

**Ten Day Climate Bulletin**  
**n° 12 Year 2008**  
**Dekad of 21 to 30 April, 2008**

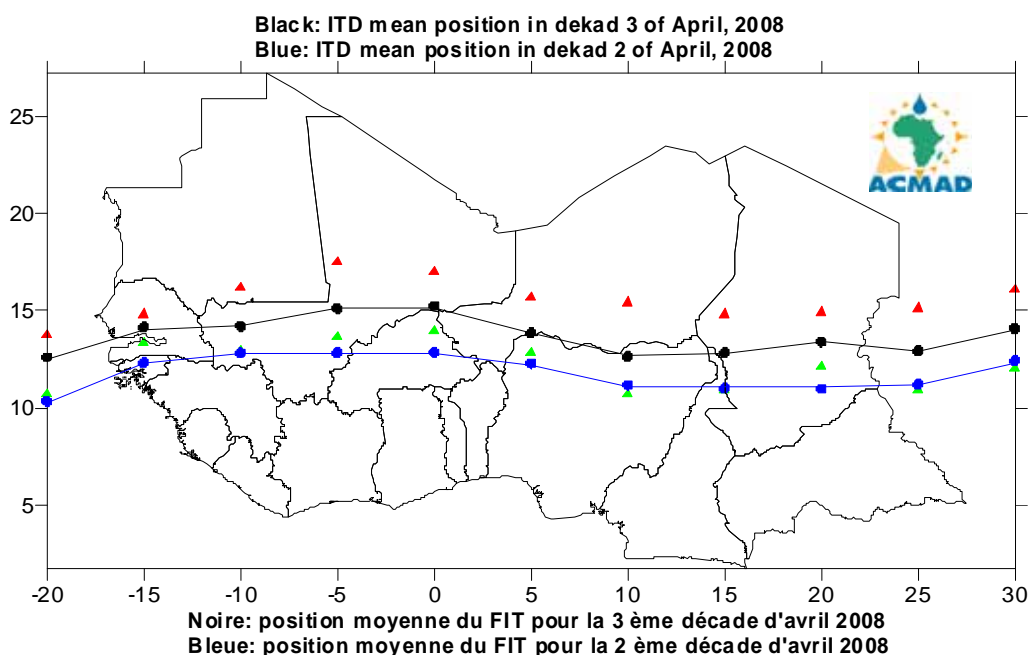
**HIGHLIGHT:** The north eastern parts of Greater Horn Africa (GHA) countries continued to experience significant relief from increased rainfall with the highest recorded over northeast Kenya. However, a dramatic rainfall decrease is expected over eastern sector of GHA countries.

## 1. GENERAL SITUATION :

### 1.1 SURFACE

- **Azores high :** The Azores high pressure of 1027hPa strengthened by 2hPa and shifted towards the northeast. Its mean position was observed at 39°N/22°W with a ridge extended over south Morocco, north Algeria and over south Libya.
- **Saharan low :** The Saharan low of 1004hPa weakened by 1hPa compared to the past dekad, but shifted towards northeast. Its mean position was observed at 17°N/0.4°W with a trough extended over east Senegal, southwest Mali, south Algeria, southwest Nigeria and north Burkina Faso.
- **St. Helena high :** The St. Helena high pressure at 1025hPa had no variation compared to the past dekad, but shifted towards the northeast. Its mean position was observed at 34°S/08°E with an extended ridge over south of South Africa.
- **Mascarene high :** The Mascarene high pressure at 1024hPa had no variation compared to the previous dekad, but shifted to the northeast. Its mean position was observed at about 34°S/66°E with an extended ridge over north Madagascar.

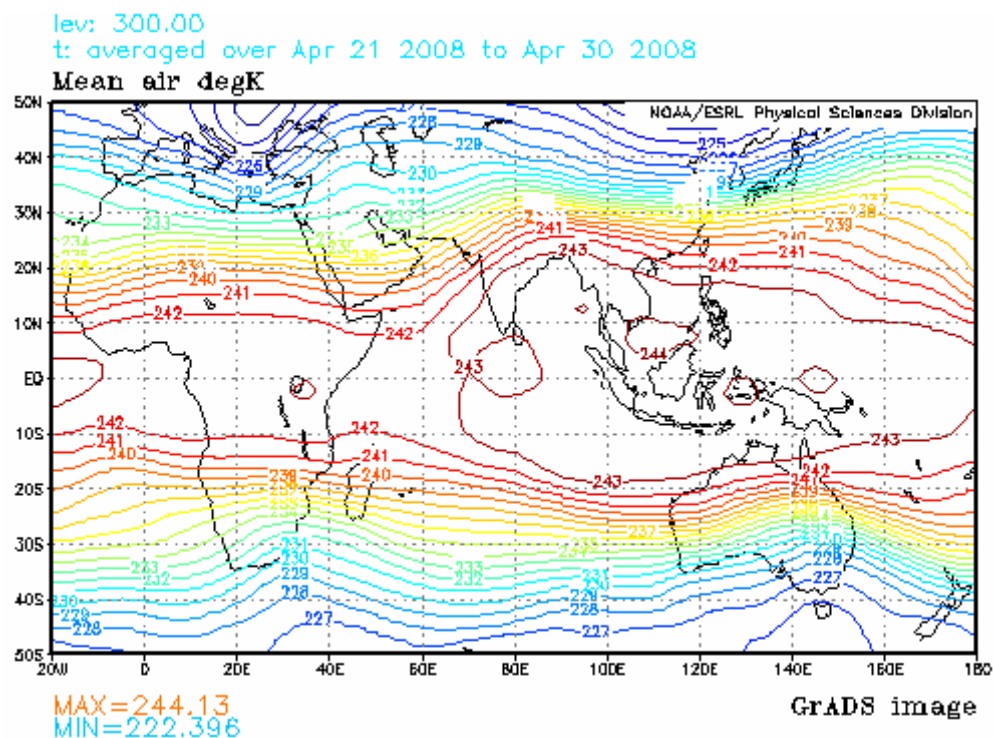
**Inter-Tropical Discontinuity (ITD) :** Between the second and third dekad of April 2008, the ITD shifted to about 2° of latitude towards the north over the Sahel, Chad and Sudan.. It's mean position was observed at 12.6°N over longitude 20°W; at 14.2°N over central Senegal; at 14.2°N and 15.1°N over southwest Mali and south Mali respectively; at 15.3°N over extreme northeast Burkina Faso; at 13.9°N and 12.6°N over extreme northwest and north Nigeria respectively; at 12.8°N and 13.4°N over southwest and east Chad; at 12.9°N and 14.1°N over west and 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 was moderate (5.5 to 12.5 m/s) at 925hPa level over south Liberia, Sierra Leone, southeast Guinea, Côte d'Ivoire, Ghana, Togo, South Burkina Faso, Benin and Nigeria.
- **African Easterly Jet at 700hPa** : African Easterly Jet was observed with a mean speed of 19m/s during the third dekad of April, 2008. Compared to the past dekad, it strengthened by 1 m/s. The mean position of the axis was at about 07°N stretching from south Liberia up to about 25°W in Atlantic Ocean.
- **Thermal Index (TI)** : In the third dekad of April, 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 particularly over some parts of GHA countries, central Africa and Gulf of Guinea counties. The high TI regime with threshold value of 243°K maintained high conditional instability accompanied by heavy rainfall with floods over south Asia and extreme north of Australia resulting in suppressed rainfall over parts of GHA countries.



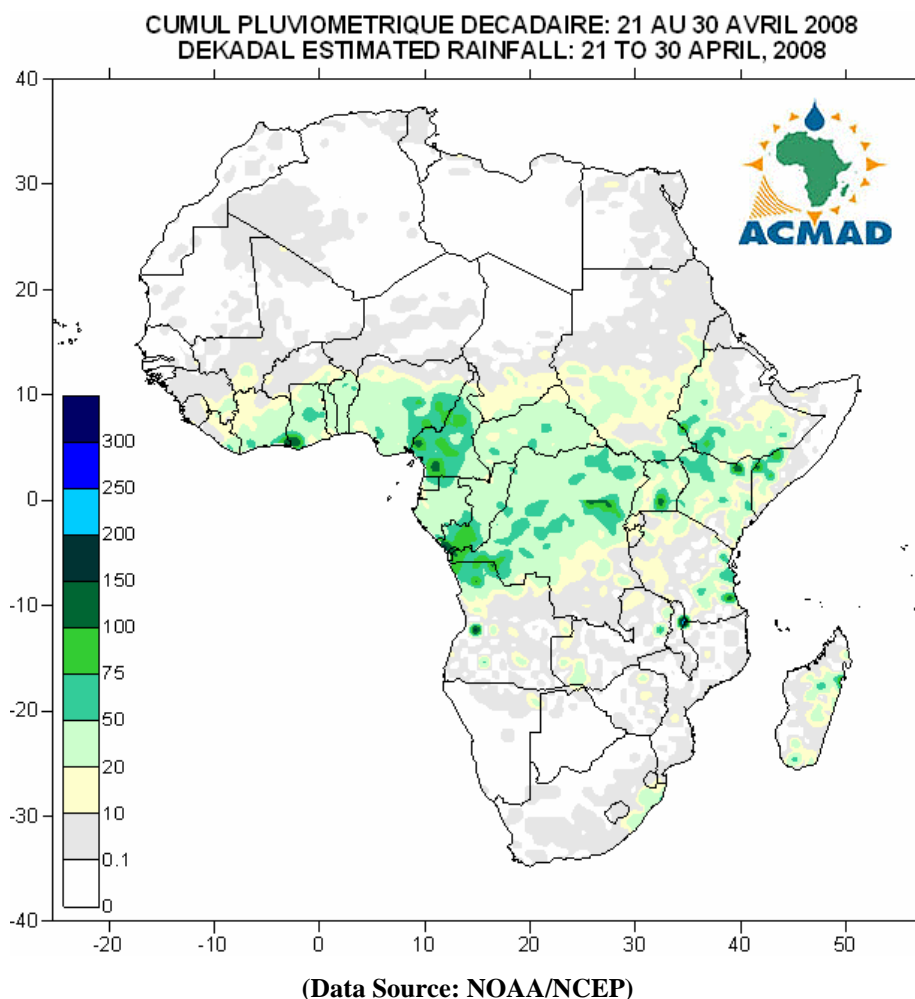
(Data Source: NOAA/NCEP )

## 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 April, 2008 shows marked spatial and intensity rainfall increase over Gulf of Guinea and central Africa countries and southern part of Sahel countries with rainfall intensity decrease over GHA countries while southern Africa countries experienced dramatic spatial and intensity rainfall decrease. No significant change in rainfall pattern observed over northern Africa countries. In summary:

- **North Africa countries** : Dominated by decreased rainfall.
- **Gulf of Guinea countries** : The Gulf of Guinea countries had spatial and intensity rainfall increase recording amount ranging from 10 to 100mm with peaks of about 150mm over Nigeria, Ghana and Côte d'Ivoire.
- **The Sahel** : Significant spatial and rainfall intensity increase over southern part Sahel countries recording light to moderate rainfall amounts ranging from 10 to 50mm.
- **Central Africa countries** : The central Africa countries experienced spatial and intensity rainfall increase recording amounts ranging from 10mm to 100mm with heaviest rainfall of about 150mm over Cameroon, Congo and Congo DR.
- **GHA countries** : The countries experienced rainfall intensity decrease recording 10mm to 75mm with heaviest rainfall amounts of about 100mm over Uganda and Kenya
- **Southern Africa countries** : Southern Africa countries experienced spatial and intensity rainfall decrease recording localized rainfall amounts ranging from 10 to 50mm over southern Africa, Zambia, and northern Madagascar.



## 2.2 OBSERVED DATA

The Table below shows heavy rainfall recorded over Seychelles Island, Douala in Cameroon and Dar-es-Salaam in Tanzania. The lowest temperatures of 4.5°C was recorded at Maseru in Lesotho with the highest temperature of above 42.3°C recorded at Tombouctou in Mali .

N°	STATIONS	Précipitations (mm)	Nombre de jours de pluie	Température maxi moyenne (°C)	Température mini moyenne (°C)
1	Abidjan	68	4	32,7	26,1
2	Abuja	24	2	35,1	-
3	Accra	33	1	32,3	24,8
4	Addis Abéba	0	0	-	12,4
5	Agadez	0	0	40,4	24,5
6	Alger(Dar El-Beida)	0	0	23,9	8,9
7	Antananarivo	17	1	25,3	14,4
8	Antsiranana	1	1	30,9	21,8
9	Bamako-Senou	30	4	38,6	24,6
10	Bangui	25	3	32,8	22,3
11	Bilma	0	0	40,1	18,0
12	Bobo Dioulasso	1	1	36,5	25,5
13	Brazzaville	53	4	32,1	22,6
14	Casablanca	0	0	23,0	14,5
15	Cotonou	42	4	31,6	25,5
16	Dakar-Yoff	0	0	26,6	20,4
17	Dar-es-Salaam	116	7	29,5	22,3
18	Douala	111	5	32,3	23,7
19	Entebbe	30	4	25,3	18,7
20	Francistown	0	0	27,5	8,0
21	Freetown-Lungi	23	1	-	-
22	Johannesbourg	0	0	20,2	7,9
23	Khartoum	0	0	40,6	27,5
24	Kigoma	2	1	-	19,3
25	Kinshasa	11	1	31,8	22,0
26	Le Caire	1	1	31,7	18,6
27	Le Cap	1	1	21,3	14,6
28	Libreville	2	1	31,1	23,6
29	Lilongwe	0	0	25,3	14,0
30	Lomé	14	4	33,5	25,1
31	Lusaka	0	0	26,1	11,7
32	Manzini	30	3	-	12,6
33	Maputo	9	2	27,3	16,5
34	Maseru	0	0	19,7	4,5
35	Maun	0	0	29,4	10,2
36	Mbeya	5	2	22,2	10,3
37	Nairobi	41	5	24,1	14,8
38	Nampula	24	2	28,7	18,9
39	N'Djamena	0	0	38,6	26,5
40	Niamey-Aéroport	0	0	41,5	28,7
41	Nouakchott	0	0	35,4	21,9
42	Ouagadougou	0	0	39,7	29,0
43	Plaisance	14	6	28,6	21,4
44	Sal	0	0	25,4	20,3
45	Seretse Khama Aéro	0	0	24,2	7,1
46	Seychelles	142	8	30,3	25,5
47	Tamanrasset	0	0	32,9	18,5
48	Toalagnaro	8	5	28,3	20,5
49	Tombouctou	0,3	1	42,3	27,5
50	Tripoli	0	0	26,0	12,6
51	Tunis	1	1	24,6	13,4
52	Windhoek	0	0	25,8	9,6
53	Zinder	0	0	40,9	24,6

NOTE : 0 means no rain;

- means no temperature data available

Data Source: ACMAD / GTS

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

---

#### 3.1 RAINFALL

The ITD is expected to shift northwards. The temperatures will continue to rise while moisture is expected to penetrate over parts of the Sahel countries. The persistence of high TI regime over Equatorial Africa spreading northward 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 continue to experience rainfall deficits. In summary:

- **North Africa countries:** are expected to continue experiencing rainfall decrease recording 10-20mm of rainfall.
- **The Sahel countries:** The Sahel countries will experience rising temperatures with light to moderate rainfall amounts ranging from 10-50mm.
- **Gulf of Guinea countries:** Guinea, Guinea Bissau, Sierra Leone, Liberia, Cote-d'Ivoire, Ghana, Togo, Benin Nigeria and Cameroon will record some rainfall increase recording 20mm to 100mm with peaks of 150mm.
- **Central Africa countries :** Gabon, Central Africa Republic, north Democratic Republic of Congo, Congo and north Angola will experience rainfall increase recording amounts ranging from 20mm to 150mm with peaks of about 200mm .
- **GHA countries :** The GHA countries are expected to experience slight increase over western sector with reduced rainfall over eastern sector recording amounts of 20mm to 100mm with isolated peaks of about 150mm.
- **Southern Africa countries :** The countries will continue to experience rainfall decrease with few a parts recording 10mm to 20mm.

#### 3.1 TEMPERATURE

The forecast map below shows that most of countries north of Equator will record the highest temperatures with South Africa recording 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 as discernable on the map implying that the Continent's temperatures will be in the range of 20°C to 30°C.

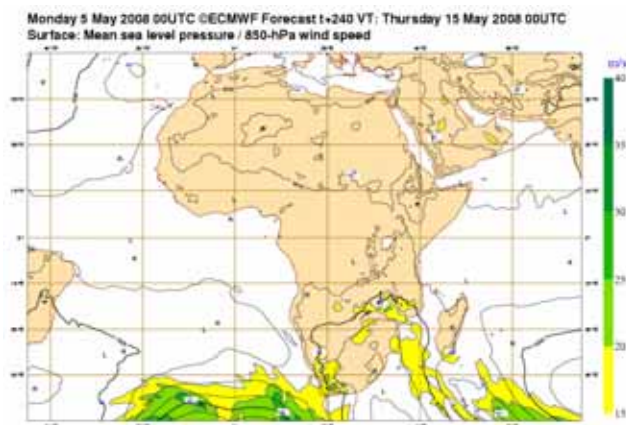
#### 3.2 SOIL MOISTURE

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, central Africa, and parts of GHA countries.

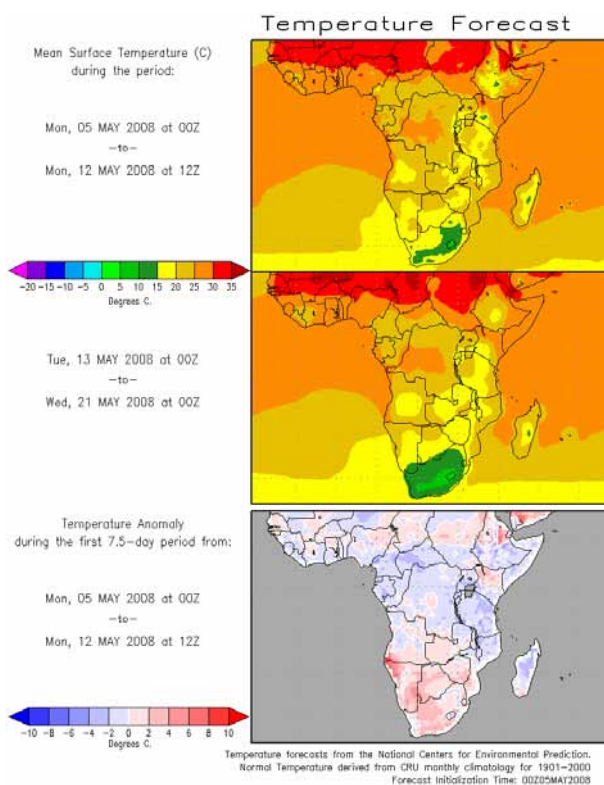
#### 3.3 IMPACTS

- **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 experience 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. The cases of meningitis in the West Africa countries is expected to decrease, but the health authorities need to continue the health care to protect lives of the vulnerable communities. The dry and dusty winds from Sahara observed in varying magnitudes will not only continue to reduce the visibility in some places, but will be associated with ailments such as flu, respiratory infections (bronchitis, pneumonia), asthma and meningitis 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 GHACOF and National Meteorological Services (NMSs).

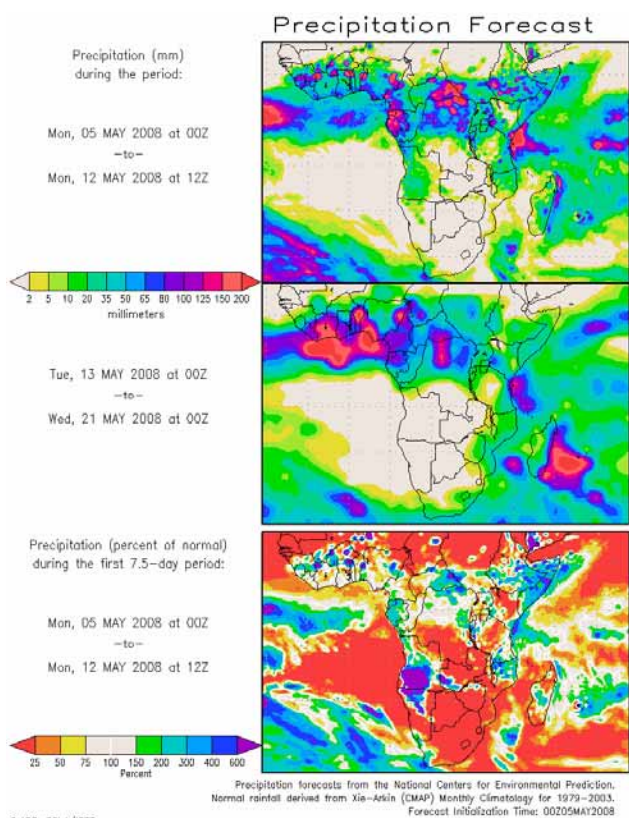




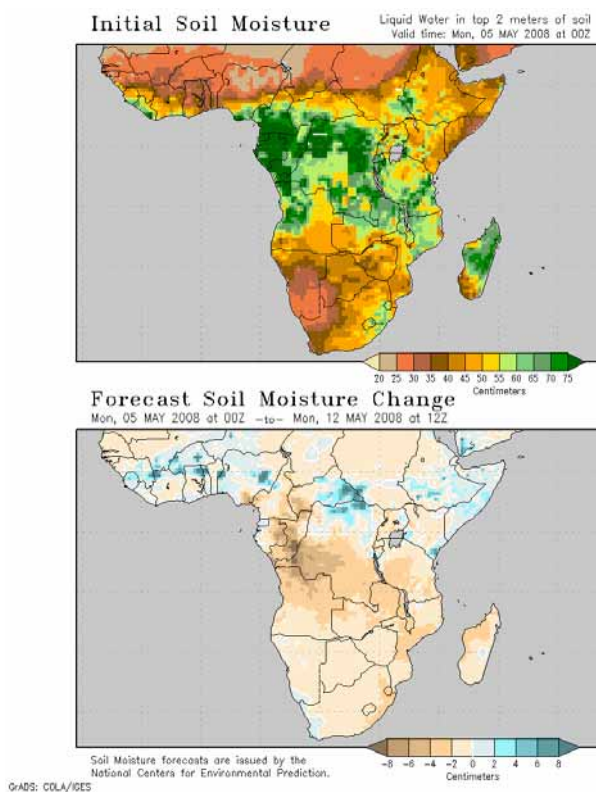
Source : ECMWF



Source : COLA



Source : COLA



Source : COLA