



EL NINO BULLETIN SPECIAL

OCTOBER, 2009

1. El Niño in 2009

The evolution of El Niño starts after every 2 to 7 years with warming in western Pacific Ocean around March/April and spreads to the central and eastern Pacific Ocean attaining its peak late in November-December. El Niño events were recorded in 1877, 1918, 1925, 1940, 1941, 1957-58, 1965, 1969, 1972-73, 1976, 1982-83, 1987, 1991, 1994, 1997-98, 2002, 2004 and 2006.

The monitoring and prediction of the El Niño as one of the most important coupled ocean-atmosphere phenomenon that cause major global climate variability on seasonal to interannual timescales is of crucial importance due to its impacts on regional rainfall over several parts of the Globe. Studies have revealed that the rainfall patterns of many parts in Africa respond in a varied manner to different phases of the El Niño cycle forcing.

1.1 Thermal Index Regime

The sea surface temperature (SST) strong positive anomalies mark areas of strong convective activities associated with upper troposphere warming referred here as thermal index (TI) regime at 300hPa.

In the month of October, 2009, the TI regime at 300hPa, had a near-threshold isotherm value of 242°K covering 10°N and 10°S over Africa maintaining high conditional instability associated with heavy rainfall, Figure1. The highest TI regime of above 243°K maintained the highest conditional instability associated with heavy rainfall with floods over Southeast Asia. The October, 2009 TI regime pattern compared to the 2006 El Niño evolution (Figures 2), shows some degree of similarity over Southeast Asia.

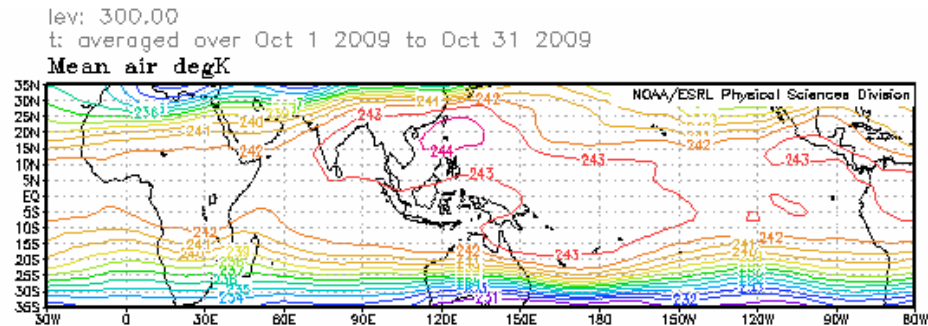


Figure 1: October, 2009 TI regime (Source: NOAA/ESRL-PSD)

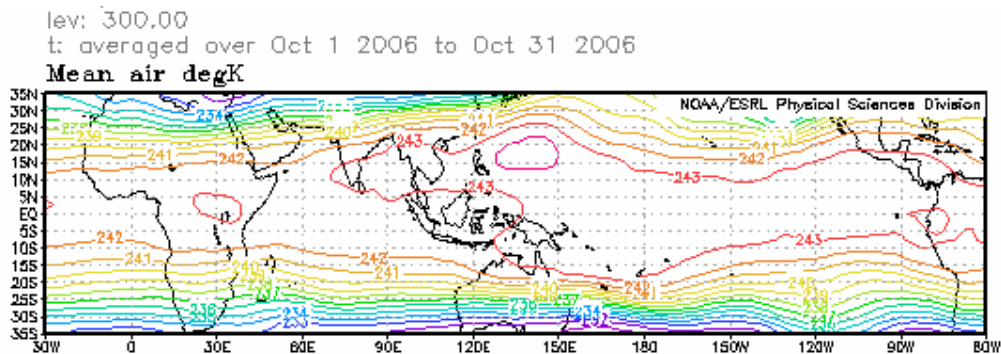
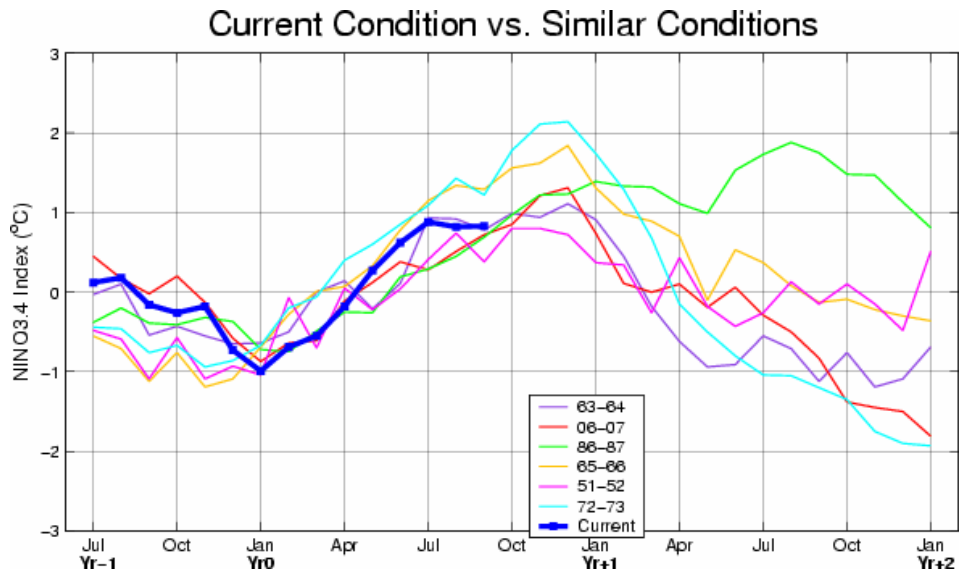


Figure 2: October, 2006 TI regime (Source: NOAA/ESRL-PSD)

1.2 Past similar events compared to 2009 event

The month of October, 2009, El Niño evolution is getting closer to the 2006 event as shown in Figure 3.



2. Forecast

Figure 4 from October, 2009 SST shows highest forecast positive SST anomalies in the central and part of eastern Pacific Ocean for November-December-January.

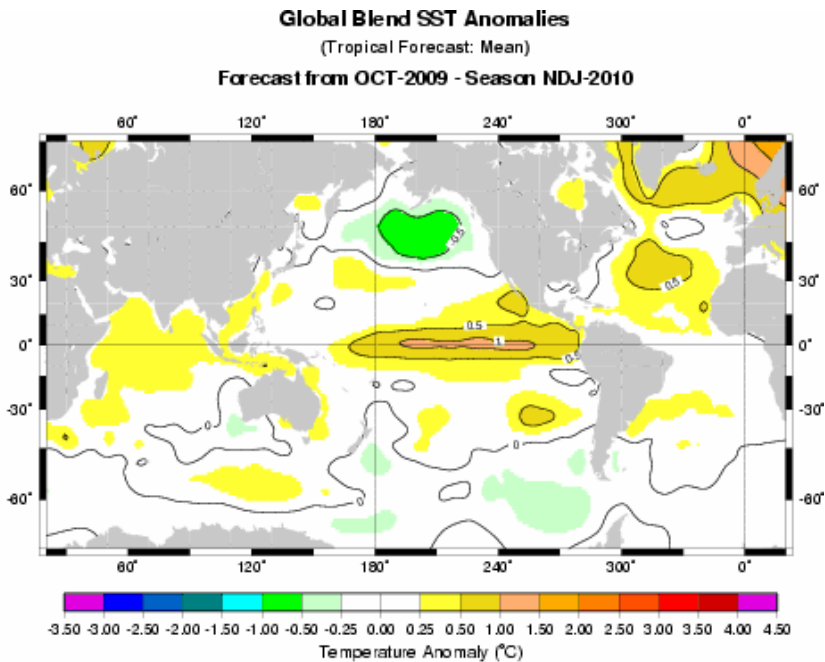


Figure 4: SST anomalies in Pacific Ocean (Source: IRI)

The dynamical and statistical models forecasts on ENSO over Nino 3.4 domain (5°N – 5°S, 120°W – 170°W) shown in Figure 5 indicate weak to moderate El Nino conditions.

According to IRI the equatorial Pacific will maintain weak El Niño conditions for November-December, 2009 with probability of 90% and staying at probability 80% through January –March, 2010 decreasing to probability of 50% by March-May 2010, Figure6.

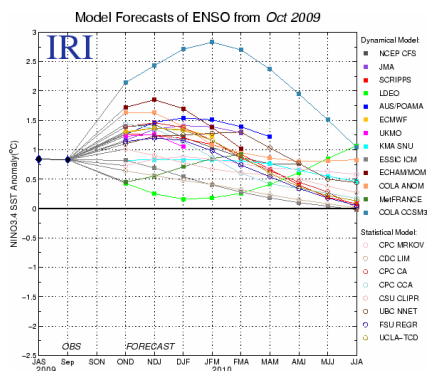


Figure 5 : Multi-model ENSO Forecast (source IRI)

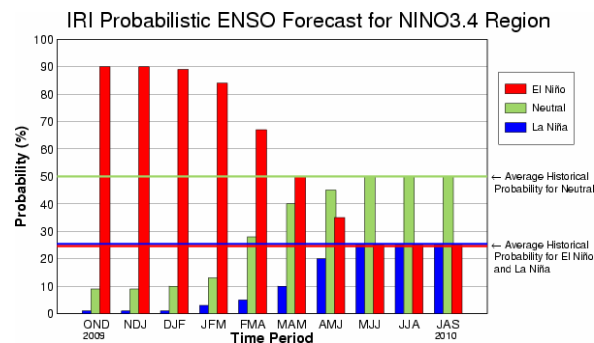


Figure 6 : El Niño and La Niña probabilities (source IRI)

3. Impacts

As shown on Figure 7, the seasonal rainfall forecast for the period of November-December-January shows excessive rainfall (above normal) over parts in the Gulf of Guinea, eastern central Africa and GHA countries with below normal rainfall expected over parts of southern Africa countries.

The prevailing rainfall anomalies are linked to evolving El Niño with expectation of severe anomalies at the peak El Niño by November-December, 2009. As observed during past similar El Niño years, the following rainfall anomaly patterns are expected in 2009:

- The GHA countries will experience heavy rains intensifying by November-December resulting in floods over some parts.
- The southern Africa countries will experience suppressed rainfall, recording below average rainfall over some parts .
- The Gulf of Guinea countries will experience enhanced rainfall over some parts.
- The hurricane activity in the Atlantic Ocean will remain suppressed

The NMHSs in Africa have to advise users of climate information and prediction products to guard against risks of climate extremes during the coming months as the El Niño moves to its mature phase and thereafter. **The rainfall forecasts at regional, sub-regional levels have to be harmonized with national forecasts to support effectively the national decision making systems.**

The climate information users need to consult climate outlooks and the downscaled forecasts at national and local levels. ACMAD will maintain Climate Watch and provide updates on the 2009 El Niño evolution and the expected impacts as we progress towards the mature phase of the El Niño by November/December, 2009. The ACMAD **El Niño Bulletin Special** is dedicated to this goal.

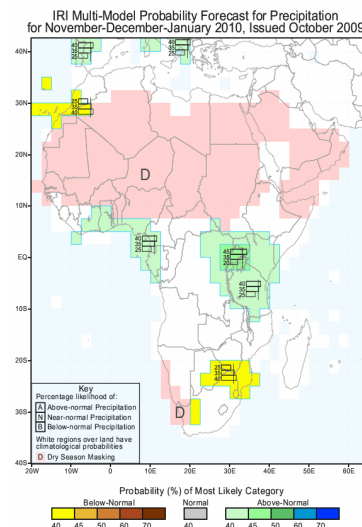


Figure 7 : Forecast rainfall anomalies over Africa (Source: IRI)