi
1400 - 1420	**Uncertainty propagation in telemac 2D dam failures modeling and downstream hazard potential assessment** by Layla Assila, Matthieu Sécher, Thomas Viard, Benoît Blancher, Cédric Goeury
1420 - 1440	**Development of the similar typhoon search system based on the deep neural network using deep learning redundancy indices** by Cynthian Andraos and Wajdi Najem, St Joseph University
1440 - 1500	**Early-warning system for cyclone-induced wave overtopping aided by a suite of random forest approaches** by Jeremy Rohmer, Sophie Lecacheux, Rodrigo Pedreros, Deborah Idier / François Bonnardot
1500 - 1520	**An integrated approach to water resources and investment planning for water utilities** by Damian Staszek, Dragan Savic, Guangtao Fu

Decision Making Support System - DSS (II) Amphi 2

Time	Session Chair: Nicola Rebora
1340 - 1400	**ANYWHERE: enhancing emergency management and response to extreme weather and climate events** by Daniel Sempere, Philippe Gourbesville, Morgan Abily
1400 - 1420	**Use of ANYWHERE products to assess risky events on southern France and Corsica (October 2018)** by Eurico de Carvalho Filho, Guillaume Lahache, Alix Roumagnac
1420 - 1440	**Realtime high resolution flood hazard mapping in small catchments** by Flavio Pignone, Lorenzo Campo, Daniele Dolia
1440 - 1500	**Decision-making support system for crisis operation and logistics aspects in extreme weather-induced events** by Ivan Tesfai, Giovanni Napoli, Salvatore Ferraro, Andrea Poggioli, Marta Speranza
1500 - 1520	**Operational resilience index computation tool as a decision support system integrated in eu risks management platforms - tests on biguglia catchment, a mediterranean intense precipitations regime prone area** by Morgan Abily, elena Batica, Hèzouwè Amaou Tallé, Marc Gaetano, Patric Botey, Marien Setti, Philippe Gourbesville

Urban Hydrology and Water Services (II)   Room C3

Time		Session Chair: André Paquier
1340 - 1400	**Simulating the hydrodynamics of sewer-grates using a 2D-hydraulic model**	
	by Marcos Sanz-Ramos, Jackson Téllez-Álvarez, Ernest Bladé, Manuel Gómez-Valentín	
1400 - 1420	**Modelling of surcharge flow through grated inlet**	
	by Jackson Tellez-Alvarez, Manuel Gomez, Beniamino Russo	
1420 - 1440	**Experimental and numerical modelling of the influence of street-block flow exchanges during urban floods**	
	by Miguel Angel Mejia Morales, André Paquier, Sébastien Proust, Emmanuel Mignot	
1440 - 1500	**Width parameter analysis on runoff model for storm water drainage system**	
	by Xiancheng Tao	
1500 - 1520	**An innovative Dem improvement technique for highly dense urban cities**	
	by Dong Eon Kim, Shie-Yui Liong, Philippe Gourbesville, Jiandong Liu	

1520 - 1550   Tea Break

Parallel Session III

Time	
1550 - 1650	Model Reduction & Uncertainties Identification (II)
	Decision Making Support System - DSS (III)

Model Reduction & Uncertainties Identification (II)   Amphi 1

Time		Session Chair: Enerst Bladé
1550 - 1610	**Novel quantification method for hydrograph similarity**	
	by Wendi Dadiyorto, Bruno Merz, Norbert Marwan	
1610 - 1630	**Water level short-term forecasting using statistical approaches: a case study on the parisian region**	
	by Nicolas Cheifetz, Hugo Senetaire, Cédric Féliers	
1630 - 1650	**Karhunen-Loeve decomposition for uncertainty quantification of bathymetric effect in a double layer based shallow water model: "Strait of Gibraltar case"**	
	by Nabil El Mocayd, Mohammed Seaid, Driss Ouazar, Alia Al Ghousoun	

Decision Making Support System - DSS (III)	Amphi 2

Time	Session Chair: Daniel Sempere
1550 - 1610	**A4Cat: the ANYWHERE platform to manage flood risk in real-time** by Xavier Llort, Cristina Vicente, Arnau Cangros
1610 - 1630	**Coupling multi-hazard early warning system with social media analytics** by Milan Kalas, Denys Kolokol
1630 - 1650	**ANYCaRE: a serious game to evaluate the potential of impact-based and crowdsourced information on crisis decision-making** by Galateia Terti, Isabelle Ruin, Milan Kalas, Arnau Cangròs i Alonso, Tommaso Sabbatini, Ilona Lang, Balazs Reho

DAY 2| JUNE 13

Planery Session	Amphi 1

Time	Session Chair: Philippe Gourbesville
0900 - 1200	**Special session: "Which models for extreme situations and crisis management? "** by Dr. Fabio Petruzzelli, David Moncoulon, Nalan Senol Cabi

1200 - 1330	Lunch

1245 - 1330	Poster Session

Parallel Session IV

Time	
1330 - 1510	**CRISIS (I)** **Hydro Environmental issues (I)** **Hydraulic Models**

CRISIS (I)	Amphi 1

Time	Session Chair: Claire Marie Duluc
1330 - 1350	**Marine dispersion modelling and expertise tools for accidental radiological contamination of French coasts** by Céline Duffa
1350 - 1410	**A Study on Water Crisis Management Techniques by Fallout in Case of Radiation Accident Using Environmental Multimedia and air transport diffusion model** by Daemin Oh, Youngsug Kim, Sungwon Kang, Soungjong Yoo, Noriyuki Suzuki, Yoshitaka ImaizumiCédric Goeury

CRISIS (I) — Amphi 1

Time	Session Chair: Claire Marie Duluc
1410 - 1430	**Analyzation of Influence of nuclear accident in neighboring country using GCIEMs model** by Seungkwon Jung, Daemin Oh, Dongseop Lee, Hyunsuk Lee
1430 - 1450	**Integration of an early warning system and business continuity plan for disaster management in a Science park** by Tsun-Hwa Yang, Hao-Ming Hsu, Hong-Ming Kao
1450 - 1510	**A natural hazard crisis management exercise at Metropolitan scale: involvement of multiple municipalities and methodology for a holistic involvement** by Yannick Dorgigne, Morgan Abily

Hydro Environmental issues (I) — Amphi 2

Time	Session Chair: Frank Molkenthin
1330 - 1350	**20 years of coastal events modelling** by Olivier Bertrand, Thibault Oudart, Eric David, Aurélie Ledissez, Christophe Coulet
1350 - 1410	**Assessment of the impact of changes in storm rainfall and landscape characteristics on the maximum flow of small rivers** by Vitaly Ilinich, Aleksey Perminov, Aleksandr Belolybcev, Anna Naumova
1410 - 1430	**New tools to assess the Suitability Physical Habitat (SPH) and The Weighted Usable Area (WUA) for fishes** by Ernest Bladé, Marcos Sanz-Ramos, Damià Vericat, Antoni Palau
1430 - 1450	**Effect of the Singok Weir on algal bloom in the lower Han River, Korea** by Jaeyoung Kim, Dongil Seo
1450 - 1510	**Modelling NH4+ dispersion from wastewater of urban drainage to the coastal area of Danang city, Vietnam** by Phuoc Quy An Nguyen, Philippe Gourbesville, Philippe Audra, Ngoc Duong Vo, Qiang Ma, Morgan Abily

Hydraulic Models (I) — Room C3

Time	Session Chair: Olivier Delestre
1330 - 1350	**Comparison between two hydraulic models (1D and 2D) of the Garonne River: Application to uncertainty propagations and sensitivity analyses of levee breach parameters** by Lucie Pheulpin, Vito Bacchi, Nathalie Bertrand
1350 - 1410	**PID controllers as data assimilation tool for 1D hydrodynamic models of different complexity** by Milos Milasinovic, Budo Zindovic, Nikola Rosić, Dusan Prodanovic
1410 - 1430	**Validation of a semi-automatically calibrated 1-D open-channel model against experimental data with changes in channel geometry** by Adeline Visse, François-Xavier Cierco, Pierre-Loïk Rothé, Yoan Gressier, Luc Duron

Hydraulic Models (I) — Room C3

Time	Session Chair: Olivier Delestre
1430 - 1450	Analysis of river bed variation based on hydrological and hydraulic models: a case study on Hosan stream watershed, South Korea by Seung Jin Maeng, Muhammad Azam, Seung Wook Lee, Ju Ha Hwang
1450 - 1510	Defining uncertainty for a simplified method dedicated to the mapping of extreme floods by André Paquier, Quentin Royer, Christine Poulard, Pascal Billy

1510 - 1540	Tea Break

Parallel Session V

Time	
1540 - 1700	CRISIS (II) Hydro Environmental issues (II) Reservoirs Optimization

CRISIS (II) — Amphi 1

Time	Session Chair: Morgan Abily
1540 - 1600	Flood forecast tool to help dam mangement from France to Thaïland by Bertrand Richaud, Sandrine Vidal
1600 - 1620	Check dam behavior under extreme circumstances at Villeneuve (Switzerland) by Charlotte Dreger, Erik Bollaert, Olivier Stauffer, Yves Châtelain
1620 - 1640	Challenges in defining alarm thresholds to improve crisis management procedures: a case study on the French Riviera by Stan Nomis, Leslie Salvan, Raphaëlle Dreyfus, Franck Compagnon, Pierre Brigode
1640 - 1700	From catastrophe to resilience by Jelena Batica, Philippe Gourbesville

Hydro Environmental issues (II) — Amphi 2

Time	Session Chair: Giovanni De Cesare
1540 - 1600	A modeling approach to the sources apportionment of the in-stream nitrogen loading in Yuan River Catchment, China by Qianwen He, Frank Molkenthin
1600 - 1620	Saltwater instruction simulation in the context of climate change: a case study at HAN river, Vietnam by Ngoc Duong Vo, Philippe Gourbesville

Hydro Environmental issues (II)   Amphi 2

Time	Session Chair: Giovanni De Cesare
1620 - 1640	**Coupling methods for urban areas large scale hydraulic modeling** **by Thierry Lepelletier**
1640 - 1700	**Urban lakes: from lack of regard to smart deal?** **by Olivier Fouché, Jérôme Brun, Behzad Nasri**

Reservoirs Optimization   Room C3

Time	Session Chair: Dongwoo Jang
1540 - 1600	**Application of an Ensemble Kalman filter to a semi-distributed hydrological flood forecasting system in alpine catchments** **by Alain Foehn, Damiano Pasetto, Javier García Hernández, Giovanni De Cesare**
1600 - 1620	**Application of recurrent neural network for inflow prediction into multi-purpose dam Basi** **by Juhwan Kim, Myungky Park, Yungsuk Yoon, Hyunho Lee**
1620 - 1640	**Pre-release strategy for flood control in the multi-reservoir and rivers system** **by Thanh Hao Nguyen, Philippe Gourbesville, Ngoc Duong Vo, Nguyen Duc Phuoc Vo**
1640 - 1700	**Optimization of spillway operation for flood mitigation in multi-reservoirs river system** **by Thanh Hao Nguyen, Philippe Gourbesville, Ngoc Duong Vo, Nguyen Duc Phuoc Vo**

DAY 3| JUNE 14

Planery Session   Amphi 1

Time	Session Chair: Guy Caigneart
0900 - 1000	**Special session: "Swirling flow - insights into a visually stimulating spectacle"** **by Dr. Giovanni De Cesare**

1000 - 1030	**Tea Break**

Parallel Session VI

Time	
1030 - 1210	**HPC Methods and Applications (I)** **Flood Forecasting (I)** **Methods and Models for Hydrology and Climate Change (II)**

Methods and Models for Hydrology and Climate Change (II)　　Room C3

Time	Session Chair: Olivier Fouché
1050 - 1110	**Strategy for deterministic distributed hydrological model development at catchment scale** 　　by Qiang Ma, Philippe Gourbesville
1110 - 1130	**Landsat image processing application for land cover changes analysis in Lai Giang river catchment, Vietnam** 　　by Ngoc Duong Vo, Philippe Gourbesville
1130 - 1150	**Shoreline change analysis using landsat image processing for central Vietnam** 　　by Ngoc Duong Vo, Philippe Gourbesville

1210 - 1340	**Lunch**

1255 - 1340	**Poster Session**

Parallel Session VII

Time	
1340 - 1540	**HPC Methods and Applications (II)** **Flood Forecasting (II)**

HPC Methods and Applications (II)　　Amphi 1

Time	Session Chair: Giovanni De Cesare
1340 - 1400	**Vortex siphon - from 1:1 scale physical model to SPH simulation and prototype** 　　by Arnaud Bart, Thibault Macherel, Giovanni De Cesare, Sean Mulligan, Khalid Essyad
1400 - 1420	**Hydrodynamics of an innovative discontinuous double breakwater, mixed modeling: 2D flume physics and 3D digital modelling** 　　by Christian Raffourt, Charlie Vergnet, Vasileios Afentoulis, Philippe Bardey
1420 - 1440	**Prediction and reconstruction of hydraulic state with machine learning** 　　by Sophie Ricci, Fabrice Zaoui, Corentin Lapeyre, Cazard Nicolas, Pamphile Roy
1440 - 1500	**Hybrid-Parallel Simulations and Visualisations of Real Flood and Tsunami Events using Unstructured Meshes on High-Performance Cluster Systems** 　　by Bobby Minola Ginting, Punit Kumar Bhola, Christoph Ertl, Ralf-Peter Mundani, Markus Disse, Ernst Rank
1500 - 1520	**Assessment of the performance of a protection bell for a micro power station on the Rhône** 　　by Julien Schaguene, Luc Bazerque, Philippe Mauger, Olivier Bertr
1520 - 1540	**Computational Modelling of an Innovative Water Stirring Device for Fine Sediment Release: The test case of the Future Trift Reservoir** 　　by Azin Amini, Anass Charibi, Pedro Manso

Flood Forecasting (II)	Amphi 2

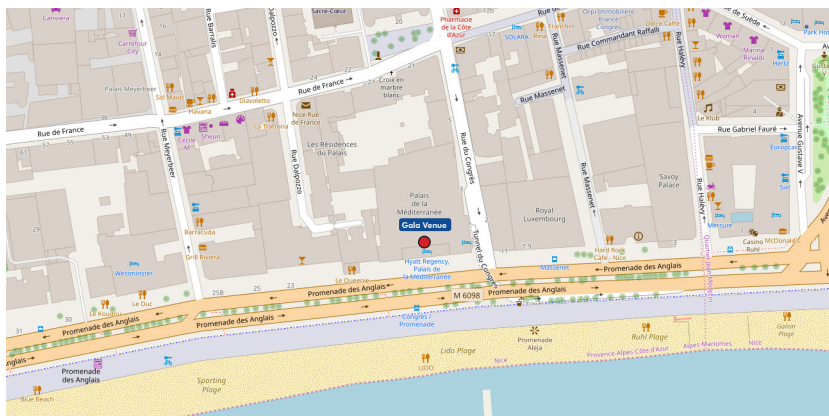| Time	Session Chair: Olivier Bertrand
1340 - 1400	**Real-time flood management and preparedness: Lessons from floods across the western Japan in 2018** by Daisuke Nohara, Yasuhiro Takemon, Tetsuya Sumi
1400 - 1420	**Storm Water Management Model Parameter Optimization in Urban Watershed Using Sewer Level Data** by Oseong Lim, Young Hwan Choi, Joong Hoon Kim
1420 - 1440	**From meteorological forecasting to floodplain forecasting for the protection of populations in urban and peri-urban areas** by Sandrine Vidal, Jean Paul Ducatez
1440 - 1500	**Flood forecasting in alpine regions using a multi-model approach: operational performance and experiences after two years of experience** by Frédéric Jordan, Alexandre Prina, Christophe Guay, Raphaël Mutzner
1500 - 1520	**A framework to design a municipal decision support tool for Cyclone-induced marine flooding emergency management at Réunion Island** by François Paris, Sophie Lecacheux, Sophie Sauvagnargues, Pierre-Alain Ayral, Jeremy Rohmer, Rodrigo Pedreros, Florian Tena-Chollet

GALA DINNER

MAP & ADDRESS

Date: June 13th @ 1930 hrs
Place: Palais de la Méditerranée
Address: 13 Promenade des Anglais, Nice 06000, France

exhibitors: