Prediction of south Asian monsoon rainfall using multimodel ensemble scheme

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The availability of the CMIP5 data for users made possible the prediction of the rainfall over monsoon Asia region. In this study we used 4 coupled models (monthly datasets) with historical experiment simulation form 1979 to 2005 periods. The APHRODITE rain-gauge datasets, a very dense Asian rain-gauge network, is used as observational support. First each model is downscaled to 0.25^{o} grid resolution with respect to APHRODITE datasets. Next multimodel superensemble technique is used to predict rainfall for 5 years (2001-2005) and validated against observational rainfall. For prediction of these 5 years we used 21 years of data in 'the training phase' to calculate the weights for 'the forecast phase'. This makes use of the cross validation principle, where the season to be forecasted is left out of the entire forecast set. The downscaled multimodel superensemble shows an improved correlation of nearly 1.0 against observed climatology. Such high skill is useful in addressing the rainfall anomaly forecasts (here it is a departure from the observed rainfall climatology). Further the skills of the forecasts will be access on the basis of RMS errors, anomaly correlations and equitable threat scores. With the time on getting access for more coupled models from CMIP5, we will extend this study for as many as models. Addition of models will improve the superensemble multimodel ensemble forecast.