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

# Ten Day Climate Bulletin
## N° 31 Year 2008

## Dekad of 01 to 10 November, 2008

**HIGHLIGHT:** Highest rainfall was experienced over parts of Greater Horn of Africa (GHA) countries recording peaks of 200 to 300mm According to 5th November, 2008 UNIRIN Report, thousands of people were affected after flash floods submerged hundreds of hectares of farmland in the north-eastern region of Mandera in Kenya.

## 1. GENERAL SITUATION :

### 1.1 SURFACE

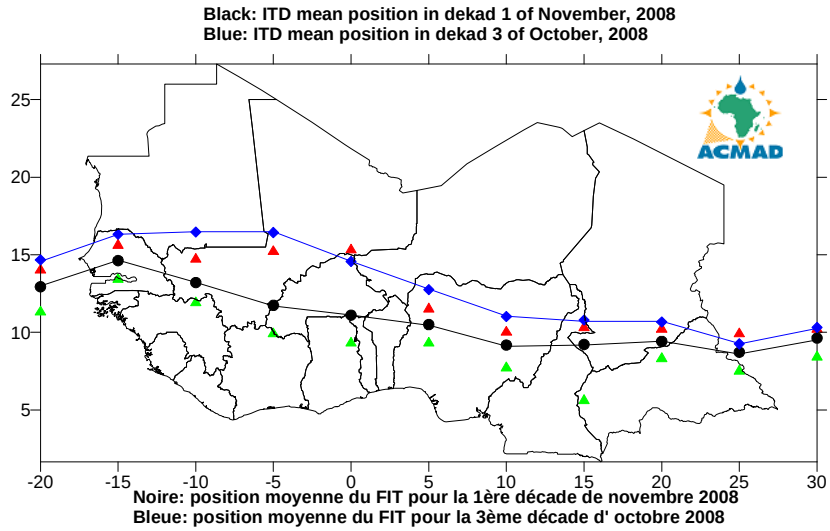
• **Azores high:** Pressure at 1028hPa weakened significantly by 6hPa compared to the last dekad and shifted to the southeast. Its mean position was observed at 40°N/19°W with an ridge extended over south Morocco, north Mauritania and north Mali.

• **St. Helena high:** Pressure at 1028hPa weakened slightly by 1hPa and shifted to the west at 36°S/10°W with an extended ridge over south Atlantic Ocean.

• **Mascarene high:** Pressure at 1028hPa weakened slightly by 1hPa compared to the previous dekad and shifted to the southwest at 40°S/59°E with an extended ridge over Indian Ocean.

• **Saharan thermal low:** Pressure at 1009hPa maintained its intensity compared to the past dekad and shifted to the southeast at 11°N/09°E with an extended trough over north Burkina Faso, southwest Niger, le north Benin, north Nigeria and south Chad.

• **Inter-Tropical Discontinuity (ITD) :** Between the third dekad of October and the first dekad of October, 2008, the ITD continued its southward migration over the Sahel with more displacement over its central part. It's mean position was observed at 12.9°N over longitude 20°W; at 14.6°N over central Senegal; at 13.2°N and 11.7°N over southwest and central Mali respectively; at 11.1°N over central east Burkina Faso; at 10.5°N and 09.2°N over west and central east Nigeria respectively; at 9.2°N and 9.4°N over southwest southeast Chad respectively; at 8.7°N and 9.6°N over southwest and central south Sudan respectively.




*The red and green triangles represent the max. and min. displacements of the ITD respective*

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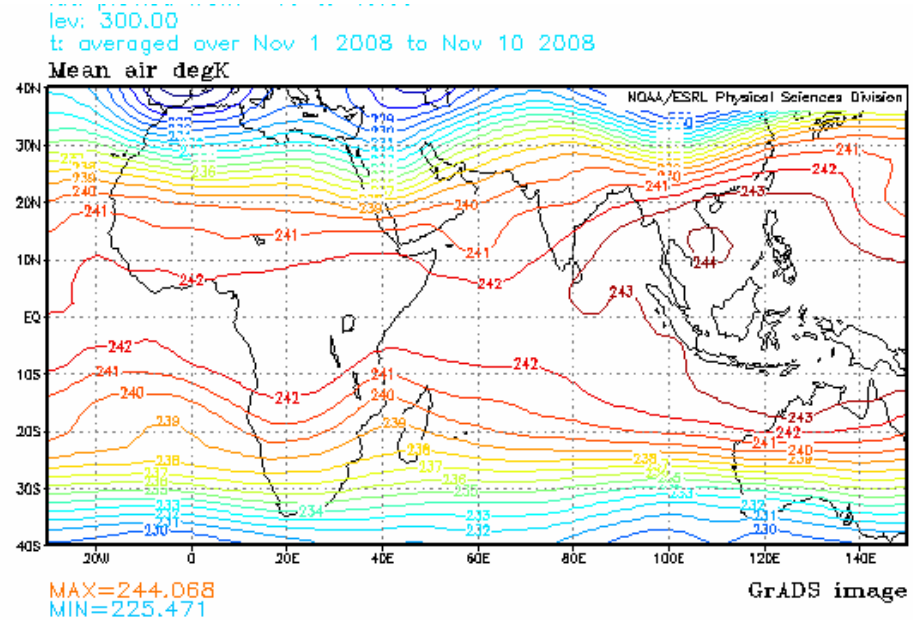
## 1.2. TROPOSPHERE

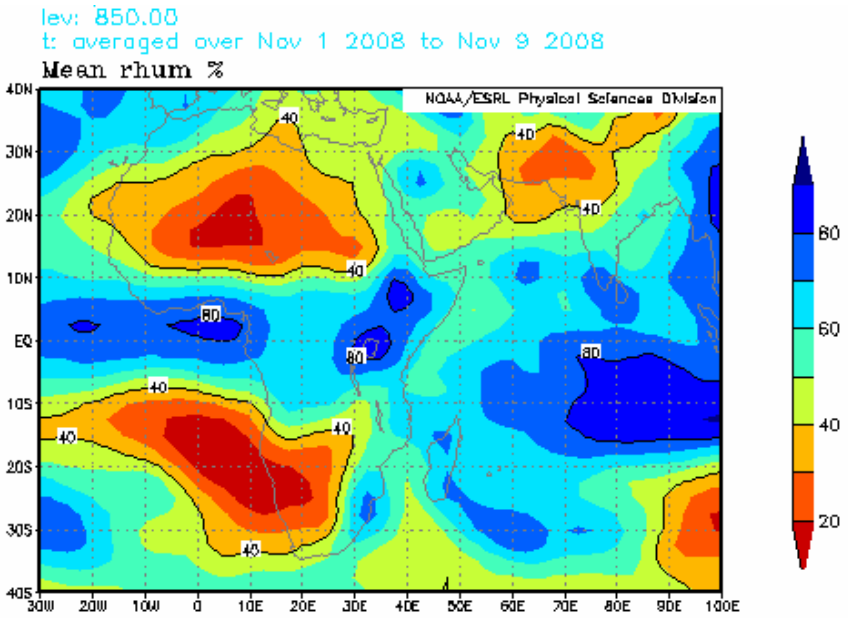
• **Monsoon :** Monsoon influx was weak (1 to 5 m/s) at 925hPa level over Côte d'Ivoire, Ghana and Nigeria.

• **Thermal Index (TI) :** In the first dekad of November, 2008, the thermal index (TI) regime at 300hPa, map shown below, had a near threshold TI regime value of 242°K over Gulf of Guinea countries, central Africa countries and GHA countries extending to about 10°S of Equator maintaining high conditional instability associated with heavy rainfall over areas characterized by high relative humidity as observed below.




**(Data Source: NOAA/NCEP)**

• **Relative Humidity (RH):** The 850hPa map below shows high RH (>70%) in the first dekad of November, 2008 over extreme southern part of Gulf of Guinea countries, northwestern part of central Africa, western and central parts of GHA countries, eastern South Africa northwestern and southeastern Madagascar. The Sahara and the Sahel countries and, the western part of South African countries experienced the lowest RH (<40%).




**(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 November, 2008 shows spatial and intensity of rainfall decrease over north Africa, Sahel countries, Gulf of Guinea countries while Central African countries, GHA countries and Southern African countries experienced significant spatial and intensity of rainfall increase. In summary:

- **North Africa countries :** experienced significant spatial rainfall decrease recording amounts ranging from 10mm to 75mm with localized peaks ranging from 75 to 150mm over north Morocco.

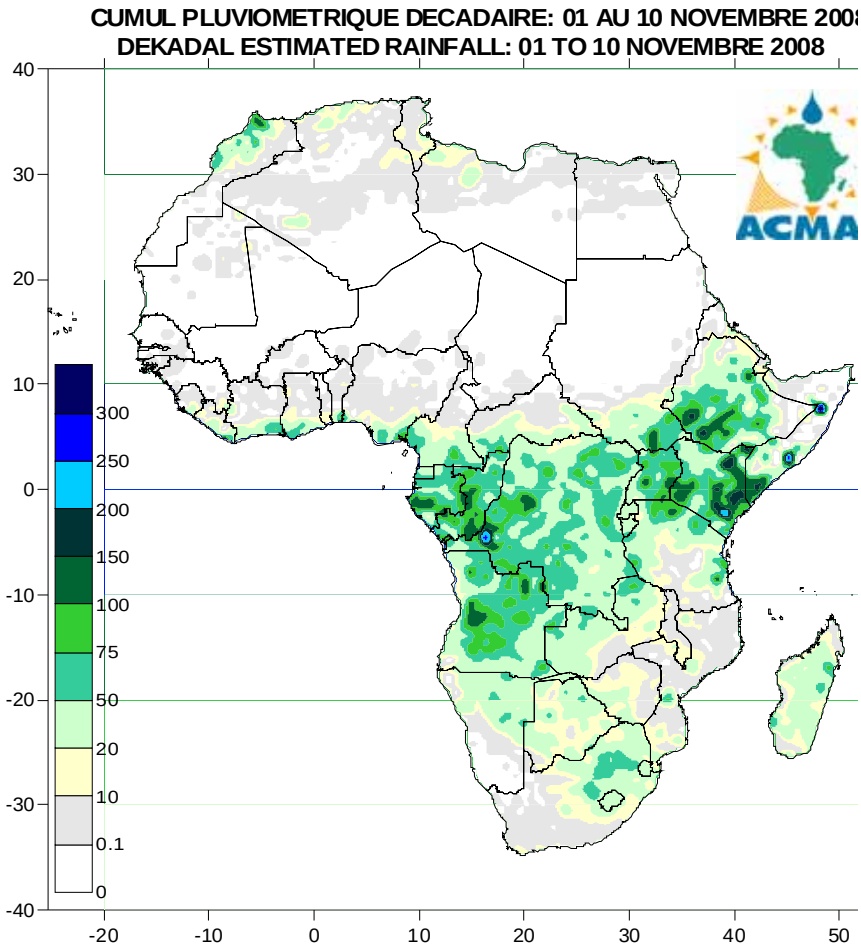
- **The Sahel :** experienced generally dry and dusty condition.

- **Gulf of Guinea countries :** had significant spatial and intensity rainfall decrease recording amounts ranging from 10 to 75mm with localized peaks ranging from 75 to 100mm over the coastal zone.

- **Central Africa countries :** experienced spatial and intensity of rainfall increase recording rainfall amounts ranging from 10mm to 200mm with peaks of above 200mm over western Democratic Republic of Congo.

- **GHA countries :** experienced spatial and intensity of rainfall increase recording amounts ranging from 10 to 150mm with peaks about 200 to 300mm over eastern and southeastern Kenya, eastern Ethiopia and eastern Somalia.

- **Southern Africa countries :** had significant spatial rainfall increase recording amounts ranging from 10 to 100mm over most countries.




**(Data Source: NOAA/NCEP)**

## 2.2 OBSERVED DATA

The Table below shows heavy rainfall recorded over Brazzaville in Congo. The lowest temperature of 9.9°C was recorded at Alger (Dar El-Beida) in Algeria while the highest temperature of 37.7°C was recorded at Niamey in Niger.

| N° | STATIONS | Précipitations (mm) | Number of rainy days | Température max mean (°C) | Température min mean (°C) |
|---|---|---|---|---|---|
| 1 | Abidjan | 107 | 6 | 32,1 | 25,7 |
| 2 | Agadez | 0 | 0 | 34,7 | 19,6 |
| 3 | Alger(Dar El-Beida) | 20 | 1 | 21,0 | 9,9 |
| 4 | Antananarivo | 0 | 0 | 28,1 | 16,5 |
| 5 | Bamako-Senou | 0 | 0 | 35,3 | 16,3 |
| 6 | Bangui | 15 | 5 | 32,6 | 21,1 |
| 7 | Banjul | 0 | 0 | 33,6 | 21,6 |
| 8 | Bilma | 0 | 0 | 35,4 | 13,3 |
| 9 | Bobo Dioulasso | 0 | 0 | 35,0 | 20,7 |
| 10 | Brazzaville | 299 | 6 | 31,0 | 21,9 |
| 11 | Casablanca | 26 | 5 | 18,9 | 12,0 |
| 12 | Conakry | 0 | 0 | 31,6 | - |
| 13 | Cotonou | 13 | 2 | 30,8 | 25,7 |
| 14 | Dakar-Yoff | 0 | 0 | 28,4 | 22,8 |
| 15 | Dar-es-Salaam | 70 | 5 | 30,7 | 21,8 |
| 16 | Douala | 89 | 8 | 31,7 | 24,0 |
| 17 | Entebbe | 17 | 3 | 25,3 | 18,4 |
| 18 | Francistown | 0 | 0 | 33,6 | 21,1 |
| 19 | Harare | 0 | 0 | 30,9 | 16,4 |
| 20 | Johannesbourg | 33 | 7 | 24,9 | 14,1 |
| 21 | Khartoum | 0 | 0 | 36,4 | 22,1 |
| 22 | Kigali | 10 | 1 | 27,3 | - |
| 23 | Kigoma | 39 | 7 | 26,9 | 19,7 |
| 24 | Kinshasa | 37 | 2 | 31,2 | 22,1 |
| 25 | Le Caire | 0 | 0 | 27,6 | 18,3 |
| 26 | Le Cap | 9 | 3 | 19,8 | 13,3 |
| 27 | Libreville | 172 | 7 | 29,0 | 24,9 |
| 28 | Lilongwe | 0 | 0 | 29,7 | 18,1 |
| 29 | Lomé | 17 | 1 | 32,9 | 25,3 |
| 30 | Lusaka | 8 | 1 | 33,7 | 21,6 |
| 31 | Manzini | 33 | 4 | - | 16,5 |
| 32 | Maputo | 19 | 5 | 29,2 | 19,9 |
| 33 | Maseru | 45 | 3 | 26,7 | 12,5 |
| 34 | Maun | 4 | 3 | 34,3 | 23,0 |
| 35 | Mbeya | 7 | 1 | 28,5 | 15,1 |
| 36 | Monrovia | 0 | 0 | 31,3 | 23,6 |
| 37 | Nairobi | 0 | 0 | 25,2 | 15,8 |
| 38 | Nampula | 2 | 1 | 34,8 | 21,4 |
| 39 | N'Djamena | 0 | 0 | 37,2 | 17,8 |
| 40 | Niamey-Aéroport | 0 | 0 | 37,7 | 20,7 |
| 41 | Nouakchott | 0 | 0 | 34,8 | 21,3 |
| 42 | Ouagadougou | 0 | 0 | 34,6 | 19,7 |
| 43 | Plaisance | 33 | 4 | 28,5 | 21,6 |
| 44 | Sal | 0 | 0 | 26,9 | 22,7 |
| 45 | Seretse Khama Airport | 17 | 4 | 31,7 | 18,0 |
| 46 | Seychelles | 16 | 3 | 30,7 | 25,3 |
| 47 | Tamanrasset | 0 | 0 | 27,0 | 12,8 |
| 48 | Tombouctou | 0 | 0 | 35,5 | 19,1 |
| 49 | Tripoli | 0 | 0 | 26,9 | 15,2 |
| 50 | Tunis | 10 | 5 | 24,0 | 13,9 |
| 51 | Windhoek | 4 | 2 | 32,7 | 16,7 |
| 52 | Zinder | 0 | 0 | 35,2 | 19,9 |

Source des données : ACMAD/SMT

NOTE: **0** means no rain;

**-** means no temperature data available

Data Source **:** ACMAD / GTS

## 3. OUTLOOK FOR DEKAD (21th – 30th NOVEMBER, 2008)

### 3.1 RAINFALL

The ITD will maintain southward displacement over north of Gulf of Guinea countries reducing moisture depth resuting in decreased rainfall over Gulf of Guinea countries, but intensify rainfall over central Africa and GHA countries. In summary:

- **North Africa countries :** expected to experience deccreased rainfall with amounts ranging from 10mm to 75mm with isolated peaks of about 100mm.

- **The Sahel :** The Sahel countries will remain generally dry and dusty.

- **Gulf of Guinea countries :** The countries will experience significant rainfall decrease recording rainfall amounts ranging from 10mm to 75mm with peaks of about 100mm.

- **Central Africa countries :** Central African Republic, Cameroon, Democratic Republic of Congo, Gabon, Congo and Equatorial Guinea will experience rainfall increase recording amounts ranging from 20mm to 150mm with peaks of about 200mm and above.

- **GHA countries :** Uganda, west, central and southeastern Kenya, southern Sudan, southern Ethiopia, southern Somalia, western and eastern Tanzania will record rainfall amounts ranging from 10mm to 150mm with peaks of about 200mm and above. The October-November-December (OND), 2008 seasonal rainfall performance will be adversely affected by the evolution of convective activities over eastern Indian Ocean and western Pacific Ocean.

- **Southern Africa countries :** will experience spatial and intensity rainfall increase recording 10mm to 100mm intensifying over north Mozambique and Madagascar with peaks of about 150mm.

### 3.2 TEMPERATURE

The forecast map below shows that the countries north and south of Equator will record the highest temperatures while northern Africa and parts of GHA countries will record the lowest temperatures. The highest forecast temperatures on the map below range from 25°C to 35°C in orange and red colours respectively with more than 75% of the Continent expected to record 20°C and above.

### 3.3 SOIL MOISTURE

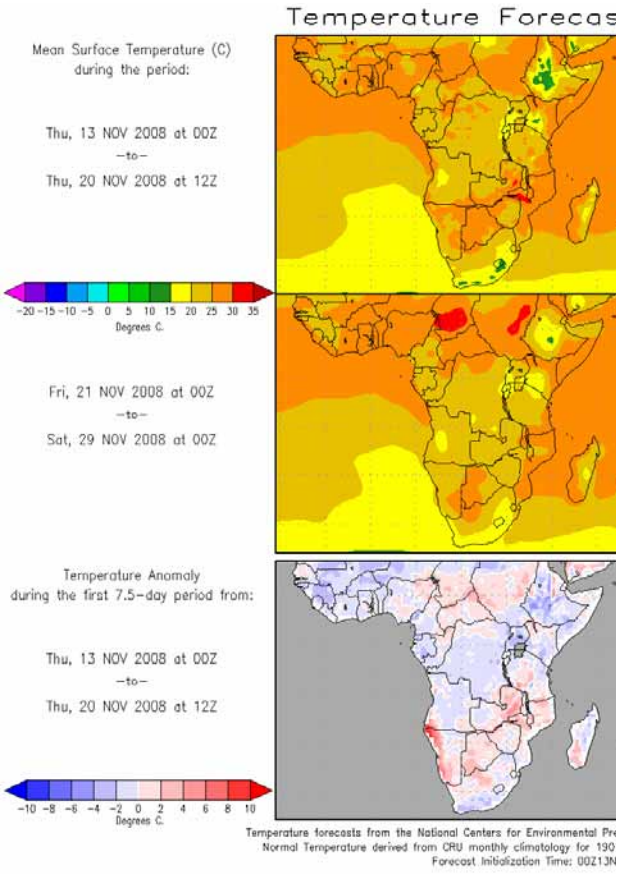
The outlook on soil moisture change, map shown below includes the initial soil moisture and the forecast changes over the next 7 days. The soil moisture change and precipitation relationship is discernable on the maps below. The areas forecast to have highest soil moisture increase are confined within central Africa, few parts of GHA countries and parts of southern Africa countries.

### 3.4 IMPACTS

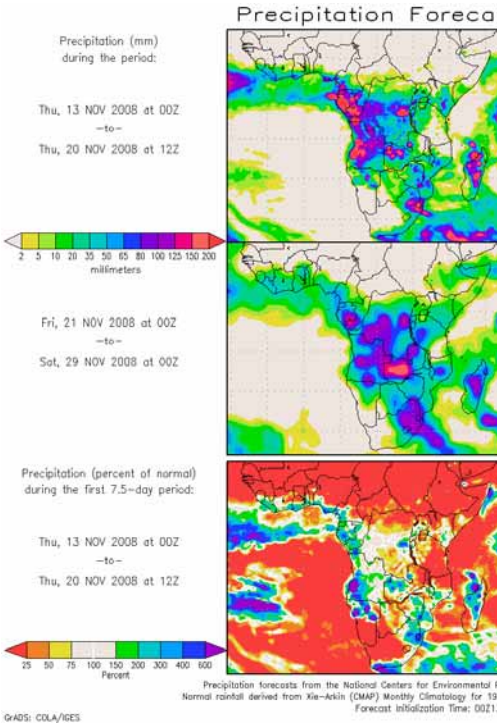
- **Health:** The incidences of malaria and other climate related diseases are higher in areas with high temperatures during rainy periods. The temperatures in the range of 20°C to 28°C with high rainfall (high humidity) favour the survival of the vector and development of the parasite in the vector resulting in high incidences of malaria even in low prevalence areas. The Gulf of Guinea countries, central Africa countries and GHA countries with high humidity/rainfall and the prevailing conducive temperatures support the survival of parasite resulting in higher incidences of vector borne diseases including malaria. The health authorities need to continue the health care services to protect lives of the vulnerable communities.

- **Agriculture and food security:** The applications of climate information in agricultural production are of crucial importance. We often emphasize on the importance of well documented onset and cessation dates of seasonal rainfall as well as monitoring of the phenological stages of crops for crop yield assessments in our countries. However, it is also important to carry out cost benefit analysis on determination and applications of appropriate planting dates in order to take full 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 major 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. There is also a need to invest in higher yielding crops during a good rainy season by taking advantage, for example from forecasts issued by regional climate outlook forum (RCOF) such as the PRESAO, PRESAC, GHACOF and SARCOF.

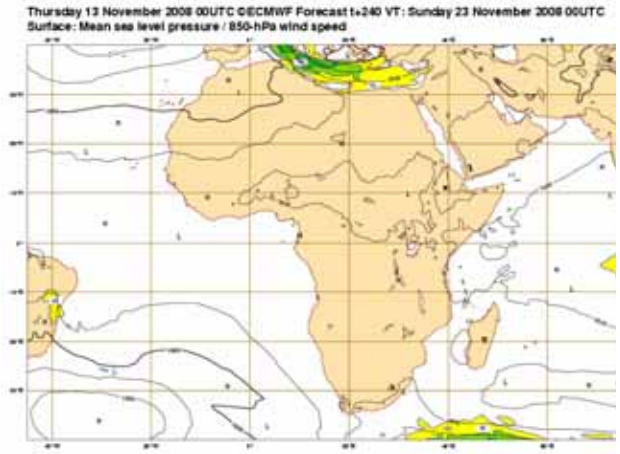
- **African Natural Ecosystems :** There is a need to invest in the rehabilitation of our presently degraded rainfall catchments areas within our natural ecosystems through enhanced national heritage conservation strategies such as national tree planting, afforestation and soil conservation programmes during rainy seasons to minimise soil loss due to heavy runoff.



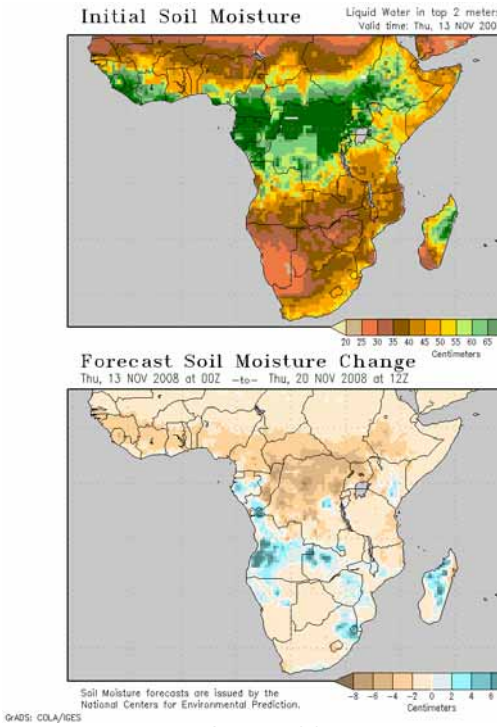

**Source : COLA**




**Source : COLA**




**Source: ECMWF**




**Source: COLA**