UNIVERSITY OF EXETER
Centre for Water Systems

CWS Seminar Series 2019/20

Experimental and Numerical Investigation of Flow Exchange in Urban Flood Flows

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Date: 14:35-15:25, 17/01/2020

Venue: H103, Harrison Building, North Park Road, Exeter, EX4 4QF

Refreshments will be provided for this event. All are welcome and feel free to forward the invitation!

Abstract

The main focus of my research is on understanding urban flooding phenomena and the interactions between existing sewer/drainage systems and streets. The frequency, magnitude and impact of pluvial flooding events both in the UK and worldwide are forecast to increase under climate change and to understand and mitigate the risk of flooding, experimental/field data in real flood conditions are required to provide robust calibration and validation of hydraulic flood models. However, the cost and complexity of developing suitable laboratory setups, field monitoring and instrumentation systems, mean such datasets are scarce. To fill this gap, to date, I have designed, developed and constructed large-scale physical models at the University of Sheffield, Sichuan University, Beijing Normal University and at the IKT - Institute for Underground Infrastructure, to analyse above/below ground flow interactions in urban floods. This includes the development of state of the art low cost instrumentation systems to quantify large-scale 2D velocity fields in complex scaled flood flows. In addition, I am currently working on the development of a new scientific understanding of the transport of harmful contaminants/pollutants from sewer interface points during flood events.

About Dr Matteo Rubinato

I have a Master Degree in Environmental Engineering obtained at the University of Padova (Italy). I joined the University of Sheffield (UoS) in 2009 where I have completed my PhD and my main

research focus concerns the large-scale physical modelling of urban water systems, having developed a strong theoretical (analysis) and practical (design) background in the core disciplines of water engineering.
Since I have started my academic career, I have been involved in the research/management activities of several externally funded research projects (British Council, Newton Fund, EPSRC and NSFC) with Sichuan University, Beijing Normal University, Xi'an University, the University of Colorado Boulder and IKT - The Institute for Underground Infrastructure (https://pureportal.coventry.ac.uk/en/persons/matteo-rubinato). This includes conducting research, writing journal publications, co-supervising students and researchers, planning and reviewing the budget, and periodically assessing and reporting progress to stakeholders to ensure that the project goals are delivered. I believe that team working is crucial in today's interdisciplinary engineering world, where one person with one skill set is often not sufficient to solve a problem.
Through the University's Learning & Teaching Professional Recognition Scheme (LTPRS) I was made a Fellow of the Higher Education Academy (FHEA) in April 2018. I am always keen to promote an equal learning environment and appreciate the diversity of students needs. As a former Erasmus student, I appreciate the difficulties of studying in a different language. Furthermore, since 2016, I collaborate as researcher within the "Researchers in School - Brilliant Club", an award winning charity that exists to widen access to highly-selective universities for pupils from under-represented groups. In this programme, I designed the course handbook "Can we find a solution to urban flooding in the UK?", based on the research conducted at the University of Sheffield, and I delivered university-style tutorials on the topic of urban flooding in the UK to small groups of pupils , Year 6-Year 12, which developed the knowledge, skills and ambition that help those pupils to secure places at highly-selective universities.
Since April 2019, I am an Assistant Lecturer in Civil Engineering at Coventry University.

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