African Centre of Meteorological Application for Development
Centre Africain pour les Applications de la Météorologie au Développement

Ten Day Climate Bulletin

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Dekad of 01 to 10 May, 2008

HIGHLIGHT: The GHA countries experienced significant decrease in rainfall while southern Africa countries had a relief from increased rainfall over some parts. However, rainfall increase is expected over western Kenya, parts of north western Tanzania and eastern Uganda.

1. GENERAL SITUATION :

1.1 SURFACE

- **Azores high :** The Azores high pressure of 1022hPa weakened by 5hPa and shifted towards the southwest. Its mean position was observed at 29°N/26°W with a ridge extended over south Morocco.

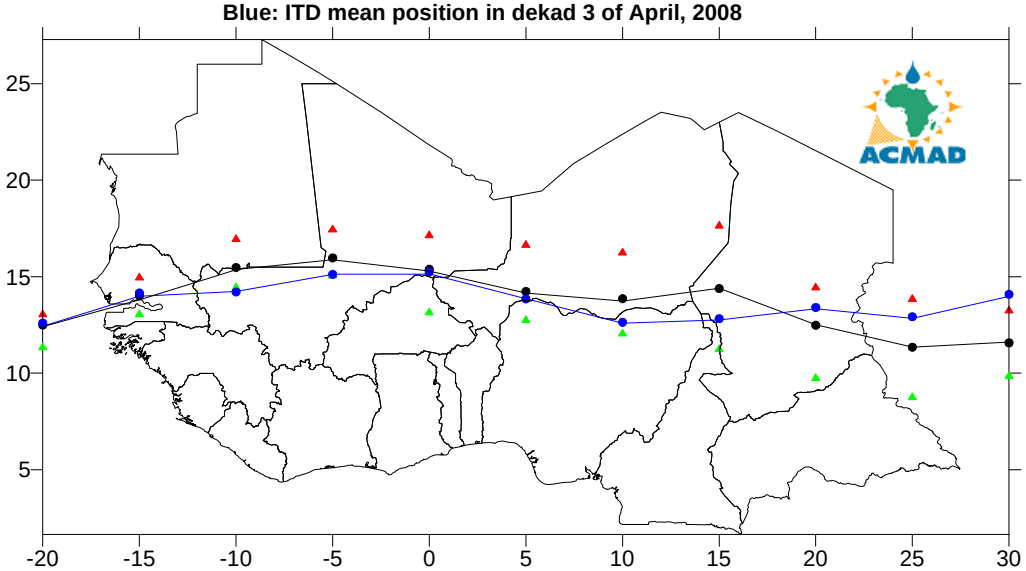
- **Saharan thermal low :** The Saharan low of 1004hPa had no variation compared to the past dekad, but shifted towards the west. Its mean position was observed at 17°N/02°W with a trough extended over east Senegal, southwest Mauritania, north Mali, south Algeria, northwest Niger, central Chad, north Nigeria, north Benin and north Burkina Faso.

- **St. Helena high :** The St. Helena high pressure of 1020hPa weakened by 5hPa compared to the past dekad, but shifted towards the northwest. Its mean position was observed at 28°S/11°W with an extended ridge over south of South Africa.

- **Mascarene high :** The Mascarene high pressure at 1021hPa weakened by 3hPa compared to the previous dekad, but shifted to the northwest. Its mean position was observed at about 30°S/57°E with an extended ridge over Madagascar.

Inter-Tropical Discontinuity (ITD) : Between the third dekad of April and first dekad of May 2008, the ITD shifted towards the north over the Sahel and shifted towards the south over the extreme west and east. It's mean position was observed at 12.5°N over longitude 20°W; at 14.0°N over central Senegal; at 15.5°N over south Mauritania; at 16.0°N over central west Mali; at 15.4°N over extreme northeast Burkina Faso; at 14.2°N and 13.9°N over extreme south and southeast Niger respectively; at 14.4°N and 12.5°N over west and east Chad; at 11.4°N and 11.6°N over west and central Sudan respectively.

Black: ITD mean position in dekad 1 of May, 2008
Blue: ITD mean position in dekad 3 of April, 2008



Noire: position moyenne du FIT pour la 1ère décade de Mai 2008
Bleue: position moyenne du FIT pour la 3ème décade de Avril 2008

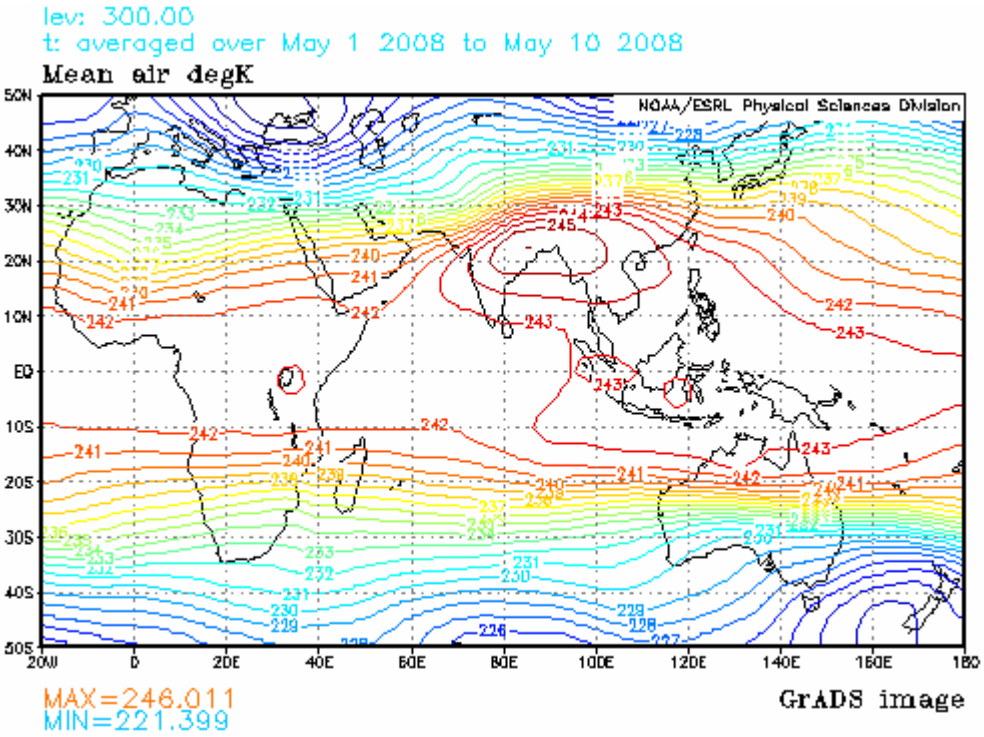
The triangles in red represent the maximum northward displacement of the ITD while the green triangles represent its minimum displacement.

1.2 TROPOSPHERE

- **Monsoon :** Monsoon influx was moderate (5.5 to 12.5 m/s) at 925hPa level over south Liberia, east Côte d'Ivoire, south Ghana and Benin.

- **African Easterly Jet at 700hPa :** African Easterly Jet was not pronounced during the dekad.

- **Thermal Index (TI) :** In the first 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 particularly over some parts of GHA countries, central Africa and Gulf of Guinea counties. The high TI regime with threshold value of 243°K and above maintained extremely high conditional instability accompanied by heavy rainfall with severe floods over Asia and north of Australia and linked to 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 first dekad of May, 2008 shows marked spatial and rainfall intensity increase over Southern Africa countries; spatial increase over Gulf of Guinea countries; spatial decrease over central Africa; spatial and intensity decrease over Great Horn Africa countries; increased rainfall over north Africa, but Sahel countries had no significant change except over southern Chad, southern Burkina Faso and southern Mali. In summary:

- **North Africa countries :** Increased rainfall over north Algeria recording rainfall amount ranging from 10 to 50mm.

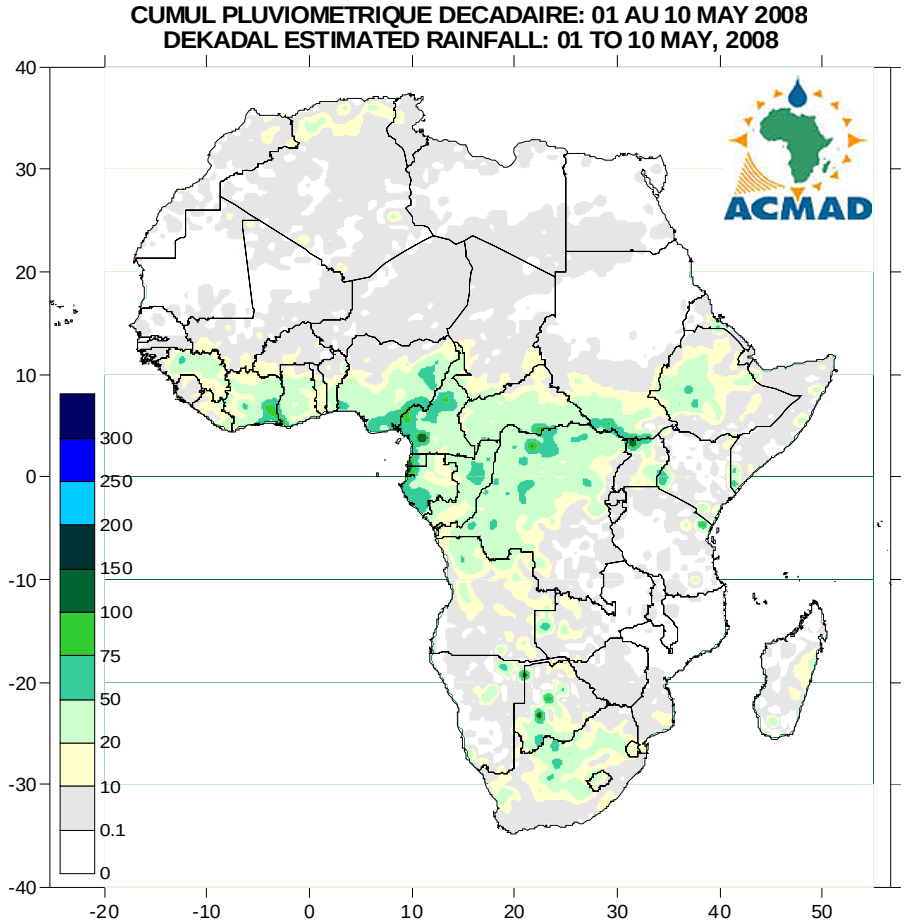
- **Gulf of Guinea countries :** The Gulf of Guinea countries had spatial rainfall increase, but rainfall intensity decrease recording amount ranging from 10mm to 75mm with peaks of about 100mm over southeast Nigeria, southeast Côte d'Ivoire and over Guinea.

- **The Sahel :** Significant spatial and rainfall intensity increase over southern part Sahel countries recording light to moderate rainfall amounts ranging from 10mm to 50mm over Burkina Faso, Mali and Chad.

- **Central Africa countries :** The central Africa countries experienced spatial rainfall decrease recording amounts ranging from 10mm to 100mm with heaviest rainfall of about 150mm over Cameroon.

- **GHA countries :** The countries experienced significant spatial and rainfall intensity decrease recording 10mm to 50mm with isolated peak of about 75mm with heaviest of about 150mm over western Kenya, northwest Tanzania and eastern Uganda.

- **Southern Africa countries :** Southern Africa countries experienced spatial and rainfall intensity increase recording localized rainfall amounts ranging from 10 to 50mm with a maximum of above 75mm over South Africa and Botswana.



(Data Source: NOAA/NCEP)

2.2 OBSERVED DATA

The Table below shows heavy rainfall recorded over Libreville in Gabon. The lowest temperatures of 9.2°C was recorded at Seretse Khama in Botswana with the highest temperature of above 43.1°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	43	5	32,6	25,4
2	Agadez	0	0	40,9	26,3
3	Alger(Dar El-Beida)	11	2	24,1	14,4
4	Antananarivo	12	1	24,4	13,0
5	Antsiranana	0	0	31,7	21,7
6	Bamako-Senou	0	0	38,7	24,9
7	Bangui	42	6	32,4	22,0
8	Bilma	0	0	40,7	21,9
9	Bobo Dioulasso	2	1	37,9	25,5
10	Brazzaville	36	2	32,5	22,9
11	Casablanca	0	0	22,2	15,4
12	Cotonou	20	1	31,8	25,8
13	Dakar-Yoff	0	0	26,8	21,3
14	Dar-es-Salaam	26	3	31,2	21,8
15	Douala	11	2	32,5	24,4
16	Entebbe	0	0	26,4	19,9
17	Francistown	2	1	29,2	11,0
18	Johannesbourg	6	3	21,1	9,7
19	Harare	0	0	26,8	12,2
20	Khartoum	0	0	41,3	25,0
21	Kinshasa	0	0	32,9	22,8
22	Le Caire	0	0	29,9	17,5
23	Le Cap	2	2	18,4	12,7
24	Libreville	129	6	30,9	24,5
25	Lomé	8	1	33,6	25,3
26	Lusaka	0	0	28,5	13,4
27	Maun	0	0	29,4	10,2
28	Mbeya	22	2	23,8	10,2
29	Nairobi	0	0	24,8	13,3
30	Nampula	2	1	30,2	18,7
31	N'Djamena	15	1	40,7	26,4
32	Niamey-Aéroport	0	0	41,9	29,1
33	Nouakchott	0	0	31,8	20,2
34	Ouagadougou	1	1	40,5	28,3
35	Plaisance	10	5	28,5	20,5
36	Sal	0	0	26,1	21,2
37	Seretse Khama Aéro	18	1	24,8	9,2
38	Seychelles	7	2	30,9	26,6
39	Tamanrasset	0,4	1	33,8	21,2
40	Toalagnaro	36	1	28,1	19,8
41	Tombouctou	0	0	43,1	26,4
42	Tripoli	0	0	30,6	15,9
43	Tunis	1,1	2	23,3	15,4
44	Windhoek	0	0	25,1	10,0
45	Zinder	1	1	40,5	26,8

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

Data Source: ACMAD / GTS

3. OUTLOOK FOR DEKAD (21st – 31st 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 record light to moderate rainfall. In summary:

- **North Africa countries: The countries** will record light to moderate rainfall of 10mm to 50mm.
- **The Sahel countries:** The Sahel countries will experience rising temperatures with increased moisture giving light to moderate rainfall ranging from 10mm to 50mm.
- **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 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 over western sector.
- **Southern Africa countries :** The countries will record light to moderate rainfall of 10mm to 50mm with isolated peaks of about 75mm.

3.1 TEMPERATURE

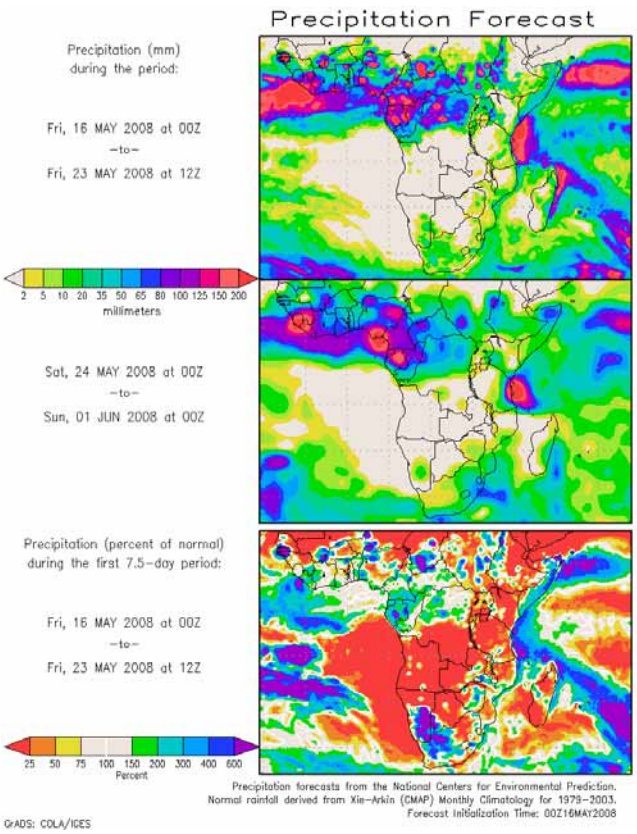
The forecast map below shows that most of countries north of Equator will record the highest temperatures with South Africa recording the lowest temperatures. The highest forecast temperatures on the map below range from 25°C to 30°C in orange and red colours respectively. However, most of the Continent will be expected to record 20°C and above and it is discernable from the map that the Continent's temperatures will be largely in the range of 20°C to 30°C.

3.2 SOIL MOISTURE

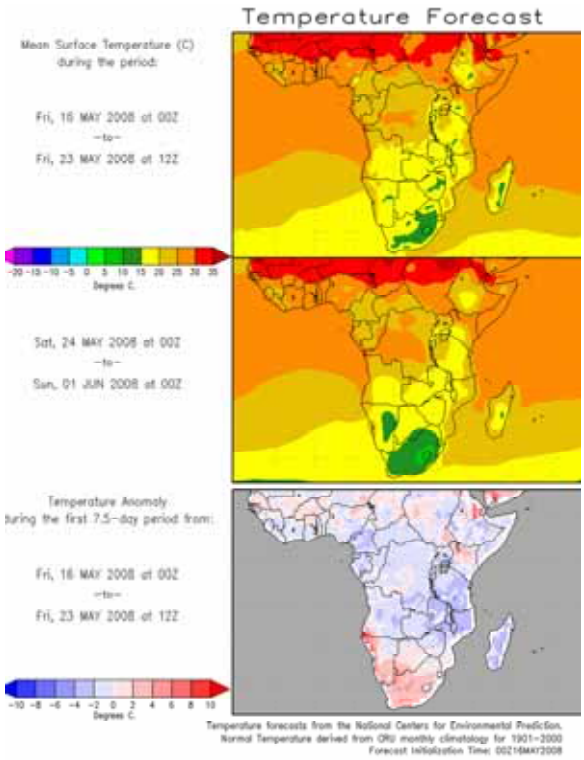
The outlook on soil moisture, map shown below includes the initial soil moisture and the forecast soil moisture change over the next 7 days. The soil moisture change and precipitation relationship is clearly manifested on the maps below. The areas forecast to have highest soil moisture increase are confined 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 among others. The cases of meningitis in the West Africa countries is expected to decrease in the south, but will increase over the Sahel and therefore the health authorities need to continue the health care to protect lives of the vulnerable community in this sub-region. 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 : COLA



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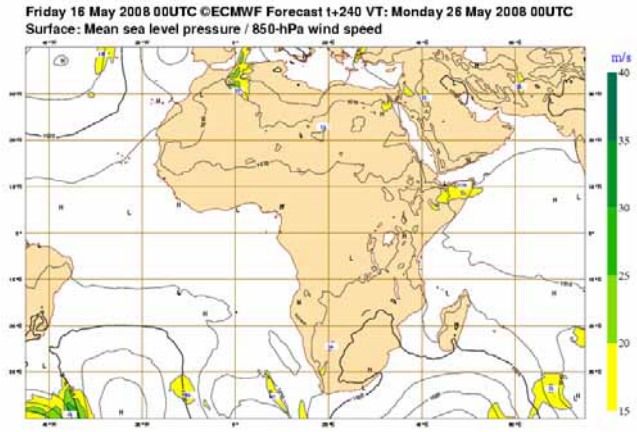
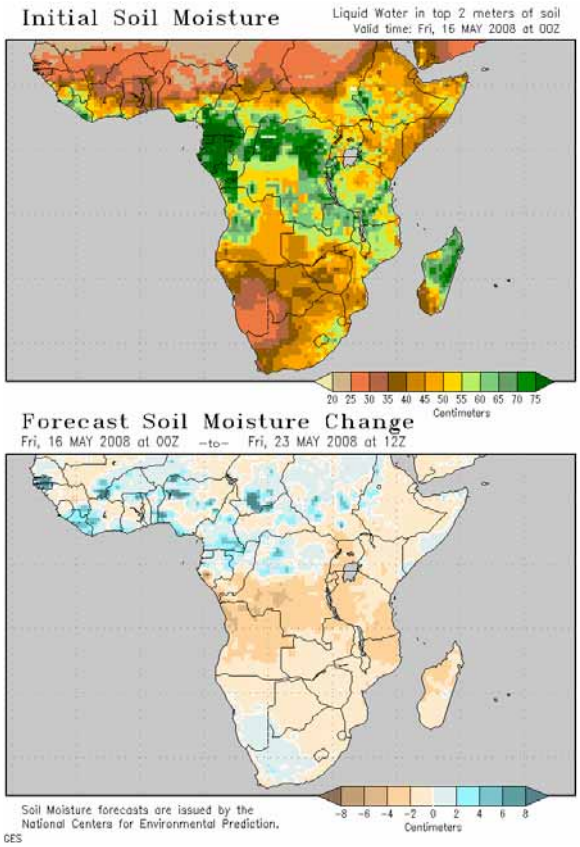


Source : ECMWF



Source : COLA