



## **An Open Source Software Tool for Hydrologic Climate Change Assessment**

Dong Kwan Park (1), Mun-Ju Shin (2), and Young-Oh Kim (3)

(1) Department of Civil & Environmental Engineering, Seoul National University, Seoul, Korea, Republic Of (donpark@snu.ac.kr), (2) Department of Civil & Environmental Engineering, Seoul National University, Seoul, Korea, Republic Of (bbear96@snu.ac.kr), (3) Department of Civil & Environmental Engineering, Seoul National University, Seoul, Korea, Republic Of (yokim05@snu.ac.kr)

With the Intergovernmental Panel on Climate Change (IPCC) publishing Climate Change Assessment Reports containing updated forecasts and scenarios regularly, it is necessary to also periodically perform hydrologic assessments studies on these scenarios. The practical users including scientists and government people need to use handy tools that operate from climate input data of historical observations and climate change scenarios to rainfall-runoff simulation and assessment periodically. We propose HydroCAT (Hydrologic Climate change Assessment Tool), which is a flexible software tool designed to simplify and streamline hydrologic climate change assessment studies with the incorporation of: taking climate input values from general circulation models using the latest climate change scenarios; simulation of downscaled values using statistical downscaling methods; calibration and simulation of well-know multiple lumped conceptual hydrologic models; assessment of results using statistical methods. This package is designed in an open source, R-based, software package that includes an operating framework to support wide data frameworks, variety of hydrologic models, and climate change scenarios. The use of the software is demonstrated in a case study of the Geum River basin in Republic of Korea.