

PROGRAMME

4th IMA International Conference on Flood Risk

12-13 September 2019

Energy Safety Research Institute (ESRI), Swansea University Bay Campus, Swansea

Thursday, 12 September	
8:30-9:00	Registration & Coffee
9:00-9:10	Welcome Speech (Prof Harshinie Karunaratna)
Session 1 - Climate change, hydro-climatic extremes and non-stationarity Part I Chair: Dr Yunqing Xuan	
9:10-9:50 Keynote Talk	<i>Impacts of climate change on water resources and hydrological extremes in the Huai River basin, China</i> - Prof Guoqing Wang, Research Centre of Climate Change of Ministry of Water Resources of China
9:50-10:10	<i>Non-stationary models for flood frequency analysis</i> – Sarah Warren Co-authors: Duncan Faulkner; Sarah Warren; Olivia Simpson; Adam Griffin; Sean Longfield and Peter Spencer
10:10-10:30	<i>A multi-scale Analysis of the Correlation in Representing Flood-Inducing Extreme Precipitations from Observation and Climate Mode</i> - Han Wang Co-author: Yunqing Xuan
10:30-10:50	<i>Probabilistic Urban Flood Forecasting System for Chinese Mega Cities using Advanced Active Phased Array Radar</i> – Dehua Zhu
10:50-11:50	Coffee/Tea Break & Poster Session (Ground Floor of ESRI)
	Poster Session:
	<i>Atmospheric origins and magnitude implications for extreme rainfall in the UK</i> - Andrew Barnes Co-authors: Nick McCullen and Thomas Rodding Kjeldsen
	<i>Rainfall threshold calculation for floods and flash floods early warning in São Paulo State, Brazil</i> - Geraldo Ramos (Presented by Victor Hugo Rabelo Coelho) Co-authors: Victor Hugo Rabelo Coelho; Cristiano das Neves Almeida and Yunqing Xuan
	<i>Understanding coastal flooding for Small Island Developing States in the Caribbean</i> - Judith Wolf Co-authors: Sveta Jevrejeva; Jenny Brown; Lucy Bricheno; Michela De Dominicis; David Byrne; Ben Phillips and Abena White

Session 2 - Climate change, hydro-climatic extremes and non-stationarity Part II Chair: Prof Jerry D. Zhu	
11:50-12:10	<i>Reconstructing Hongze Lake response events to the palaeofloods during the past 1000 years</i> - Ming Gao Co-authors: Saiyu Yuan; Hongwu Tang; Yang Xiao and Kun Zhang
12:10-1:10	Group Photo & Lunch Break
Session 3 - Emerging observation technology and data assimilation method for flood modelling Part I Chair: Dr Yunqing Xuan	
1:10-1:50 Keynote Talk	<i>Discounted cost-benefit analysis of flood protection schemes in a changing climate</i> - Prof. Michael Bruen, University of Dublin
1:50-2:10	<i>Modelling the impact of leaky barriers with a 1D Godunov-type scheme for the shallow water equations and validating with experiment</i> – Shannon Leakey Co-authors: Caspar J M Hewett; Jack Shelton; Vassilis Glenis and Paul Quinn
2:10-2:30	<i>Prior Elicitation for Bayesian Flood Frequency Analysis</i> - Thomas Smith
2:30-2:50	Coffee/Tea Break
Session 4 - Emerging observation technology and data assimilation method for flood modelling Part II Chair: Dr Min Luo	
2:50-3:10	<i>Modelling flow-wave-vegetation interactions in estuaries</i> - Thomas van Veelen Co-authors: Harshinie Karunaratna; William G. Bennett; Tom P. Fairchild and Dominic E. Reeve
3:10-3:30	<i>Coupled modelling of storm surge, wave runup, overtopping, and flood - Application to Osaka Bay</i> - Sooyoul Kim Co-authors: Nobuhito Mori; Tetsuya Takemi; Yoko Shibutani; Tomohiro Yasuda; Sota Nakajo; Tomoya Shimura; Junichi Ninomiya and Hajime Mase
3:30-3:50	<i>Hydrodynamics of a river-lake system with sluices and its flood control</i> - Xiao Luo (Providing talk on behalf of Saiyu Yuan) Co-authors: Xiao Luo, Hongwu Tang, Hao Cao and Yang Xiao
3:50-4:00	Wrap up 1 st day. Briefing about the potential journal publication by Conference Chair
6:30-9:30	Conference Dinner – The River House, The Ice House, Kings Rd, Swansea SA1 8AW Conference Dinner Speech: Prof Dominic Reeve

Friday, 13 September

Session 5 - Computational methods in flood flow modelling and the emerging AI techniques
Part I

Chair: Dr José Horrillo-Caraballo

9:00-9:40 Keynote Talk	<i>Dealing with uncertainty in flood modelling: how uncertainty and sensitivity analysis can help</i> - Dr Francesca Pianosi, University of Bristol
9:40-10:00	<i>Computational Modelling of the Impact of Salt Marsh Management Interventions on Coastal Flooding</i> - William Bennet Co-authors: T.J. Van-Veelen; T.P. Fairchild; J.N. Griffin and H. Karunarathna
10:00-10:20	<i>Effects of wave spectral characteristics on flooding under bimodal wave overtopping of coastal defences</i> - Stephen Orimoloye Co-authors: Jose M. Horrillo-Caraballo; Harshinie Karunarathna and Dominic E. Reeve
10:20-10:40	<i>Dynamic Runoff Simulation in a Changing Environment based on Data Stream Mining</i> - Qinli Yang Co-authors: Heng Zhang; Guoqing Wang; Shasha Luo; Dongzi Chen and Junming Shao
10:40-11:10	Coffee/Tea Break
Session 6 - Computational methods in flood flow modelling and the emerging AI techniques Part II	
Chair: Dr Yuzhi Cai	
11:10-11:30	<i>Application of Gaussian processes in improving flood prediction and resilience of critical coastal infrastructures</i> - Alireza Daneshkhah Co-authors: Soroush Abolfathi; Sina Borzooei and Tabassom Sedighi
11:30-11:50	<i>Quantifying sources of uncertainty in landslide generated wave models using Gaussian process emulation and variance-based sensitivity analysis</i> - Branwen Snelling Co-authors: Stephen Neethling; Gareth Collins and Matthew Piggott
11:50-1:00	Lunch Break & Guided tour to the Swansea University Coastal Laboratory
Session 7 - Mathematical methods for evaluating flood risk perception, communication and human reaction Part I	
Chair: Prof Harshinie Karunarathna	
1:00-1:40 Keynote Talk	<i>Ocean waves and coastal flooding</i> - Judith Wolf National Oceanography Centre, UK Co-authors: Lucy Bricheno
1:40-2:00	<i>Understanding the contribution of uncertain wind stress to storm surge predictions</i> - Simon Warder

2:00-2:20	Coffee/Tea break
Session 8 Mathematical methods for evaluating flood risk perception, communication and human reaction Part I Chair Dr Patricia Xavier	
2:20-2:40	<i>Fuzzy cognitive mapping of flood risk perception and adaptive capacity of slum communities over the most flood-prone city in India</i> - Sherley MA Co-authors: Mousumi Ghosh; Mohit Mohanty and Subhankar Karmakar
2:40-3:00	<i>A near real-time flood forecasting system for an urban coastal catchment: A novel three-way hydrodynamic framework fed with numerical weather modelling outputs</i> - Subhankar Karmakar (Presented by Manasa Ranjan Behera) Co-authors: Mousumi Ghosh; Supantha Paul; Pratiman Patel; Subimal Ghosh; Manasa Ranjan Behera and A. B. Inamdar
3:00-3:15	Concluding Remarks – Conference Chair Dr Yunqing Xuan