

# CLIMATE WATCH AFRICA BULLETIN

**N° 06**  
**June 2008**



**HIGHLIGHTS:** Spatial and intensity rainfall increase over northern parts of Gulf of Guinea, parts of central Africa and northern parts of Greater Horn of Africa (GHA) countries.

## 1. SYNOPTIC SITUATION DURING THE MONTH OF JUNE, 2008

### 1.1 Centres of Anticyclone

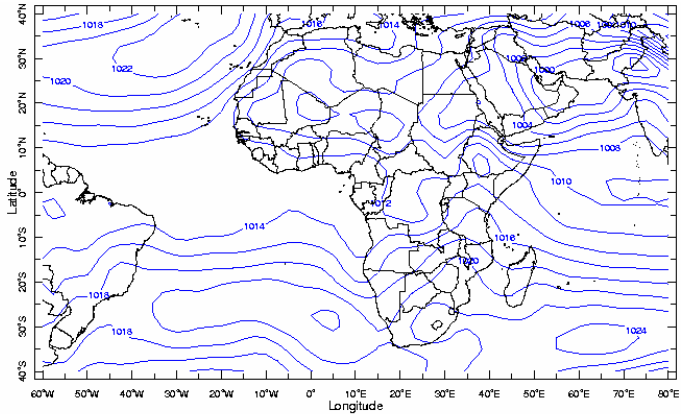
The Azores high pressure at 1022hPa strengthened by 2hPa compared to the past month and displaced slightly to the north at 35°N/30°W.

The St Helena high pressure centre at 1022hPa strengthened by 4hPa compared to the previous month and shifted towards the southeast at 30°S/05°E.

The Saharan thermal low of 1008hPa filled up by 2hPa compared to the past month with limited area coverage over western Chad/eastern Niger and northeastern Mali.

The Mascarene high pressure at 1024hPa strengthened by 4hPa and displaced southeast at 33°S/65°E with a strong ridge over eastern Africa and southern Africa.

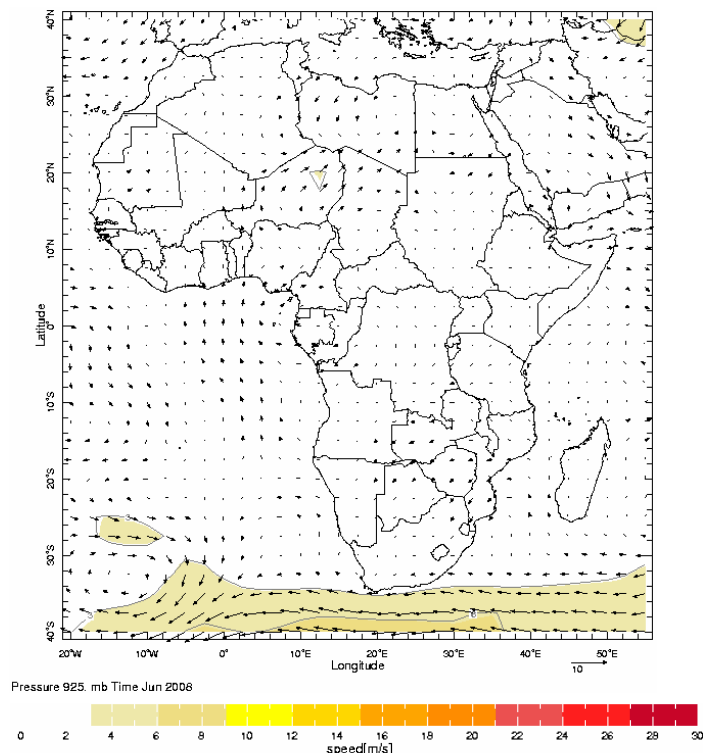
The Indian monsoon thermal low continued to deepen strengthening the southwest monsoon over Indian Ocean.



Jun 2008

**Mean surface pressure during the Month of June, 2008**  
(Source : IRI)

### 1.2 Near Surface Wind Anomaly at (925hPa)



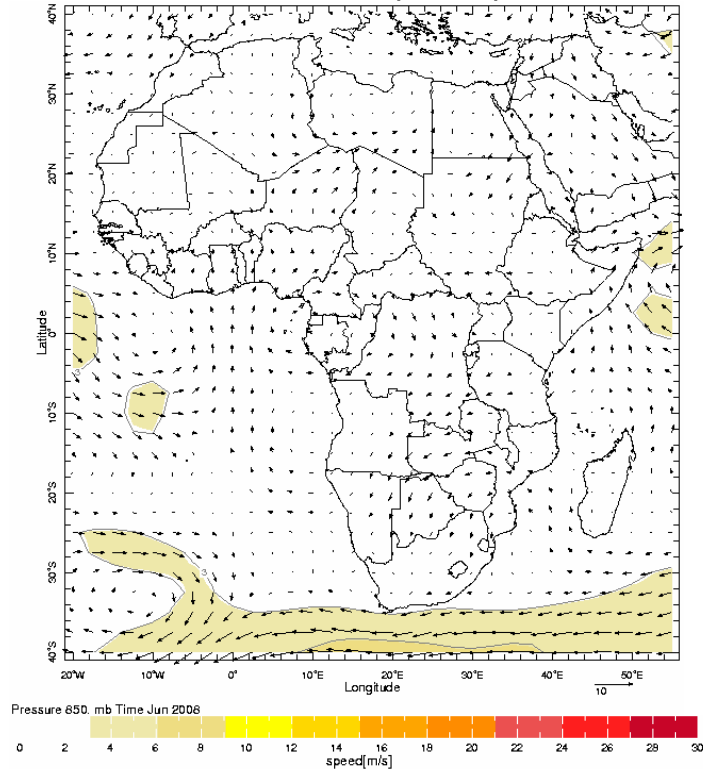
At 925hPa level, the continental strong southwesterly wind anomalies were observed over northeast Niger.

In the southern hemisphere strong easterly winds anomalies was observed from southern Indian Ocean to southern Atlantic passing around coastal south Africa.

The average wind anomaly speed (shaded) was observed at 08 m/s and above.

**June, 2008 wind anomaly field at 925hPa (m/s)**  
(Source : NOAA/NCEP)

### 1.3 Low level wind flow at (850hPa)



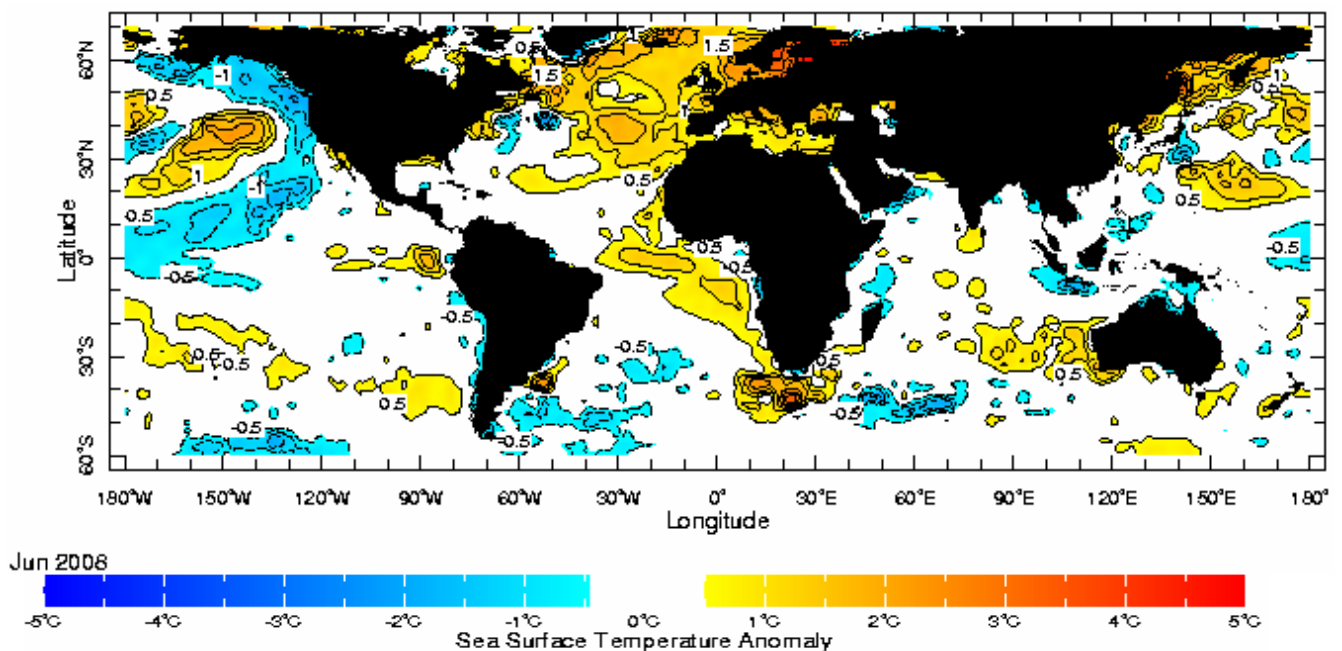
**June, 2008 wind anomaly field at 850 hPa (m/s)**  
(Source: NOAA/NCEP)

On the 850hPa level, similar wind patterns as on the 925hPa level were observed over southern Atlantic and southern Indian Ocean , but strengthened in term of spatial coverage. Southerly winds anomalies over Indian ocean extended over extreme east of Ethiopia while westerly winds anomalies were observed over western part of the Gulf of Guinea.

The average wind anomaly speed (shaded) was observed at 08 m/s and above.

### 1.4 Sea Surface Temperature (SST) and El Nino/Southern Oscillation (ENSO)

The cooling extended into the north-eastern from the central equatorial Pacific Ocean, while neutral to warming conditions prevailed in the south, central north, and north-western Pacific Ocean. A neutral to warming condition was observed over most of the Atlantic Ocean with warmest condition around Africa. A neutral to warming condition was observed from central Indian Ocean up to western coast of Australia. The neutral to warming conditions was observed south of Mozambique Channel while neutral to cooling conditions was observed its northern part.

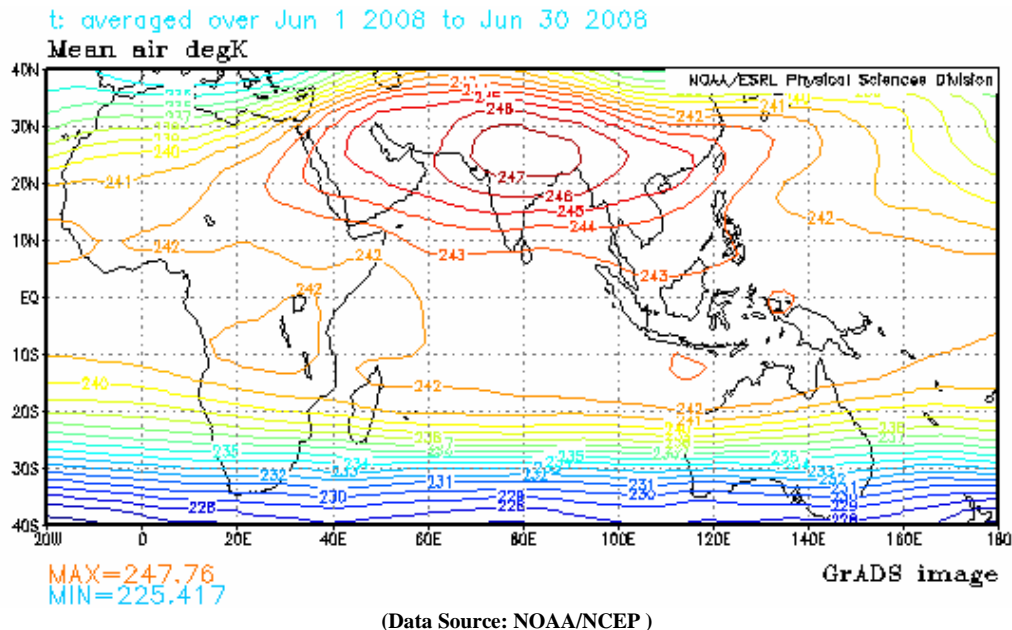


**Source: IRI**



### 1.5 Thermal index

In the month of June, 2008, the thermal index (TI) regime at 300hPa, map shown below, had a near-threshold value of 242°K isotherm over the northern parts of Gulf of Guinea countries and the Sahel countries that maintained reasonable conditional instability triggering heavy convective rainfall. The threshold value of 243°K with a maximum of 247°K maintained the highest conditional instability associated with heavy convective rainfall with severe floods over South Asia.



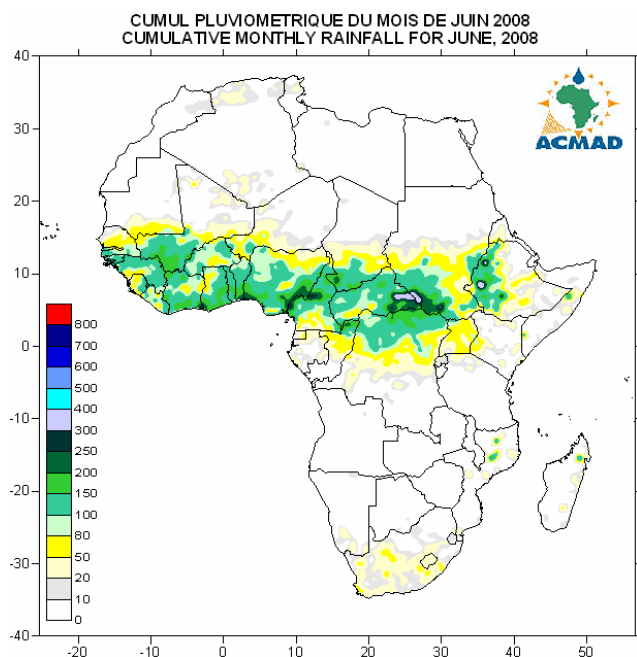
## 2. CLIMATOLOGICAL SITUATION AND IMPACTS DURING THE MONTH OF JUNE, 2008

### 2.1 Rainfall

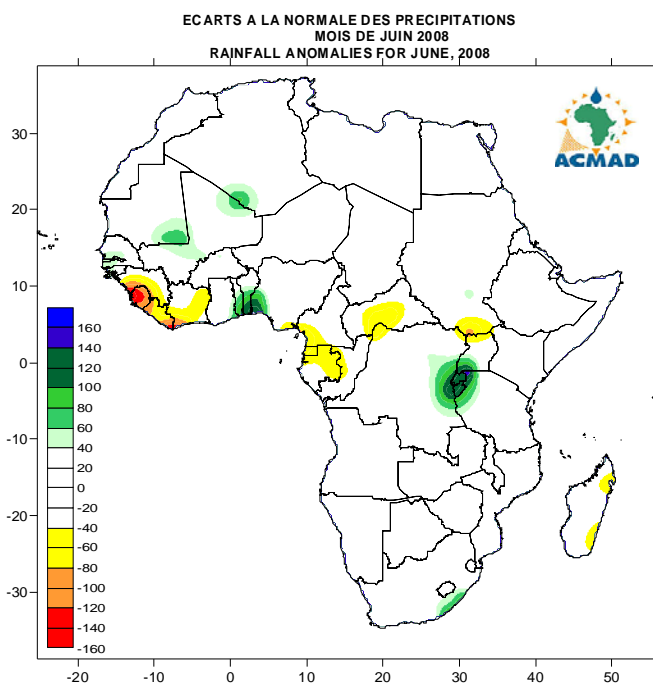
The estimated rainfall map below shows spatial and rainfall intensity decrease over north Africa countries and south Africa; spatial and rainfall increase over Sahel countries; rainfall intensity increase over Gulf of Guinea countries; while central Africa countries and GHA countries experienced spatial rainfall intensity decrease. The Sahel countries experiencing little change. In summary.

- **North Africa** countries experienced spatial rainfall intensity decrease recording rainfall amounts ranging from 10 to 50 mm over north Algeria.
- **The Sahel** countries had spatial and rainfall intensity increase recording rainfall amount ranging 10 to 100 mm over the southern parts with a maximum of about 150mm over southwest Niger, south Chad, Burkina Faso, south Mali, south Senegal and Guinea..
- **Gulf of Guinea** countries experienced rainfall intensity increase recording heavy amounts ranging from 50mm to 250mm with peaks of about 300mm over south Nigeria, south Benin, southwest Ghana and southeast Côte d'Ivoire.
- **Central Africa** countries experienced decrease in rainfall distribution recording rainfall amounts ranging from 10 to 250 mm with peaks of about 300 mm over east Central Africa Republic.
- **GHA** countries experienced spatial rainfall decrease recording intensity amounts ranging from 10 to 200 mm, intensifying over western Ethiopia and southwestern Sudan with peaks of about 300mm.
- **Southern Africa** countries had spatial rainfall intensity increase recording amounts ranging from 10mm to 80 mm over south Africa and Namibia with isolated peaks of about 100 mm over Mozambique and Madagascar.

The rainfall anomaly map showed severe rainfall deficits over Sierra Leone, Liberia, south Côte d'Ivoire, south Sudan, south Cameroon, north Gabon, Central Africa Republic and east Madagascar, while excessive rainfall were recorded over Great Lakes countries, south Togo, south Benin, southwest Nigeria, south Mauritania, southwest Algeria and southeast South Africa.



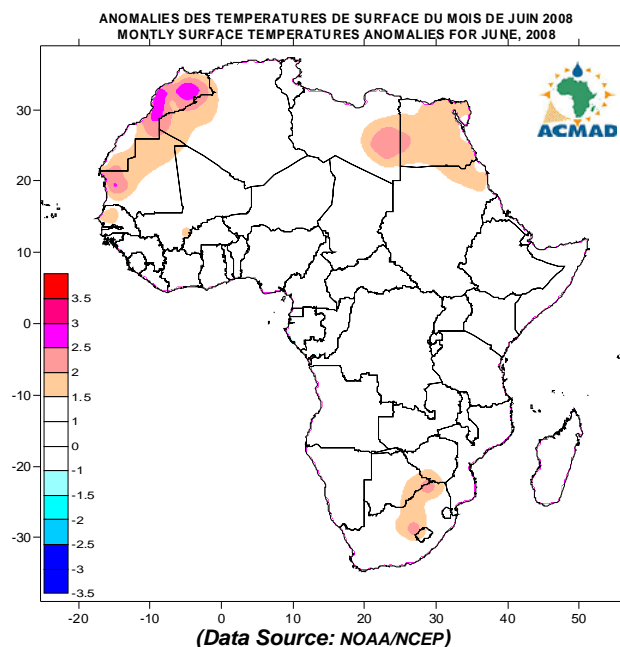
(Data Source: NOAA/NCEP )



(Data Source: NOAA/NCEP )

## 2.2 Surface Temperature Anomalies

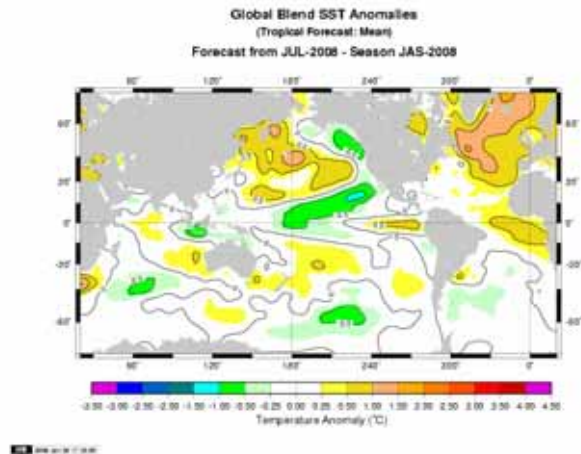
In June, 2008, the temperature anomalies over most of African countries were generally normal ( $1^{\circ}\text{C}$  to  $-1^{\circ}\text{C}$ ). However, high temperature anomalies above  $1.5^{\circ}\text{C}$  were observed in Morocco, western Algeria, northern Mauritania, northern Senegal, eastern Libya, Egypt, northern Sudan, southern Zimbabwe, eastern Botswana and South Africa.



(Data Source: NOAA/NCEP)

### 3. OUTLOOK

#### 3.1 Forecast Sea Surface Temperature (SST)



(source IRI)

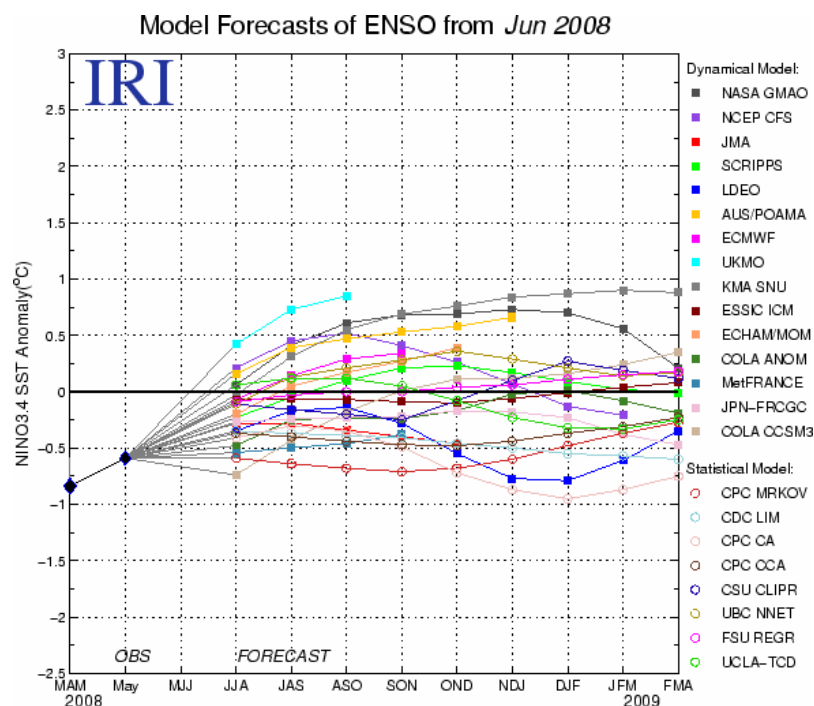
**Pacific Ocean:** The La Niña to neutral conditions will continue in the central, northeastern and south western Pacific Ocean but warming is expected over its northwestern and south central part.

**Atlantic Ocean:** A neutral to cooling condition is expected over south-western Atlantic Ocean, while warming trend is expected to continue over the rest of Atlantic.

**Indian Ocean:** Neutral to cooling condition is expected over southwestern and northeastern Indian Ocean, but neutral to warming condition will extend from northwestern up to southeastern part.

#### 3.2 El Niño/La Niña

The set of dynamical and statistical model forecasts of ENSO indicated a spread of possible SST anomalies over Nino 3.4 domain (5°N – 5°S, 120°W – 170°W). The equatorial eastern Pacific is expected to maintain La Niña conditions with prevailing and growing pattern neutral SST anomalies in the central and eastern equatorial Pacific Ocean.



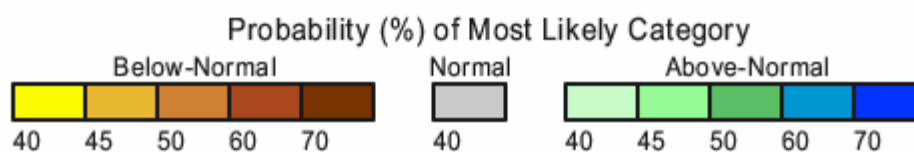
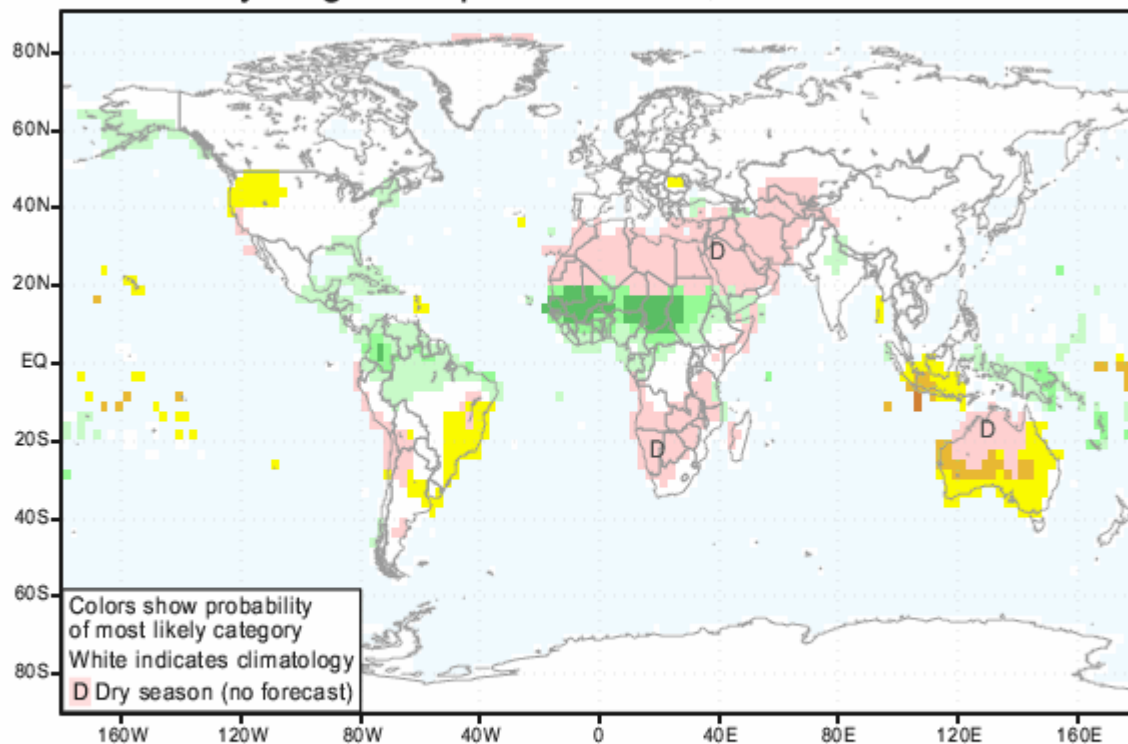
(Source: IRI)

#### 3.3 Rainfall

The northward movement of the ITD will lead to high moisture influx and heavy rainfall over northern parts of West Africa countries recording 50mm to 250mm with the Sahel countries recording moderate to heavy rainfall ranging from 50mm to 150mm. The northern central Africa and GHA countries will experience some increase recording moderate to heavy rainfall ranging from 50mm to 250mm.

The IRI forecast shown below indicates above normal rainfall over most of West Africa countries consistent with seasonal rainfall consensus forecast of PRESAO-11 presented below. However, there is increased probability and confidence for above normal rainfall as predicted by ACMAD and updated on 27<sup>th</sup> June, 2008 based on global Centres climate forecasts updates.

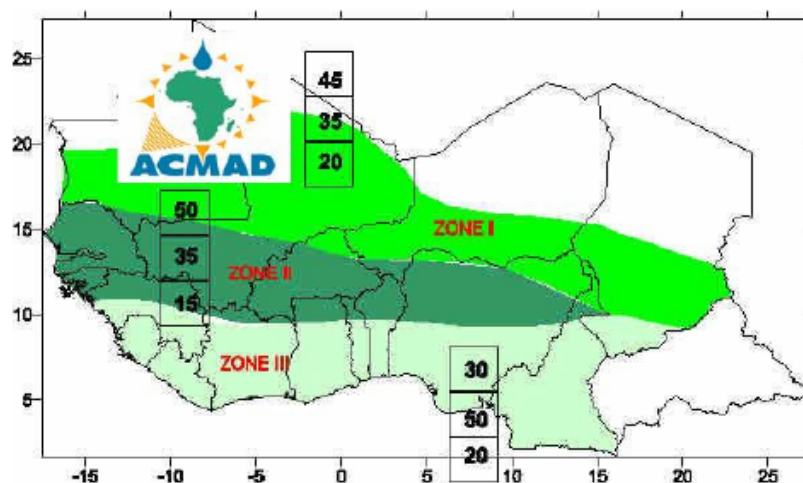
# IRI Multi-Model Probability Forecast for Precipitation for July-August-September 2008, Issued June 2008



(Source IRI)

## PRESAO 11

SEASONAL FORECAST VALID FOR  
JULY – AUGUST – SEPTEMBER 2008



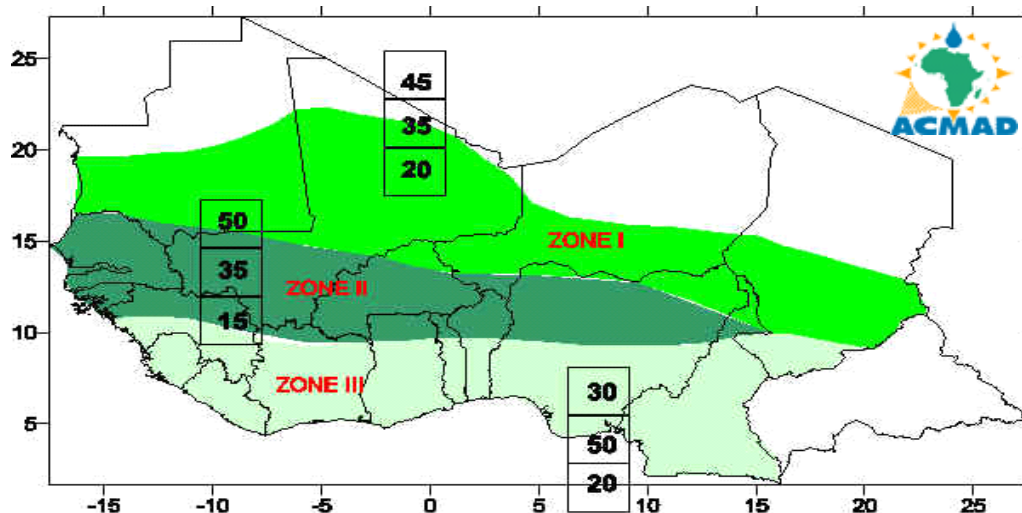
**ZONE 1 : Above normal rainfall more likely - ZONE 2 : Above normal rainfall very likely - ZONE 3 : Normal rainfall more likely**

NB : The possibilities of rainfall deficits are very unlikely.

The quantity of rainfall is expected to be close to that of the year 1999.



**Seasonal Forecast of Precipitation  
Bulletin of July August September 2008  
West Africa, Chad and Cameroon  
Update June 27, 2008**



## COMMENTS:

This forecast is an update of the one delivered on 21st May, 2008, during the PRESAO-11. It is based on forecasts by UKMO, Météo France, IRI, ECMWF, NOAA as well as WMO.

The evolution of Sea Surface Temperature over the Atlantic Ocean, the Indian Ocean and the equatorial Pacific Ocean forecast based on observed conditions during March and April has been confirmed in May 2008.

Therefore, during July-August-September 2008, warm conditions will characterize the Tropical Atlantic Ocean. In the Equatorial Pacific Zone (Nino 3.4) and in the Indian Ocean, neutral to cool conditions are expected.

The forecasts of different centers using observed SSTs for the month of May 2008, have confirmed the forecast on the map above.

1. Possibility of rainfall deficit is very low over the sub-region.
2. In zone I which covers the most part of the Sahel and zone II which include Senegal, Gambia, Guinea Bissau, south Mali, Burkina Faso and the extreme northern part of countries from Guinea Conakry to north Cameroon high probabilities (0.45 and 0.50 respectively) of rainfall higher than normal are forecast.
3. Zone III, which covers the Gulf of Guinea countries normal (50%) tending to above normal conditions are expected.
4. Therefore, this confirmation of probabilities of rainfall higher than normal (especially in zone II) requires a strengthened weather watch, monitoring and warning for sectors like civil protection, health, agriculture and water resources. Short range (daily) and medium range (dekadal) meteorological forecast must be referred to (<http://www.acmad.ne>).

**27 Juin, 2008**