

**Climate Monitoring and Prediction System
for the South Asian Region: An
Implementation Agreement under the
MoES-NOAA MOU**

**Presented at: MoES-NOAA Science
Colloquium**

11 September 2008

Areas of Cooperative Activities

- **Monitoring:** Utilize various existing observational and reanalysis databases to develop set of tools to monitor the current state of climate over the South Asian Region on a real-time basis
- **Prediction:** Develop set of model based prediction tools for extended-range forecast guidance (including assessment of their skill)

Monitoring

- **Tools**

- ***Model based global climate analysis***

- Atmosphere – Climate Data Assimilation System (CDAS)
 - Land – Global Land Data Assimilation System (GLDAS)
 - Ocean – Global Ocean Data Assimilation System (GODAS)

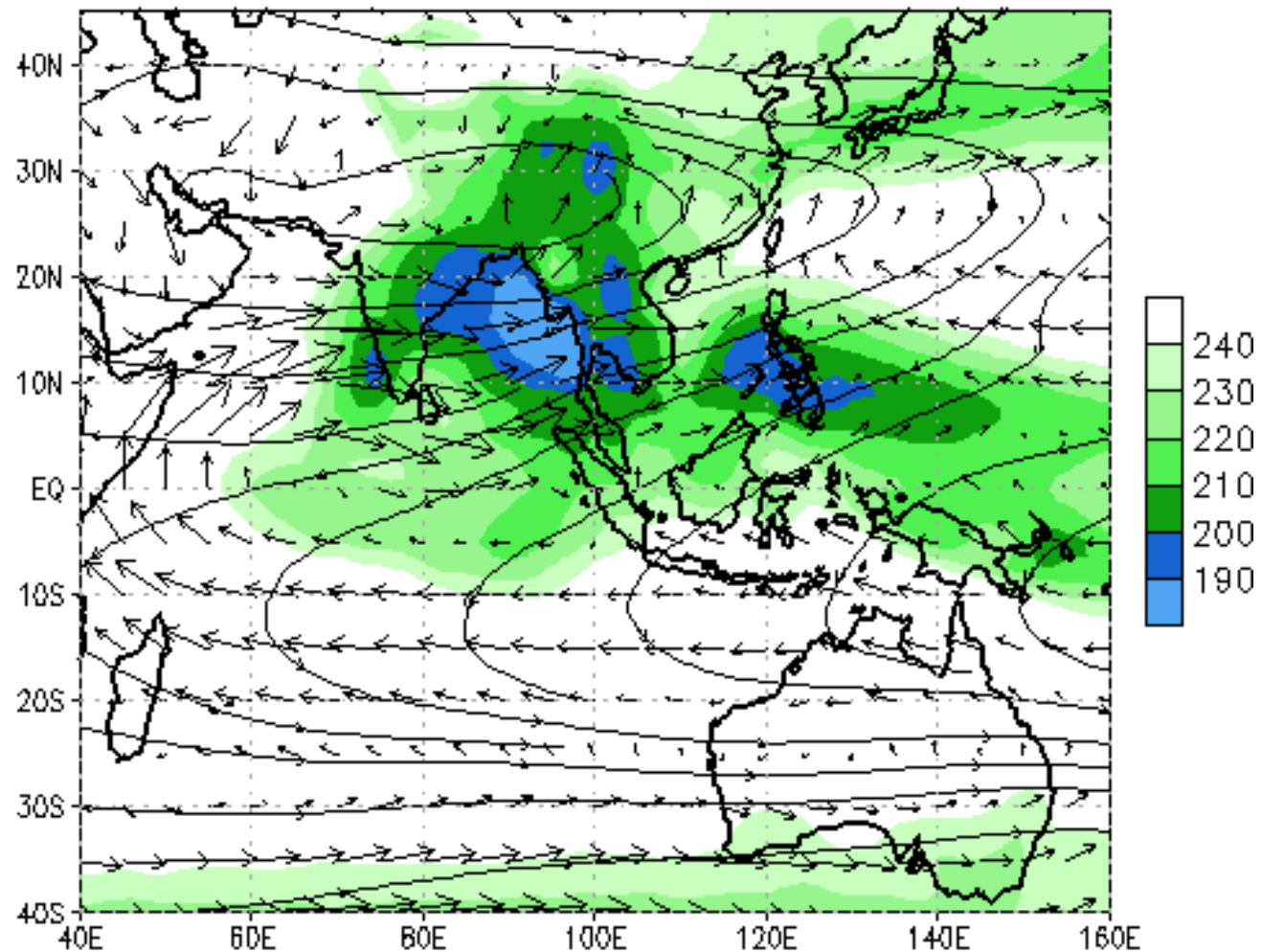
- ***Objective analysis of surface fields***

- Rainfall (surface obs + satellite)
 - Surface Temperature

Climatology

OLR, 200-hPa Streamlines and 850-hPa Wind Clim (1979-1995)

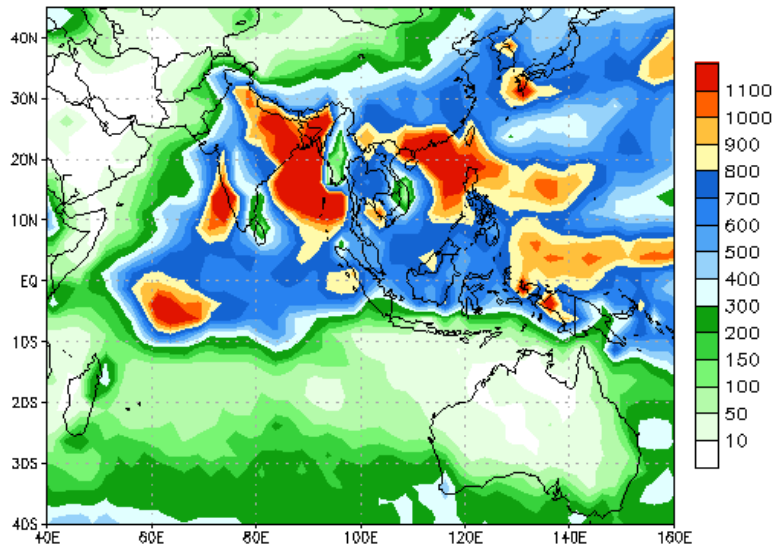
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Data Sources: OLR - NESDIS/ORA, Winds - NCEP CDAS/ Reanalysis

Real-Time Monsoon Monitoring Last 90-Days

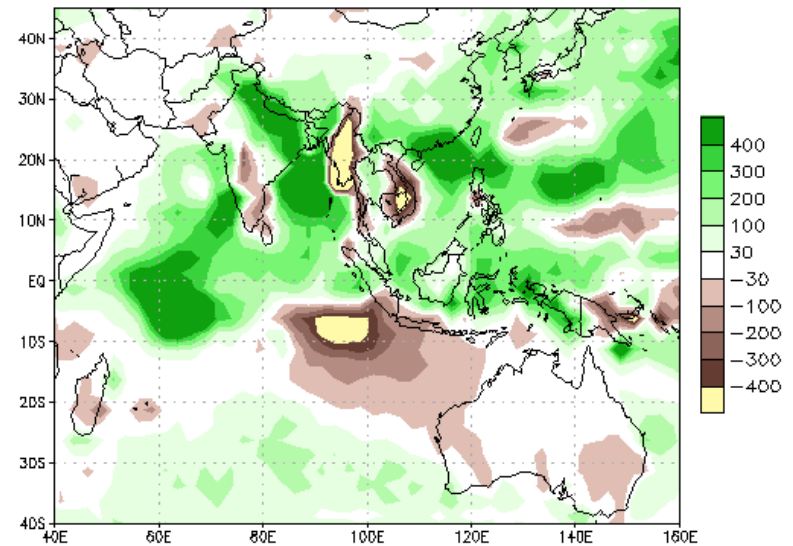
Accumulated Prcp (mm) 25 MAY 2008 – 23 AUG 2008



Data Source: NCEP CMAP Precipitation

Total

Prcp Anomalies (mm) 25 MAY 2008 – 23 AUG 2008

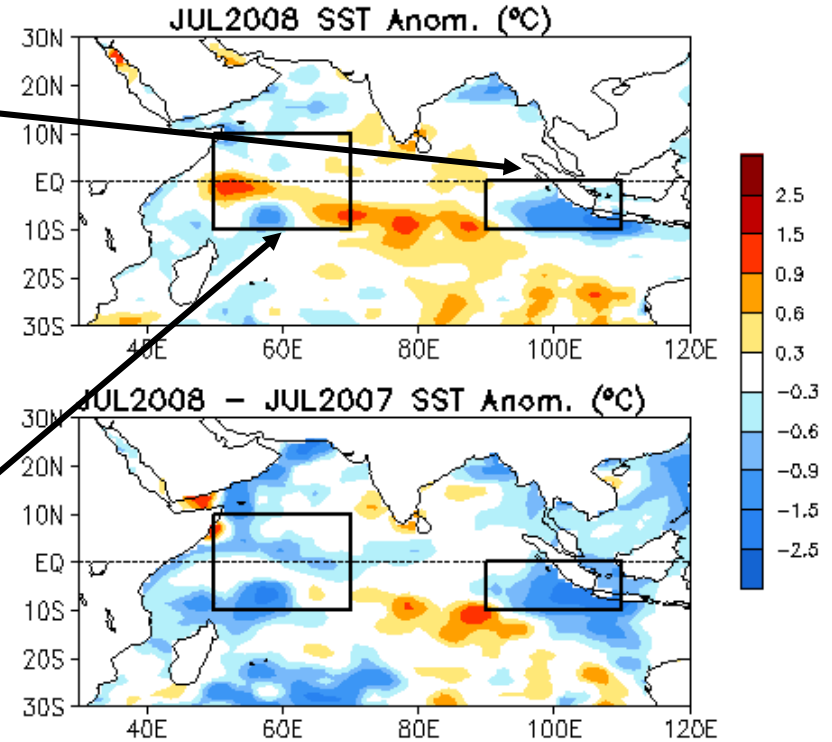
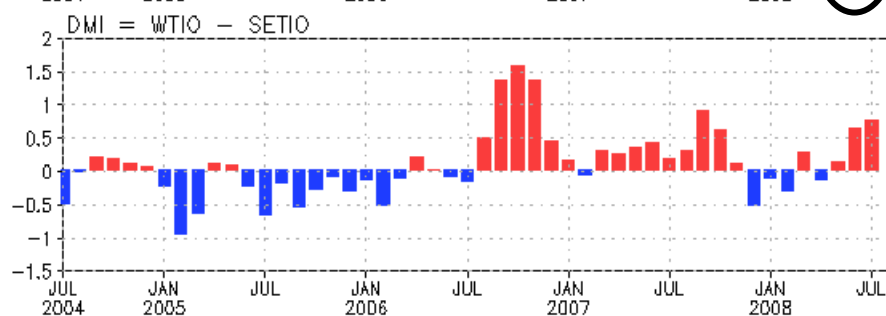
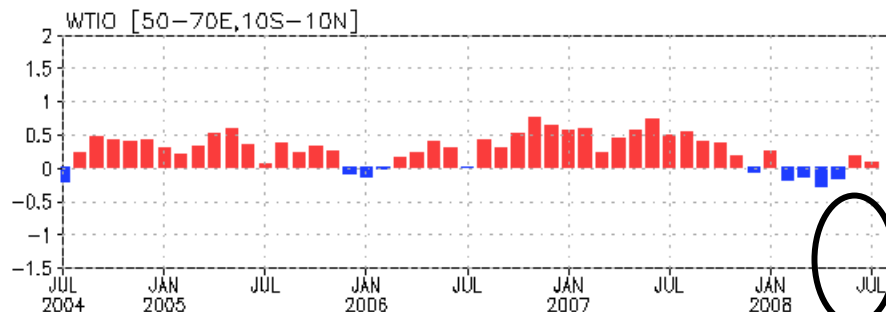
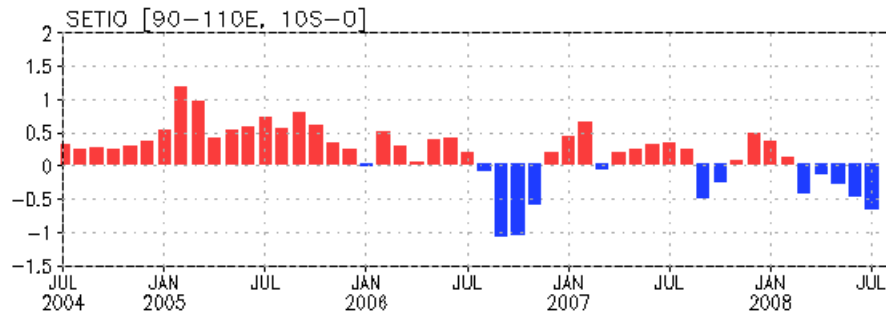


Data Source: NCEP CMAP Precipitation
Climatology (1979–1995)

Anomaly

Evolution of Indian Ocean SST Indices

Indian Ocean Dipole Mode Indices



- Tropical Indian Ocean SST is cooler than that last year.
- Dipole Mode Index (DMI) was above 0.5°C in June-July.

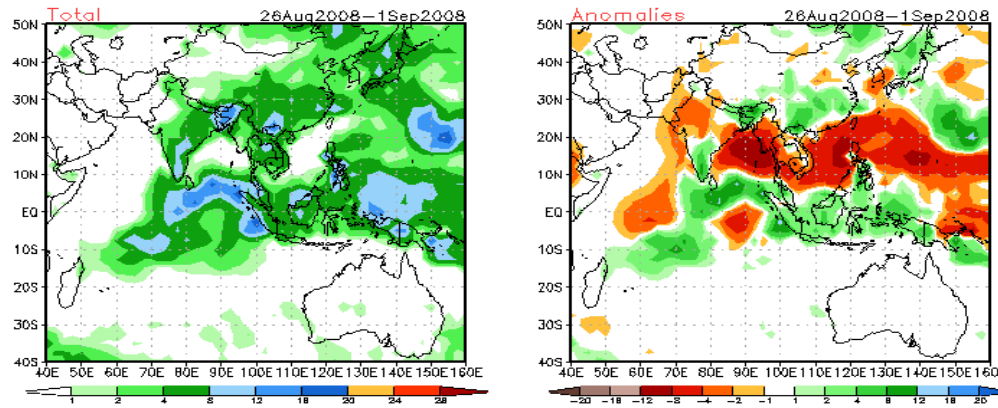
Prediction

- **Tools**

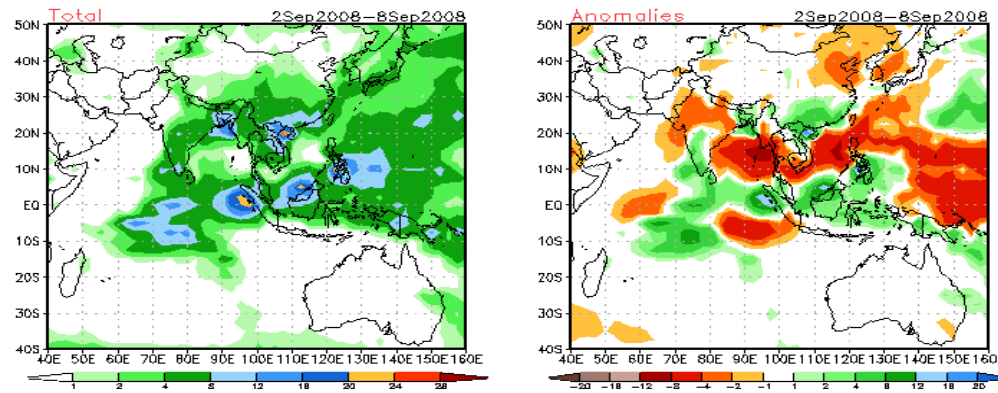
- *Ensemble of medium-range forecasts (atmosphere alone)*
- *Ensemble of dynamical long-range forecast (coupled ocean-atmospheric models)*
- *Empirical Prediction tools (MJO)*
- *Expert assessment and synthesis*

NCEP/GFS Model Forecasts Bias-Corrected Precipitation for Week 1 & Week 2

Week 1 Precipitation (mm/day)
Forecast from 25Aug2008

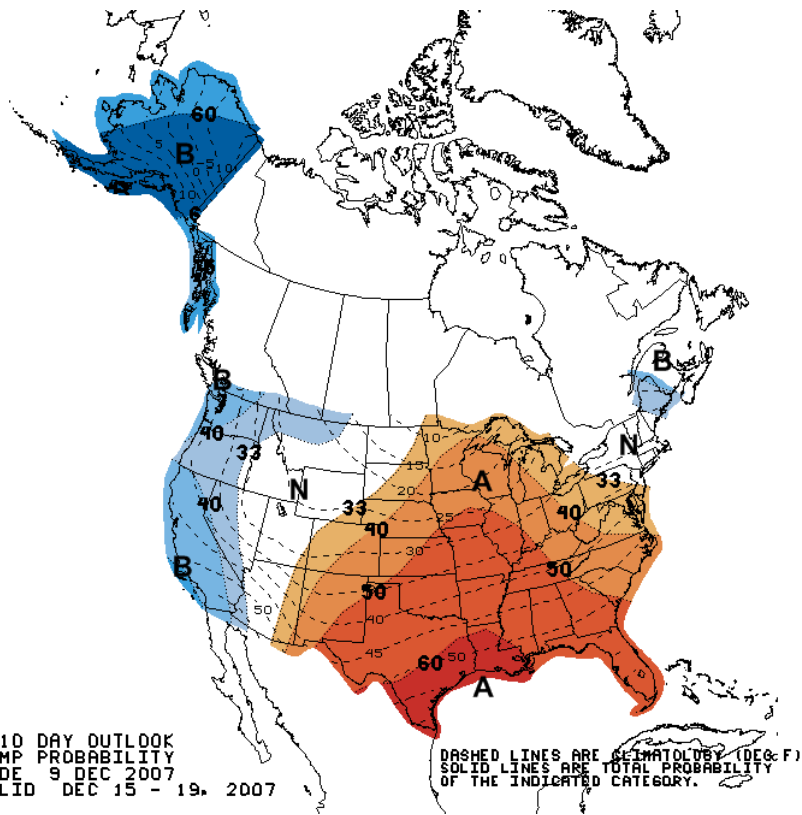


Week 2 Precipitation (mm/day)
Forecast from 25Aug2008

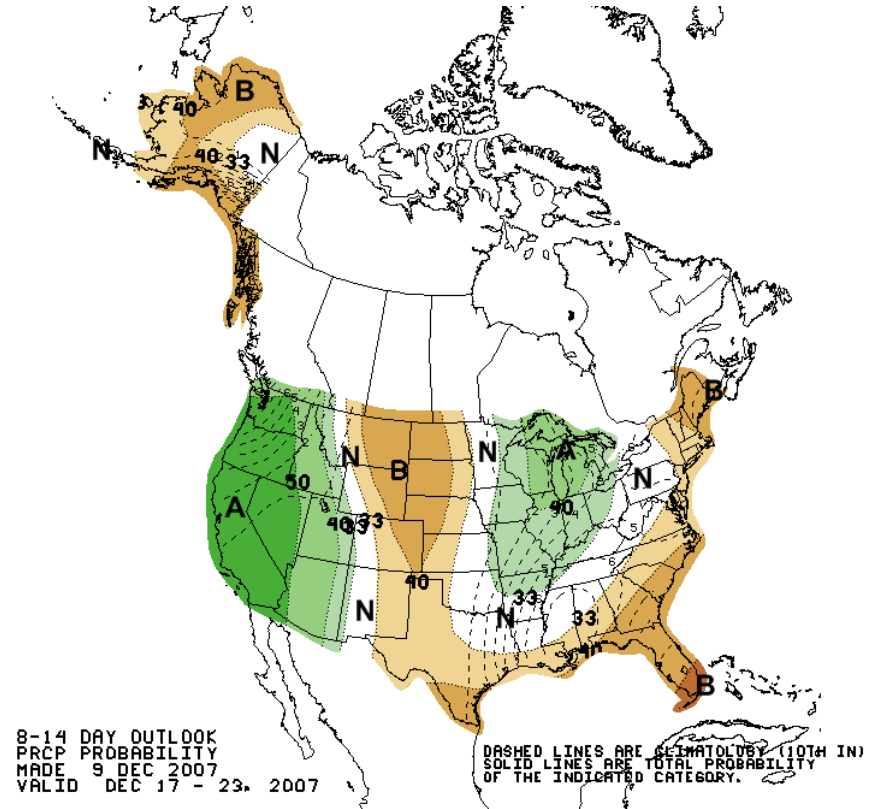


Day 6-10 and 8-14 Predictions: the Format

Temperature



Precipitation



Benefits

- **Improved climate analysis data sets (e.g., rainfall analysis)**
- **Improved climate analysis products, including validation (rainfall indices; drought monitoring;...)**
- **Development of new forecast products of societal relevance (e.g., week 1 & week 2 heat index, rainfall forecasts; heat index)**
- ...