



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

Ten Day Climate Bulletin N° 32 Year 2008

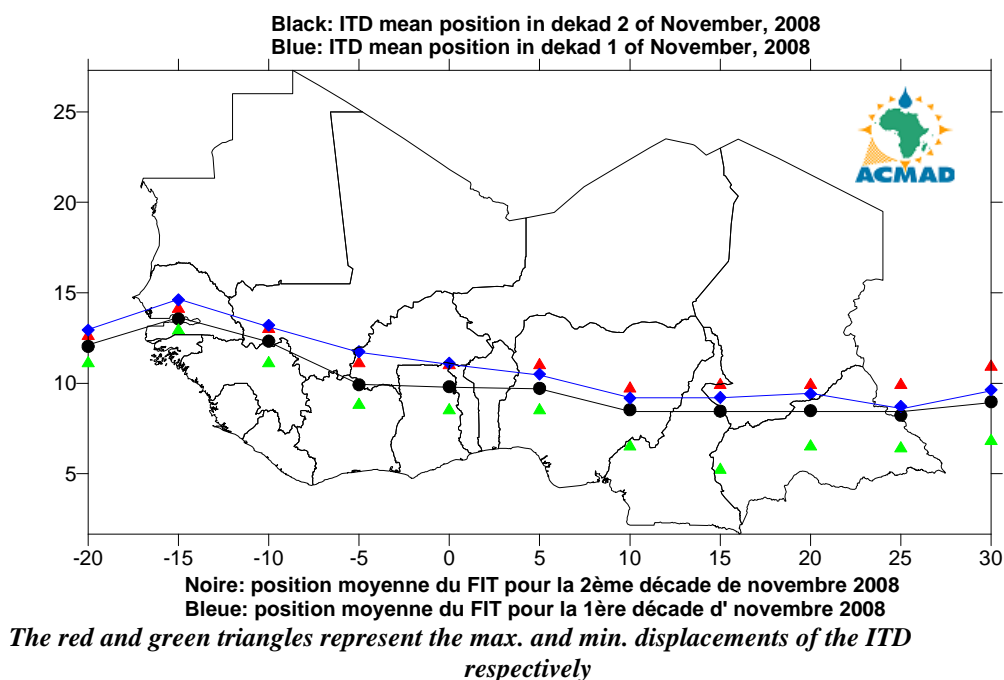
Dekad of 11 to 20 November, 2008

HIGHLIGHT: The highest rainfall amount of 126mm associated with highest relative humidity was recorded over Gabon

1. GENERAL SITUATION :

1.1 SURFACE

- **Azores high:** Pressure at 1036hPa strengthened significantly by 8hPa compared to the last dekad and shifted northward. Its mean position was observed at 46°N/18°W with a ridge over Morocco, north Mali. and south Algeria.
- **St. Helena high:** Pressure at 1029hPa strengthened slightly by 1hPa and shifted east at 36°S/03°W with an extended ridge over south Atlantic Ocean.
- **Mascarene high:** Pressure at 1024hPa weakened by 4hPa compared to the previous dekad and shifted northeast at 37°S/64°E with an extended ridge over Indian Ocean.
- **Saharan thermal low:** Pressure at 1009hPa maintained its intensity compared to the past dekad and shifted west at 11°N/01°E with an extended trough over southwest Niger and south Chad.
- **Inter-Tropical Discontinuity (ITD) :** Between the first and second dekad of October, 2008, the ITD had slight southward migration over the western part of the Sahel, north and central Gulf of Guinea countries. It's mean position was observed at 12.0°N over longitude 20°W; at 13.6°N over south Senegal; at 12.3°N over southwest Mali; at 9.9°N over extreme southwest Burkina Faso; at 9.8°N over extreme northeast Ghana; at 8.5°N over west and southeast Nigeria respectively; at 8.5°N over southwest Chad; at 8.5°N over north Central African Republic; at 8.2°N and 9.0 southwest and south Sudan respectively.

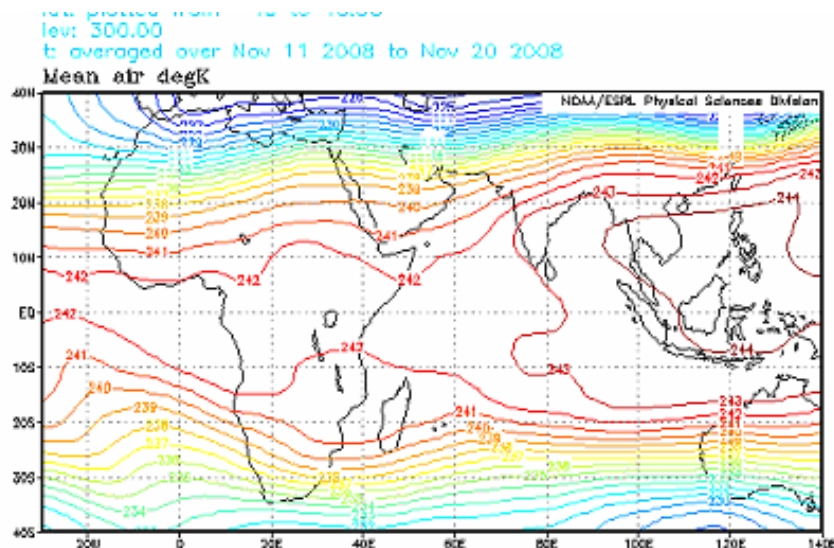


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1.2. TROPOSPHERE

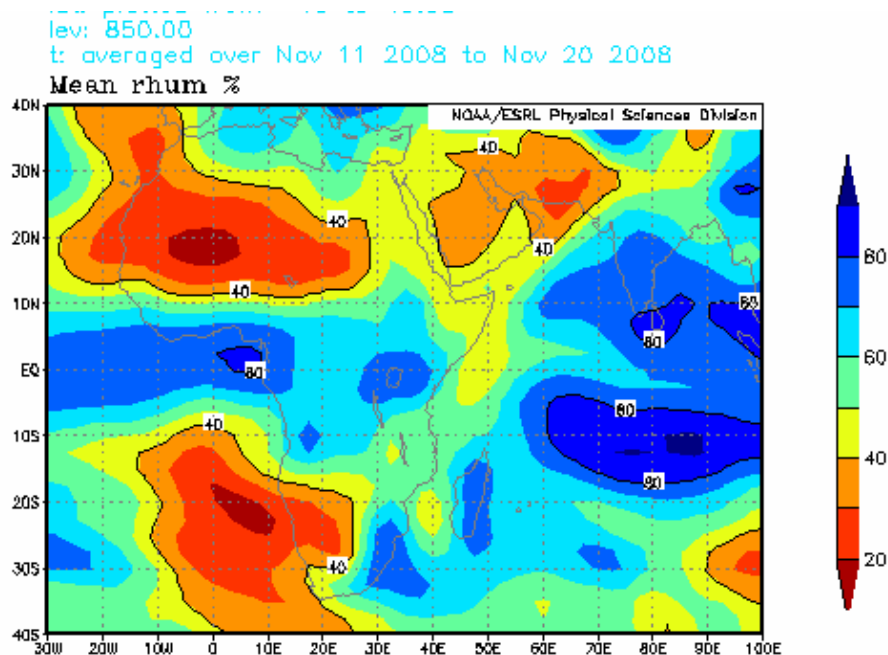
- **Monsoon** : Monsoon influx was weak (1 to 5 m/s) at 925hPa level over Sierra Leone, Liberia, southeast Nigeria and southwest Cameroon.

- **Thermal Index (TI)** : In the second 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 southern part of Gulf of Guinea countries, central Africa countries, part of GHA countries and northern part of Southern African countries 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 second dekad of November, 2008 over extreme southern part of Gulf of Guinea countries, parts of central Africa, western parts of GHA countries, eastern South Africa and eastern Madagascar. The Sahara and the Sahel countries and the western part of South African countries experienced dry conditions with the lowest RH (<40%).



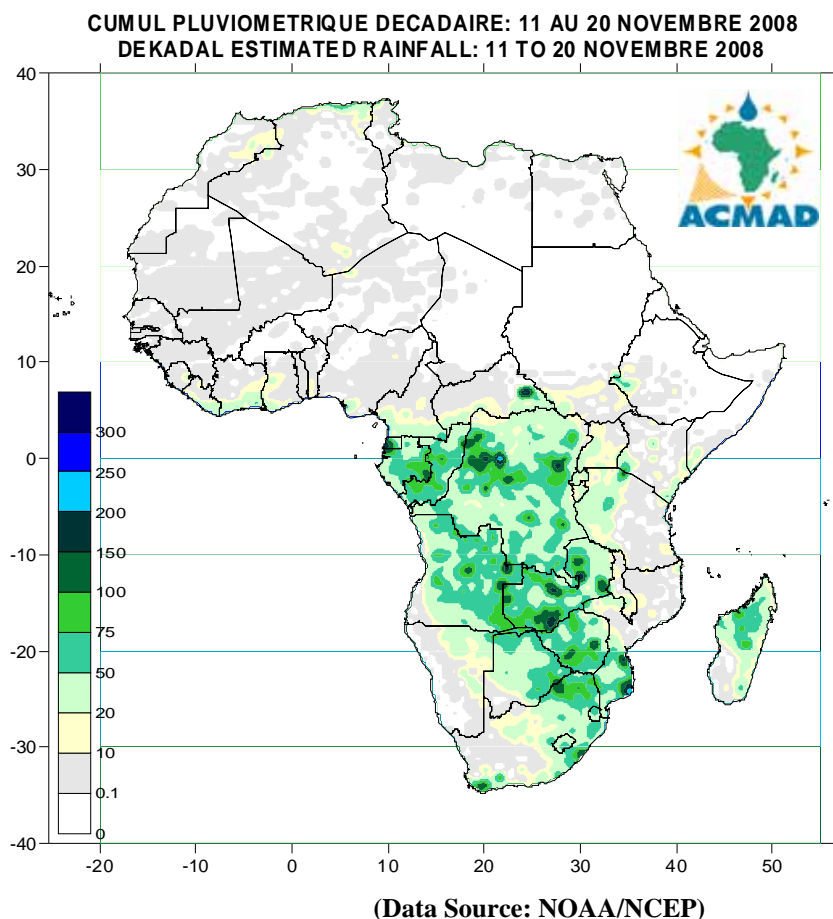
(Data Source: NOAA/NCEP)

2. RAINFALL AND TEMPERATURE SITUATION

2.1 RAINFALL

The rainfall estimate based on Satellite and Rain Gauge on the map below for the second dekad of November, 2008 shows spatial and intensity of rainfall decrease over north Africa, Gulf of Guinea countries and GHA countries while Southern African countries experienced significant spatial and intensity of rainfall increase. In summary:

- **North Africa countries** : experienced spatial and intensity of rainfall decrease recording amounts ranging from 10mm to 50mm over extreme north Morocco and Algeria.
- **The Sahel** : experienced generally dry and dusty condition.
- **Gulf of Guinea countries** : had significant spatial rainfall decrease recording amounts ranging from 10mm to 75mm over the coastal zone.
- **Central Africa countries** : had rainfall amounts ranging from 10mm to 200mm with peaks of above 200mm over central Democratic Republic of Congo.
- **GHA countries** : experienced significant spatial and intensity of rainfall decrease recording amounts ranging from 10 to 75mm with localized peaks of about 100mm.
- **Southern Africa countries** : had significant spatial and intensity of rainfall increase recording amounts ranging from 10 to 150mm over most countries with a major peak of above 150mm over southeastern Mozambique.



2.2 OBSERVED DATA

The Table below shows heavy rainfall recorded over Libreville in Gabon. The lowest temperature of 6.0°C was recorded at Addis Ababa in Ethiopia while the highest temperature of 37.9°C was recorded at Khartoum in Sudan.

N°	STATIONS	Precipitation (mm)	Number of rainy days	Temperature Max mean (°C)	Temperature min mean (°C)
1	Abidjan	57	4	32,5	25,6
2	Abuja	0	0	35,4	20,2
3	Accra	21	2	32,0	24,6
4	Addis Abéba	0	0	22,3	6,0
5	Agadez	0	0	32,6	15,9
6	Alger(Dar El-Beida)	79	7	18,8	9,7
7	Antananarivo	0	0	28,0	17,9
8	Bamako-Senou	0	0	35,3	15,5
9	Bangui	12	1	32,9	20,1
10	Banjul	0	0	33,9	20,8
11	Bilma	0	0	31,2	9,7
12	Bissau	0	0	32,8	-
13	Bobo Dioulasso	0	0	33,9	20,5
14	Brazzaville	46	5	30,9	22,5
15	Casablanca	0	0	19,0	10,8
16	Conakry	0	0	31,6	-
17	Cotonou	0	0	31,9	25,1
18	Dakar-Yoff	0	0	29,3	22,0
19	Dar-es-Salaam	0	0	32,3	23,7
20	Douala	13	2	31,0	23,7
21	Entebbe	0	0	26,4	19,1
22	Francistown	5	3	31,5	18,7
23	Harare	29	4	27,6	17,1
24	Johannesbourg	39	6	25,2	13,8
25	Khartoum	0	0	37,9	23,3
26	Kigali	7	2	26,8	15,7
27	Kigoma	18	3	27,5	19,7
28	Kinshasa	37	4	30,4	22,5
29	Le Caire	0	0	25,4	16,2
30	Le Cap	15	3	18,0	13,2
31	Libreville	126	8	27,5	23,7
32	Lilongwe	1	1	31,4	18,7
33	Lomé	0	0	33,5	25,0
34	Lusaka	58	3	30,6	19,4
35	Manzini	43	6	-	18,2
36	Maputo	58	6	30,3	22,2
37	Maseru	46	4	26,4	12,4
38	Maun	5	1	30,0	20,6
39	Mbeya	24	3	27,0	14,1
40	Monrovia	0	0	31,0	23,8
41	Nairobi	18	2	25,6	15,1
42	Nampula	0	0	36,8	22,2
43	N'Djamena	0	0	35,3	18,8
44	Niamey-Aéroport	0	0	35,6	19,2
45	Nouakchott	0	0	35,2	20,6
46	Ouagadougou	0	0	35,1	18,4
47	Plaisance	19	3	28,5	21,5
48	Sal	0	0	27,8	22,3
49	Seretse Khama Airport	44	6	30,3	17,6
50	Seychelles	82	4	30,0	24,8
51	Tamanrasset	0	0	24,4	9,7
52	Tombouctou	0	0	34,4	18,1
53	Tripoli	5	2	22,2	9,8
54	Tunis	16	4	21,6	12,9
55	Windhoek	0	0	31,3	15,3
56	Zinder	0	0	33,1	17,6

NOTE: 0 means no rain;

- means no temperature data available

Data Source : ACMAD / GTS

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

3.1 RAINFALL

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

- **North Africa countries** : expected to experience slight spatial increase in rainfall with amounts ranging from 10mm to 75mm over north Morocco, Algeria and Tunisia.
- **The Sahel** : The Sahel countries will remain generally dry with localised dusty episodes.
- **Gulf of Guinea countries** : The countries will experience slight spatial rainfall increase recording amounts ranging from 10mm to 75mm over coastal zone with peaks of about 100mm over Liberia, Côte d'Ivoire, southwest Nigeria and Cameroon.
- **Central Africa countries** : Democratic Republic of Congo, Gabon, Congo, Angola and Equatorial Guinea will experience rainfall increase recording amounts ranging from 20mm to 200mm with localized peaks of about 300mm and above.
- **GHA countries** : Great lakes countries, Kenya, extreme south Sudan, extreme south Ethiopia, south Somalia, and Tanzania will record rainfall amounts ranging from 10mm to 200mm with some peaks of about 300mm 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 Zambia, Zimbabwe, Malawi, north Mozambique and Madagascar with peaks of about 300mm.

3.2 TEMPERATURE

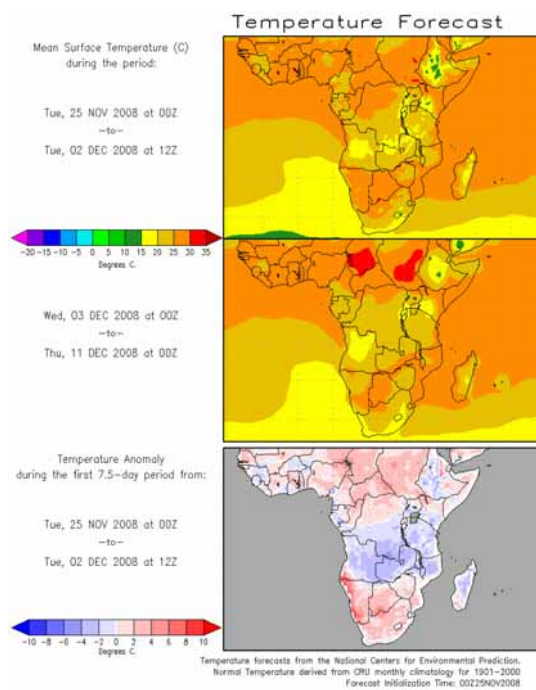
The forecast map below shows that the countries north and south of Equator will record the highest temperatures while northern Africa and parts of GHA countries will record the lowest temperatures. The highest forecast temperatures on the map below range from 25°C to 35°C in orange and red colours respectively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

3.3 SOIL MOISTURE

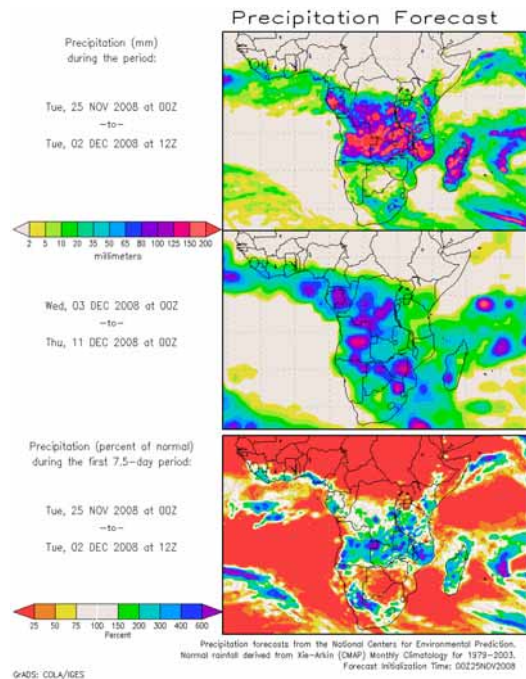
The outlook on soil moisture change, map shown below includes the initial soil moisture and the forecast changes over the next 7 days. The soil moisture change and precipitation relationship is discernable on the maps below. The areas forecast to have high soil moisture increase are confined within central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

3.4 IMPACTS

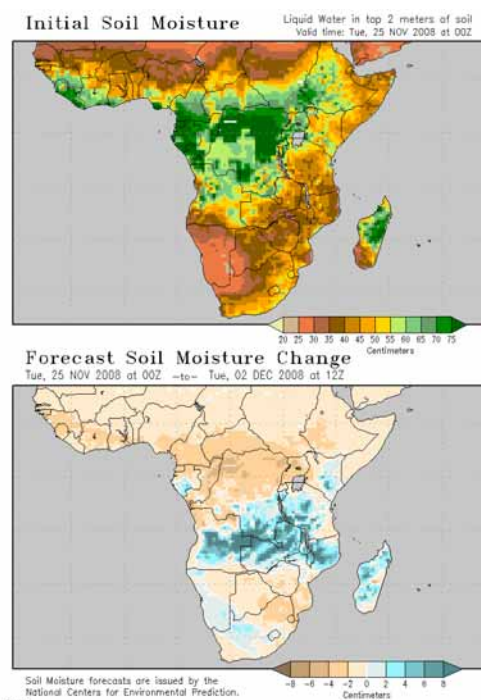
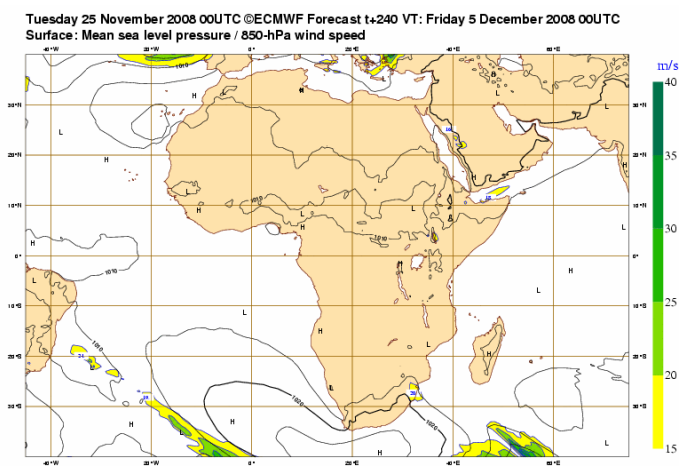
- **Health**: The incidences of malaria and other climate related diseases are higher in areas with high temperatures during rainy periods. The temperatures in the range of 18°C to 32°C with high rainfall (high humidity) favour the survival of the vector and development of the parasite in the vector 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



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Source: COLA