Special Issue

AI-Enhanced Remote Sensing and Land Surface Modeling for Terrestrial Hydrology and Climate Systems

Message from the Guest Editors

This Special Issue aims to foster interdisciplinary contributions that integrate remote sensing, AI techniques, and process-based modeling to better characterize, simulate, and attribute land–atmosphere interactions under global environmental change. Topics of interest include:

- Development and application of Remote Sensing Foundation Models in hydrological and climate studies.
- AI-based fusion of multi-source remote sensing and observational data for comprehensive monitoring of key hydrological and climatic variables.
- Coupling AI-enhanced remote sensing with land surface, hydrological, and climate models to improve simulation and prediction of terrestrial physical processes.
- Detection and attribution of hydroclimatic extremes (e.g., droughts, floods) using AI-integrated observation model frameworks.
- Long-term changes in terrestrial hydrological and climatic variables (e.g., water storage, snow cover, ET, precipitation) revealed by remote sensing and machine learning.
- Impacts of human–environment interactions (e.g., irrigation, water regulation, land use change) on regional climate, water cycle, and ecological environment assessed through AI-enhanced remote sensing and modeling.

Guest Editors

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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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