

# Tuesday, 17th September 2019

# 4<sup>th</sup> EVAN Conference

# Daily Program

08:00 – 09:00	<b>Registration</b>
09:00 – 09:30	<b>Opening Ceremony, Longest Trip Award</b>
09:30 – 10:30	<b>Invited Talk 1: Historical flood records, so much more than just a flood magnitude, Neil Macdonald (Liverpool University, UK)</b> <b>Chairs: M. Andreevsky &amp; E. Athimon (EDF R&amp;D, LHSV, France)</b>
10:30 – 11:00	<b>Coffee break</b> <i>Underground Floor -1</i>
11:00 – 12:50	<b>Session: Using Historical Data</b> <b>Chairman: T. Bulteau (BRGM, France)</b>
<i>Oral Talk 1</i>	A composite method for coastal flood event identification, characterisation and understanding over a centennial time scale: joining historical, statistical and modelling approaches, <b>Déborah Idier</b> , <i>Jérémy Rohmer, Rodrigo Pedreros, Sylvestre Le Roy, Jérôme Lambert, Jessie Louisor, Gonéri Le Cozannet, Erwan Le Cornec, BRGM, GEOS-AEL (France)</i>
<i>Oral Talk 2</i>	Return period of the June 2016 flood event on the Loing basin – Seine watershed, using historical flood levels and simplified rainfall-runoff modelling, <b>Carine Chaléon</b> , <i>Michel Lang, Elise Jacob, Marc Valente, DRIEE IF/SPRN, IRSTEA, DGALN (France)</i>
<i>Oral Talk 3</i>	Historical and statistical analysis of extreme marine events for implantation on a surge numerical models of the Thau territory, <b>Frédéric Pons</b> , <b>Céline Trmal</b> , <i>Anne-Marie Fromental, Nicolas Proust, Ludovic Cesmat, Stéphane Roumeau, CEREMA, BRL Ingénierie, Syndicat Mixte du Bassin de Thau (France)</i>
<i>Oral Talk 4</i>	On the use of data mining and crowdsourcing to constrain historical seismicity, <b>Emmanuelle Nayman</b> , <i>Natacha Testut, Meryl Bothua, Jessie Mayor, EDF-DIPNN-TEGG, University of Montpellier, ICAME EDF-R&amp;D, ERMES EDF-R&amp;D (France)</i>
<i>Oral Talk 5</i>	Revisiting flood frequency in the Rhône River with historical data: A Bayesian analysis accounting for the various sources of uncertainty, <b>Antoine Bard</b> , <b>Michel Lang</b> , <i>Benjamin Renard, Jérôme Le Coz, Gilles Pierrefeu, Pascal Billy, Thibault Mallet, HYDRO CONSULTANT, CNR, DREAL Auvergne-Rhône-Alpes, SYMADREM (France)</i>
<i>Oral Talk 6</i>	How history can help improve the knowledge on past extreme events: introduction to an historian-geographer's methodology, <b>Emmanuelle Athimon</b> , <i>Université de Nantes, Ecole des Ponts, EDF R&amp;D (France)</i>
12:50 – 14:00	<b>Lunch break</b> <i>Underground Floor -1</i>

14:00 – 15:30

## Session: EVA Application

**Chairman: F. Mazas (Artelia, France)**

Oral Talk 7

Creating a global database with return periods of extreme sea levels caused by tropical and extratropical cyclones, **Job Dullaart, Sanne Muis, Nadia Bloemendaal, Jeroen Aerts, Institute for Environmental Studies (IVM), VU University Amsterdam, Deltares (Netherlands)**

Oral Talk 8

Criteria for comprehensive control of debris-flows in areas affected by an extreme event: the case of Venezuela, 20 years later, **François Courtel, José Luis Lopez, Universidad Central de Venezuela (Venezuela)**

Oral Talk 9

Robust estimation and mapping of extreme rainfall quantiles, **Mustapha Boukhelifa, Eric Gaume, M. Meddi, IFSTTAR-GERS (Algeria & France)**

Oral Talk 10

Modelling dependence and coincidence of flood hazard phenomena - Methodology and simplified case study in Le Havre, **Amine Ben Daoued, Yasser Hamdi, Nassima Mouhous-Voyneau, Philippe Sergent, Sorbonne University, IRSN, CEREMA (France)**

15:30 – 16:40

## Session: Using Simulation (Session 1)

**Chairman: A. Joly (EDF Energy, UK)**

Oral Talk 11

Toward a spatially-distributed version of the SCHADEX stochastic simulation method for extreme flood estimation, **Emmanuel Paquet, EDF-DTG (France)**

Oral Talk 12

Comparison of machine learning models for wave downscaling: a study for the coast of Florida, **Sara Santamaria-Aguilar, Thomas Wahl, Institute of Geography, University of Kiel, University of Central Florida (Germany & USA)**

Oral Talk 13

A weather-type statistical downscaling framework adapted for maximum daily storm surge-study case: La Rochelle, **Wagner L.L. Costa, Melisa Menéndez, Universidad de Cantabria, Deborah Idier, Jérémy Rohmer, Goneri Le Cozannet, BRGM (Spain & France)**

Oral Talk 14

Nonstationary analysis of extreme storm surges in the Mediterranean under climate change using multiple covariates, **Panagiota Galiatsatou, Christos Makris, Vasileios Baltikas, Konstantia Tolika, Kondylia Velikou, Yannis Krestenitis, Panagiotis Prinos, School of Civil Engineering, Arstole University, School of Geology (Greece)**

16:40 – 17:30

## Poster Session 1

*Poster Rooms 1, 2, 3, 4 and 5*

Oral presentations

Poster Room 1

(16:40 – 17:10)

**P.1** Recent trend of snow extremes in the French Alps, **Erwan Le Roux, IRSTEA (France)**

**P.2** Seeking the 1910 river Seine flood discharges: looking back to historical gauging and using modern measures, **Carine Chaléon, DRIEE IF/SPRN (France)**

**P.3** Multidisciplinary expertise of historical information for the characterization of water levels during storm and flooding events, **Nathalie Giloy, IRSN (France)**

**P.4** Humidification of house foundation soil affected by the clays shrinkage-swelling phenomenon, **Lamine Ighil Ameur, Cerema (France)**

**P.5** Bore impact forces on vertical sea walls – a statistical study of laboratory bore impact measurements, **Maximilian Streicher, Gent University (Belgium)**

**P.6** Bayesian flood frequency analysis with long term hydrometric data on the Gardon d'Anduze catchment, **Anne-Marie Fromental, Cerema (France)**

**P.7** On efficient estimation and interpretation of return values, **David Randell, Shell solutions (UK)**

**P.8** Prior Elicitation for Bayesian Flood Frequency Analysis, **Thomas Smith, Bath University (UK)**

**P.9** Mapping of the sensitive areas to groundwater flooding: from national to local scale, **Hélène Bessière, BRGM (France)**

**P.10** FAB method application to a noised skew surge database, **Roberto Frau, EDF-R&D (France)**

17:30

## Welcome reception

*Underground Floor -1*

# Wednesday, 18th September 2019

# 4<sup>th</sup> EVAN Conference

# Daily Program

09:00 – 10:00	<b>Invited Talk 2: Extreme Storm Surges in Venice: A puzzling challenge, Dario Camuffo (CNR – ISAC, Italy)</b> <b>Chairman: R. Frau (EDF R&amp;D, France)</b>
10:00 – 10:30	<b>Coffee break</b> <i>Underground Floor -1</i>
11:00 – 12:20	<b>Session: Non-stationary Analysis (Session 1)</b> <b>Chairman: S. Parey (EDF R&amp;D, France)</b>
<i>Oral Talk 1</i>	Non-stationary extreme value analysis applied to seismic fragility assessment for nuclear safety analysis, <b>Jeremy Rohmer</b> , <i>Pierre Gehl, Marine Marcilhac-Fradin, Yves Guigueno, Nadia Rahni, Julien Clément, BRGM, IRSN (France)</i>
<i>Oral Talk 2</i>	Bayesian estimation of non-stationary extreme value models using different covariate representations, <i>Elena Zanini, Matthew Jones, David Randell, Emma Ross, Philip Jonathan, Shell Research Ltd, Shell Global Solutions, Lancaster University (UK &amp; Netherlands)</i>
<i>Oral Talk 3</i>	Analysis of Extreme Flood Peaks Through a Metastatistical Extreme Value Distribution Accounting for ENSO phases, <b>Arianna Miniussi</b> , <i>Gabriele Villarini, Marco Marani, University of Padova, University of Iowa, Duke University (Italy &amp; USA)</i>
<i>Oral Talk 4</i>	Trends in the local spatial extremal dependence of environments associated with severe US thunderstorms, <i>Jonathan Koh, Erwan Koch, Anthony Davison, Ecole Polytechnique de Lausanne (Switzerland)</i>
12:20 – 13:30	<b>Lunch break</b> <i>Underground Floor -1</i>
13:30 – 15:00	<b>Session: Non-stationary Analysis (Session 2)</b> <b>Chairman: Y. Hamdi (IRSN, France)</b>
<i>Oral Talk 5</i>	Extreme low flow estimation and climate change, <b>Sylvie Parey</b> , <i>Augustin Touron, Joël Gailhard, Thi Thu Huong Hoang, OSIRIS Laboratory, EDF R&amp;D, EDF-DTG (France)</i>
<i>Oral Talk 6</i>	Floods in Italian Alps and global warming: a progression of hazard?, <b>Pierluigi Claps</b> , <i>Daniele Ganora, Andrea Libertino, Alberto Viglione, (DIATI) Politecnico di Torino (Italy)</i>
<i>Oral Talk 7</i>	A non-stationary analysis for investigating the extreme storm surges of the English Channel coasts, <b>Imen Turki</b> , <i>Lisa Baulon, Benoit Laignel, Stephane Costa, Olivier Maquaire, Université de Rouen Normandie, SHOM, Université de Caen Normandie (France)</i>
<i>Oral Talk 8</i>	Non-Stationary Modelling of Extreme Water Levels Along the Baltic Sea Coast Reveals a Strong Relation to NAO, <b>Nadia Kudryavtseva</b> , <i>Tarmo Soomere, Tallinn University of Technology, Estonian Academy of Sciences (Estonia)</i>

15:00 – 15:30

## Coffee break

*Underground Floor -1*

15:30 – 16:45

## Session: Using Simulation (Session 2)

**Chairman: R. Jane (UCF, USA)**

*Oral Talk 9*

Assessment of extreme floods in non-stationary context – Application of Senegal Basin, **Yoann Aubert**, *Anaïs Wourms, Gwenaël Chevallet, Marie-Christine Germain, Stéphane Delichère, Jean-Claude Bader, Emmanuel Paquet, BRLI, IRD, EDF DTG (France)*

*Oral Talk 10*

Estimating the maximum credible wind speed in the UK through synthetic storms, **Amélie Joly**, *Hugo Winter, Kevin Horsburgh, Judith Wolf, Jane Williams, Michela De Dominicis, Ivan Haigh, Tim Hunt, EDF Energy R&D, National Oceanographic Centre, University of Southampton, Environment Agency (UK)*

*Oral Talk 11*

Uncertainty and sensitivity analysis of a coastal flood risk modelling chain, *Y. Liu, B. Gouldby, A. Forster, J. Hornsby and C. Mitchell, HR Wallingford, University of Southampton, AECOM, Environment Agency (UK)*

*Oral Talk 12*

Development of a new approach for the assessment of Flood Hazard through a kriging surrogate: application to a real bi-dimensional model of the Loire River, **Vito Bacchi**, *Yasser Hamdi, Marie Foch, Lucie Pheulpin, IRSN (France)*

16:45 – 17:45

## Poster Session 2

*Poster Rooms 1, 2, 3, 4 and 5*

*Oral presentations  
Poster Room 1  
(16:45 – 17:15)*

**P.11** The ETI Natural Hazard Project- Natural Hazard characterisation for the energy industry, **Hugo Winter**, *EDF Energy (UK & France)*

**P.12** Space-time simulation of precipitation based on weather pattern sub-sampling and meta-Gaussian model, **Emmanuel Paquet**, *EDF- DTG (France)*

**P.13** Applying a combined deterministic and probabilistic modelling framework for improved simulation of hydrological extremes in a grassland context, **Stelian Curceac**, *Rothamsted Research, Department of Sustainable Agriculture Sciences (UK)*

**P.14** Estimating extreme temperature using observations and climate model simulations, **Laura Dawkins**, *Met office (UK)*

**P.15** Illustrations of extreme value analyses from the ETI Natural Hazards project, *Kate Brown, Hugo Winter, Met office, EDF Energy (UK)*

**P.16** Models for night-time minimum temperatures during severe heat waves, **David Walshaw**, *Newcastle University (UK)*

**P.17** Evaluation of extreme sea-level uncertainties in observed storm surge records, **Marta Marcos**, *IMEDEA (Spain)*

**P.18** What percentile threshold can better define extreme events?, **Dario Camuffo**, *CNR – ISAC (Italy)*

**P.19** A coastal flood regional methodology and its application to the Puntal de Santander beach, Cantabria Spain, **Wagner L.L. Costa**, *Universidade de Cantabria (Spain)*

20:15 – 23:00

## Gala Dinner: river boat «Capitaine Fracasse»

*Île aux Cygnes (in the middle of the Bir Hakeim Bridge, 75015 Paris)*

# Thursday, 19th September 2019

# 4<sup>th</sup> EVAN Conference

# Daily Program

- 09:30 – 10:30      **Invited Talk 3: Incorporation of information concerning climate variability and change in the modeling of extreme hydro-climatic variables, Taha B. M. J. Ouarda (Centre Terre Environnement, Canada)**  
**Chairman: Y. Hamdi (IRSN)**
- 10:30 – 11:30      **Coffee break**  
*Underground Floor -1*
- 11:00 – 12:30      **Session: Multivariate Analysis (Session 1)**  
**Chairman: A. Dutfoy (EDF R&D)**
- Oral Talk 1*            Explaining multivariate extreme events in the biosphere, **Yanira Guanche García**, Maha Shadaydeh, Joachim Denzler, DLR German Aerospace Center, Computer Vision Group, Michael Steifel Center (Germany)
- Oral Talk 2*            Assessing the changes in tropical cyclone wind speed, precipitation and storm surge, globally, **Ivan D. Haigh**, Nadia Bloemendaal, Hans de Moel, Sanne Muis, Reindert J. Haarsma, and Jeroen C.J.H. Aerts, University of Southampton, IVM, Deltares, KNMI (UK & Netherlands)
- Oral Talk 3*            Trivariate copula to design coastal structures, **Olivier Orcel**, Philippe Sergent, François Ropert, Cerema (France)
- Oral Talk 4*            Increased extreme coastal water levels due to the combined action of storm surges and wind-waves, **Marta Marcos**, Jérémy Rohmer, Michalis Vousdoukas, Lorenzo Mentaschi, Gonéri Le Cozannet, Angel Amores, IMEDEA, University of the Balearic Islands, BRGM, European Commission (Spain, France, Italy)
- Oral Talk 5*            Compound flood risk in Miami Dade County, **Robert Jane**, Thomas Wahl, Luis Cadavid, Jayantha Obeysekera, University of Central Florida, South Florida Water Management District, Florida International University (USA)
- 12:30 – 13:30      **Lunch break**  
*Underground Floor -1*
- 13:30 – 13:40      **Best Poster Award**  
*Main Room*

13:40 – 15:10

## Session: Multivariate Analysis (Session 2)

**Chairman: I. Haigh (University of Southampton, UK)**

Oral Talk 6

Engineering application of the extreme event framework to estimate design conditions at an exposed coastal site, **Franck Mazas**, *Luc Hamm, Artelia Group (France)*

Oral Talk 7

Joint Probability – The meeting between the Sea and Streams in Danish coastal towns, **Charlotte Ditlevsen** and *Ulf Ciocan, The Danish Coastal Authority (Denmark)*

Oral Talk 8

Spatialized multivariate extreme value analysis to feed coastal hydrodynamics models, **Jessie Louisor**, *Jérémy Rohmer, Thomas Bulteau, Faïza Boulahya, Rodrigo Pedreros, Julie Mugica, BRGM (France)*

Oral Talk 9

Assessing the characteristics and likelihood of compound flooding events around the UK, **Alistair Hendry**, *Ivan D. Haigh, Robert J. Nicholls, Hugo Winter & Amélie Joly-Laugel, University of Southampton, EDF Energy R&D (UK)*

Oral Talk 10

A comparison of approaches for multi-hazard modelling in two and three dimensions, **Alois Tilloy**, *Bruce Malamud, Hugo Winter, Amélie Joly-Laugel, King's College London, EDF Energy R&D (UK)*

15:10 – 15:30

## Coffee break

*Underground Floor -1*

15:30 – 16:45

## Session: Methodology improvement

**Chairman: Y. Hamdi (IRSN, France)**

Oral Talk 11

Estimation of the Tail Distribution of the Annual Maximum Earthquake Magnitude using Extreme Value Theory, **Anne Dutfoy**, *PERICLES Laboratory, EDF-R&D (France)*

Oral Talk 12

Application of HEC-HMS Model for Flow Simulation in Tensift Catchment: Case of Zat and Ghdat sub basin, (High Atlas, Morocco), **Myriam Benkirane**, *Nour-Eddine Laftouhi, Université Cadi Ayyad, Faculté des sciences (Morocco)*

Oral Talk 13

Homogenous regions based on spatial extremogram for regional frequency analysis: application to extreme skew storm surges database, **Marc Andreevsky**, *Yasser Hamdi, Roberto Frau, Pietro Bernardara, EDF-R&D, IRSN, CERE (France)*

16:45 – 17:00

## Closing Conference

## How to reach the EDF R&D CAMPUS site (EDF Lab Chatou)



**EDF Lab Chatou**  
Île des Impressionnistes - BP 49 - 6 quai Watier - 78401 CHATOU Cedex France  
Phone : 33 (0)1 30 87 79 46  
GPS coordinates : N 48° 53' 27" - E 02° 09' 49"



About 15 minutes by walking from the RER A station «Rueil-Malmaison» or «Chatou»

### **From Paris (approximately 30 minutes):**

Take the train RER A (direction Saint Germain En Laye) and alight at Rueil Malmaison Station.

You can reach the EDF Lab Chatou from the station of Rueil Malmaison station on foot (about 15 minutes) or by bus:

- On foot, you have to take the exit "rue des Deux Gares", take the sidewalk on the right side of the avenue de Colmar towards Chatou. In the middle of the bridge, take the ramp to access the island.
- Shuttle buses (SAVAC) connect EDF Lab Chatou to the station of Rueil Malmaison 13 times every morning from 7:30 to 9:30. You can download the timetable of the shuttle bus in our website. IMPORTANT: the departure of the shuttle buses to the EDF Lab Chatou is in front of 16 rue Péreire (near the taxi station)

### **From Roissy Charles-de Gaulle Airport (approximately 1h15 minutes):**

Take the train RER B (St-Rémy Les Chevreuse direction) and stop at Chatelet-Les Halles station. Then take the train RER A (direction Saint Germain En Laye) and alight at Rueil Malmaison station (from this station, you can follow the information given above "From Paris (approximately 30 minutes)" to reach the EDF Lab site).

### **From Orly Airport (approximately 1h20 minutes):**

Take the Orly VAL (Antony direction) and change at Antony station for RER B direction Roissy Charles-de Gaulle Airport to Chatelet-Les Halles station. Then, take the train RER A (direction Saint Germain En Laye) and alight at Rueil Malmaison station (from this station, you can follow the information given above "From Paris (approximately 30 minutes)" to reach the EDF Lab site).

### **From nearby subway and bus stations:**

Bus line: Rueil direction, exit at Rueil RER station.

Lines: 027a (Gare de Vaucresson), 027b (Gare de la Celle St Cloud), 241 (Porte d'Auteuil), 244 (Porte Maillot)