

Special Issue

Machine Learning Applications for Hydrological Prediction, Watershed Processes and Sustainable Water Management

Message from the Guest Editors

Recent advances in computational methods, remote sensing technologies, geospatial analysis, machine learning and process-based modeling have significantly enhanced the ability to simulate complex watershed dynamics across multiple spatial and temporal scales. However, increasing pressures from climate change, land-use transformation, urbanization and extreme hydrological events continue to challenge conventional modeling approaches. This Special Issue aims to showcase the recent developments, innovative methodologies and practical applications of advanced hydrological modeling in watershed research. The Special Issue welcomes studies employing physically based, conceptual, data-driven, hybrid and AI-assisted modeling approaches, as well as uncertainty analysis, model calibration and decision-support frameworks. Through interdisciplinary research and novel modeling techniques, this Special Issue seeks to advance scientific knowledge and provide actionable insights for sustainable watershed management, climate adaptation and water security worldwide.

Guest Editors

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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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