



## **Evaluation of simulated precipitation: Recent trends in extreme indices over East Asia**

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Climate research, particularly application studies for water, agriculture, forestry, fishery and energy management require fine scale multi-decadal information of meteorological, oceanographic and land states. Unfortunately, spatially and temporally homogeneous multi-decadal observations of these variables in high horizontal resolution are non-existent. Some long term surface records of temperature and precipitation exist, but the number of observation is very limited and the measurements are often contaminated by changes in instrumentation over time. Some climatologically important variables, such as soil moisture, surface evaporation, and radiation are not even measured over most of East Asia.

Regional climate models (RCMs) are able to provide valuable regional finescale information, especially in regions where the climate variables are strongly regulated by the underlying topography and the surface heterogeneity. We investigated the ability of a regional climate model to provide the characteristics of East Asian climate focusing on summer and winter monsoon using the Global/Regional Integrated Model system [GRIMs; Hong et al. 2013]. The model can reproduce large scale features associated the East Asian summer and winter monsoon in terms of 30-year (1979-2008) seasonal mean climate.

However, accurate prediction of monsoon precipitation is still a challenging task. Precipitation is one of the most important results generated during the model simulation. It is also generally the most difficult variable to simulate correctly in a regional model. Therefore, we will focus on precipitation to examine variability and uncertainty over East Asia in terms of extreme indices. The assessment of simulated precipitation is expected to provide the high-quality data that can be used in various application areas such as hydrology or environmental model forcing.