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Nota di contenuto	Development of robust and efficient methods for hydraulic/hydrologic/environmental risk numerical simulation -- Coupling Mage with Melissa to compute ubiquitous Sobol indices for river hydraulics -- Comparison between HEC-RAS and TELEMAC-2D

hydrodynamic models of the Loire River, integrating levee breaches -- Digital twin technologies for flood management in large catchment: challenges and operational solution -- Assessment of flood vulnerability through a multidimensional index -- Hydrodynamic modelling of Seine Bay and Estuary in moderate and extreme conditions: with a focus on Johanna storm -- Evaluation of Machine Learning approaches for Flood Hazard Mapping over the Argens basin, France -- BASEMENT v4 - a multipurpose modelling environment for simulation of flood hazards and river morphodynamics across scales -- A combined pipe and overland flow model to support urban flood risk management: case study of the Espartes watershed -- Fast prediction of flood maps based on machine learning techniques: application to marine flooding at Arcachon Lagoon (Gironde, France) -- On the application of machine learning into flood modeling: data consideration and modeling algorithm -- River stage prediction using Hydrodynamic Modeling -- Hydraulic Modelling for Flood Inundation Mapping to Assess the Impact of Check Dam in Araniyar River.

Sommario/riassunto

This book includes a collection of extended papers based on presentations given during the SimHydro 2023 conference, held in EDF Lab Chatou, France, with the support of Société Hydrotechnique de France (SHF), the Association Française de Mécanique (AFM), the Environmental and Water Resources Institute (EWRI), and the International Association for Hydro-Environment Engineering and Research (IAHR). SimHydro conferences, since 2010, have created a regular forum where major actors of the hydroinformatics domain and stakeholders meet, share, and debate about needs, innovations, and implementations of models and their inputs for decision making. For this new edition, the general theme of the conference is focused on "New modelling paradigms for water issues". The papers address some of the key challenges faced by the water modelling community regarding processes to simulate such as water services, extreme events (floods, droughts, etc.), and hydrological cycle at catchment scale and to assess the added value of emerging concepts and methods such as Artificial Intelligence (AI) and Digital Twins that are gaining interests. It addresses the interests of practitioners, stakeholders, researchers, and engineers active in this field. This book represents Volume 1 of a two-volume book series.
