



Ph.D.ICEAA

Ph.D. Program in Civil, Building Construction
and Environmental Engineering

Coordinator: Prof. Marcello Di Risio

Probabilistic characterization of extreme events: insights and challenges

Elisa Ragno

Delft University of Technology
e.ragno@tudelft.nl

Abstract

Precipitation, temperature, river discharge, and sea water levels are all examples of natural phenomena of which we wish to quantify the magnitudes, frequencies, and uncertainties to enable risk reduction strategies. Such phenomena are characterized by some degree of randomness, meaning that their future outcomes are unknown. In this context, probabilistic methods are fundamental to inferring characteristics of random and uncertain phenomena around us when observations (data) are available.

The seminar focuses on two main approaches to characterize extreme events when trends in the variables of interest and interdependences between variables cannot be neglected. Applications of extreme value analysis under the nonstationary assumption to account for a changing climate and limiting physical factors will be discussed. Then, the potential of copula-based methods as surrogate models to represent the dependence between environmental variables and make inferences will be presented.

16/06/2023 - 11:00

Team Code: br2yuo6



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Elisa Ragno is Assistant Professor at Delft University of Technology in the Hydraulic Engineering department. She received her PhD at the University of California, Irvine. Her main research interests lie in understanding and modelling extreme natural events and how such events interact with the living environment.

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Link and/or Classroom