

Special Issue

Hydrological Modeling in the Age of AI and Remote Sensing

Message from the Guest Editors

Traditional hydrological models, which represent physical and hydrological processes, are essential for scientific understanding and water resources management. They are widely used to simulate streamflow, groundwater, water quality, and extreme events such as floods and droughts. However, their reliability is limited by uncertainties in input data, calibration, evaluation, and model structure, challenges intensified under nonstationary climate conditions. Remote sensing provides spatially continuous and temporally frequent observations, especially valuable in data-sparse regions and for large-scale evaluation. Meanwhile, advances in artificial intelligence (AI), including machine learning and deep learning, improve pattern extraction, data assimilation, and parameter estimation. Together, they offer strong potential to reduce uncertainty and enhance predictions. This Special Issue highlights advances in hydrologic modeling using remote sensing and AI, welcoming methodological, benchmarking, and application studies that integrate multi-source data and improve reliability and decision relevance.

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Message from the Editorial Board

Remote Sensing is now a prominent international journal of repute in the world of remote sensing and spatial sciences, as a pioneer and pathfinder in open access format. It has highly accomplished global remote sensing scientists on the editorial board and a dedicated team of associate editors. The journal emphasizes quality and novelty and has a rigorous peer-review process. It is now one of the top remote sensing journals with a significant Impact Factor, and a goal to become the best journal in remote sensing in the coming years. I strongly recommend *Remote Sensing* for your best research publications for a fast dissemination of your research.

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