IRI Activities Update for WGSIP 16

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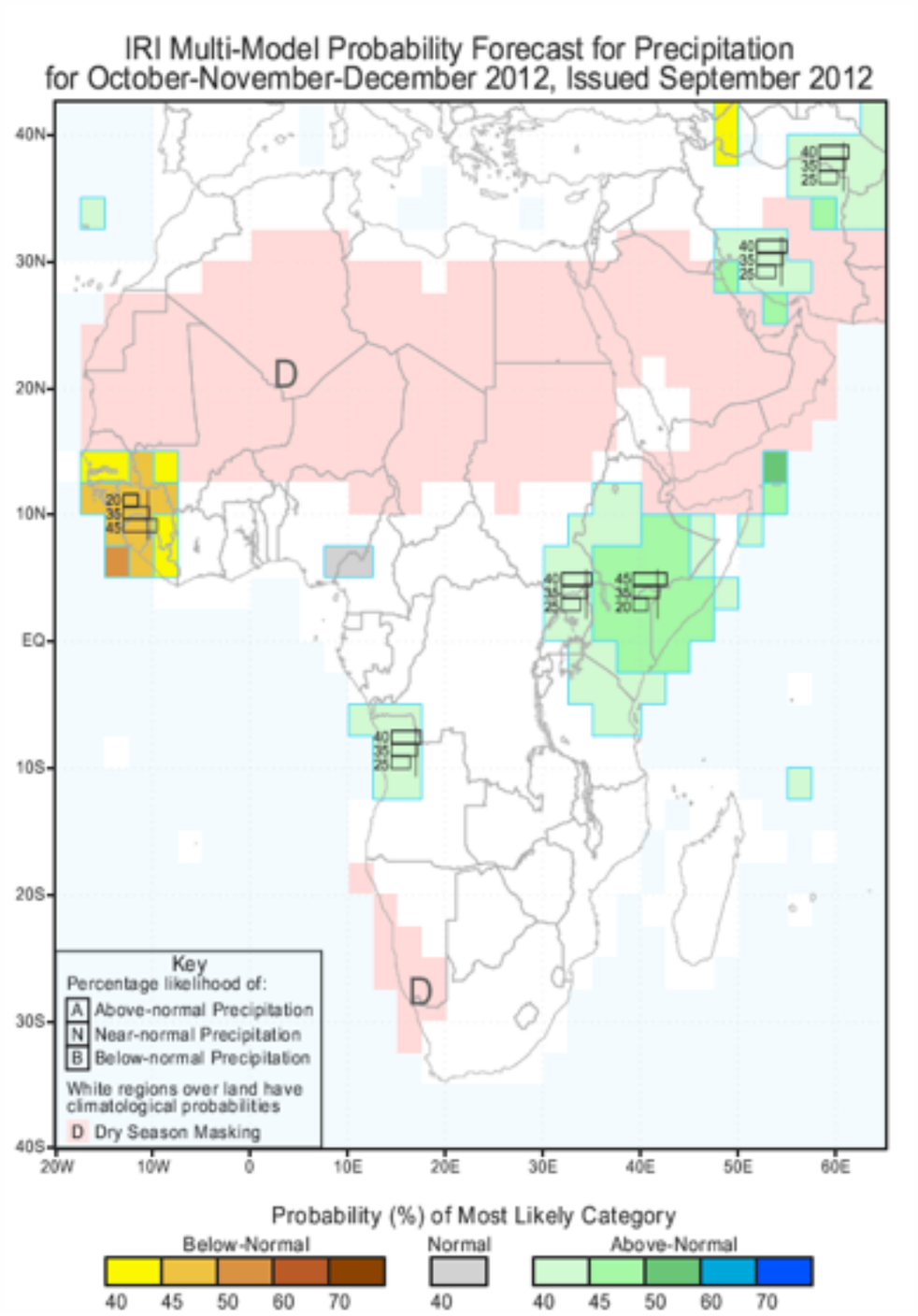
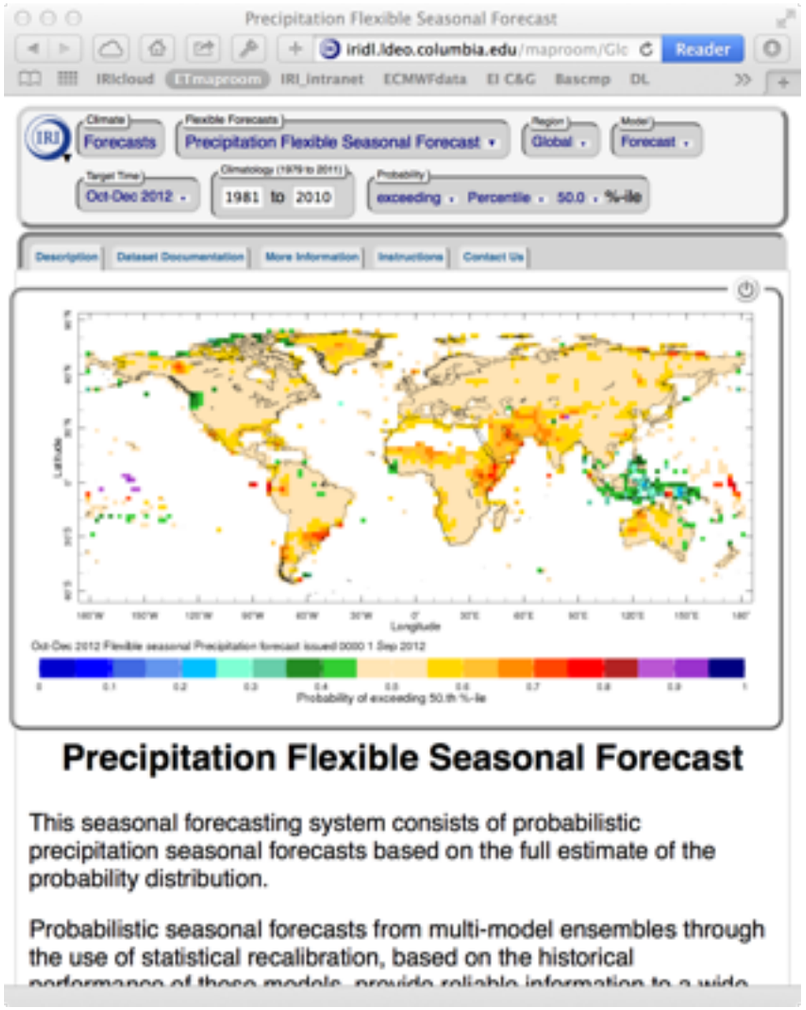
IRI's "Classical" Seasonal Forecasts



2-Tier:
Ocean - {LDEO + CA + CFSv2} mean & 2 additional scenarios based on historical errors
Atmos - {Echam4.5, CCM3.6, COLA, GFDL}
1-tier: CFSv2

Post-Proc:
- Pattern-based correction of ensemble means
- Regression based on historical model runs
- Spread estimate from historical forecasts with forecast SST
- Equal weighting of corrected models
- Parametric forecast probabilities (T - Gaussian, P - transformed Gaussian)

New Seasonal forecast flexible format maproom

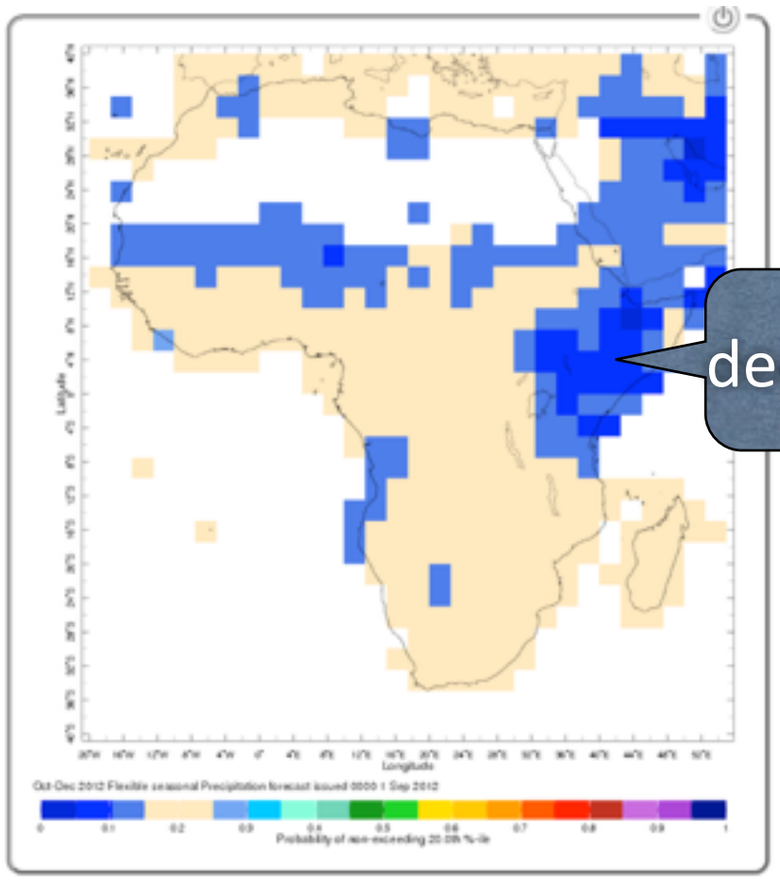


Precipitation Flexible Seasonal Forecast

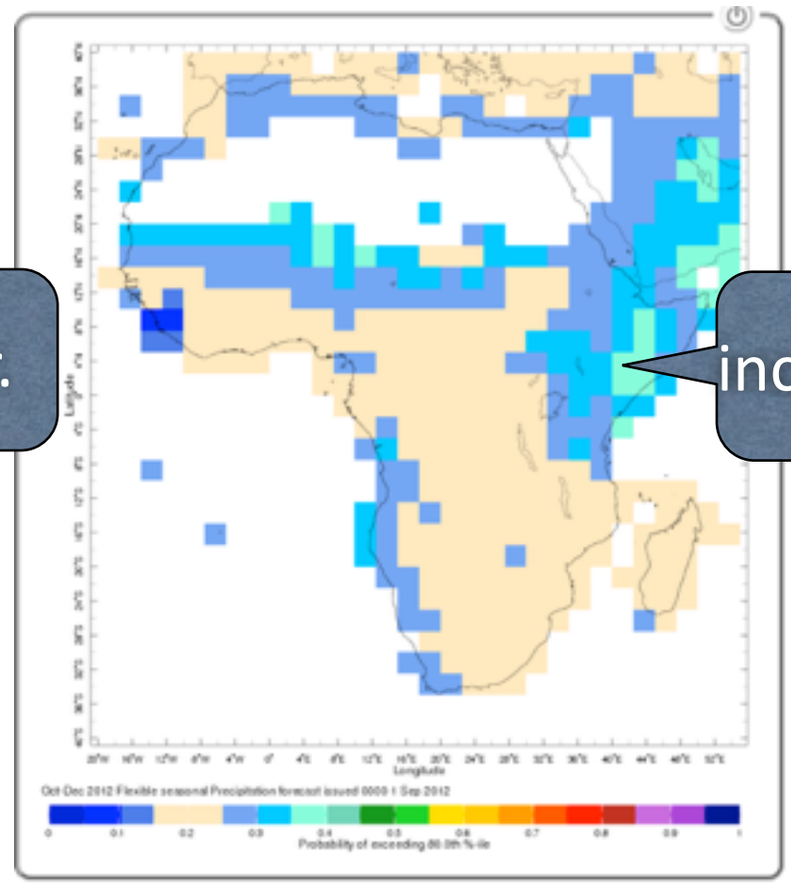
This seasonal forecasting system consists of probabilistic precipitation seasonal forecasts based on the full estimate of the probability distribution.

Probabilistic seasonal forecasts from multi-model ensembles through the use of statistical recalibration, based on the historical

Drought Odds (lowest quintile)



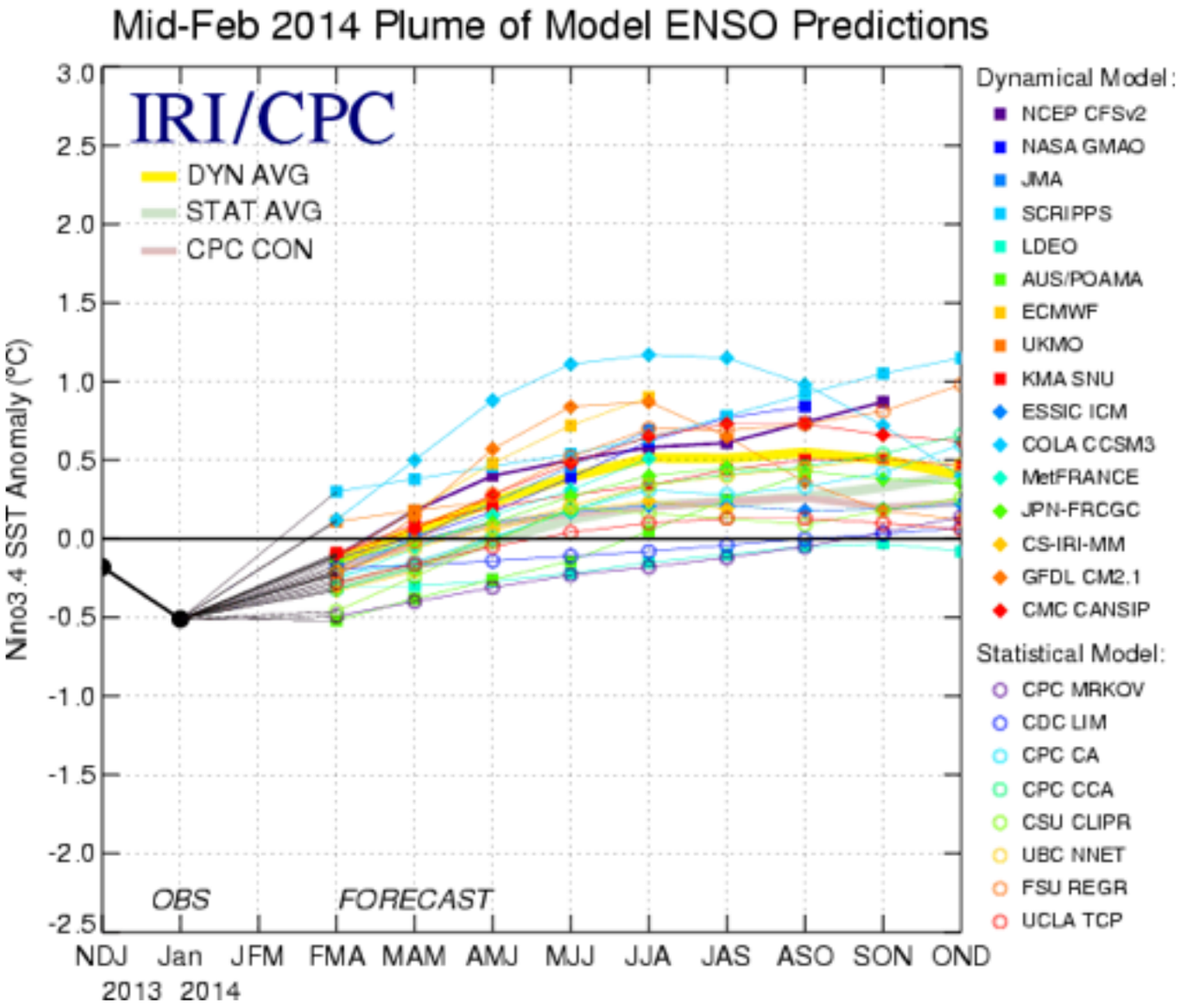
Flood Odds (upper quintile)



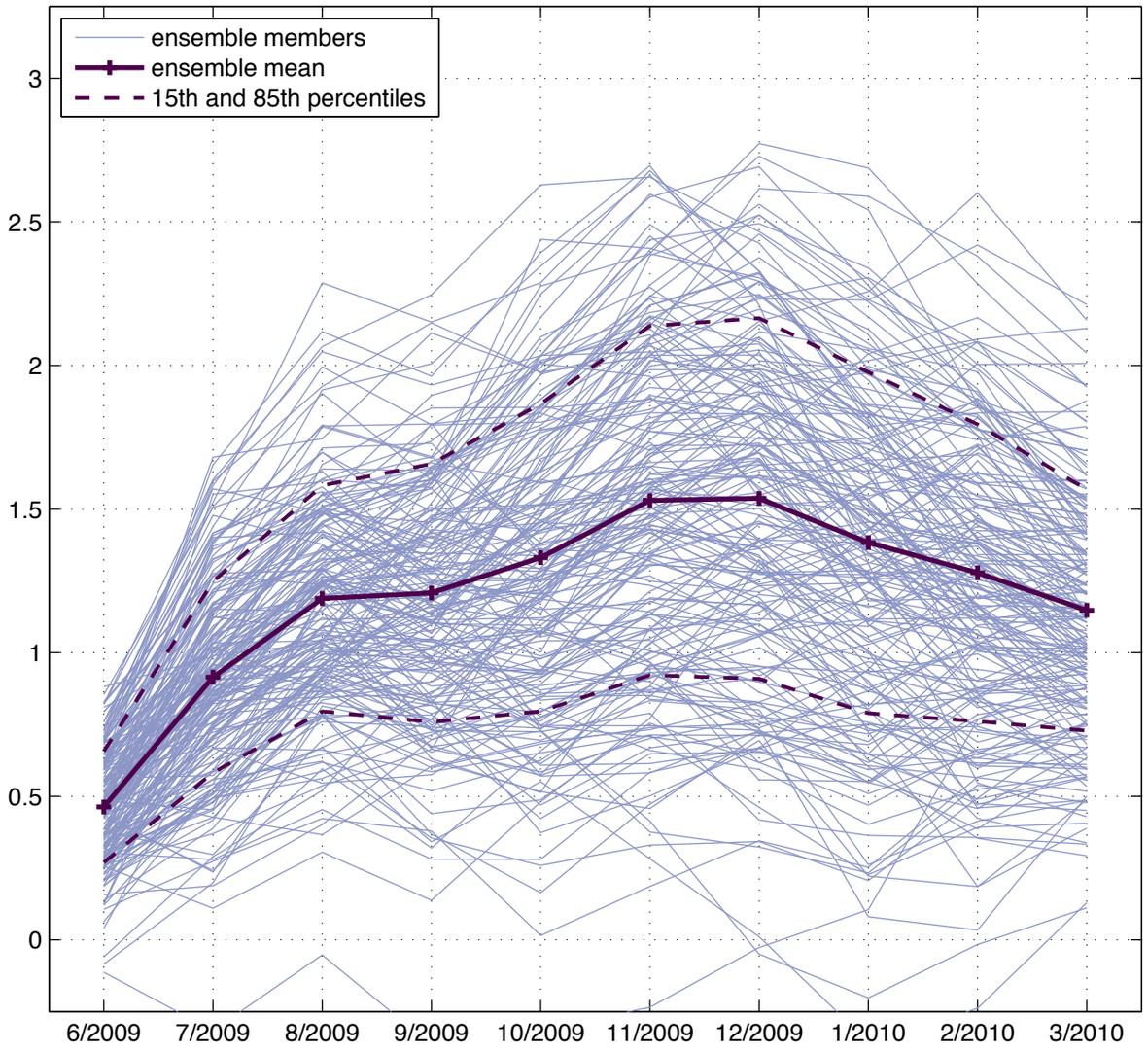
User can choose the most-relevant rainfall *quantile*.

Oct–Dec 2012
issued in Sept

ENSO Plume Probabilities



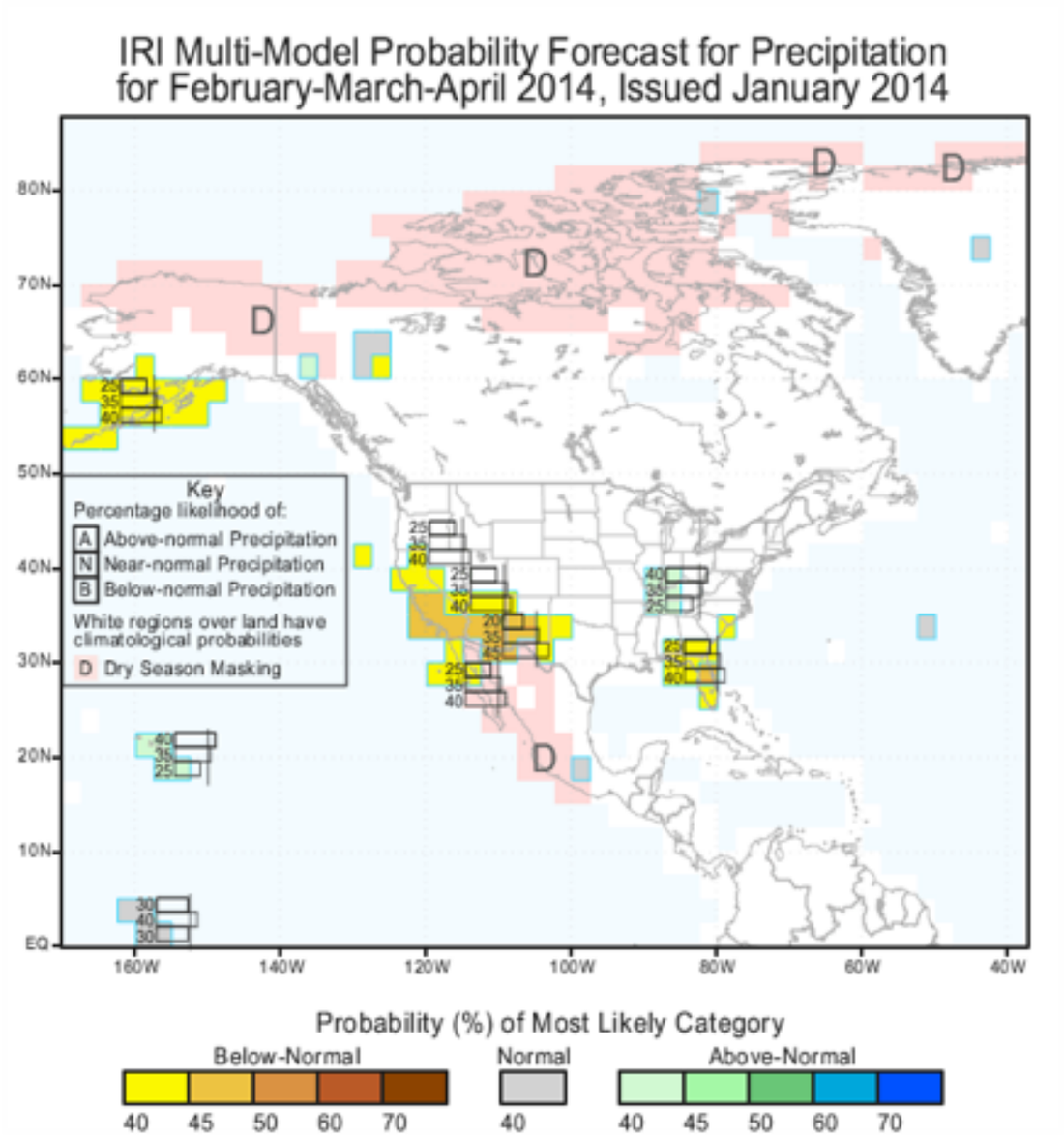
Ensemble generated from constrained Gaussian fit at each lead



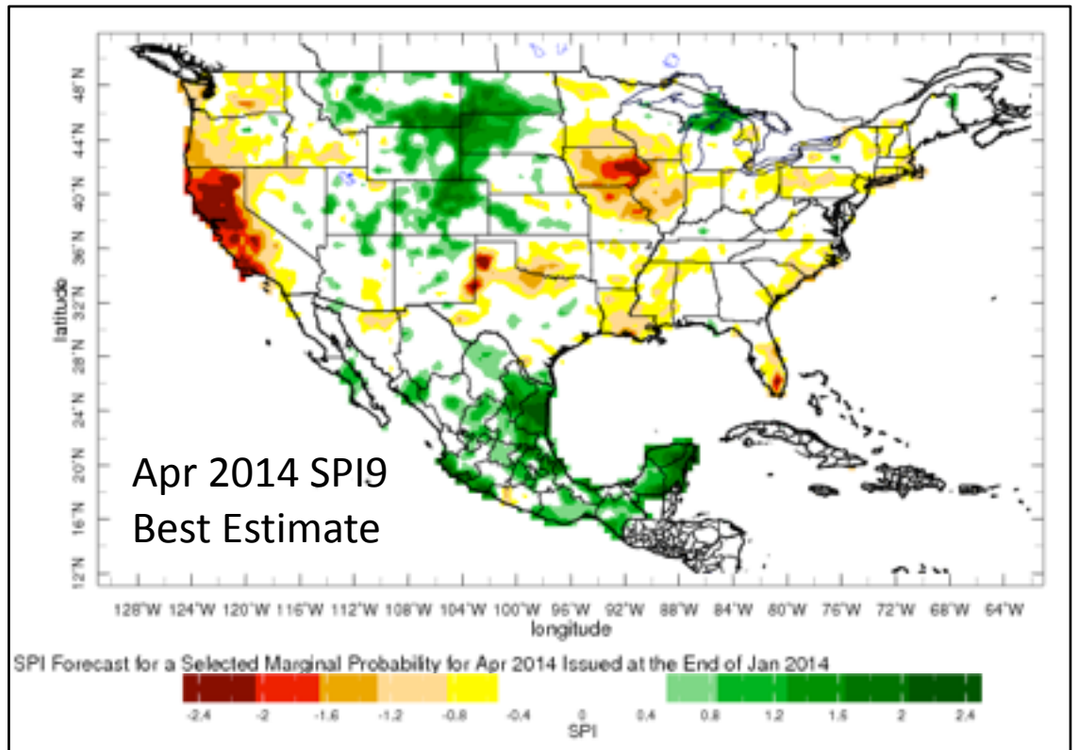
M. Tippett, T. Barnston

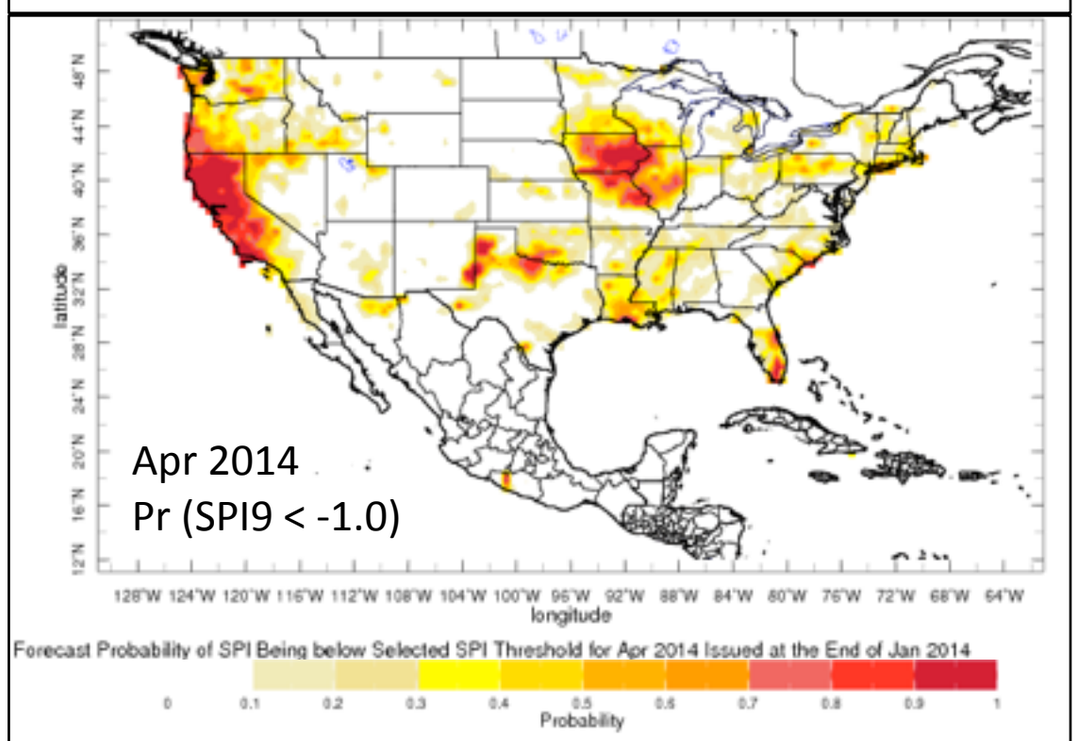
Drought Index Prediction Using a Statistical-Dynamical Approach

- Statistical forecast used in locations where dynamical models show no signal/skill



IRI SPI Forecast for End of Apr 2014 from Jan 2014

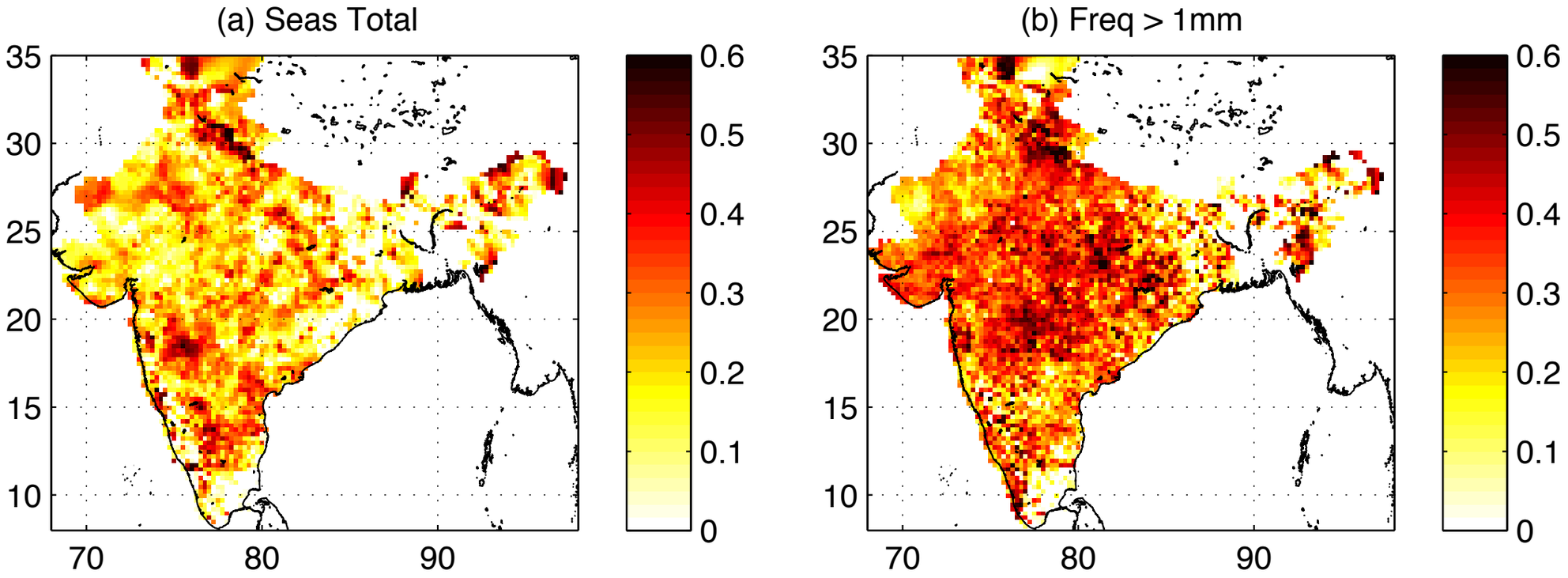




Brad Lyon

Potential predictability of JJAS Rainfall from SST

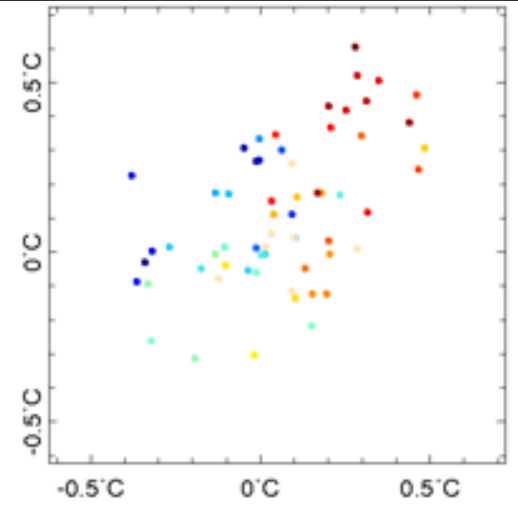
Cross-validated CCA with contemporaneous SST [40°-290°E, 30°N-30°S],1901–2004

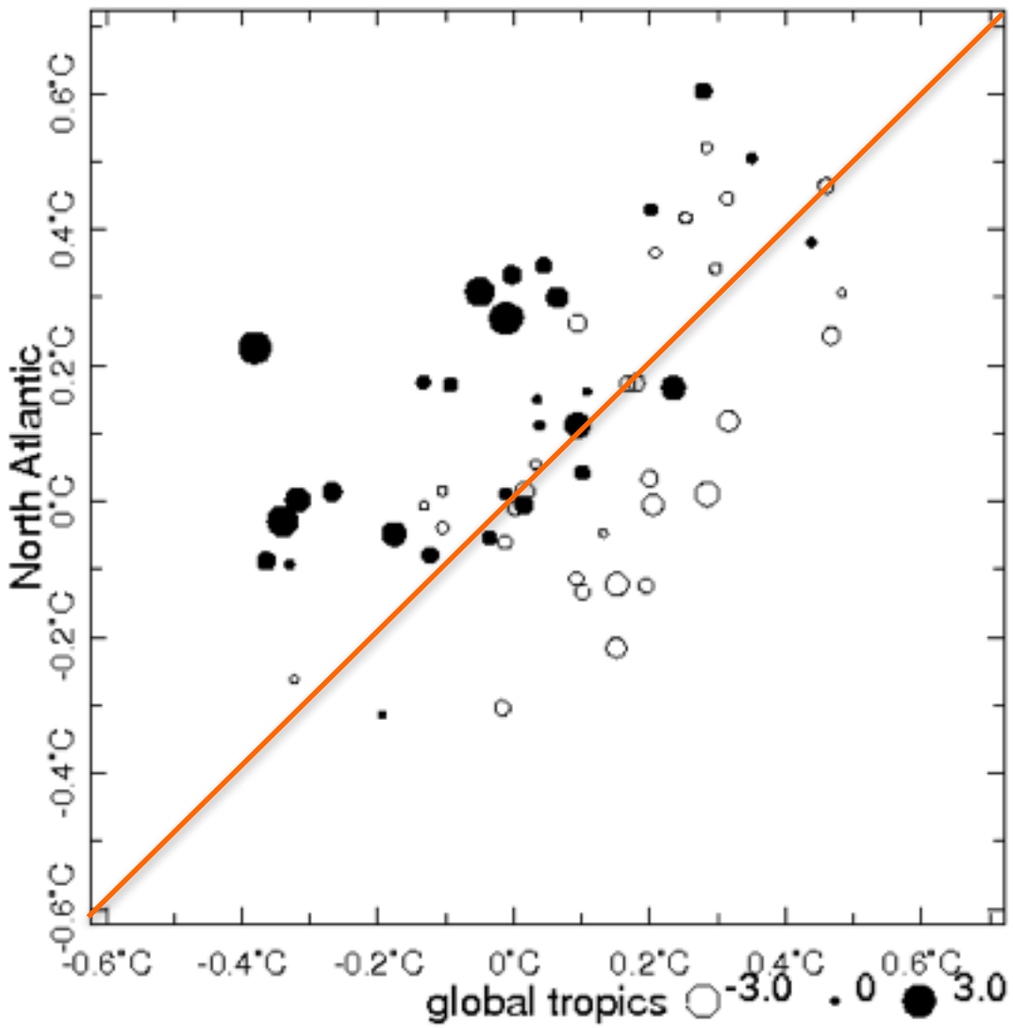


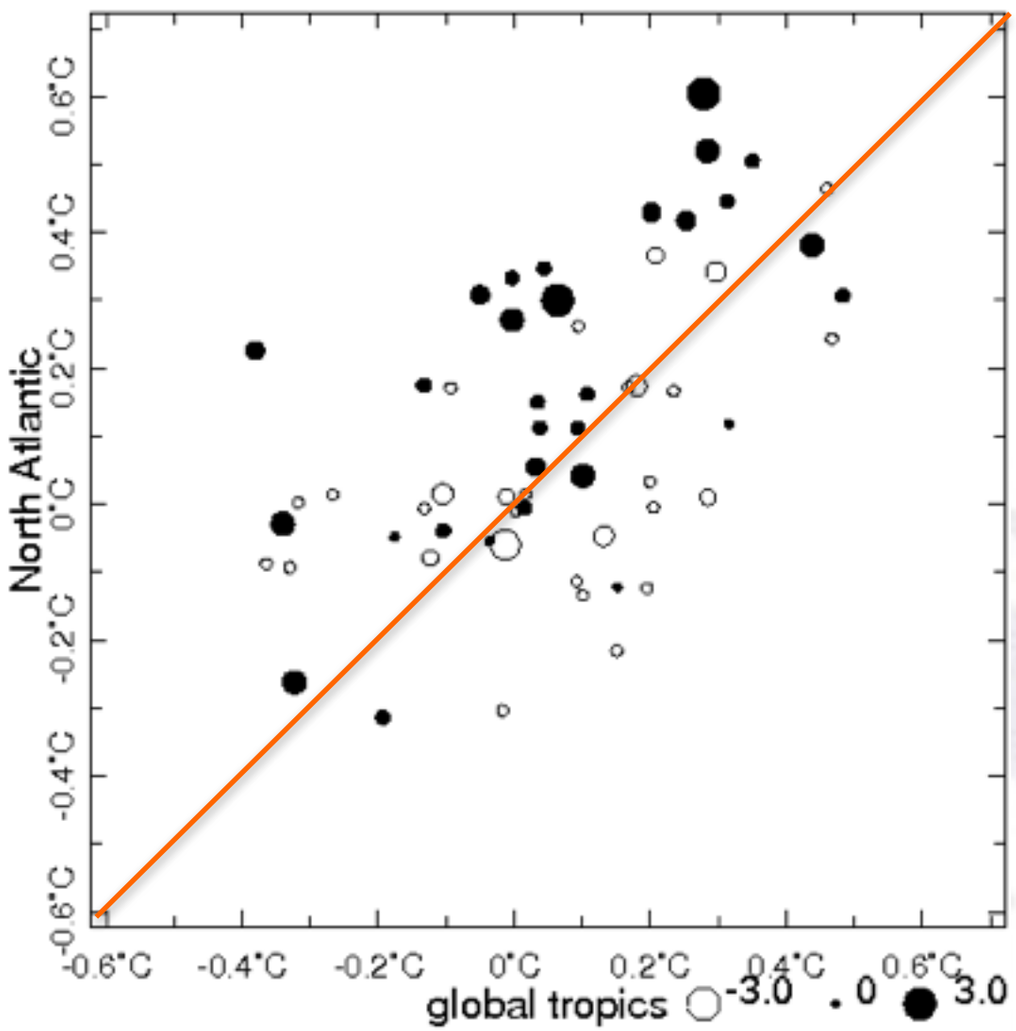
Seasonal Total =
(No. of Wet Days) x (Mean Wet-Day Intensity)

IMD 0.25-degree daily rainfall data

North Atlantic and global tropics in the intra-seasonal variability of Sahel rainfall: in frequency (left) and intensity (right) of daily rainfall in Senegal (1950-2010)







open circles are negative anomalies,
full dots are positive anomalies

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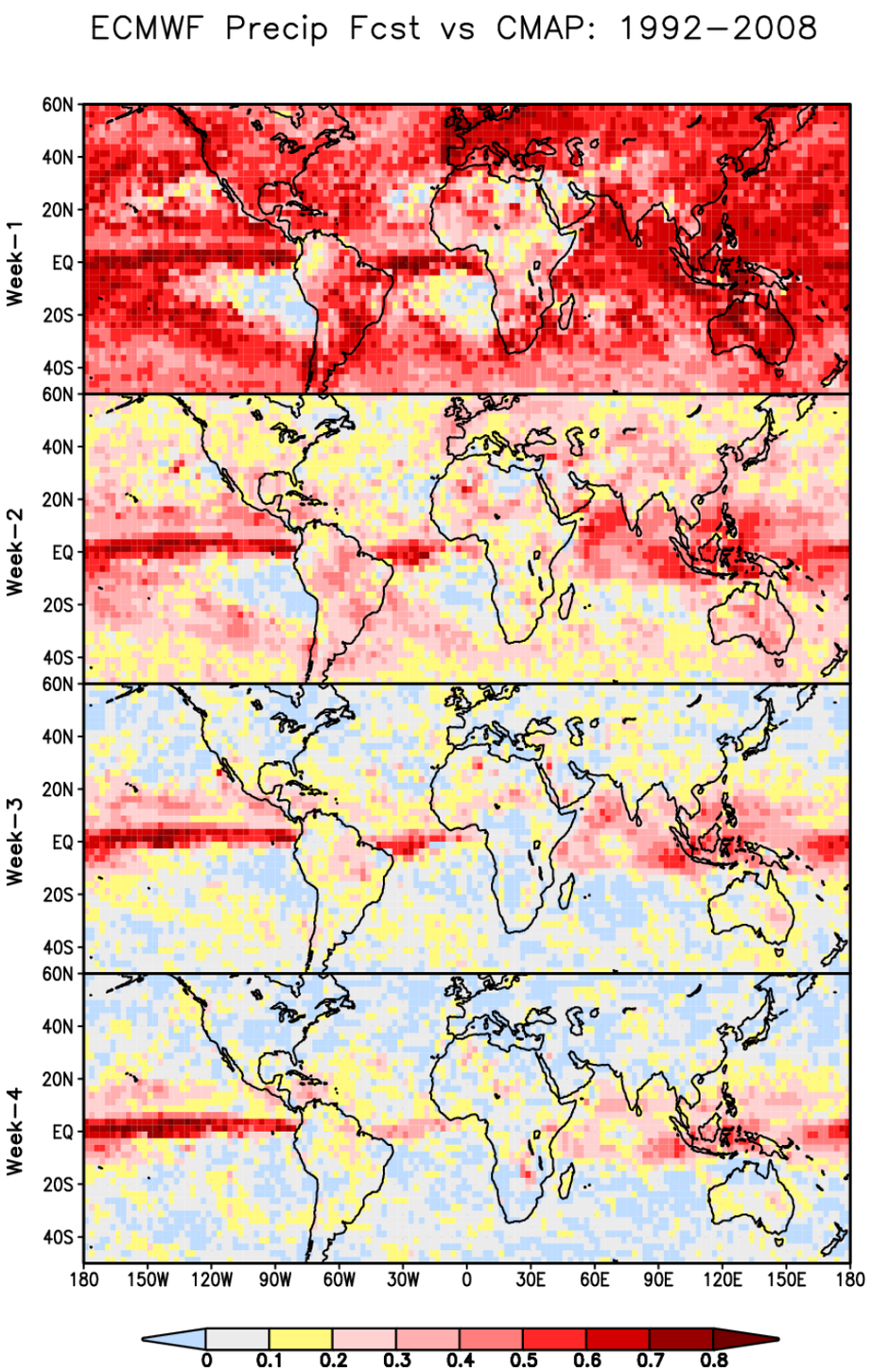
Giannini, Salack, Lodoun *et al*. 201

Sub-monthly forecast skill



ACC Skill Map from ECMWF: **Precipitation**

Hindcasts (weeks 1-4) and **CMAP Data**

FIGURE 1: Correlation skill maps of precipitation hindcasts from the ECMWF forecast system over the period 1992–2008. The ACC calculations are made based on all the starts during late May through mid-September, and valid for weeks 1-4. Among the three global EPS, the ECMWF displays generally higher ACC skill than the other two systems, especially over the tropics and the maritime continent for weeks 2-4, as shown below.

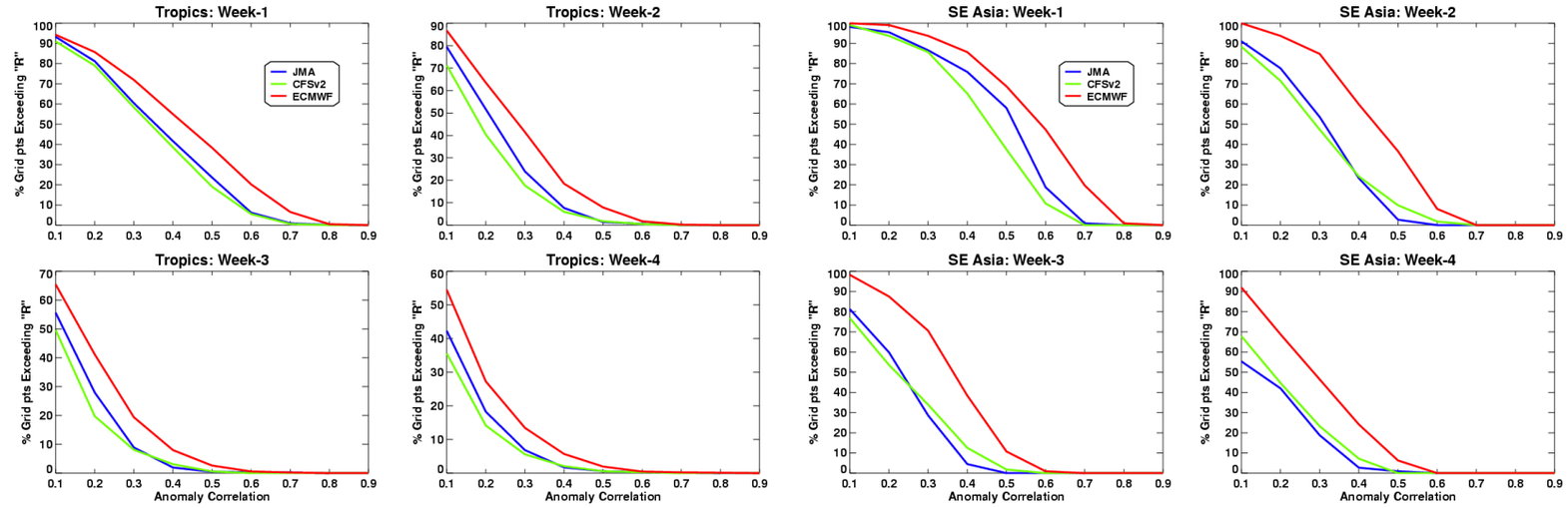


FIGURE 2: Aggregate ACC skill from three EPS hindcasts over the tropics and southeastern Asia

S. Li