International workshop on seasonal to decadal prediction
Toulouse, France, 13-16 May, 2013

Understanding Prediction Skill of Seasonal Mean Precipitation over the Tropics

Mingyue CHEN

Climate Prediction Center/NCEP/NOAA, USA, mingyue.chen@noaa.gov
Arun Kumar, Wanqiu Wang
Presenter : Mingyue Chen

The connection between local SST and precipitation (SST-P) correlation and prediction skill of precipitation on seasonal time scale is investigated based on seasonal hindcasts from the National Centers for Environmental Prediction (NCEP) Climate Forecast System version 2 (CFSv2). The results demonstrate that there is good correspondence between the two; precipitation skill is generally high only over the regions where SST-P correlation is positive and is low where SST-P correlation is small or weakly negative.

This result has fundamental implications for understanding the limits of precipitation predictability on seasonal time-scale, and helps explain spatial variations in the skill of seasonal mean precipitation. Over the regions where atmospheric variability drives the ocean variability (and consequently, the local SST-P correlation is weakly negative), inherently unpredictable nature of atmospheric variability leads to low predictability for seasonal precipitation. On the other hand, over the regions where slow time scale ocean variability drives the atmosphere (and the local SST-P correlation is large positive), predictability of seasonal mean precipitation is also high.