



PRELIMINARY PROGRAM

Tuesday, 17th September 2019

- 08:00 – 09:00** **Registration**
- 09:00 – 09:30** **Opening Ceremony: SHF's presentation, Longest Trip Award**
- 09:30 – 10:30** **Invited Talk: Neil MacDonald – Liverpool University**
Chairs: M. Andreevsky & E. Athimon (EDF & Université de Nantes)
- 10:30 – 11:00** **Coffee break**

11:00 – 12:50 **SESSION: USING HISTORICAL DATA**

Chairman: T. Bulteau (BRGM)

A composite method for coastal flood event identification, characterisation and understanding over a centennial time scale: joining historical, statistical and modelling approaches, **Déborah Idier**, Jérémy Rohmer, Rodrigo Pedreros, Sylvestre Le Roy, Jérôme Lambert, Jessie Louisor, Gonéri Le Cozannet, Erwan Le Cornec, BRGM, GEOS-AEL (France)

Historical and weather pattern distribution analysis for a stronger return period calculation of 2016 downstream Loing flo, **Carine Chaléon**, Michel Lang, Elise Jacob, Marc Valente, DREAL, IRSTEA, DGALN (France)

Historical and statistical analysis of extreme marine events for implantation on a surge numerical models of the Thau territory, **Frédéric Pons**, Céline Trmal, Anne-Marie Fromental, Nicolas Proust, Ludovic Cesmat, Stéphane Roumeau, CEREMA, BRL Ingénierie, Syndicat Mixte du Bassin de Thau (France)

On the use of data mining and crowdsourcing to constrain historical seismicity, **Emmanuelle Nayman**, Natacha Testut, Meryl Bothua, Jessie Mayor, EDF-DIPNN-TEGG, University of Montpellier, ICAME EDF-R&D, ERMES EDF-R&D (France)

Revisiting flood frequency in the Rhône River with historical data: A Bayesian analysis accounting for the various sources of uncertainty **Antoine Bard**, Michel Lang, Benjamin Renard, Jérôme Le Coz, Gilles Pierrefeu, Pascal Billy, Thibault Mallet, HYDRO CONSULTANT, CNR, DREAL Auvergne-Rhône-Alpes, SYMADREM (France)

How history can help improve the knowledge on past extreme events: introduction to an historian-geographer's methodology, **Emmanuelle Athimon**, Université de Nantes (France)

12:50 – 14:00

Lunch break

14:00 – 15:50

SESSION: EVA APPLICATION

Chairman: F. Mazas (Artelia)

Local perceptions and adaptation of cattle breeding systems to climate variability and anthropogenic factors in southern Benin: Case of peri-urban and urban livestock systems in the coastal zone, **Ahouangan B. S. Chiméi** (Benin)

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)

Predicting extreme dry spell risk in Ichkeul Lake Basin (Tunisia) based on probability distribution, **Majid Mathlouth**, Fethi Lebdi, University of Carthage, National Agronomic Institute of Tunisia (Tunisia)

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)

Robust estimation and mapping of extreme rainfall quantiles, **Mustapha Boukhelifa**, (Algeria)

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)

15:50 – 17:00

SESSION: USING SIMULATION (PART 1)

Chairman: A. Joly (EDF)

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

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)

A coastal flood regional methodology and its application to the Puntal de Santander beach, Cantabria Spain, **Wagner L.L. Costa**, Omar Quetzalcóatl, Mauricio González, Universidad de Cantabria (Spain)

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, Aristotle University, School of Geology (Greece)

17:00 – 18:00

Poster Session 1 – Welcome reception

Wednesday, 18th September 2019

09:00 – 10:00 Invited Talk 2: Dario Camuffo, Institute of Atmospheric Sciences and Climate (ISAC), Italy

Chairman: R. Frau (EDF)

10:00 – 10:30 Coffee Break

10:30 – 12:20 Session: Non-stationary Analysis (Part 1)

Chairman: S. Parey (EDF)

Non-stationary extreme value analysis applied to seismic fragility assessment for nuclear safety analysis, **Jeremy Rohmer**, Pierre Gehl, Marine Marcilhac-Fradin, Yves Guigueno, Nadia Rahni, Julien Clément, BRGM, IRSN (*France*)

Using high water level durations and extremes to assess climate change from in situ measurements in the Gulf of Riga, Baltic Sea, **Rain Männikus**, Tarmo Soomere Nadezhda Kudryavtseva, University of Technology, Estonian Academy of Sciences (*Estonia*)

Bayesian estimation of non-stationary extreme value models using different covariate representations, **Elena Zanini**, Matthew Jones, David Randell, Emma Ross, **Philip Jonathan**, Shell Research Ltd, Shell Global Solutions, Lancaster University (*UK & Netherlands*)

Observed and Projected Changes in Extreme Temperature and Precipitation of the Karkheh River Basin, Iran, **Samaneh Ashraf**, Ferdowsi University of Mashhad (*Iran*)

Analysis of Extreme Flood Peaks Through a Metastatistical Extreme Value Distribution Accounting for ENSO phases, **Arianna Miniussi**, Gabriele Villarini, Marco Marani, University of Padova, University of Iowa, Duke University (*Italy & USA*)

Trends in the local spatial extremal dependence of environments associated with severe US thunderstorms, **Jonathan KOH**, **Erwan KOCH**, Anthony DAVISON Ecole Polytechnique de Lausanne (*Switzerland*)

12:20 – 13:30 Lunch break

13:30 – 15:00 SESSION: NON-STATIONARY ANALYSIS (PART II)

Chairman: Y. Hamdi

Constraining return levels of significant wave height extremes in the Norwegian Sea, **Patrik Bohlinger**, Ole Johan Aarnes, Øyvind Breivik, Norwegian Meteorological Institute, University of Bergen (*Norway*)

Extreme low flow estimation and climate change, **Sylvie Parey**, Augustin Tournon, Joël Gailhard, Thi Thu Huong Hoang, OSIRIS Laboratory, EDF R&D, EDF-DTG (*France*)

Floods in Italian Alps and global warming: a progression of hazard? **Pierluigi Claps**, Daniele Ganora, Andrea Libertino, Alberto Viglione, (DIATI) Politecnico di Torino (*Italy*)

A non-stationary analysis for investigating the extreme storm surges of the English Channel coasts, **Imen Turki**, Lisa Baulon, Benoit Laignel, Stephane Costa, Olivier Maquaire, Université de Rouen Normandie, SHOM, Université de Caen Normandie (*France*)

Non-Stationary Modelling of Extreme Water Levels Along the Baltic Sea Coast Reveals a Strong Relation to NAO, **Nadia Kudryavtseva**, Tarmo Soomere, Tallinn University of Technology, Estonian Academy of Sciences (*Estonia*)

15:00 – 15:30 Coffee Break

15:30 – 16:45

SESSION: USING SIMULATION (PART II)

Chairman: R. Jane (University of Florida)

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

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*)

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*)

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

20:00 – 23:00 Gala Dinner: river boat « Capitaine Fracasse »



Thursday, 19th September 2019

09:30 – 10:30 **Invited Talk 3: Taha Ouarda (Centre Terre Environnement, Québec-Canada)**
Chairman: Y. Hamdi (IRSN)

10:30 – 11:00 **Coffee break**

11:00 – 12:30 **SESSION: MULTIVARIATE ANALYSIS (PART I)**

Chairman: A. Dutfoy (EDF)

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*)

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*)

Trivariate copula to design coastal structures, **Olivier Orcel**, Philippe Sergent, François Ropert, Cerema (*France*)

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*)

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 – 13:40 **Lunch break, Best Poster Award**

13:40 – 15:10 **SESSION: MULTIVARIATE ANALYSIS, (PART II)**

Chairman: I. Haigh (University of Southampton)

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

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

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

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)

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**

15:30 – 17:00 **SESSION: METHODOLOGY IMPROVEMENT**

Chairman: H. Winter (EDF)

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

Interpolating precipitation extremes for multiple durations in eastern Canada, **Jonathan Jalbert, Luc Perreault**, Polytech Montréal, Ireq (Canada)

Extreme Shoreline Erosion Analysis Using Monte Carlo Simulations, **Yan Ding**, U.S. Army Engineer Research and Development Center (USA)

Univariate extreme value model by joint distribution of the mean and the maxima, **Darmesah Gabda**, Jonathan Tawn, Universiti Malaysia Sabah, Lancaster University (Malasia & UK)

Homogenous regions based on spatial extremogram for regional frequency analysis: application to extreme skew storm surges database, **Marc Andreevsky**, EDF-LNHE (France)

17:00 – 17:30 **Conference Closure**

POSTERS

- Recent trend of snow extremes in the French Alps, **Erwan Le Roux**, IRSTEA (France)
- Seeking the 1910 river Seine flood discharges: looking back to historical gauging and using modern measures, **Carine Chaléon**, DREAL (France)
- Multidisciplinary expertise of historical information for the characterization of water levels during storm and flooding events, **Nathalie Giloy**, IRSN (France)
- Humidification of house foundation soil affected by the clays shrinkage-swelling phenomenon, **Lamine Ighil Ameer**, Cerema (France)
- The ETI Natural Hazards Project – Natural hazards characterisation for the energy industry, **Hugo Winter**, EDF Energy (UK & France)
- Illustrations of extreme value analyses from the ETI Natural Hazards project, **Kate Brown**, Met office (UK)
- Extreme directional contours of ocean wave height and period: application to the design conditions of marine structures, **Nicolas Raillard**, IFREMER (France)
- Bore impact forces on vertical sea walls – a statistical study of laboratory bore impact measurements, **Maximilian Streicher**, Gent University (Belgium)
- Bayesian flood frequency analysis with long term hydrometric data on the Gardon d'Anduze catchment, **Anne-Marie Fromental**, Cerema (France)

- On efficient estimation and interpretation of return values, **David Randell**, Shell solutions (*UK*)
- Prior Elicitation for Bayesian Flood Frequency Analysis, **Thomas Smith**, Bath University (*UK*)
- Mapping of the sensitive areas to groundwater flooding: from national to local scale, **Hélène Bessière**, BRGM (*France*)
- Space-time simulation of precipitation based on weather pattern sub-sampling and meta-Gaussian model, **Pradeebane Vaitinada Ayar, Juliette Blanchet**, Université Grenoble-Alpes (*France*)
- 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*)
- Estimating extreme temperature using observations and climate model simulations, **Paul Newell**, Met office (*UK*)
- Models for night-time minimum temperatures during severe heat waves, **David Walshaw**, Newcastle University (*UK*)
- Extreme Storm Surges in Venice: A puzzling challenge, **Dario Camuffo**, CRR, ISAC (*Italy*)