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

Ten Day Climate Bulletin
N° 30 Year 2008

Dekad of 21 to 31 October, 2008

HIGHLIGHT: The highest rainfall intensity was experienced over parts of Greater Horn of Africa (GHA) countries with the heaviest rainfall recorded over southeast Ethiopia. The northern African countries also experienced significant rainfall increase with southern Africa countries getting some relief with the most significant widespread rainfall over Madagascar.

1. GENERAL SITUATION :

1.1 SURFACE

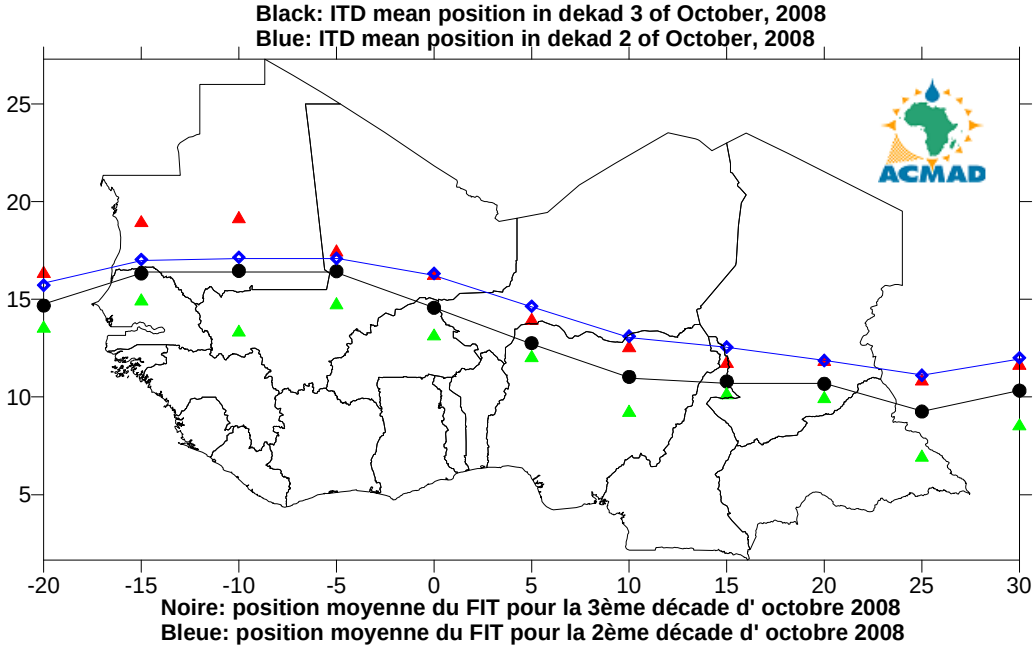
- **Azores high:** Pressure at 1034hPa strengthened significantly by 9hPa compared to the last dekad and shifted to the north. Its mean position was observed at 42°N/26°W with an ridge extended over south Morocco.

- **St. Helena high:** Pressure at 1029hPa strengthened by 2hPa and shifted to the southeast at 35°S/01°W with an extended ridge over south Atlantic Ocean.

- **Mascarene high:** Pressure at 1029hPa strengthened by 3hPa compared to the previous dekad and shifted to the south at 36°S/61°E with an extended ridge over Indian Ocean.

- **Saharan thermal low:** Pressure at 1009hPa filled up slightly by 1hPa compared to the past dekad and shifted to the west at 14°N/00°W with an extended trough over central Mali, north Burkina Faso, southwest Niger and south Chad.

- **Inter-Tropical Discontinuity (ITD) :** Between the second and the third dekad of October, 2008, the ITD continued its southward migration over the Sahel with more displacement over its eastern part. It's mean position was observed at 14.7°N over longitude 20°W; at 16.3°N over extreme north Senegal; at 16.5°N over south Mauritania; at 16.4°N over west Mali; at 14.6°N over extreme north Burkina Faso; at 12.8°N and 11.0°N over extreme northwest and north Nigeria respectively; at 10.8°N over extreme northeast Cameroon; at 10.7°N over southeast Chad; at 9.3°N and 10.3°N over southwest and central Sudan respectively.



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

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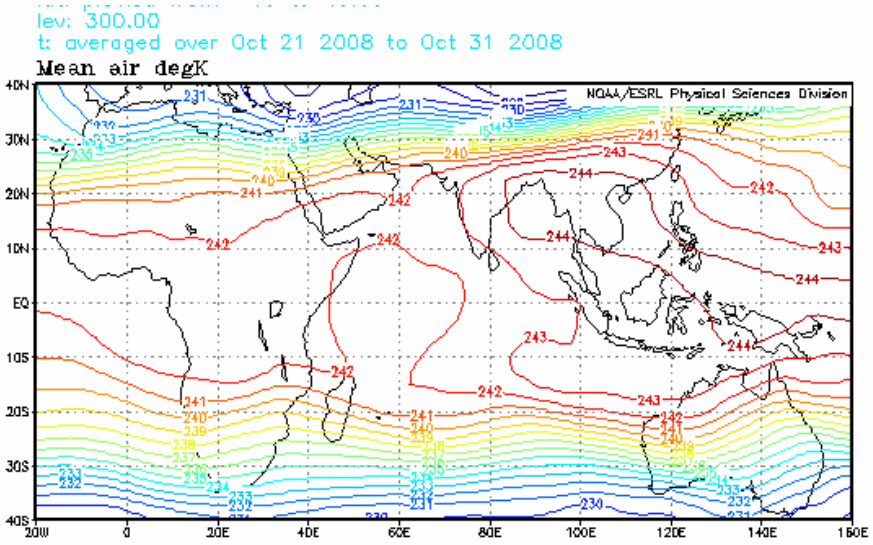
1.2. TROPOSPHERE

- **Monsoon :** Monsoon influx was weak (1 to 5 m/s) at 925hPa level over south Liberia, south Nigeria and southwest Cameroon.

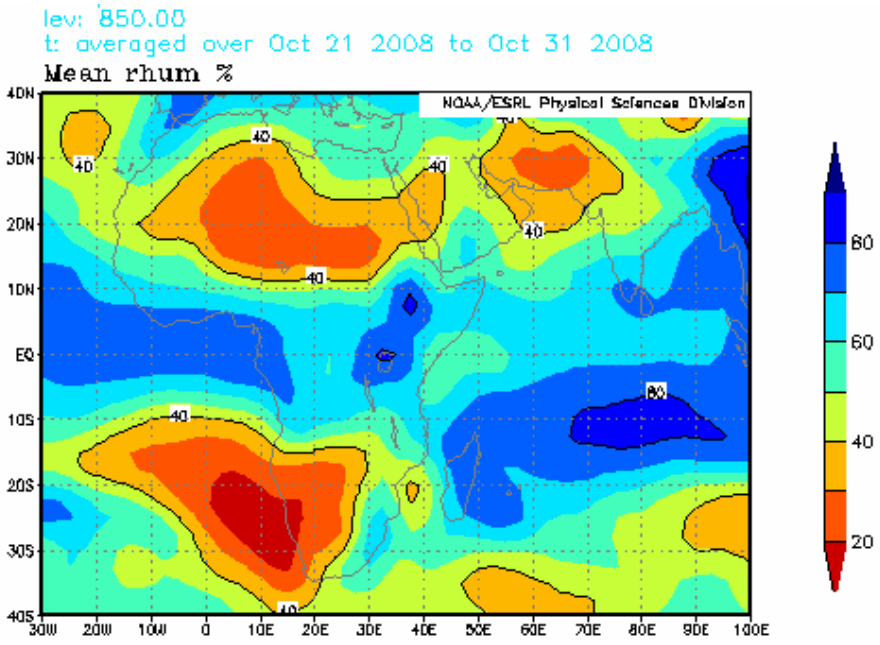
- **African Easterly Jet (AEJ) at 700hPa :** The African Easterly Jet mean speed was not significant during the decade.

- **Thermal Index (TI) :** In the third dekad of October, 2008, the thermal index (TI) regime at 300hPa, map shown below, had a near threshold TI regime value of 242°K over extreme south of Sahel countries, Gulf of Guinea countries, central Africa countries and GHA countries, that maintained 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 (>80%) in the third dekad of October, 2008 over extreme southern part of Gulf of Guinea countries, western part of central Africa, central parts of GHA countries and over Madagascar. The lowest RH (<40%) are over Sahel countries, the Sahara and western part of South African 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 October, 2008 shows spatial and intensity of rainfall increase over north Africa, GHA countries and southern African countries while the Sahel, Gulf of Guinea and Central African countries experienced significant decrease. In summary:

- **North Africa countries :** experienced significant spatial rainfall increase over north Algeria and Morocco recording amounts ranging from 10mm to 100mm with localised peaks ranging from 100 to 200mm.

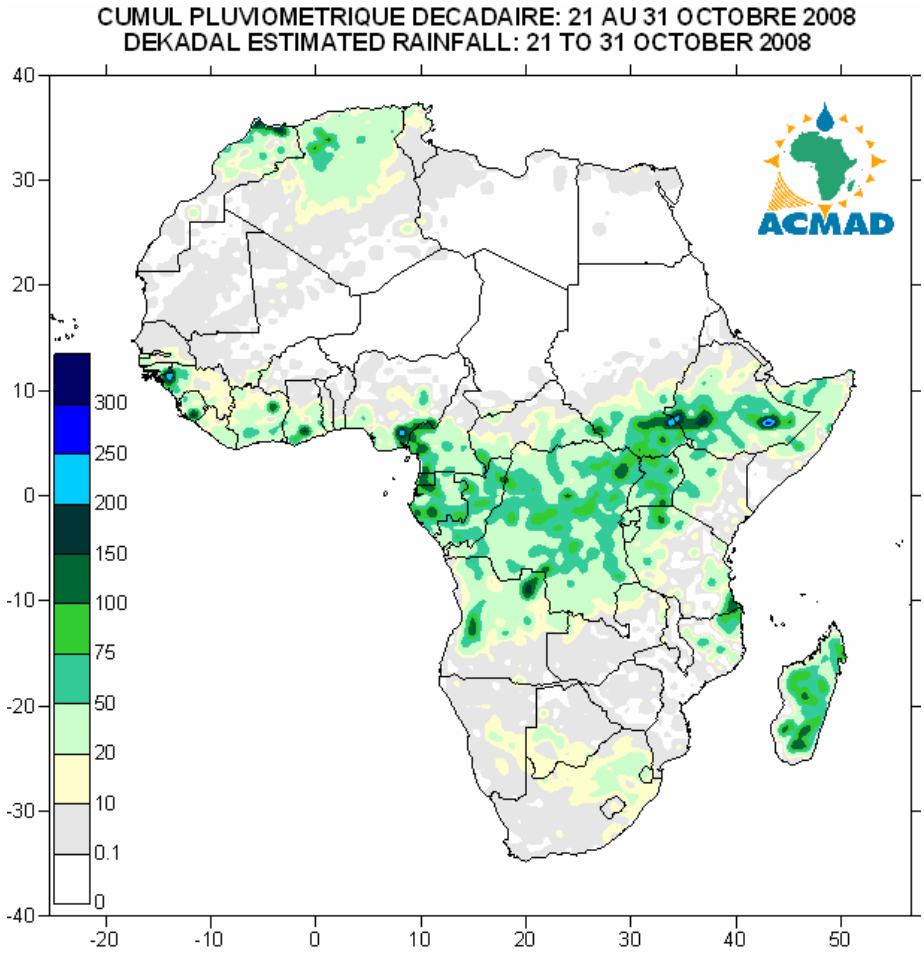
- **The Sahel :** had significant spatial and intensity rainfall decrease recording amounts ranging from 10mm to 50mm over the extreme southern part. However, some heavy rainfall amounts of about 200mm was recorded over Guinea.

- **Gulf of Guinea countries :** had significant spatial and intensity rainfall decrease recording amounts ranging from 10mm to 100mm with localized peaks ranging from 100 to 200mm northeast Côte d'Ivoire, southeast Nigeria, west Cameroon and Ghana with heaviest amount above 200mm over Nigeria.

- **Central Africa countries :** experienced slight spatial rainfall decrease recording rainfall amounts ranging from 10mm to 100mm with some peaks ranging between 150 to 200mm.

- **GHA countries :** experienced spatial and intensity of rainfall increase recording amounts ranging from 10mm to 150mm with peaks between 200 to 300mm over southeast Sudan and southeast Ethiopia.

- **Southern Africa countries :** had spatial and intensity of rainfall increase recording rainfall amounts ranging from 10mm to 75mm over South Africa, Namibia, Botswana, north Mozambique with peaks of between 100mm to 200mm over Madagascar.



(Data Source: NOAA/NCEP)

2.2 OBSERVED DATA

The Table below shows heavy rainfall recorded over Brazzaville in Congo and Douala in Cameroon. The lowest temperatures of 12.3°C was recorded at Maseru in Lesotho while the highest temperatures of 38.7C was recorded in Niamey, Niger.

N°	STATIONS	Précipitations (mm)	Nombre de jours de pluie	Température maxi moyenne (°C)	Température mini moyenne (°C)
1	Abidjan	17	4	32,7	25,9
2	Abuja	15	1	-	-
3	Addis Abéba	14	1	-	-
4	Agadez	0	0	35,6	21,5
5	Alger(Dar El-Beida)	20	6	24,1	13,7
6	Antananarivo	92	5	26,5	15,6
7	Antsiranana	15	2	32,3	22,2
8	Bamako-Senou	9	2	34,8	22,1
9	Bangui	9	1	32,8	21,8
10	Banjul	0	0	31,9	22,5
11	Bilma	0	0	35,3	15,7
12	Bobo Dioulasso	0	0	34,4	22,6
13	Brazzaville	146	6	30,5	21,8
14	Bujumbura	3	1	-	-
15	Casablanca	72	5	20,2	14,4
16	Conakry	2	1	31,0	-
17	Cotonou	20	5	31,5	25,5
18	Dakar-Yoff	2	1	29,4	24,1
19	Dar-es-Salaam	74	2	31,6	21,3
20	Douala	114	6	30,8	24,0
21	Entebbe	38	5	25,6	18,6
22	Francistown	0	0	32,0	17,9
23	Harare	0	0	31,2	13,9
24	Johannesbourg	34	3	25,7	13,1
25	Khartoum	0	0	36,5	24,0
26	Kigali	18	4	27,1	16,9
27	Kigoma	24	2	29,5	20,6
28	Kinshasa	86	6	30,8	21,0
29	Le Caire	1	1	26,0	18,3
30	Le Cap	0	0	21,1	12,5
31	Libreville	77	7	29,3	24,3
32	Lilongwe	0	0	-	17,3
33	Lomé	19	3	32,6	25,0
34	Lusaka	0	0	31,6	17,3
35	Manzini	13	5	-	15,9
36	Maputo	4	4	29,3	19,9
37	Maseru	6	1	-	12,3
38	Maun	0	0	37,2	23,2
39	Mbeya	0	0	27,4	14,3
40	Monrovia	0	0	31,3	23,8
41	Nairobi	6	1	25,8	16,2
42	Nampula	9	1	33,8	21,6
43	N'Djamena	0	0	38,4	21,3
44	Niamey-Aéroport	0	0	38,7	22,8
45	Nouakchott	0	0	32,2	20,8
46	Ouagadougou	0	0	36,4	23,4
47	Plaisance	11	5	27,2	21,9
48	Sal	0	0	28,0	22,5
49	Seretse Khama Airport	2	1	32,2	-
50	Seychelles	37	4	30,5	25,1
51	Tamanrasset	0	0	28,3	17,3
52	Toalagnaro	28	4	28,1	21,8
53	Tombouctou	0	0	38,5	23,2
54	Tripoli	0	0	31,2	19,9
55	Tunis	6	6	27,3	18,2
56	Windhoek	36	6	29,9	15,9
57	Zinder	0	0	36,3	21,9

NOTE: **0** means no rain;

- means no temperature data available Data Source **:** ACMAD / GTS

3. OUTLOOK FOR DEKAD (11th – 20th NOVEMBER, 2008)

3.1 RAINFALL

The ITD will maintain southward displacement over central and eastern parts over the Sahel. Rainfall is expected to decrease over Gulf of Guinea countries and intensify over central Africa and GHA countries. In summary:

- **North Africa countries :** expected to experience increase recording rainfall ranging from 10mm to 100mm with isolated peaks of about 150mm.

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

- **Gulf of Guinea countries :** The countries will experience significant rainfall decrease except over Liberia, Ivory Coast, Ghana, Benin, Togo and Nigeria coastal parts that will record 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 and above 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 experience general increase recording rainfall amounts ranging from 10mm to 75mm with peaks of about 100mm 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 75mm intensifying over north Mozambique and Madagascar with peaks of about 100mm.

3.2 TEMPERATURE

The forecast map below shows that the countries north and south of Equator will record the highest temperatures while few parts of Southern Africa and 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

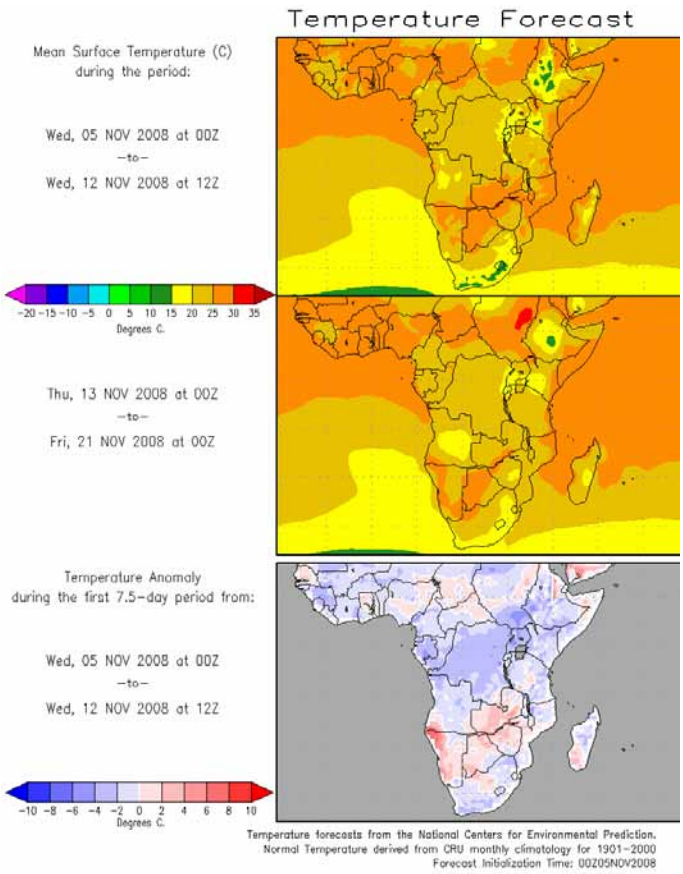
The outlook on soil moisture change, map shown below includes the initial soil moisture and the forecast changes over the next 7 days. The soil moisture change and precipitation relationship is discernable on the maps below. The areas forecast to have highest soil moisture increase are confined within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

3.4 IMPACTS

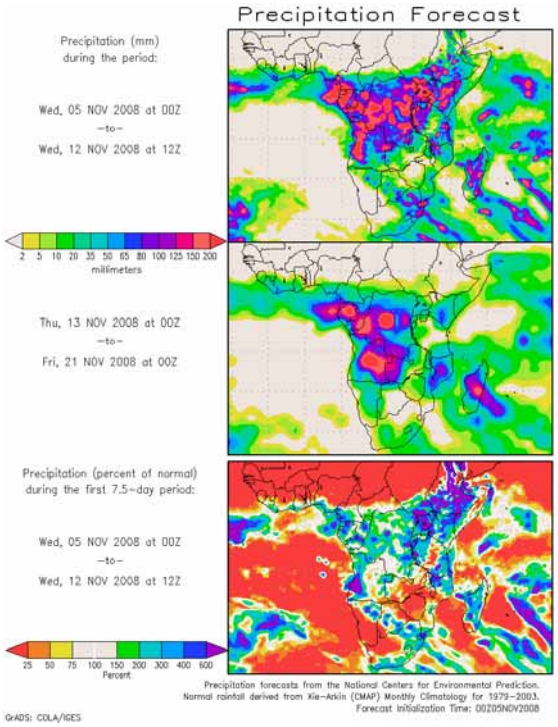
- **Health:** The incidences of malaria and other climate related diseases are higher in areas with high temperatures during rainy periods. The temperatures in the range of 20°C to 28°C with high rainfall (high humidity) favour the survival of the vector and development of the parasite in the vector 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 high 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.

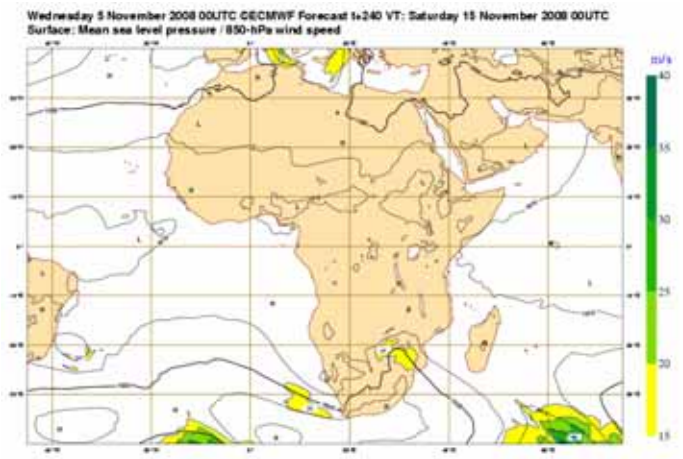
- **African Natural Ecosystems :** There is a need to invest in the rehabilitation of our presently degraded rainfall catchments areas within our natural ecosystems through enhanced national heritage conservation strategies such as national tree planting, afforestation and soil conservation programmes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



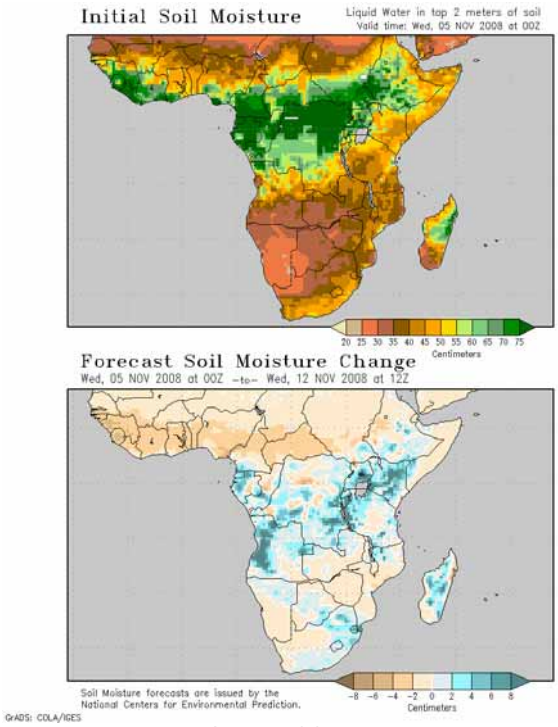
Source : COLA



Source : COLA



Source: ECMWF



Source: COLA