Special Issue

Machine Learning Models for Hydrological Inference: A Case Study for Flood Events

Message from the Guest Editor

Floods represent one of the most widespread and destructive natural hazards worldwide, posing significant threats to human life, infrastructure, and socioeconomic systems. In this context, machine learning and other advanced intelligent technologies are offering new opportunities for hydrological inference and flood modeling, marking a paradigm shift in traditional hydrological practices. In recent years, machine learning techniques have demonstrated considerable potential in various aspects of flood-related studies, including flood forecasting, streamflow simulation, rainfall-runoff modeling, data assimilation, and filling the gaps of hydrological records. These data-driven approaches have contributed to enhanced accuracy and efficiency in hydrological inference. However, several challenges remain, such as limited model interpretability. This Special Issue thus aims to bring together researchers, engineers, and practitioners from the fields of hydrology, artificial intelligence, disaster risk reduction, and related disciplines to share their latest insights, methodological innovations, and practical experiences in applying machine learning to flood events.

Guest Editor

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In the context of global changes, the sustainable management of water cycles, going from global and regional water cycles to urban, industrial and agricultural water cycles, plays a very important role on the water resources and on their relationships with food, energy, biodiversity, ecosystem functioning and human health. *Water* invites authors to provide innovative original full articles, critical reviews and timely short communications and to propose special issues devoted to new technological and scientific domains and to interdisciplinary approaches of the water cycles. We ensure a critical review process and a quick turnaround between submission and final decision.

Editor-in-Chief

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