Geophysical Research Abstracts
Vol. 20, EGU2018-2137-3, 2018
EGU General Assembly 2018

Future Projection of Meteorological Drought Characteristics over Bangladesh using Effective Drought Index (EDI)

Syewoon Hwang (1) and Mohammad Kamruzzaman (2)

(1) Associate Professor, Gyeongsang National University, Jnju, South Korea (swhwang@gnu.ac.kr), (2) Ph.D. student, Research Fellow, Gyeongsang National University, Jnju, South Korea (milonbrri@gmail.com)

Climate change increases the odds of worsening drought in many parts of the planet. Bangladesh is one of the most natural disaster-prone country, and particularly drought is the most complex but least understood of all natural hazards in Bangladesh. Therefore variability of the drought characteristics and its future change should be major threatening issues in terms of sustainable water supply and management over the country. This study aims to project the future change of drought characteristics such as, drought intensity, magnitude and its duration. In order to quantify the characteristics of drought events, precipitation-based drought estimator, Effective Drought Index (EDI) was used. EDI is newly developed index which was proven as superior indicator for drought detection for Bangladesh. General Circulation Model outputs (GCMs) were applied to get the time series of future precipitation under RCP scenarios. 29 GCMs were collected and used as forcing data to consider uncertainty in the future forecasts and the raw GCMs were bias-corrected to represent retrospective climatology using the 27 station-based observation data from 1981 to 2015 over Bangladesh. We presented trends of severity level and persistence of future drought conditions. The present results would help the resource managers to optimally allocate scarce water resources and thus, make long-term strategies against natural hazards related to water scarcity. Furthermore the outcomes of the study are expected to be considered usable measures to mitigate the loss in agricultural production for drought prone areas in Bangladesh.

This work was supported by the National Research Foundation of Korea (NRF) grant funded by the Korea government (MSIP) (No. 2017044944)