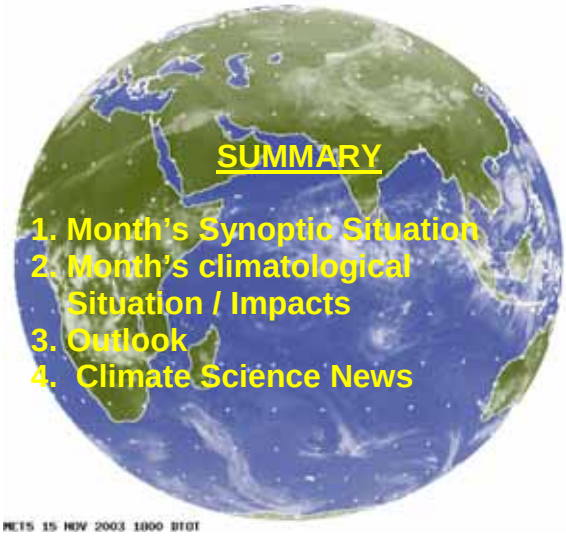
AFRICAN CENTRE OF METEOROLOGICAL APPLICATIONS FOR DEVELOPMENT
CENTRE AFRICAIN POUR LES APPLICATIONS DE LA METEOROLOGIE AU DEVELOPPEMENT

CLIMATE WATCH AFRICA BULLETIN

N° 02
FEBRUARY 2009



SUMMARY

1. Month's Synoptic Situation
2. Month's climatological Situation / Impacts
3. Outlook
4. Climate Science News

HIGHLIGHTS: Heavy rainfall ranging from 300 to 500mm were observed over Democratic Republic of Congo, Malawi, Namibia, Madagascar and Angola where at least 2 persons were left dead.

1. SITUATION DURING THE MONTH OF FEBRUARY, 2009

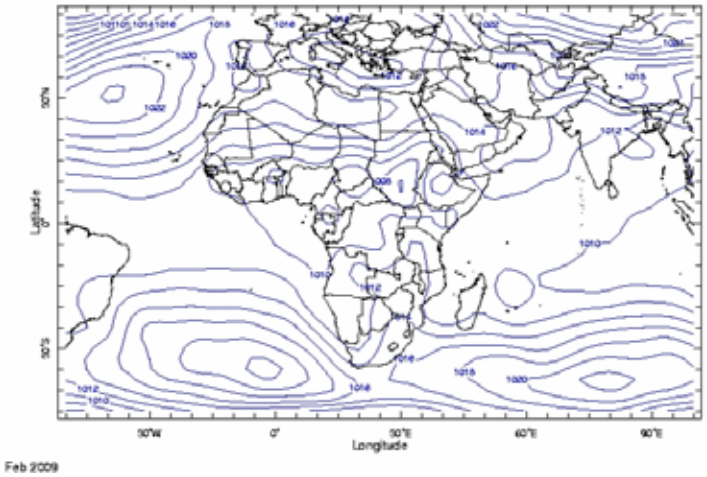
1.1 Centres of Anticyclone

The Azores high pressure at 1024hPa weakened by 2hPa and shifted to the northwest at about 32°N/38°W.

The St Helena high pressure at 1022hPa strengthened by 2hPa compared to the previous month and shifted to the southeast at 35°S/03°W.

The thermal low of 1008hPa deepened by 2hPa compared to the past month, covering a limited area over Burkina Faso, north Ghana, north Togo, north Benin, south Chad, north Central African Republic, north Cameroon, south Sudan and central Ethiopia.

The Mascarene high pressure at 1022hPa strengthened by 2hPa compared to the past month and shifted its centre to the southwest at 36°S/80°E with a ridge over eastern part of Southern African countries.



Mean surface pressure during the Month of February, 20089 (Source : IRI)

1.2 Low level wind anomaly flow at 850hPa

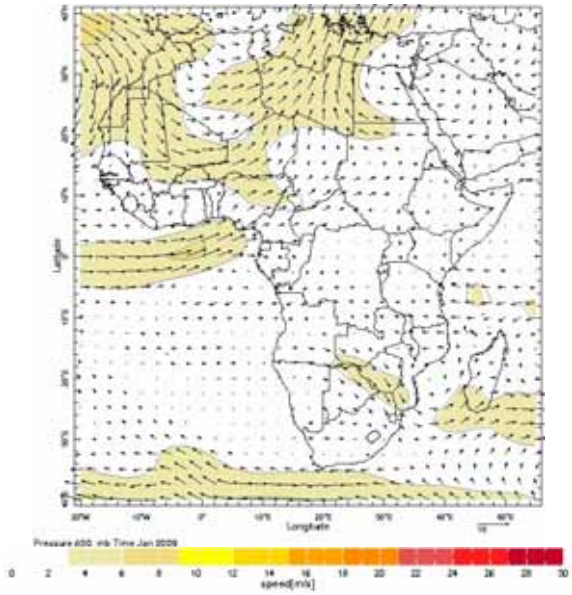
At 850hPa level, the strong northerly winds anomalies from northern Atlantic Ocean were observed over Morocco, western Algeria, Mauritania, Mali, veering to westerlies over south Mali and Niger, becoming south-westerlies over north Niger, southeast Algeria, north Chad and Libya. Over south Egypt and north Sudan easterly winds anomalies veering to southerlies were observed.

Over the Gulf of Guinea, strong westerly winds anomalies becoming south-westerlies over Nigeria prevailed.

Strong continental north-westerly winds anomalies were observed over south Zambia, west Zimbabwe, east Botswana, south Mozambique and extreme north South Africa

In southern Atlantic Ocean strong easterly winds anomalies were observed, while southwesterlies anomalies prevailed over southern part of Mozambique Channel and south Madagascar.

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

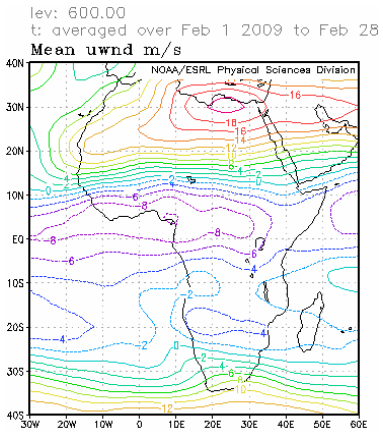


February 2009, Wind Anomalies at 850Hpa (Source : NOAA/NCEP)

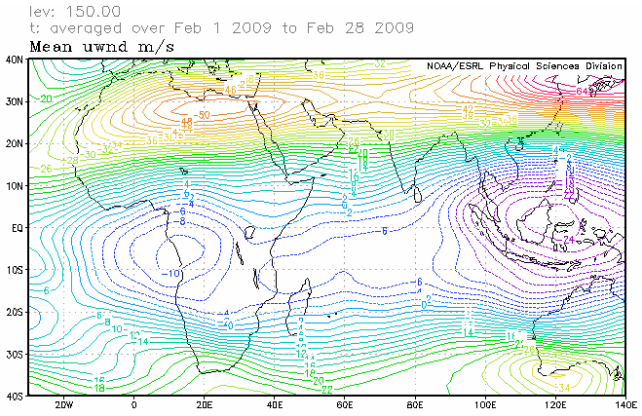
1.3 Mid and upper level winds

At the 600hPa over part of Gulf of Guinea countries and northern part of central Africa countries a wind core of 08 m/s with a maximum of 10m/s was observed over Cameroon located at about 05°N.

The mean maximum wind speed at 150hPa was 50m/s over eastern part northern Africa. Over southeast Asia there is a wind core of 24m/s with secondary peak of about 10 m/s over western part of central Africa countries.



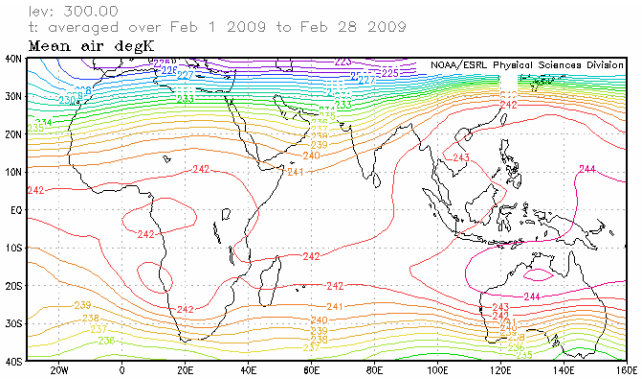
08m/s winds over part of Gulf of Guinea countries and northern part of central Africa countries with maximum of 10m/s over Cameroon. (Source : NOAA/NCEP)



Maximum of 50 m/s over eastern part of northern Africa. Wind core of 24 m/s over southeast Asia and 10m/s over western part of central Africa (Source : NOAA/NCEP)

1.4 Thermal index

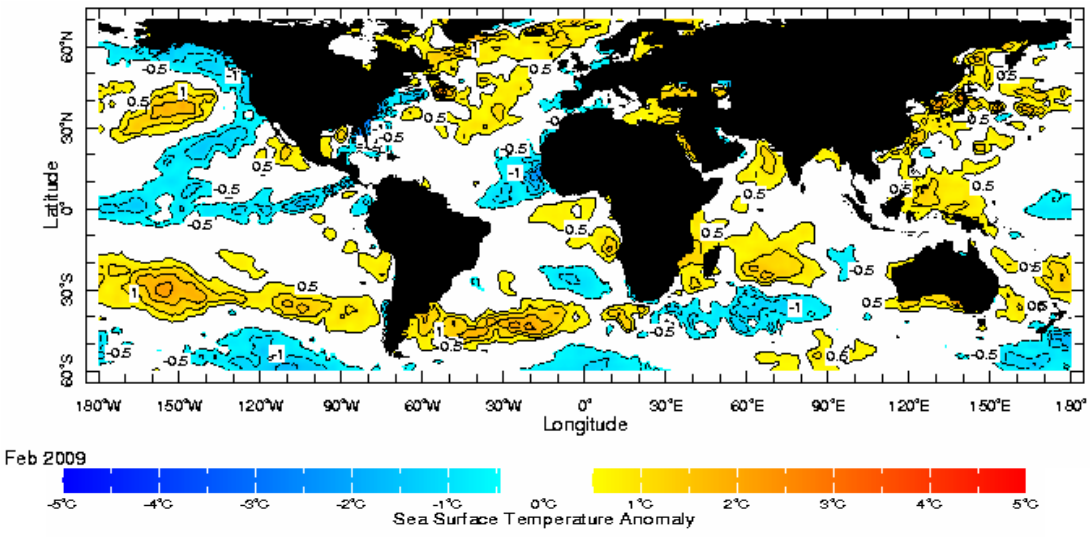
In the month of February, 2009, the thermal index (TI) regime at 300hPa, map shown, had a near-threshold value of 242°K isotherm over southern part of Gulf of Guinea countries, central Africa countries, part of GHA countries extending to northern part of southern African countries maintaining reasonable 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 east Asia, Japan and northern Australia. The low TI regime value of 241°K and below was associated with suppressed convection over the Sahel, the Sahara countries and northern parts of Gulf of Guinea 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, north-eastern and south Pacific Ocean, while warming condition prevailed in western, south central and central north Pacific. Neutral to warming conditions were observed over most of the Atlantic Ocean except in the south central, eastern and northwestern parts where some cooling conditions were observed. Neutral to warming condition were observed over most of the Indian Ocean. 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 FEBRUARY, 2009

2.1 Rainfall

The estimated rainfall map below shows rainfall activities increase over Gulf of Guinea countries, central Africa countries, GHA countries and Southern Africa countries while the northern Africa countries experienced spatial rainfall decrease. The Sahel countries remained generally dry and dusty. In summary.

- **North Africa** had spatial rainfall decrease recording rainfall amounts ranging from 10mm to 150mm with maximum rainfall about 200mm over north Morocco and Tunisia.

- **The Sahel** countries remained generally dry and dusty. However, some amounts of rainfall ranging from 10 to 50mm were recorded over south Mali and Burkina Faso.

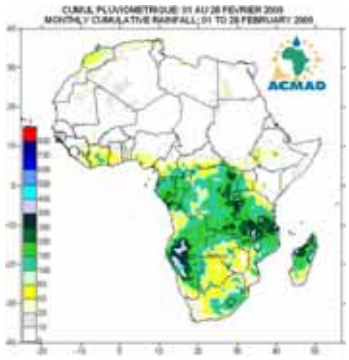
- **Gulf of Guinea** countries experienced spatial and intensity of rainfall increase recording amounts ranging from 10mm to 100mm intensifying to about 200mm over Côte d'Ivoire, Liberia and southwest Ghana.

- **Central Africa** countries experienced slight spatial rainfall increase recording amounts ranging from 10mm to 300mm with maximum rainfall amounts ranging from 300mm to 500mm over Democratic Republic of Congo and south Angola.

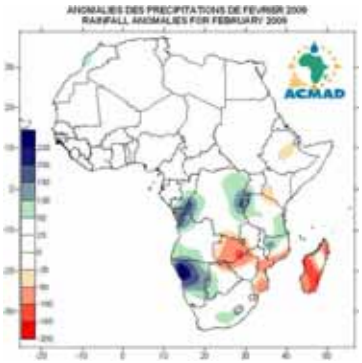
- **GHA** countries experienced spatial and intensity of rainfall increase recording amounts ranging from 10mm to 300mm with some localized peaks between 300mm to 500mm over Tanzania.

- **Southern Africa** countries experienced slight spatial rainfall increase recording amounts ranging from 10mm to 300mm with heaviest amounts between 300 to 500mm over Malawi and Madagascar.

The February 2009, rainfall anomaly map shows significant rainfall deficits over central Somalia, south Kenya, north Tanzania, south Democratic Republic of Congo, Zambia, north Botswana, Zimbabwe, south Mozambique and Madagascar, while, excessive rainfall was recorded over northwest Morocco, southeast Nigeria, south Congo, southwest and east Democratic Republic of Congo, north and south Angola, Great Lakes countries, Namibia, west Botswana, extreme north and south of South Africa, west and southeast Tanzania and north Mozambique.



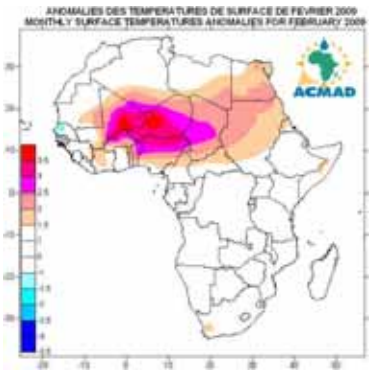
(Data Source: NOAA/NCEP)



(Data Source: NOAA/NCEP)

2.2 Surface Temperature Anomalies

In February 2009, the temperature anomalies over most of African countries were generally normal (1°C to –1°C). However, negative temperature anomalies (<-1.5°C) were observed in southwest Mauritania and south Senegal. However, positive temperature anomalies (>1.5°C) were observed over most northern Africa countries with the highest positive temperature anomalies epicenter (>2.5°C) covering east Mali, north Burkina Faso, Niger, northeast Benin, north Nigeria, central and western Chad and north Cameroon.



(Data Source: NOAA/NCEP)

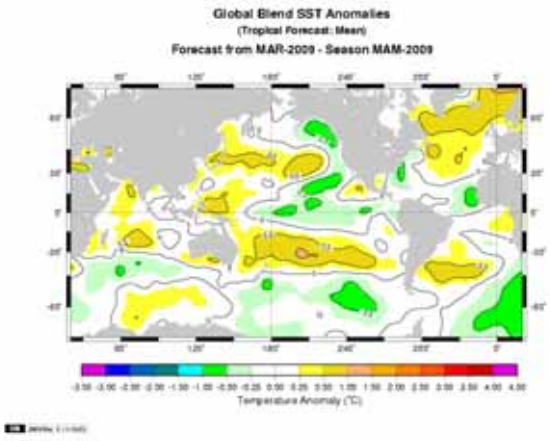
3. OUTLOOK

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, south central and north central parts.

Atlantic Ocean: A neutral to cooling condition is expected over central, north-western and south-eastern Atlantic Ocean, while warming trend is expected to continue over northern and south central Atlantic.

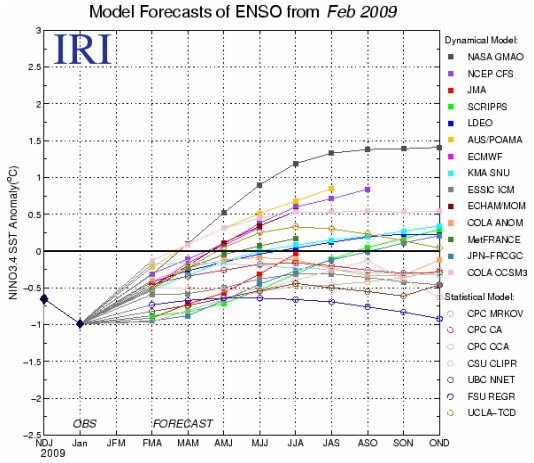
Indian Ocean: Neutral to warming condition is expected over the Indian Ocean and Mozambique Channel while cooling condition will prevailed south of the Channel .



(source IRI)

3.2 El Ni Niño/La Niña

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 La Nina ENSO condition for FMA, which is seen as the most likely scenario through March 2009, after which conditions are most likely to return to neutral.

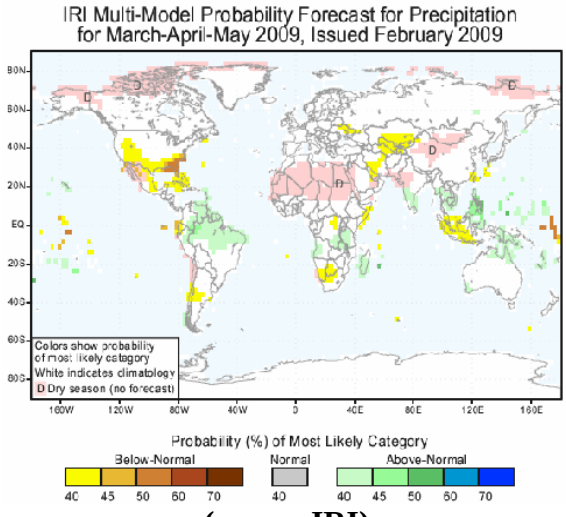


(source: IRI)

3.3 Rainfall

The ITD is expected to migrate to the north. This migration will bring moisture influx over northern part of Gulf of Guinea and later over southern part of the Sahel. The convective zone expected to move slightly north with rainfall increases over the Gulf of Guinea countries and parts of Central African countries and intensifying over southern parts of GHA countries and Madagascar.

The IRI forecast indicates below normal rainfall over the North Democratic Republic of Congo, Somalia, south Namibia, Botswana and northern part of South Africa for March-April-May, while above normal rainfall is forecast over Angola, south Democratic Republic of Congo, Tanzania, Great Lakes countries, Zambia, Malawi and Madagascar.



(source IRI)

Climate Science News

World Meteorological Day 2009

Theme is “Weather, climate and the air we breathe”.

Each year, on 23 March, the World Meteorological Organization (WMO), its 188 Members and the worldwide meteorological community celebrate World Meteorological Day (WMD). This Day commemorates the entry into force of the WMO Convention on 23 March, 1950 that created the Organization. One year after this restructuring, in 1951, WMO was designated a specialized agency of the United Nations System.

As it is a tradition of WMO to focus the annual celebration of WMD around a relevant theme, the 59th session of the WMO Executive Council decided in May, 2007 that the theme in 2009 would be “Weather, climate and the air we breathe” According to WMO such a theme is particularly appropriate at a time when communities around the globe are struggling to attain the United Nations Millennium Development Goals, especially in terms of health, food, water security and poverty alleviation, as well as to increase their effectiveness in preventing and mitigating natural disasters of which 90% are directly related to weather, climate and water hazards and thereby within WMO’s mandate.

During the last decades, population growth, increased energy consumption in the industrial development have contributed to the high emission of gases and particulates that affect the composition of the air we breathe adversely affecting human health, damaging plants, crops and ecosystems. Thus, asthma, heart diseases, lung cancer and many other diseases have been exacerbated by declining air quality.