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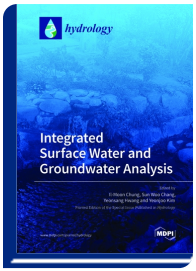
Integrated Surface Water and Groundwater Analysis



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Comprehensive understanding of surface water and groundwater interaction is essential for effective water resources management. Groundwater and surface water are closely connected components that constantly interact with each other within the Earth's hydrologic cycle. Many studies utilized observations to explain the surface water and groundwater interactions by carefully analyzing the behavior of surface water features (streams, lakes, reservoirs, wetlands, and estuaries) and the related aquifer environments. However, unlike visible surface water, groundwater, an invisible water resource, is not easy to measure or quantify directly. Nevertheless, demand for groundwater that is highly resilient to climate change is growing rapidly. Furthermore, groundwater is the prime source for drinking water supply and irrigation, and hence critical to global food security. Groundwater needs to be managed wisely, protected, and especially sustainably used. However, this task has become a challenge to many hydrologic systems in arid to even humid regions because of added stress caused by changing environment, climate, land use, population growth, etc. In this issue, the editors present contributions on various research areas such as the integrated surface water and groundwater analysis, sustainable management of groundwater, and the interaction between surface water and groundwater. Methodologies, strategies, case studies as well as quantitative techniques for dealing with combined surface [illegible]ndwater management are of interest for this issue.

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