Special Issue

Isotopic and Geochemical Approaches for Groundwater Assessment and Management

Message from the Guest Editors

Groundwater is essential for ecosystems and provides water for households, agriculture, and industry, while sustaining rivers, wetlands, and other habitats. Excessive extraction and human activities, including unregulated pumping, industrial discharge, agricultural runoff, and urban growth, have degraded both its quantity and quality, threatening water security and ecological balance. Sustainable management requires understanding aquifer evolution and recharge and discharge mechanisms. Hydro-geochemical and isotopic studies using stable and radioactive isotopes trace recharge sources, distinguish modern from fossil water, identify contamination origins, and reveal contaminant types, sources, and natural geochemical processes. These approaches quantify degradation drivers and provide a comprehensive view of groundwater dynamics. Integrating scientific tools with socio-hydrological research, which considers human activities, water use, and management decisions, supports evidence-based policies and sustainable plans that are robust, socially acceptable, and adaptable to changing climatic and socio-economic conditions, safeguarding ecosystems and human well-being.

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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

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