CCSM4 Sub-Seasonal Effort

• Re-Forecast experiments for Years 1999-2012
  – November Only, Minimum of 45-days, Initialized Every 5-days on the 2nd, 7th, 12th, 17th, 22th, 27th of November.

• Ocean and Atmosphere Initialized; Land Initialized - but updated every 10 days
  – Three Ensemble Members

• Daily means: SST, U200, U850, OLR, Precip, MSLP, Z200

• Research/Experimental
But, Can Also Look at Monthly Initialized Cases

• Hindcast/Forecasts are Initialized Using Data From the Last 5-Days of the Previous Month
  – 10 Member Ensemble Initialized Every 12-Hours
  – Ex: 00Z, 12Z; 27, 28, 29, 30, 31 December -> January Forecast

• Focus on Indian Ocean Sector
  – No Special Emphasis on MJO
  – Sub-Seasonal Filtering
  – Homogeneous Predictability/Prediction
Forecast Error: January Cases 1982-2010

a) RMSE (SST)

b) RMSE (PRECIP)

c) [MODEL CLI. SST] - [OBS. CLI. SST] : d80-d120

d) [MODEL CLI. PRECIP] - [OBS. CLI. PRECIP]
Forecast Error: June Cases 1982-2010

a) RMSE (SST)

b) RMSE (PRECIP)

c) [MODEL CLI. SST] - [OBS. CLI. SST] : d90-d110

d) [MODEL CLI. PRECIP] - [OBS. CLI. PRECIP]
SST and Rainfall Drift

- MODEL Drifts: SST Difference (1/1 - 12/31): degree C
- PRECIP Difference (1/1 - 12/31): mm/day
- MODEL Drifts: SST Difference (6/1 - 5/31): degree C
- PRECIP Difference (6/1 - 5/31): mm/day
SST (Sub-Seasonal) Variance
Rainfall (Sub-Seasonal) Variance

b) Precipitation, Observation (1998-2012)
d) Precipitation, atm.01 (1982-2009)
f) Precipitation, atm.06 (1982-2009)
Saturation RMSE: Coupled Modes

a) PC1 (All-time-leads) : atm.01

b) PC1 (All-time-leads) : atm.06

c) PC2 (All-time-leads) : atm.01

d) PC2 (All-time-leads) : atm.06