[EE] Evening Poster | A (Atmospheric and Hydrospheric Sciences) | A-AS Atmospheric Sciences, Meteorology & Atmospheric Environment

[A-AS05]Precipitation Extreme

convener:Akiyo Yatagai(Hirosaki University)
Wed. May 23, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)
Predicting future hydro-meteorological conditions due to human-induced climate change is a major concern. In particular, the change of extreme events are focused by the international scientific and political frameworks, such as WCRP and IPCC. Especially, heavy precipitation often induces disasters such as flood and landslides, and drought is often linked to food crisis. Japanese science community has lead establishment of a dense network of rain-gauge observation such as AMeDAS and developing accurate grid precipitation data over Asia such as APHRODITE as well as high-resolution climate modeling and satellite precipitation estimates. Facing the urgent task of evaluating, forecasting precipitation extremes and mitigating consequence disasters, there seems to be some gaps between the communities. Hence, we propose a session with focusing on extreme precipitation to assemble scientists of tacking this issue with different methods. We also welcome topics on evaluating related meteorological parameters such as snowfall and temperature and studying disasters which are related to extreme precipitation (e.g. typhoon, landslides and drought).

[AAS05-P04]CMIP5 Multimodel ensemble evaluation in present climate over Pakistan

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Keywords:Relative RMSE, standardized multimodel median RMSE, seasonality index, mean model, median model, ensemble

This study investigates the performance of Coupled Models Inter-comparison Phase 5 (CMIP5) General Circulation Models (GCMs) over the region of Pakistan. The purpose of investigating this multimodel ensemble performance is the utilization of their data in climate impact based studies. The initial analysis has been done at monthly timescale for the present climate (1981-2005) with AgMIP climate forcing dataset based on the NASA Modern-Era Retrospective Analysis for Research and Applications (AgMERRA). The performance of all the models is assed using root mean square errors of three meteorological parameters, maximum temperature, minimum temperature and precipitation relative to AgMERRA dataset. The performance metrics involve relative and standardized multimodel median RMSE of both seasonal and annual climatologies in order to check individual model relative to the rest of the multimodel ensemble as well as to assess the magnitude of model errors as compared to spatial variations of the parameter. An index has been defined as seasonality index for both average temperature and precipitation. The performance metrics show multimodel mean and median tend to outperform the individual models for the meteorological parameters, however, the performance of mean is not satisfactory for the seasonality representation in the models. Results of initial analysis show models are in good agreement with the observation for maximum and minimum temperature whereas for precipitation, some of the models show better performance over the others. Further in the study, comparison of simulations will be made with two gridded reanalysis/ observational datasets, AgMERRA and APHRODITE-2 products for the period 1998-2010, in order to calculate the discrepancies between the two reanalysis and observation datasets over the region. This part of the analysis utilizes daily data of both AgMERRA and APHRODITE-2 datasets to further check the models bifurcated in the monthly

analysis as good or bad. The selected models will further be classified based on the temperature and precipitation extremes indices.