

## Editorial: Water resources and environmental management

Water and environmental management offers a multi-disciplinary understanding of water resources and environmental issues. Although the science of water management has experienced significant improvements over the past century, many issues still require the attention of the scientific community.

Water bodies are ecological, culturally and economically important ecosystems which provide many valuable services to mankind. However, as climate change and human activities intensify (e.g., global warming, land use and cover changes, population explosion, nutrient and organic matter loading, water conservation projects and other anthropogenic factors), water quantity, water quality, ecosystem health and services are differently challenged.

Thus, multidisciplinary research, reliable monitoring and modeling of various water bodies are essential for sustainable water use and improvement of water resources management practice.

This special issue of *Journal of Water and Climate Change* brings together eight papers on the theme of 'water resource and environmental management'. The purpose of this special issue is to present some of the latest research carried out in the area of water resources management under uncertain and changing conditions.

Reliable routine water quality monitoring is essential to obtain an objective knowledge of the water quality, which is vital to investigate water quality variation trends and identify pollution hotspots, as described in the paper by Liu *et al.* (2019). In this paper, water quality variation trends of a development zone were determined through the Spearman rank relational coefficient. Major pollution indices and pollution sources were identified, which could provide an important basis for the water ecology construction of the Development Zone.

Mine water inrush is one of the important factors that threaten the safe production of mines. On the basis of extensive filed fissure measurements, Chen *et al.* (2019) numerically simulated the groundwater seepage field in the GaoSong ore field. The accurate understanding of the mine groundwater flow field can effectively reduce the hazards of mine water inrush.

Waterlogging and the decline of the aquifer groundwater level are the main problems during urban development and

have raised great interest. Zhang & Peralta (2019) present an approach to simultaneously quantify runoff and infiltration by combining a Source Loading and Management Model and the SCS runoff curve method. Infiltration increase and runoff reduction due to green infrastructure could be estimated, and the approach was applied to a Salt Lake City residential area. The proposed approach can give the relative proportions of rainfall in green infrastructure areas that become infiltration and runoff, which has great significance in guiding urban development and planning storm water management.

The articles in this collection demonstrate that water resources management is an active field of research, where new ideas are constantly emerging to face the challenges posed by the increasing complexity of water management.

The guest editors wish to thank all the authors of this special issue for contributing the high quality papers. We would also like to thank the referees who have critically evaluated the papers within the short stipulated time. Finally we hope the readers will share our joy and find this special issue very useful.

We hope this special issue will help us manage water resources in a smarter and more open way to achieve a healthy ecosystem and the fair and sustainable use of water resources for multiple purposes.

Finally, we would also like to thank the excellent editorial team of *Journal of Water and Climate Change* for their efforts and professional commitment.

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