Geophysical Research Abstracts Vol. 21, EGU2019-19132-1, 2019 EGU General Assembly 2019 © Author(s) 2019. CC Attribution 4.0 license.



A Development of Hierarchical Bayesian Network-Beta Model for Forecasting Summer Seasonal Rainfall and Extreme Rainfall

Yong-Tak Kim, Hong-Geun Choi, Minkyu Jung, and Hyun-Han Kwon Sejong University, Republic of Korea (kyongtak0225@gmail.com)

In this study, we proposed a hybrid forecasting model based on a four-parameter distribution which allows a simultaneous season-ahead forecasting for both summer seasonal rainfall and daily maximum rainfall. The proposed model mainly utilized a set of time-varying predictors and the associated model parameters are estimated within a Bayesian nonstationary rainfall frequency framework. The hybrid forecasting model was validated through a cross-validatory experiment using the recent rainfall events during $2014\sim2017$. The seasonal precipitation results showed a good agreement with that of the observed rainfall, which is about 0.9 in terms of the correlation coefficient. Similarly, for the extreme rainfalls at sub-daily scale, the mean absolute percentage error between the observed and simulated rainfalls is ranging from $0.3\sim34\%$.

KEYWORDS: Hierarchical Bayesian Model, Extreme rainfall, Climate Information, Beta

Acknowledgement

This work is supported by the Korea Environmental Industry & Technology Institute(KEITI) grant funded by the Ministry of Environment(Grant 18AWMP-B083066-05).