Geophysical Research Abstracts
Vol. 20, EGU2018-19722, 2018
EGU General Assembly 2018

Comparison of Parameter Estimation Methods of the Stochastic Rainfall Generator

Hyungon Cho, Myojeong Kim, Yeonsu Do, and Gwangseob Kim

School of Architectural, Civil, Environmental and Energy Engineering, Kyungpook National University, Daegu, Korea (kimgs@knu.ac.kr)

Since the utility and relevance of probabilistic rainfall models is increasing, accurate estimation of their parameters is important. The Neyman-Scott Rectangular Pulse Model (NSRPM) is well known as clustered point process model for rainfall generator. NSRPM widely appreciated for its applicability in hydrology field because it is able to preserve rainfall statistics over time scales and build their structure into the capability of representing rain cells. In this study, the model parameters of a stochastic rainfall generation model, NSRPM (Neyman-Scott Rectangular Pulse Model), were estimated using DFP (Davidon-Fletcher-Powell), GA (Genetic Algorithm), Nelder-Mead, and DE (Differential Evolution) methods. Summer season (June, July, August) hourly precipitation data from 1973 to 2017 in Nakdong river, Korea. Overall results demonstrated that DE and Nelder-Mead methods generate better results than that of DFP and GA methods.

Acknowledgement: This research was supported by a grant (17AWMP-B079625-04) from Water Management Research Program funded by Ministry of Land, Infrastructure and Transport of Korean government.