

Ten Day Climate Bulletin

n° 14 Year 2008

Dekad of 11 to 20 May, 2008

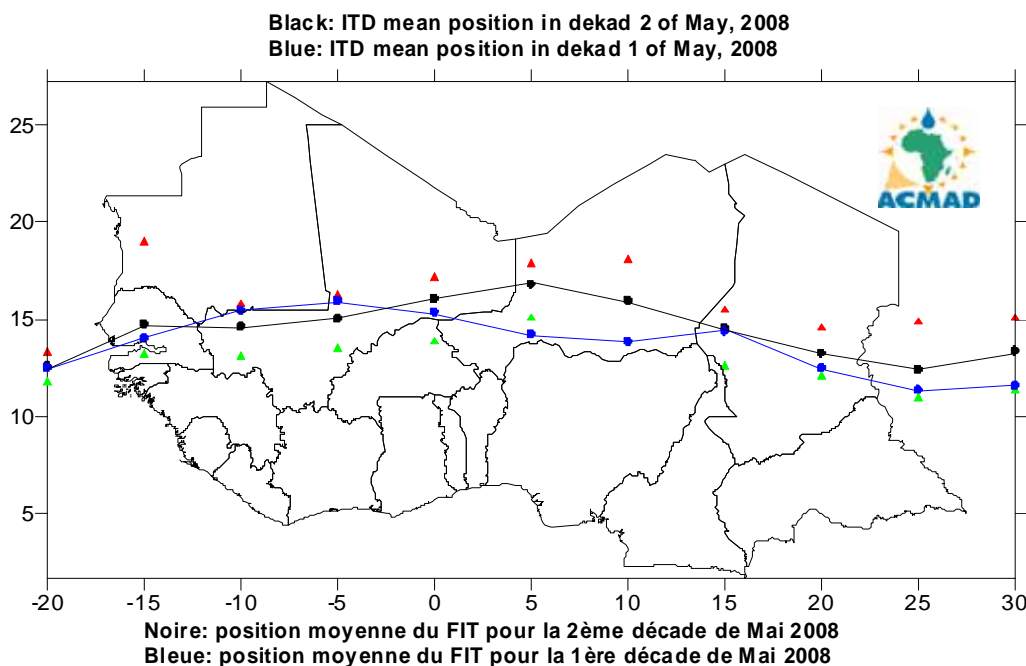
HIGHLIGHT: The GHA countries experienced significant decrease in rainfall while southern Africa countries had a slight relief from increased rainfall over some parts. However, increased rainfall is expected over western Africa and central Africa countries and north western GHA countries.

1. GENERAL SITUATION :

1.1 SURFACE

- **Azores high :** The Azores high pressure of 1024hPa strengthened by 2hPa and shifted towards the northwest. Its mean position was observed at 33°N/27°W with a ridge extended over south Morocco and northwest Algeria.
- **Saharan thermal low :** The Saharan low of 1004hPa had no variation compared to the past dekad, but shifted towards the southeast. Its mean position was observed at 15°N/13°E with a trough extended over southwest Mali, north Burkina Faso, central Niger, north Nigeria and central Chad.
- **St. Helena high :** The St. Helena high pressure of 1024hPa strengthened by 4hPa compared to the past dekad, but shifted towards the southeast. Its mean position was observed at 29°S/06°W with an extended ridge over south of Atlantic Ocean.
- **Mascarene high :** The Mascarene high pressure at 1028hPa strengthened by 7hPa compared to the previous dekad, but shifted to the southwest. Its mean position was observed at about 35°S/56°E with an extended ridge over eastern South Africa and southern Madagascar.

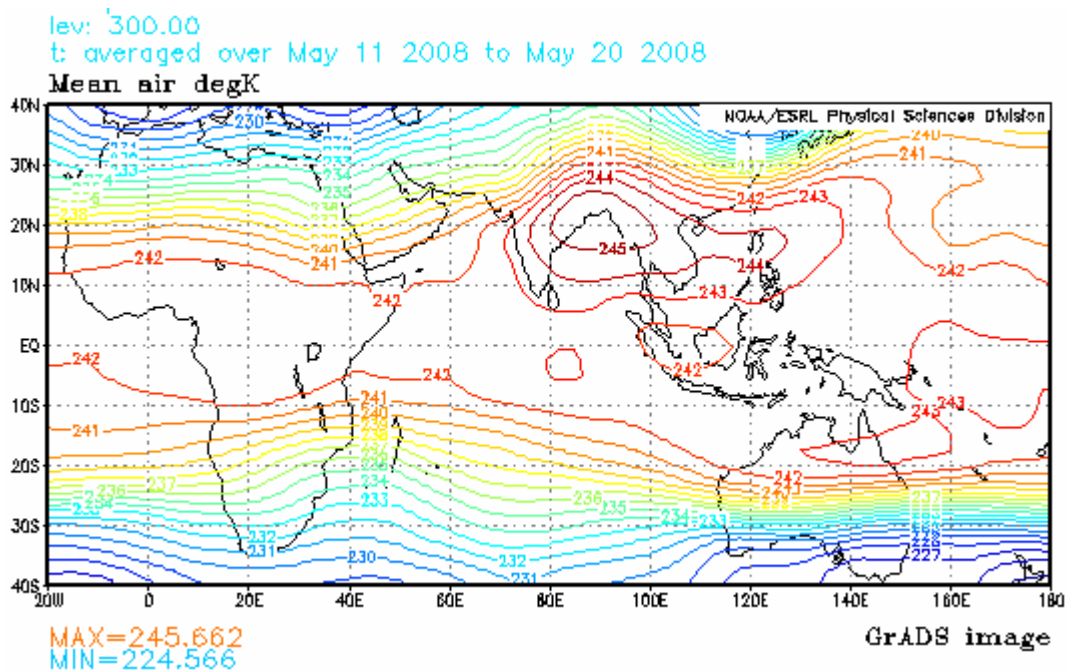
Inter-Tropical Discontinuity (ITD) : Between the first and second dekad of May 2008, the ITD continued its northwards migration over the Sahel except over central west where it's move slightly to the south. It's mean position was observed at 12.6°N over longitude 20°W; at 14.8°N over north Senegal; at 14.6°N, 15.0°N and 16.1°N over west, central and east Mali respectively; at 16.8°N and 16.0°N over northwest and central Niger respectively; at 14.6°N and 13.3°N over west and east Chad respectively; at 12.4°N and 13.4°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 with was moderate (5.5 to 12.5 m/s) at 925hPa level over Liberia, Côte d'Ivoire, Burkina Faso, Ghana, Togo, Benin, Nigeria and south Niger.
- **African Easterly Jet at 700hPa** : The African Easterly Jet mean speed was at about 18m/s. It's axis was located at about 7°N crossing southern Nigeria, Benin, Togo, Ghana, Côte d'Ivoire and Liberia to about 21°W in the north Atlantic Ocean.
- **Thermal Index (TI)** : In the second 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 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 and north of Australia with the worst severe floods in the Bay of Bengal countries.



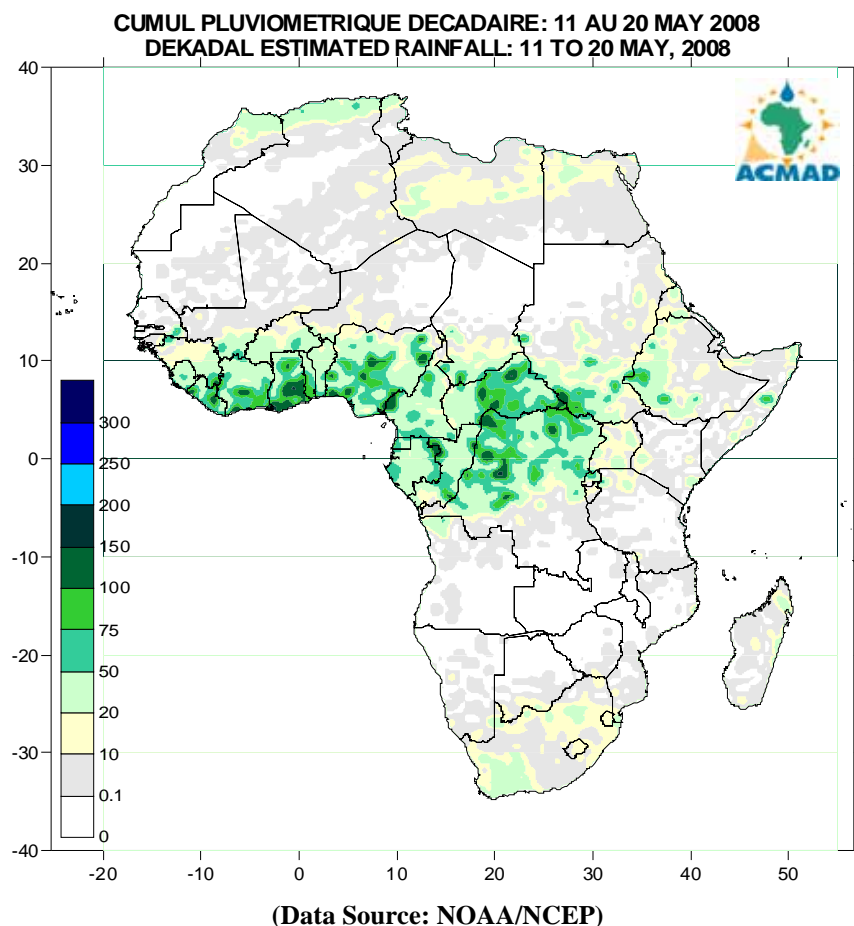
(Data Source: NOAA/NCEP)

2. RAINFALL AND TEMPERATURE SITUATION

2.1 RAINFALL

The rainfall estimate based on Satellite and Rain Gauge on the map below for the second dekad of May, 2008 shows marked spatial and rainfall intensity increase over northern Africa countries, Sahel countries and Gulf of Guinea countries; rainfall intensity increase over central Africa; spatial decrease over Great Horn Africa countries and spatial and rainfall intensity decrease over Southern Africa countries. In summary:

- **North Africa countries :** Increased spatial and intensity of rainfall over north Algeria, north Morocco, Libya, Tunisia and Egypt recording rainfall amount ranging from 10 to 50mm.
- **Gulf of Guinea countries :** The Gulf of Guinea countries had spatial and intensity of rainfall increase, recording amount ranging from 20mm to 100mm with peaks of above 150mm over Nigeria, Côte d'Ivoire, Ghana and Liberia.
- **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 southern Senegal, Mali and Chad.
- **Central Africa countries :** The central Africa countries experienced spatial and intensity increase of rainfall recording amounts ranging from 20mm to 100mm with heaviest of about 150mm over Democratic Republic of Congo, Congo and Central Africa Republic.
- **GHA countries :** The countries experienced spatial and intensity of rainfall decrease recording amounts between 10mm to 100mm over Ethiopia, Somalia, Sudan, and Great Lake countries.
- **Southern Africa countries :** Southern Africa countries experienced spatial and intensity of rainfall decrease recording rainfall amounts ranging from 10mm to 50mm over South Africa, Madagascar and Botswana.



2.2 OBSERVED DATA

The Table below shows heavy rainfall recorded over Plaisance in Mauritius . The lowest temperatures of 6.1°C was recorded at Maseru in Lesotho with the highest temperature of about 44.1°C recorded at Bilma in Niger .

| N° | STATIONS | Précipitations (mm) | Nombre de jours de pluie | Température maxi moyenne (°C) | Température mini moyenne (°C) |
|----|---------------------|------------------------|-----------------------------|-------------------------------------|-------------------------------------|
| 1 | Abidjan | 19 | 1 | 32,4 | 25,2 |
| 2 | Abuja | 16 | 3 | - | 23,3 |
| 3 | Addis Abéba | 4 | 2 | - | 12,5 |
| 4 | Agadez | 0 | 0 | 43,0 | 29,3 |
| 5 | Alger(Dar El-Beida) | 34 | 5 | 23,6 | 13,5 |
| 6 | Antananarivo | 1 | 1 | 23,7 | 12,7 |
| 7 | Antsiranana | 0 | 0 | 31,5 | 21,4 |
| 8 | Bamako-Senou | 2 | 1 | 37,9 | 26,8 |
| 9 | Bangui | 54 | 2 | 32,4 | 21,2 |
| 10 | Banjul | 0 | 0 | 33,3 | 21,3 |
| 11 | Bilma | 0 | 0 | 44,1 | 22,4 |
| 12 | Bobo Dioulasso | 20 | 2 | 35,8 | 24,4 |
| 13 | Brazzaville | 34 | 1 | 31,6 | 22,3 |
| 14 | Casablanca | 0 | 0 | 22,0 | 14,1 |
| 15 | Cotonou | 58 | 4 | 30,8 | 25,0 |
| 16 | Dakar-Yoff | 0 | 0 | 26,5 | 21,5 |
| 17 | Dar-es-Salaam | 21 | 5 | 30,3 | 21,8 |
| 18 | Douala | 39 | 2 | 32,6 | 24,0 |
| 19 | Entebbe | 28 | 4 | 25,6 | 19,0 |
| 20 | Francistown | 0 | 0 | 27,2 | 9,6 |
| 21 | Harare | 0 | 0 | 25,5 | 8,9 |
| 22 | Johannsbouurg | 0 | 0 | 21,6 | 10,1 |
| 23 | Khartoum | 0 | 0 | 43,0 | 29,0 |
| 24 | Kinshasa | 0 | 0 | 31,2 | 23,4 |
| 25 | Le Caire | 0 | 0 | 32,1 | 19,3 |
| 26 | Le Cap | 5 | 3 | 22,1 | 15,2 |
| 27 | Libreville | 58 | 6 | 29,9 | 24,6 |
| 28 | Lilongwe | 0 | 0 | 25,6 | 12,1 |
| 29 | Lomé | 32 | 2 | 33,0 | 25,4 |
| 30 | Luanda | 0 | 0 | 31,0 | 24,1 |
| 31 | Lusaka | 0 | 0 | 27,2 | 10,5 |
| 32 | Maputo | 5 | 1 | 28,8 | 18,1 |
| 33 | Maseru | 1 | 1 | 21,2 | 6,1 |
| 34 | Maun | 0 | 0 | 30,4 | 12,4 |
| 35 | Mbeya | 3 | 1 | 21,5 | 9,5 |
| 36 | Nairobi | 3 | 1 | 24,9 | 13,0 |
| 37 | Nampula | 11 | 2 | 29,0 | 18,8 |
| 38 | N'Djamena | 21 | 1 | 41,1 | 26,4 |
| 39 | Niamey-Aéroport | 0 | 0 | 40,6 | 28,0 |
| 40 | Nouakchott | 0 | 0 | 36,8 | 20,6 |
| 41 | Ouagadougou | 1 | 1 | 38,0 | 28,2 |
| 42 | Plaisance | 255 | 8 | 26,9 | 21,3 |
| 43 | Sal | 0 | 0 | 25,2 | 20,8 |
| 44 | Seretse Khama Aéro | 0 | 0 | 26,1 | - |
| 45 | Seychelles | 10 | 7 | 30,7 | 25,9 |
| 46 | Tamanrasset | 0 | 0 | 33,6 | 19,9 |
| 47 | Toalagnaro | 49 | 7 | 26,2 | 19,2 |
| 48 | Tombouctou | 0 | 0 | 42,0 | 26,9 |
| 49 | Tripoli | 0 | 0 | 32,1 | 17,9 |
| 50 | Tunis | 31 | 4 | 25,3 | 16,1 |
| 51 | Windhoek | 0 | 0 | 25,9 | 12,6 |
| 52 | Zinder | 7 | 1 | 40,9 | 27,5 |

NOTE : 0 means no rain;

- means no temperature data available

Data Source: ACMAD / GTS

3. OUTLOOK FOR DEKAD (1st – 10th June, 2008)

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 persistence of high TI regime over Equatorial Africa spreading northward into the Sahel 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 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 heavy rainfall recording amounts ranging from 20mm to 150mm with peaks of about 200mm .
- **GHA countries :** The GHA countries are expected to experience slight increase over north and western parts with significantly reduced rainfall over eastern sector recording amounts of 10mm to 75mm with isolated peaks of about 100mm over north and 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

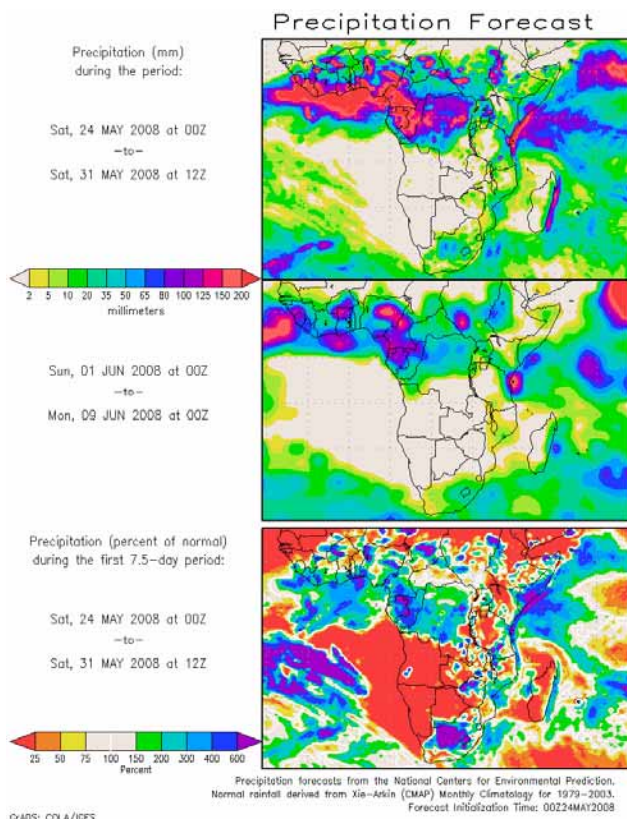
The forecast map below shows that most of countries north of Equator will record the highest temperatures while South Africa countries be recording the lowest temperatures. The highest forecast temperatures on the map below range from 25°C to 30°C in orange and red colours respectively. However, most of the Continent will be expected to record 20°C and above giving clear manifestation 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 few parts of GHA countries.

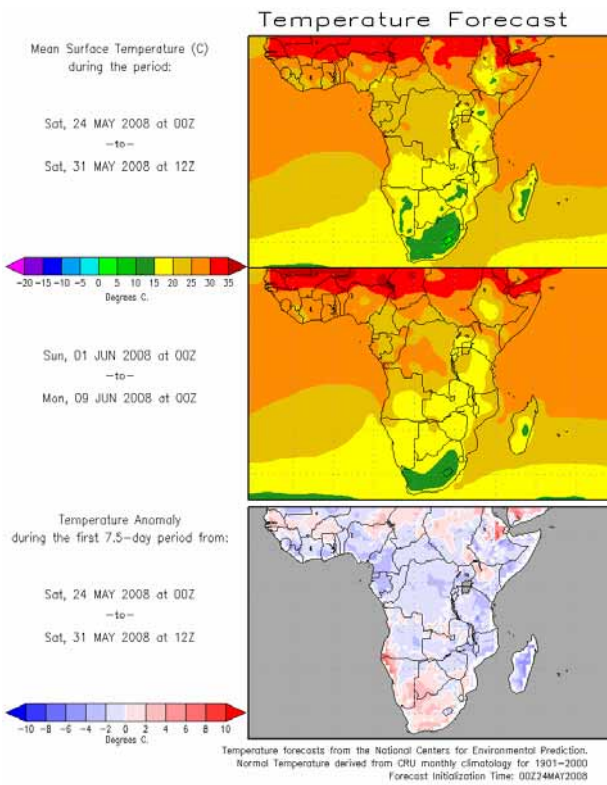
3.3 IMPACTS

- **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 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 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 parts of the Sahel, 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 PRESAO, GHACOF and National Meteorological Services (NMSs).

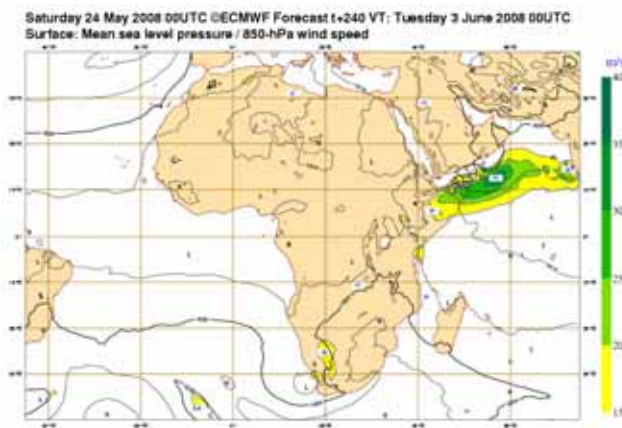


GrADS: COLA/IGES

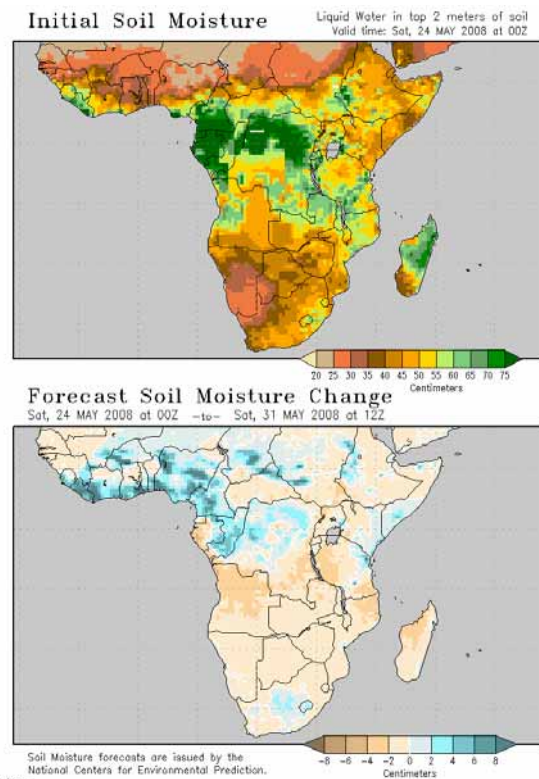
Source : COLA



Source : COLA



Source : ECMWF



GrADS: COLA/IGES

Source : COLA