Special Issue

Considerations of the Uses of Machine Learning in Subsurface Hydrology

Message from the Guest Editor

Machine learning (ML) approaches are revolutionizing many scientific disciplines. However, there is still some concern that subsurface hydrogeologic systems may not be well-suited to ML approaches. This concern stems from three sources. First, subsurface hydrology is plagued by a lack of data. Second, many hydrogeologic problems are hyper-local. Finally, many hydrologic assessments are conducted to assess the likely impact of proposed activities. To be fair, these limitations also apply to our current approach that relies on physics-based models. As such, these questions represent key challenges that must be addressed to take full advantage of the promise of ML for subsurface hydrogeology. The purposes of this Special Issue are: to document successes and failures of applying ML to subsurface hydrology; to present discussion papers regarding the future of ML methods in subsurface hydrology and their role in complementing and/or replacing physics-based models; and to propose paths forward for the successful adoption of ML methods for subsurface hydrogeologic investigations.

Guest Editor

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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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