Special Issue

A Bayesian Approach to Hydrological Modeling of Groundwater/Surface Water Interaction

Message from the Guest Editors

Groundwater/surface water interactions have been widely studied in recent decades, and computational modeling has enhanced our understanding of the physical and chemical processes that occur at the interface between a stream bed and groundwater aquifer. With the dramatic increase in computing speed and memory, computation of complex hydrologic systems has become more comprehensive, involving large-scale simulations and more dynamic settings. However, these hydrologic models remain uncertain due to the heterogeneity of hydrologic systems and non-linear dynamics of hydrological processes. The Bayesian approach has been actively adopted for hydrological modeling, especially for groundwater, providing cost-effective data collection, optimal parameterization, reducing model uncertainty, and allowing reliable decision making for remediation and water resource management. Recent advances in high-resolution remote sensing and machine learning/artificial intelligence have increased the effectiveness of the Bayesian approach to hydrological modeling.

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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.

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