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Organization: Pukyong National University

Category: Ocean and Atmospheres

Paper ID: 57-OOA-A1600

Title: Future Temperature and Precipitation Changes in Korea Associated w Global Warming

Abstract:

By long-term observations it has been confirmed by climatologists th global warming is no longer a topic of debate among scientists and pc makers. According to 2001 IPCC (Intergovernmental Panel on Climate Change) report, the global mean surface air temperature has been in gradually and it records as much as about 0.6 degree by the end of tv century. Property losses have also enlarged corresponding to the glob warming trend, especially increase of extreme weather event occurre Most of studies on climate changes, Atmosphere-Ocean General Circu Models (AOGCMs) have been considered as the primary tool common However, it may not be easy task to figure out regional climate condit due to their coarse horizontal resolution. To overcome this spatial lim of large-scale model a dynamic downscaling by nesting regional clima model to AOGCMs is considered as one of promising solutions (Giorgi, Jones et al., 1995: Christensen et al., 1997). In this study, we attemp develop a methodology to provide relatively accurate future regional information for not only mean temperature and precipitation changes also extreme events in Korea with regional downscaling technique Temperature and precipitation changes associated with the global wa over Korea are investigated by numerical prediction with a regional cl model (MM5) for the period of 2001 to 2100. For regional climate sim we used the MM5 (version 3.4) with 27 km horizontal resolution and layers of σ- coordinate in vertical. MM5 is nested within the output of SRES (Special Report on Emission Scenarios) A2 by the ECHAM4/HOP developed at the Max Planck Institute for Meteorology (MPI) for the p model year 2001 to 2100. A basic analysis of the simulations indicate climate change over the Korea shows about 6.2oC increase of the sur temperature and about 2.6% increase of the precipitation by 2100. B the simulations, we investigated the frequency of occurrence of extre events over Korea. Results show that both daily maximum and daily minimum temperature increase, while the diurnal temperature range decreases. The diurnal temperature range (DTR) change has diminish mainly due to relatively faster increase of daily minimum temperature that of daily maximum temperature. It has been observed increase of precipitation amount and decrease of the number of rainy days, and t these changes lead to the increase of precipitation intensity.