

Assessment of the Impacts of Climate Change on Climatic Zones over the Korean Peninsula for Natural Disaster Management Information

Authors : Sejin Jung, Dongho Kang, Byungsik Kim

Abstract : Assessing the impact of climate change requires the use of a multi-model ensemble (MME) to quantify uncertainties between scenarios and produce downscaled outlines for simulation of climate under the influence of different factors, including topography. This study decreases climate change scenarios from the 13 global climate models (GCMs) to assess the impacts of future climate change. Unlike South Korea, North Korea lacks in studies using climate change scenarios of the CoupledModelIntercomparisonProject (CMIP5), and only recently did the country start the projection of extreme precipitation episodes. One of the main purposes of this study is to predict changes in the average climatic conditions of North Korea in the future. The result of comparing downscaled climate change scenarios with observation data for a reference period indicates high applicability of the Multi-Model Ensemble (MME). Furthermore, the study classifies climatic zones by applying the Köppen-Geiger climate classification system to the MME, which is validated for future precipitation and temperature. The result suggests that the continental climate (D) that covers the inland area for the reference climate is expected to shift into the temperate climate (C). The coefficient of variation (CVs) in the temperature ensemble is particularly low for the southern coast of the Korean peninsula, and accordingly, a high possibility of the shifting climatic zone of the coast is predicted. This research was supported by a grant (MOIS-DP-2015-05) of Disaster Prediction and Mitigation Technology Development Program funded by Ministry of Interior and Safety (MOIS, Korea).

Keywords : MME, North Korea, Koppen-Geiger, climatic zones, coefficient of variation, CV

Conference Title : ICNHST 2019 : International Conference on Natural Hazard Science and Technology

Conference Location : Dubai, United Arab Emirates

Conference Dates : November 07-08, 2019