

**Ten Day Climate Bulletin**  
**n° 15 Year 2008**  
**Dekad of 21 to 31 May, 2008**

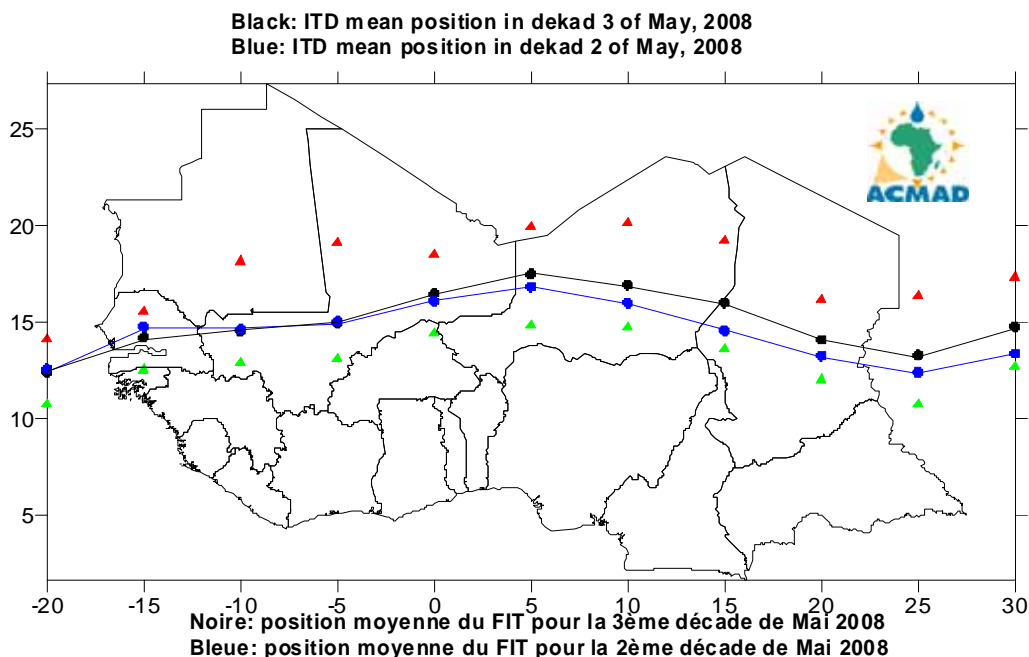
**HIGHLIGHT:** Spatial rainfall increase with slight reduction in intensity was experienced over Gulf of Guinea, central Africa and northern parts of Greater Horn of Africa (GHA) countries.

## 1. GENERAL SITUATION :

### 1.1 SURFACE

- **Azores high :** The Azores high pressure of 1026hPa strengthened by 2hPa and shifted towards the northeast as compared to the last dekad. Its mean position was observed at 36°N/22°W with a ridge extended over south Morocco.
- **Saharan thermal low :** The Saharan low of 1004hPa had no variation, but shifted towards the north west. Its mean position was observed at 16°N/11°E with a trough extended over southeast Mali, north Burkina Faso, south Algeria, northwest Niger, north Nigeria and central Chad.
- **St. Helena high :** The St. Helena high pressure of 1025hPa strengthened by 1hPa compared to the past dekad. Its mean position was observed at 33°S/02°W with an extended ridge over southwest of South Africa.
- **Mascarene high :** The Mascarene high pressure at 1030hPa strengthened by 2hPa compared to the previous dekad. The mean position was observed at about 37°S/52°E with an extended ridge over eastern South Africa and north Mozambique.

**Inter-Tropical Discontinuity (ITD) :** Between the second and third dekad of May 2008, the ITD had a slight southward displacement over extreme west of the Sahel and made northwards migration over the east of the Sahel. It's mean position was observed at 12.4°N over longitude 20°W, 14.2°N over north Senegal; at 14.5°N, 14.9°N and 16.5°N over west, central and east Mali respectively; at 17.5°N and 16.9°N over northwest and central eastern Niger respectively; at 16.0°N and 14.1°N over extreme west and east Chad respectively; at 13.3°N and 14.8°N over west and north-central Sudan respectively.



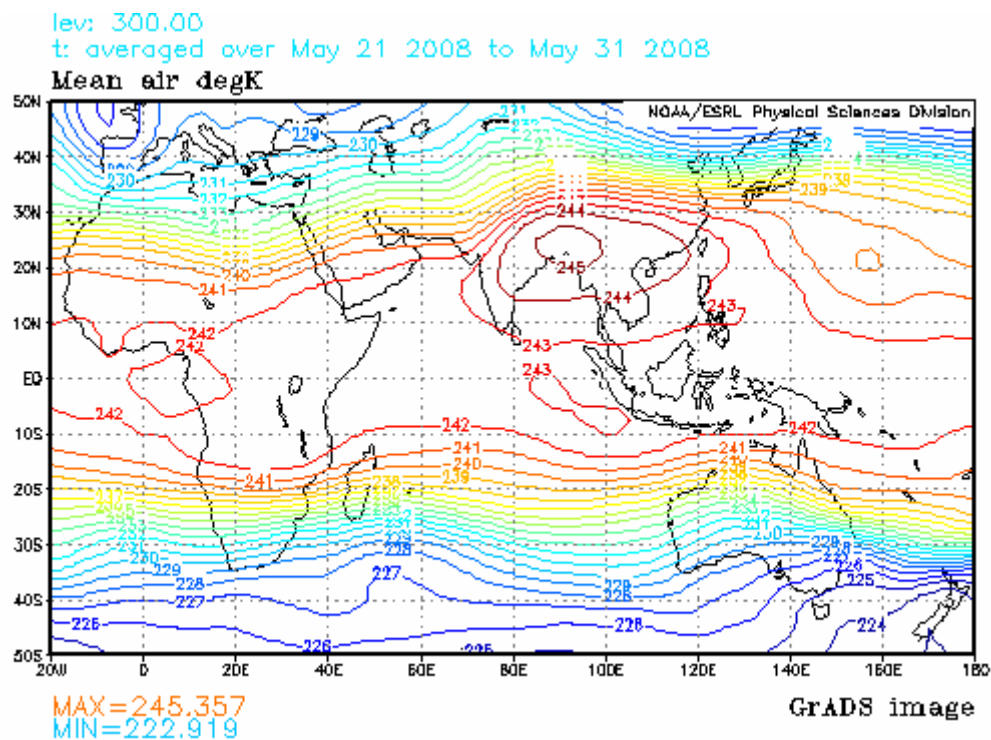
The triangles in red represent the maximum northward displacement of the ITD while the green triangles represent its minimum displacement.

## 1.2 TROPOSPHERE

Monsoon : Monsoon influx with was moderate (5.5 to 12.5 m/s) at 925hPa level over Côte d'Ivoire, , Ghana, Togo, Bénin, southwest Niger, north Nigeria and south Chad.

African Easterly Jet at 700hPa : The African Easterly Jet mean speed at 700 hPa was at about 18m/s. It's axis was located at about 7°N crossing extreme south Nigeria, Benin, Togo, Ghana, Côte d'Ivoire and Liberia to about 23°W in the north Atlantic Ocean.

Thermal Index (TI) : In the third dekad of May, 2008, the thermal index (TI) regime at 300hPa, map shown below, had a near threshold value of 242°K over Equatorial Africa about 10°N to 10°S that maintained reasonable conditional instability associated with outbreaks of heavy rainfall over a few of Gulf of Guinea, central Africa counties and some parts of GHA countries. The high TI regime with threshold value of 243°K and above maintained extremely high conditional instability accompanied by heavy rainfall over Asia with the worst severe floods in the Bay of Bengal countries.



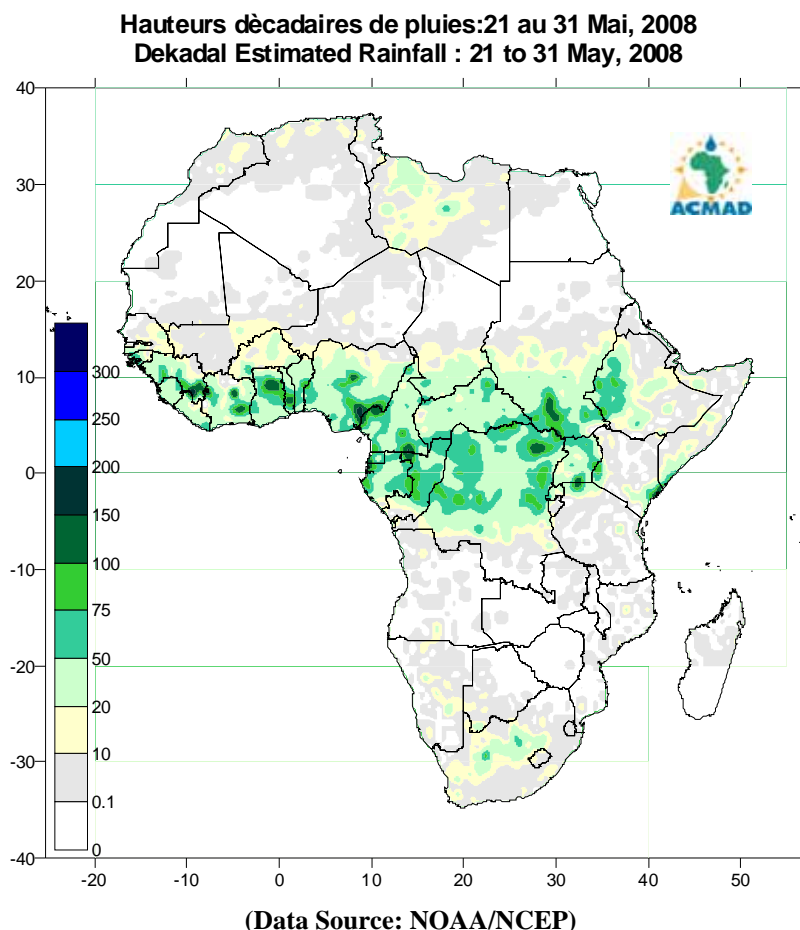
(Data Source: NOAA/NCEP )

## 2. RAINFALL AND TEMPERATURE SITUATION

### 2.1 RAINFALL

The rainfall estimate based on Satellite and Rain Gauge on the map below for the third dekad of May, 2008 shows slight spatial rainfall increase with slight reduction in intensity over Gulf of Guinea and central Africa countries with spatial increase over northern GHA countries. In summary:

- **North Africa countries** : Decreased spatial and intensity of rainfall over north Algeria, north Morocco, Tunisia with significant increase over Libya recording rainfall amounts ranging from 10 to 50mm with isolated peak of above 75mm over Libya.
- **Gulf of Guinea countries** : The Gulf of Guinea countries had slight spatial and intensity of rainfall decrease, recording amount ranging from 20mm to 100mm with peaks of about 150mm over Guinea Bissau, Côte d'Ivoire, north Ghana and south east Nigeria.
- **The Sahel** : Significant spatial and intensity of rainfall increase over southern part Sahel countries was recorded with amounts ranging from 10mm to 50mm with localised peak of about 75mm over southwest Burkina Faso.
- **Central Africa countries** : The central Africa countries experienced slight decrease in rainfall intensity recording amounts ranging from 20mm to 100mm with heaviest of about 150mm over north Democratic Republic of Congo.
- **GHA countries**: The countries experienced spatial and intensity of rainfall increase recording amounts between 10mm to 100mm with isolate peaks of about 150 over south Sudan, Kenya coast and Lake Victoria.
- **Southern Africa countries**: Southern Africa countries experienced spatial and intensity of rainfall increase recording rainfall amounts ranging from 10mm to 50mm with isolated peaks of above 75mm over South Africa.



## 2.2 OBSERVED DATA

The Table below shows heavy rainfall recorded over Libreville in Congo. The lowest temperatures of 6.4°C was recorded at Johannesburg in South Africa with the highest temperature of 43.0°C recorded at Khartoum in Sudan.

N°	STATIONS	Precipitation (mm)	Number of rainy days	Temperature max mean (°C)	Température min mean (°C)
1	Abidjan	0	0	29,3	24,0
2	Alger(Dar El-Beida)	29	4	24,5	13,5
3	Antananarivo	0	0	20,5	11,3
4	Antsiranana	0	0	30,5	20,3
5	Bangui	37	1	31,6	21,7
6	Brazzaville	0	0	30,2	22,1
7	Casablanca	8	5	22,1	15,4
8	Cotonou	0,2	1	-	-
9	Dakar-Yoff	0	0	27,8	23,0
10	Dar-es-Salaam	15	4	30,0	20,8
11	Douala	0	0	31,3	24,4
12	Entebbe	9	2	25,5	18,9
13	Francistown	0	0	25,9	8,3
14	Johannsbourg	9	2	17,4	6,4
15	Khartoum	0	0	43,0	30,0
16	Kigali	8	1	26,8	16,9
17	Kinshasa	0	0	30,1	22,6
18	Le Caire	0	0	33,8	20,8
19	Le Cap	14	3	18,7	11,7
20	Libreville	187	5	29,0	23,6
21	Lilongwe	0	0	23,3	11,1
22	Lomé	32	2	33,0	25,4
23	Luanda	0	0	27,6	21,0
24	Lusaka	0	0	25,3	9,9
25	Maputo	0	0	27,1	15,5
26	Maseru	10	5	-	6,6
27	Maun	0	0	28,6	10,7
28	Mbeya	0	0	21,9	10,0
29	Nairobi	101	1	23,7	13,6
30	Nampula	0	0	28,0	16,9
31	Niamey-Aéroport	0	0	39,1	27,3
32	Plaisance	94	8	25,8	19,0
33	Sal	0	0	26,0	21,3
34	Seretse Khama Aéro	2	2	24,1	7,6
35	Seychelles	24	3	30,2	26,0
36	Tamanrasset	0	0	34,7	19,3
37	Toalagnaro	37	9	23,9	17,7
38	Tripoli	0	0	36,2	19,8
39	Tunis	0	0	30,0	18,5
40	Windhoek	0	0	23,1	-
41	Zinder	4	1	-	-

NOTE: **0** means no rain;  
- means no temperature data available

Data Source : ACMAD / GTS

### 3. OUTLOOK FOR DEKAD (11<sup>st</sup> – 20<sup>th</sup> June, 2008)

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#### 3.1 RAINFALL

The ITD is expected to shift northwards. The temperatures will continue to rise while moisture is expected to increase and penetrate over several parts of the Sahel countries. The high TI regime will spread northward from Equator with a maximum TI regime over north India that will maintain high conditional instability associated with heavy rainfall over parts of West Africa countries, central Africa and northern parts of GHA countries. The southern Africa countries will record light rainfall. In summary:

- **North Africa countries:** The countries will record light rainfall of 10mm to 20mm.
- **The Sahel countries:** The Sahel countries will experience rising temperatures with increased moisture giving light to moderate rainfall ranging from 10mm to 75mm.
- **Gulf of Guinea countries:** Guinea, Guinea Bissau, Sierra Leone, Liberia, Cote-d'Ivoire, Ghana, Togo, Benin Nigeria and Cameroon will record rainfall increase ranging 20mm to 150mm with peaks of about 200mm.
- **Central Africa countries:** Gabon, Central Africa Republic, north Democratic Republic of Congo, Congo and north Angola will experience moderate to heavy rainfall recording amounts ranging from 50mm to 150mm with peaks of about 200mm.
- **GHA countries:** The GHA countries are expected to experience rainfall increase over north and western parts recording amounts of 20mm to 100mm with significantly reduced rainfall over south and eastern sectors recording amounts of 10mm to 50mm.
- **Southern Africa countries:** The countries will experience rainfall deficit recording light rainfall of 10mm to 20mm.

#### 3.1 TEMPERATURE

The forecast map below shows that most of countries north of Equator will record the highest temperatures while countries south of Equator will record the lowest temperatures. The highest forecast temperatures on the map below range from 25°C to 30°C in orange and red colours respectively. However, most of the Continent will be expected to record 20°C and above giving clear manifestation that the Continent's temperatures will be largely in the range of 20°C to 35°C.

#### 3.2 SOIL MOISTURE

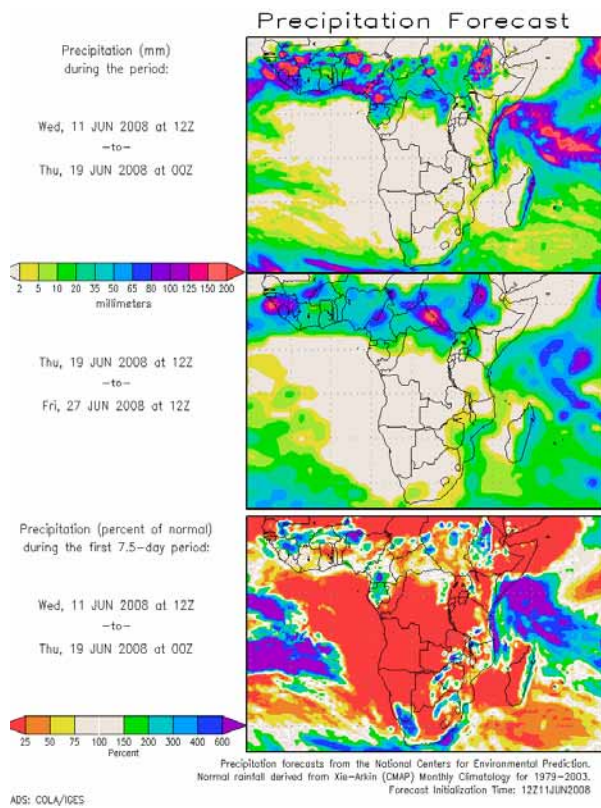
The outlook on soil moisture, map shown below includes the initial soil moisture and the forecast soil moisture change over the next 7 days. The soil moisture change and precipitation relationship is clearly manifested on the maps below. The areas forecast to have highest soil moisture increase are confined within the West Africa, Chad, Sudan and Ethiopia.

#### 3.3 IMPACTS

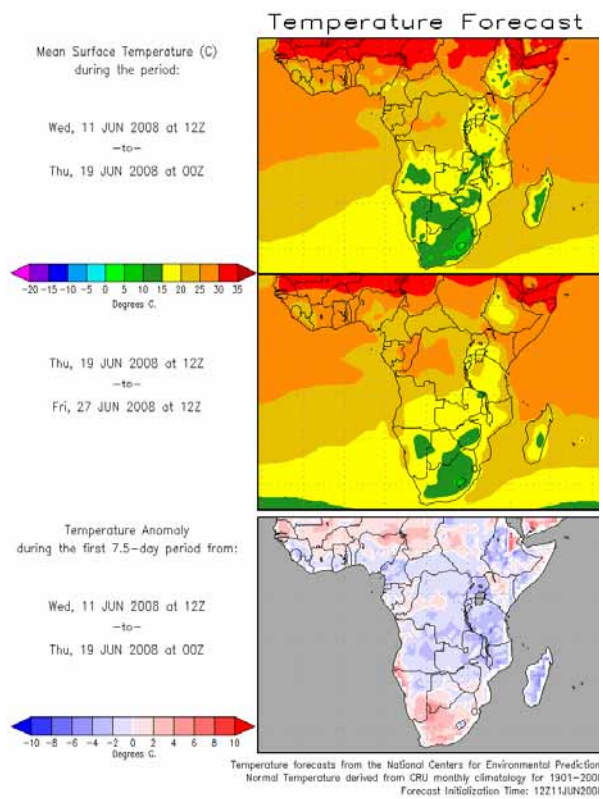
- **Health:** The incidences of malaria and other diseases are higher in areas with high temperatures during periods of heavy rainfall. The temperatures in the range of 20°C to 28°C with high rainfall (high humidity) favour the survival of the vector and development of the parasite in the vector resulting in high incidences of malaria even in low prevalence areas. The parts of Gulf of Guinea countries, central Africa countries and parts of GHA countries will continue to receive rainfall and with the prevailing high temperatures, the survival of parasite will be high resulting in higher incidences of vector borne diseases such as malaria epidemic among others. The cases of meningitis in the West Africa countries are expected to decrease significantly in the Sahel. However, the health authorities need to continue the health care monitoring to protect lives of the vulnerable community in this sub-region. The dry and dusty winds from Sahara observed in varying magnitudes will continue not only to reduce the visibility in some parts of the Sahel, but cause ailments such as flu, respiratory infections (bronchitis, pneumonia), asthma among others.
- **Agriculture and food security:** While we consider the importance of well documented onsets and cessations dates of seasonal rainfall in our countries it is equally important to carry out cost benefit analysis on determination and applications of appropriate planting dates in order to take advantage of limited soil moisture availability in a shortened crop growing season. The drought-tolerant crops can be grown in zones where the prevailing soil moisture is the climate constraint on yield. The crop varieties that are higher yielding, more drought resistant, earlier maturing, disease and pest tolerant are recommended in these moisture constrained zones for communities' sustained food security and adaptation. However, there is a need to invest in higher yielding crops during a good rainfall season for example forecasts provided by regional



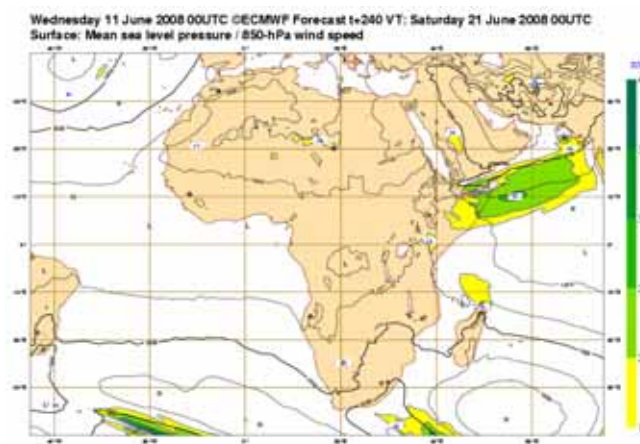
climate outlook forum (COF) such as the PRESAO, GHACOF and National Meteorological Services (NMSs).



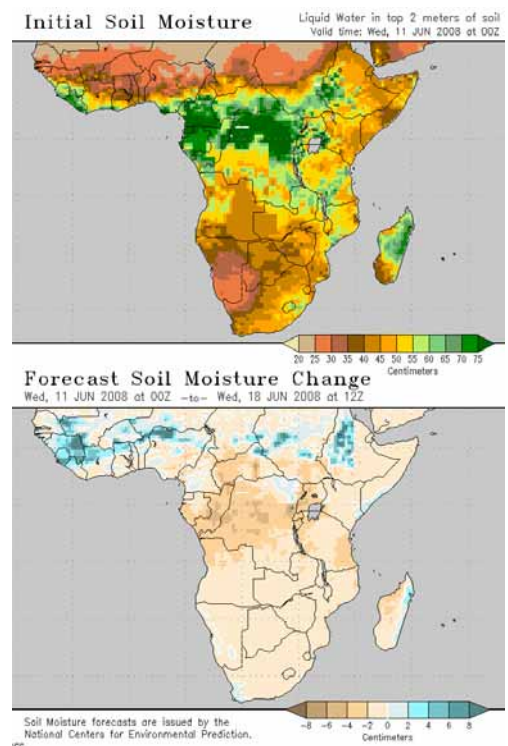
Source : COLA



Source : COLA



Source : ECMWF



Source : COLA