A Study on Estimation of Disaster Prevention Performance Target Rainfall in Korea Considering RCP Scenario

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Weather and climate changes due to climate change cause heavy rainfall and rainfall exceeding design frequency. To prevent disasters against climate change, the IPCC(Intergovernmental Panel on Climate Change) has published RCP 4.5 and RCP 8.5 of AR5 to predict increases in temperature and rainfall relative to climate change. In 2012, Korea announced ' A standard of establishment and operation of the regional Disaster Prevention Performance Target(NEMA, 2011) ' to prevent disaster from floods and heavy raindall in cities and counties nationwide. In this study, RCP scenarios are classified into short term($\sim$ 2040), middle term (2040 $\sim$ 2070) and long term (2070 $\sim$ 2100). it estimates disaster prevention performance target rainfall by each local governments for disaster prevention in Korea.

As a method of temporal downscaling of the RCP scenarios, the Bayesian technique, Scale-Invariance technique, Spline interpolation technique, and non-parametric statistical temporal downscaling technique were used to estimate the 1-hour, 2-hour, and 3-hour durations of 30-year design frequency. RCP 4.5 and RCP 8.5 were analyzed with temporal downscaling technique weighting, and the rate of increase and decrease of the probability rainfall was analyzed by arithmetic averaging of two scenarios. Korea's disaster prevention performance target rainfall by each local governments considering future climate changes is suggested that increase by 5.0 % in the short term (2040), 8.0 % in the mid term (2070) and 14.0 % in the long term (2100).