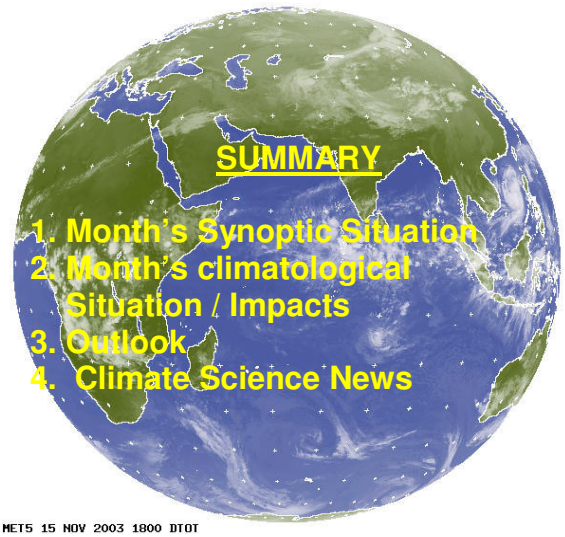
AFRICAN CENTRE OF METEOROLOGICAL APPLICATIONS FOR DEVELOPMENT
CENTRE AFRICAIN POUR LES APPLICATIONS DE LA METEOROLOGIE AU DEVELOPPEMENT

CLIMATE WATCH AFRICA BULLETIN

N° 12
DECEMBER 2008



HIGHLIGHTS: The highest rainfall peaks of about 400mm were recorded over Mozambique and Zambia, while, the highest temperature anomalies of above 2.5°C were observed over Niger, Nigeria, Chad and Cameroon.

1. SITUATION DURING THE MONTH OF DECEMBER, 2008

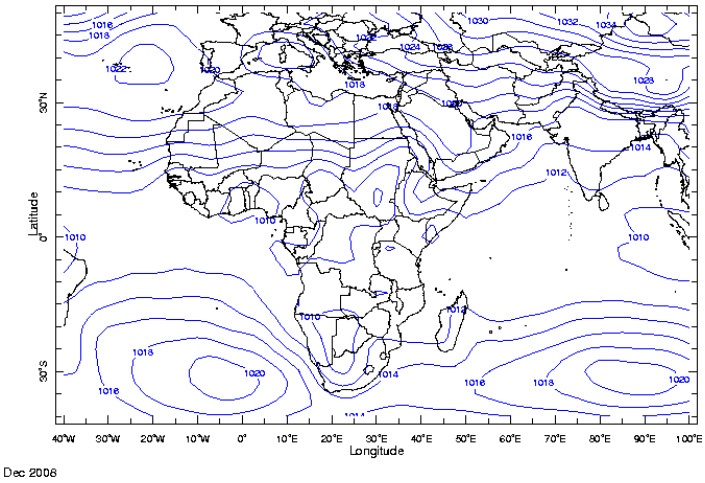
1.1 Centres of Anticyclone

The Azores high pressure at 1022Pa weakened significantly by 6hPa and shifted to the southwest at about 40°N/28°W.

The St Helena high pressure at 1020hPa weakened by 2hPa compared to the previous month and shifted to the west at 35°S/05°W.

The thermal low of 1010hPa maintained its strength compared to the past month, covering a limited area over southeast Burkina Faso, Ghana, Togo, Benin, east Côte d'Ivoire, west Nigeria, south Chad, north Cameroon, south Sudan, Central African Republic and north Democratic Republic of Congo, Congo, and south Gabon.

The Mascarene high pressure at 1020hPa weakened by 4hPa compare to the past month and shifted its centre to the west at 35°S/90°E with a weak ridge over eastern part of Southern African countries.



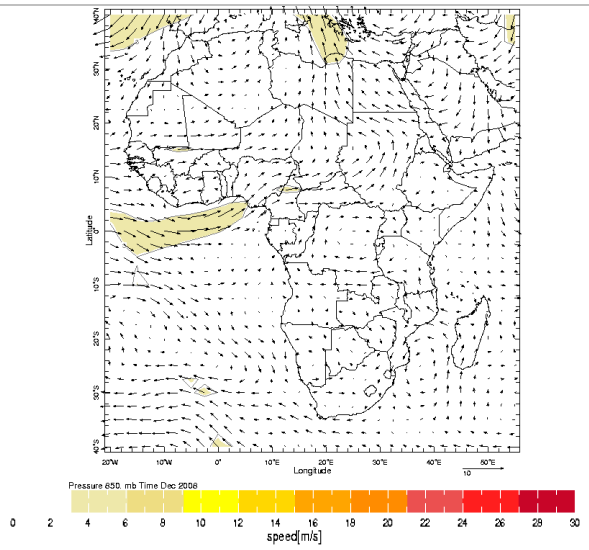
Mean surface pressure during the Month of December, 2008 (Source : IRI)

1.2 Low level wind anomaly flow at 850hPa

At 850hPa level, the strong northeasterly winds anomalies were observed over northeastern Atlantic Ocean, while, westerlies winds anomalies prevailed over Gulf of Guinea region.

Over Mediterranean sea strong southerlies winds anomalies were observed.

The average wind anomaly speed (shaded) was observed at about 08 m/s and above.

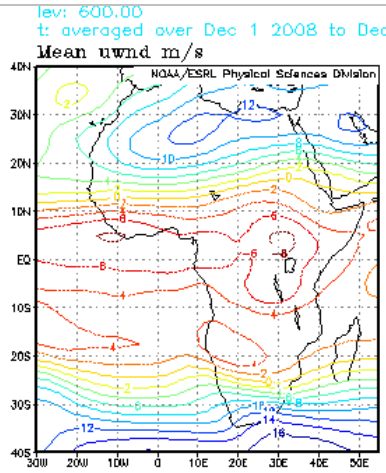


December 2008, Wind Anomalies at 850Hpa (Source : NOAA/NCEP)

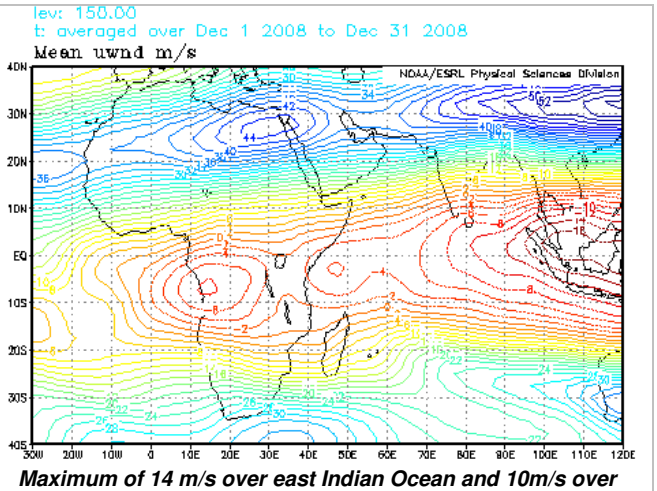
1.3 Mid and upper level winds

At the 600hPa over Gulf of Guinea and western a wind core of 08 m/s with axis located at about 05°N.

The mean maximum wind speed at 150hPa was 14 m/s over eastern Indian Ocean with secondary peak of about 10 m/s over western part of central Africa countries.



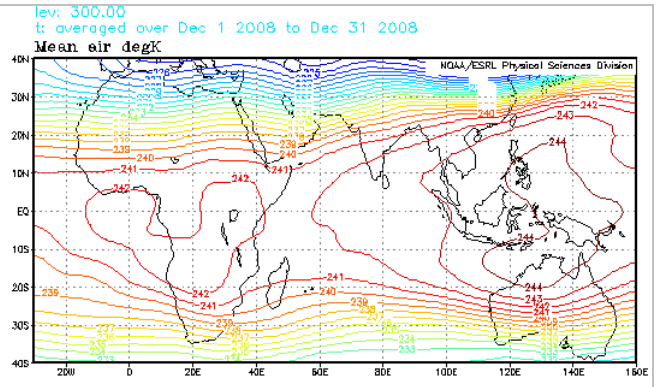
Maximum of 08m/s over Gulf of Guinea and western part of GHA countries. (Source : NOAA/NCEP)



Maximum of 14 m/s over east Indian Ocean and 10m/s over west central Africa (Source : NOAA/NCEP)

1.4 Thermal index

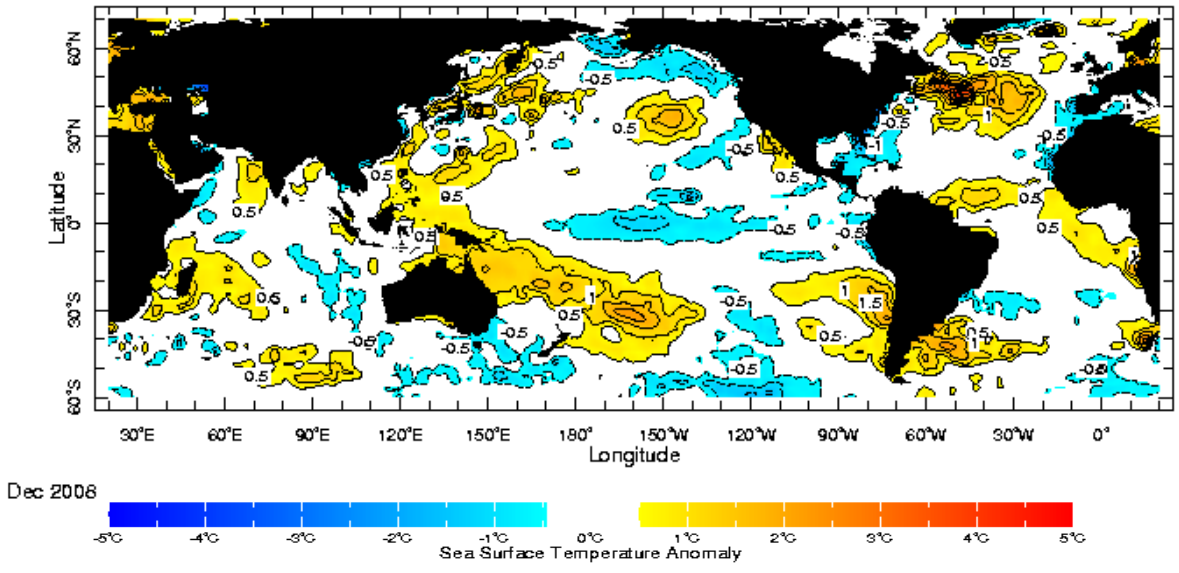
In the month of December, 2008, the thermal index (TI) regime at 300hPa, map shown, had a near-threshold value of 242°K isotherm over Tropical Africa covering coastal strip of Gulf of Guinea countries, part of central Africa countries, part of GHA countries extending to northwestern part of southern African countries maintaining reasonable conditional instability associated with heavy rainfall. The threshold value of 243°K and above maintained the highest conditional instability associated with heavy convective rainfall with floods over south Asia and northern Australia. The low TI regime value of 241°K and below was associated with suppressed convection and rainfall deficits over the Sahel countries and parts of southern Africa countries.



(Data Source: NOAA/NCEP)

1.5 Sea Surface Temperature (SST) and El Nino/Southern Oscillation (ENSO)

A neutral to cooling conditions prevailed in the central equatorial and eastern Pacific Ocean, while warming condition prevailed in western, south eastern and central north Pacific. Neutral to warming conditions were observed over most of the Atlantic Ocean except in the south central, northeastern and northwestern parts where some cooling conditions were observed. Neutral to warming condition were observed over most of the Indian Ocean except over central, north western and southeastern where some cooling conditions prevailed. Warming conditions were observed over Mozambique Channel with cooling conditions observed in the south of the Channel.



Source: IRI

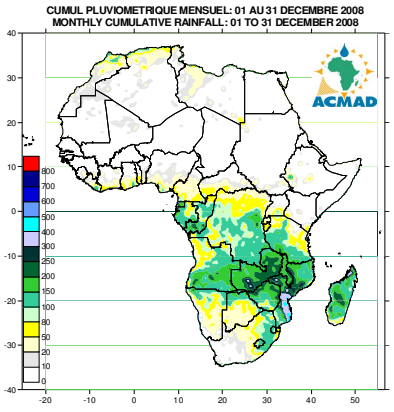
2. CLIMATOLOGICAL SITUATION AND IMPACTS DURING THE MONTH OF DECEMBER, 2008

2.1 Rainfall

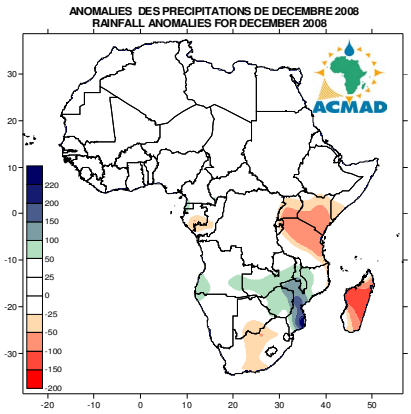
The estimated rainfall map below shows spatial rainfall increase over northern Africa countries, Gulf of Guinea and Southern Africa countries while central Africa and GHA countries experienced slight spatial rainfall decrease. The Sahel countries had no change. In summary.

- **North Africa** had slight spatial rainfall increase recording rainfall amounts ranging from 10 to 80mm with maximum rainfall ranging between 80 to 150mm over extreme north Morocco and Algeria.
- **The Sahel** countries had recorded non significant amounts of rainfall. It remain generally dry with localized dust events.
- **Gulf of Guinea** countries experienced significant spatial and intensity of rainfall decrease recording amounts ranging from 10 to 150mm over coastal zone.
- **Central Africa** countries experienced slight spatial rainfall decrease recording amounts ranging from 10 to 250mm with localized peaks of about 300mm.
- **GHA** countries experienced significant spatial rainfall decrease recording amounts ranging from 10 to 200mm with some localized peaks above 200mm over extreme southern Tanzania.
- **Southern Africa** countries experienced spatial and intensity of rainfall increase recording amounts ranging from 10mm to 300 mm with heaviest amounts of rainfall above 400mm over Zambia and Mozambique.

The December 2008, rainfall anomaly map shows significant rainfall deficits over Madagascar, south Somalia, Kenya, Tanzania, Burundi, Rwanda, south Botswana, central South Africa, south Gabon, and south Congo, while, excessive rainfall was recorded over southwest and south east Angola, northwest Namibia, Zambia, Malawi, Mozambique and Zimbabwe.



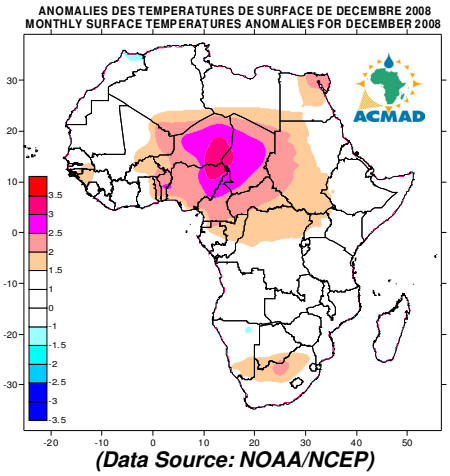
(Data Source: NOAA/NCEP)



(Data Source: NOAA/NCEP)

2.2 Surface Temperature Anomalies

In December 2008, the temperature anomalies over most of African countries were generally normal (1℃ to –1℃). However, negative temperature anomalies (<-1.5℃) were observed in extreme northern Morocco and north east Namibia, while, the highest positive temperature anomalies (>2.5℃) had an epicentre in eastern Niger, north eastern Nigeria and western Chad extending into east Mali, south Algerian, south Libya, Sudan, Cameroon, east Ghana, Benin, Togo, west Nigeria, Central African Republic and north Congo. Other areas with positive temperature anomalies (>1.5℃) were south Namibia, south Botswana, north of South Africa, northeast Egypt, south Senegal, and west Guinea.



(Data Source: NOAA/NCEP)

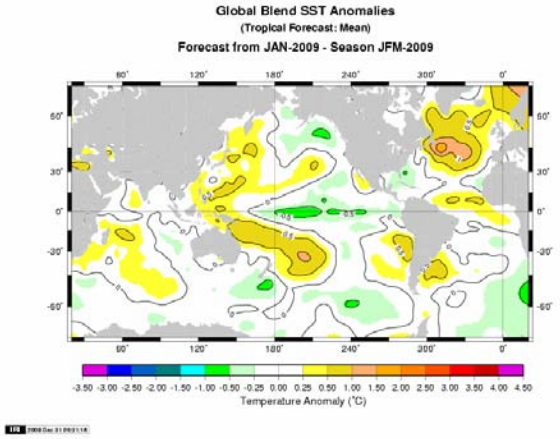
3. OUTLOOK

3.1 Forecast Sea Surface Temperature (SST)

Pacific Ocean: Neutral to cooling conditions will continue in the central, eastern and southern Pacific Ocean, but warming is expected over its western and south central part. However, the set of dynamical and statistical model forecasts of ENSO over Nino 3.4 domain (5°N – 5°S, 120°W – 170°W) are generally in agreement regarding a low-neutral to borderline La Nina ENSO condition for JFM and FMA seasons.

Atlantic Ocean: A neutral to cooling condition is expected over southeastern Atlantic Ocean, while warming trend is expected to continue over northern and southwestern Atlantic.

Indian Ocean: Neutral to warming condition is expected over the Indian Ocean and Mozambique Chanel.

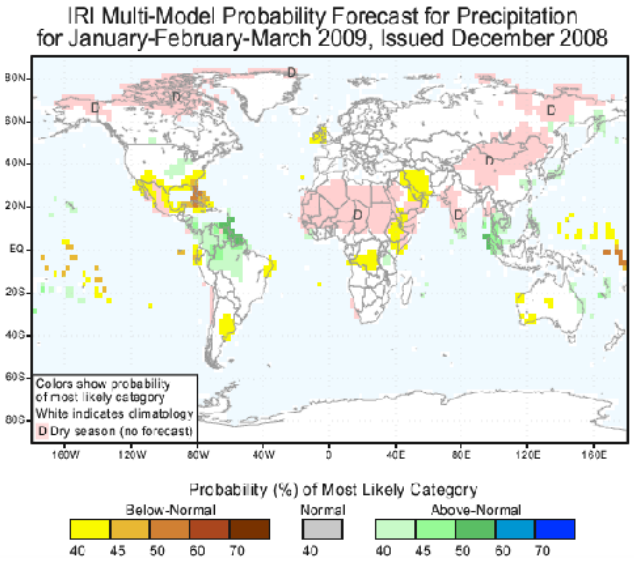


(source IRI)

3.2 Rainfall

The expected southward displacement of the ITD, will lead to significant reduction of moisture influx and dry, dusty conditions over the Sahel, with the convective zone expected southward causing rainfall reduction over the Gulf of Guinea countries and parts of Central African countries, but expected to intensify over southern parts of southern African countries.

The IRI forecast indicates below normal rainfall over the Gulf of Guinea countries, Democratic Republic of Congo, and western part of southern African countries for January-February-March, while above normal rainfall was forecast over extreme western part of Gulf of Guinea countries and extreme southern Kenya and Tanzania.



(source IRI)

Climate Science News

Summer Institute 2009 : Climate Information for Public Health

On behalf of the organizing committee, we have the pleasure to announce the 2009 Summer Institute on Climate Information for Public Health. The Summer Institute will be run by the International Research Institute for Climate and Society (IRI), in partnership with the Center for International Earth Science Information Network (CIESIN) and the Mailman School of Public Health.

This two-week training course offers public health decision-makers and their partners the opportunity to learn practical methods for integrating climate knowledge and information into health decision-making processes through expert lectures, special seminars, focused discussions and practical exercises.

The Summer Institute will be held at the Earth Institute, Columbia University, Lamont Campus located in Palisades, New York , USA between June 01 and June 12. Due to the limited number of participants (12), it is recommended that applications are sent as early as possible (before January 15th 2009). Please visit the Summer Institute homepage for more information: http://iri.columbia.edu/education/summerinstitute09

Or contact

Gilma Mantilla

Senior Staff Associate

International Research Institute for Climate and Society

The Earth Institute at Columbia University

Lamont Campus, Palisades, 10964 New York

Phone: 845 680-4501

Fax: 845 680-4864