Special Issue

Remote Sensing of Water Dynamics in Permafrost Regions

Message from the Guest Editors

Permafrost is highly sensitive to climate change, with thaw-induced shifts in water dynamics profoundly affecting hydrology, ecosystems, and infrastructure stability. Processes such as thermokarst formation, wetland drying, and active layer deepening alter surface and subsurface water regimes. With advances in satellite and UAV platforms, thermal, radar, and optical sensors now provide critical insights into freeze–thaw cycles, soil moisture, and hydrological connectivity. Understanding these dynamics is key to predicting environmental responses and supporting sustainable development in cold-region environments.

This Special Issue aims to advance the scientific understanding of water dynamics in permafrost regions by promoting innovative applications of remote sensing technologies. It seeks to highlight methodological developments, multi-sensor data integration, and new insights into hydrological processes such as surface water change, soil moisture variability, freeze–thaw transitions, and landscape–hydrology interactions.

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Message from the Editor-in-Chief

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.

Editor-in-Chief

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