

## Editorial: Mechanisms of hydrological evolution in human-influenced basins

This special issue entitled ‘Mechanisms of Hydrological Evolution in Human-influenced Basins’ is dedicated to exploring the intricate mechanisms underlying the hydrological evolution in human-influenced basins. We are delighted to present a collection of insightful research articles that delve into the complex dynamics between human activities and hydrological systems.

Human-induced alterations in basins have brought about significant changes to the natural water cycle, challenging our understanding of hydrological processes. The aim of this special issue is to shed light on the underlying mechanisms that drive hydrological evolution in basins affected by human influence, encompassing a wide range of interdisciplinary perspectives.

This special issue collects 23 articles that offer a comprehensive examination of various factors contributing to hydrological evolution. From land use changes and urbanization to water management practices and climate change impacts, each study presents unique insights into the intricate web of interactions shaping human-influenced basins. All the collected articles can be categorized into four groups. Group 1 contains Papers 1–8, mainly concerning the impacts of climate change and human activities on the critical variables in hydrological cycle. Group 2 consists of Papers 9–13, introducing different types of droughts in human-influenced regions. Group 3 comprises Papers 14–17, involving the evolutions, mechanisms and impacts of extreme storms and floods. Group 4 includes Papers 18–23, dealing with new innovative approaches to model hydrological variations, such as parallel computing methods, machine learning approaches and newly improved hydrological models.

Researchers in this field have employed innovative methodologies and advanced modeling techniques to unravel the complexities of hydrological evolution. Their work not only deepens our understanding of the hydrological processes but also provides practical implications for sustainable water resource management and environmental conservation.

It is our hope that the collection of articles presented in this special issue will inspire further research, foster interdisciplinary collaborations and guide policy decisions related to water resource management in human-influenced basins. By deepening our understanding of the underlying mechanisms, we can develop effective strategies to address the challenges and opportunities associated with hydrological evolution. We encourage readers to explore the diverse perspectives presented in this special issue and engage with the exciting research conducted by our esteemed authors. We believe that this collection will stimulate fruitful discussions and inspire future investigations that contribute to our collective efforts in understanding and managing hydrological evolution in human-influenced basins.

We express our gratitude to the contributing authors who have dedicated their time and expertise to enriching this special issue with their remarkable research. Their studies contribute significantly to the growing body of knowledge on hydrological evolution and its relevance to human activities. We also extend our sincere appreciation to the reviewers who rigorously evaluated the manuscripts, ensuring the quality and scientific rigor of the published works. Their constructive feedback and expert guidance have played a crucial role in shaping this special issue. Last but not least, we would like to express our gratitude to the editorial team and the support staff of *Hydrology Research* for their dedication and commitment to bringing this special issue to fruition. Their efforts have been instrumental in ensuring the quality and coherence of the published articles.

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