Special Issue

Advances in Machine Learning for Flood Prediction and Water Risk Management

Message from the Guest Editor

Recent advances in data science, machine learning (ML), and remote sensing provide unique opportunities to address challenges in flood prediction and water-related risk management. Accurate and timely flood forecasting is critical for protecting communities, infrastructure, and ecosystems. This Special Issue aims to focus on innovative applications of machine learning methods—including deep learning, hybrid models, surrogate modeling, and data assimilation approaches—to improve flood forecasting, risk assessment, and early warning systems. Contributions may also explore the integration of socioeconomic and climatic drivers, novel sensor networks, uncertainty quantification, and explainable AI to enhance the transparency and usability of predictive models. By bringing together interdisciplinary research, this Special Issue aims to advance methodological innovations and provide actionable insights for policymakers, practitioners, and researchers in water sciences. We welcome the submission of both methodological and applied studies, case studies from diverse regions, and reviews that highlight emerging directions in machine learning for hydrological and flood prediction research.

Guest Editor

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Message from the Editor-in-Chief

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

Dr. Jean-Luc PROBST
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