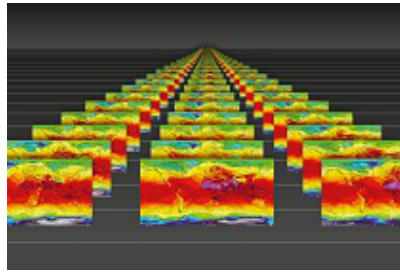


Workshop on Predictability, dynamics and applications research using the TIGGE and S2S ensembles



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GMAO Seasonal Forecast Ensemble Exploration

GMAO Sub/Seasonal prediction system (S2S) has recently been upgraded. A complete set (1981-2016) of 9-months hindcasts for the previous and current versions (S2S-1.0 and S2S-2.1 respectively) allows for the evaluation of the forecast skill and a study of various characteristics of the ensemble forecasts in particular. We compared the intra-seasonal and interannual SST variability of the two systems against the observed. Focusing on the ENSO SST indices, we analyzed the consistency of the forecasts ensembles by studying rank histograms and compared the ensemble spread with the standard error of the estimate to evaluate the ensemble spread as an indicator of the forecast uncertainty.

The S2S-2.1 ensemble appears to be more consistent with observations in Niño1+2 region compared to S2S-1.0, while in the central equatorial Pacific ocean this measure is comparably good for both systems. The S2S-1.0 system tends to be under dispersive, while the new system is under dispersive only at very short lead times, but tends to be over dispersive at long leads and for forecasts verifying in spring in Niño 3.4 region. The differences in the forecasts over the eastern equatorial Pacific ocean (Niño 1+2 region) can be attributed to the new clouds parameterization in the AGCM.

Overall, the new system has greater skill in predicting ENSO. The evaluation techniques tested here will be applied for testing of the next generation sub/seasonal forecast system under development at the moment.

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