

## Contents

- 1165 Evaluating the capability of hybrid data-driven approaches to forecast monthly streamflow using hydrometric and meteorological variables  
**Fariba Azarpira and Sajad Shahabi**
- 1182 Insights into the prediction capability of roughness coefficient in current ripple bedforms under varied hydraulic conditions  
**Kiyomars Roushangar and Saman Shahnazi**
- 1197 Improved wind-driven optimization algorithm for the optimization of hydropower generation from a reservoir  
**Yin Liu, Shuanghu Zhang, Yunzhong Jiang, Dan Wang, Qihao Gu and Zhongbo Zhang**
- 1214 Identifying and interpreting extreme rainfall events using image classification  
**Andrew Paul Barnes, Nick McCullen and Thomas Rodding Kjeldsen**
- 1224 Soil moisture data using citizen science technology cross-validated by satellite data  
**Mohammad Karamouz, Elham Ebrahimi and Arash Ghomlaghi**
- 1247 GEP- and MLR-based equations for stable channel analysis  
**Mohd Afiq Harun, Aminuddin Ab. Ghani, Reza Mohammadpour and Ngai Weng Chan**
- 1271 Application of multi-model ensemble averaging techniques for groundwater simulation: synthetic and real-world case studies  
**A. Jafarzadeh, M. Pourreza-Bilondi, A. Akbarpour, A. Khashei-Siuki and S. Samadi**
- 1290 Adaptive method for the solution of 1D and 2D advection–diffusion equations used in environmental engineering  
**Romuald Szymkiewicz and Dariusz Gąsiorowski**
- 1312 Multi-time-scale input approaches for hourly-scale rainfall–runoff modeling based on recurrent neural networks  
**Kei Ishida, Masato Kiyama, Ali Ercan, Motoki Amagasaki and Tongbi Tu**



International Association  
for Hydro-Environment  
Engineering and Research

Supported by  
Spain Water and IWH, China



- 1325 Numerical assessment of the water-flow hazard to workers in the water disaster of underground mine  
**Qiang Wu, Yi Yao, Yingwang Zhao, Xiaoyan Zhang, Hua Xu, Yuanze Du and Zhili Du**
- 1343 An ecohydraulic-based expert system for optimal management of environmental flow at the downstream of reservoirs  
**Mahdi Sedighkia, Bithin Datta, Asghar Abdoli and Zahra Moradian**
- 1368 Approaches for unsupervised identification of data-driven models for flow forecasting in urban drainage systems  
**Ari Jóhannesson, Luca Vezzaro, Peter Steen Mikkelsen and Roland Löwe**
- 1382 Multiple-steps scenario optimisation for pumping plants activation in water supply systems  
**Jacopo Napolitano and Giovanni M. Sechi**
- 1395 Impact of climate change on hydro-climatological parameters in North Cyprus: application of artificial intelligence-based statistical downscaling models  
**Gozen Elkiran, Vahid Nourani, Ogodor Elvis and Jazuli Abdullahi**