

Special Issue

Advancing Hydrological Science Through Artificial Intelligence: Innovations and Applications

Message from the Guest Editors

Hydrological modeling is an essential tool for understanding and managing the Earth's water systems. By simulating the movement, distribution, and quality of water across various components of the hydrological cycle, it provides critical insights into water availability, distribution, and risks. In a world increasingly impacted by water scarcity, climate change, and population growth, hydrological modeling plays a critical role in enabling data-driven decisions, which help to ensure the sustainable management of water resources and the protection of ecosystems and communities. In recent years, Artificial Intelligence (AI) has emerged as a transformative force across various disciplines, including hydrology. This Special Issue emphasizes the importance of interdisciplinary approaches that integrate AI with hydrological science to support sustainable water resource management in the face of growing environmental and societal challenges. Specifically, we invite submissions of manuscripts that include, but are not limited to, the development and application of AI tools in the **Hydrology Areas**.

Guest Editors

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About the Journal

Message from the Editor-in-Chief

Hydrology is the study of the waters of the Earth. *Hydrology* has close ties with hydraulics, hydrogeology and the multiple sciences that study the atmosphere, the land surface, the soil and the subsoil, and ranges from complex problems of risk, forecasting and optimization of water resources to interactions with ecological, urban, social and economic systems. The purpose of *Hydrology* is then to provide a journal where research results and real-world problems can be presented and discussed in order to bridge the traditional gaps between the academic world and the professionals and decision makers. Therefore, *Hydrology*, invites authors to submit their original theoretical, field, experimental, and numerical studies on hydrology with strong emphasis on multidisciplinary approaches and interdisciplinary topics, which cross the typical boundaries of our science.

Editor-in-Chief

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Rapid Publication:

manuscripts are peer-reviewed and a first decision is provided to authors approximately 15.7 days after submission; acceptance to publication is undertaken in 2.8 days (median values for papers published in this journal in the first half of 2025).