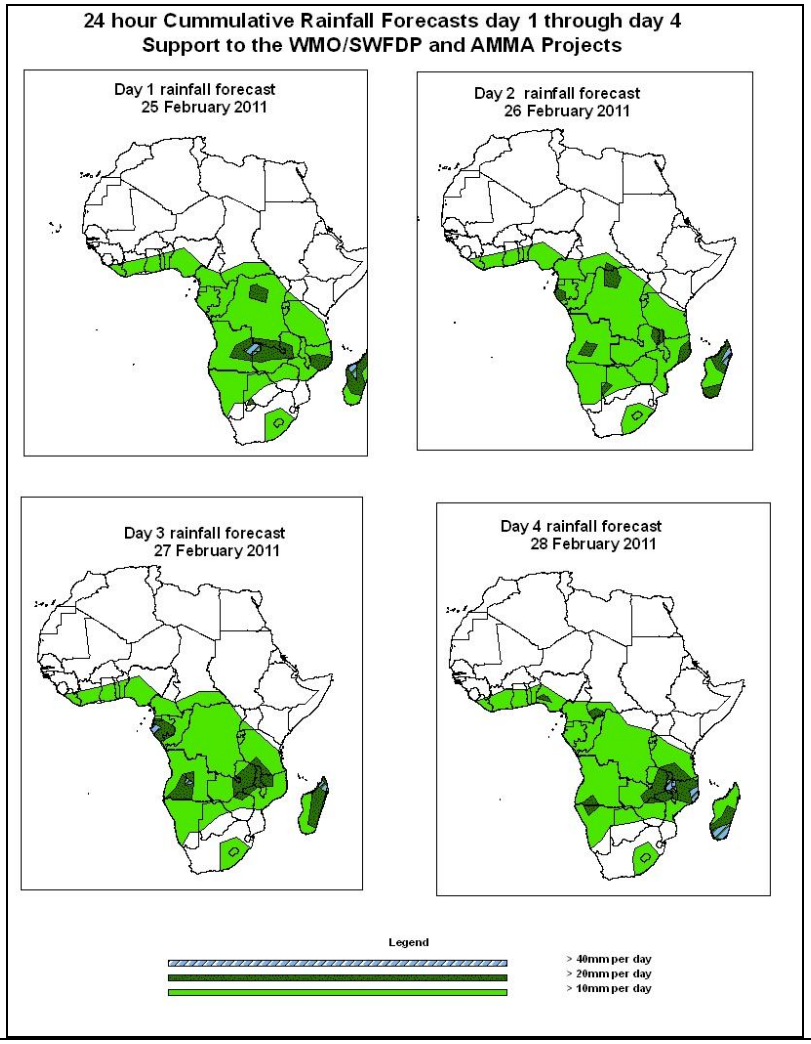
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid, 06Z of 25 February – 06Z of 28 February 2011, (Issued at 12:00Z of 24 February 2011)

1.1. Twenty Four Hour Cumulative Rainfall Forecasts

The forecasts are expressed in terms of probability of precipitation (POP) exceeded based on the NCEP, UK Met Office and the ECMWF NWP outputs, the NCEP global ensemble forecasts system (GEFS) and expert assessment.



Summary

Within the next four days, we expect rainfall to reduce over southern Africa and South Africa as a result of anticyclonic effect at lower tropospheric levels, but to increase over the Gulf of Guinea and parts of central Africa as a result of the incursion of the mid-latitude trough. Hence, there is an increased chance for rainfall to exceed 20mm per day over parts of Madagascar, Zambia, Angola, Malawi, northern Mozambique, CAR, parts of G.G, Gabon, and parts of DRC.

1.2. Models Comparison and Discussion-Valid from 00Z of 25 February 2011

A series of cut off lows over the southern parts of the Gulf of Guinea, parts of central African region and southern Sudan as indicated by the GFS, ECMWF and UKMET models should form an east-west oriented trough. In the coming four days, this trough is expected to persist with a central value of about 1002hpa in its eastern end (mainly over Central African Republic / Sudan region) and a central value of 1006hpa along its western end. The lows associated with the meridional arm of the ITCZ are active. A low pressure system in the vicinity of Mozambique Channel and Madagascar is expected to persist throughout the period in consideration. In general, there appears to be some level of similarity in pressure patterns as depicted by the GFS, ECMWF and UKMO models.

According to the GFS, ECMWF and UKMET models, St. Helena High pressure system is expected to weaken with a central value of 1021hpa by 24 hours and then absent from its climatological positions by 48 to 72 hours, showing up by 96 hours with a central value of 1020hpa. Likewise the Mascarene high pressure system over southwest Indian Ocean should weaken from 1024hpa to 1020hpa.

At 850hPa level, the GFS model indicates east-west oriented convergence line in the region between the coastal areas of the Gulf of Guinea and northeast DRC. This convergence line as well as the north-south oriented convergence line is expected to persist and move slightly northwards. This is as a result of the incursion of the mid-latitude trough over north east Africa, propagating eastward from longitude 23°E to 30°E between 24 to 72 hours. Another convergence line is expected to extend zonally from Angola region to the Mozambique Channel.

Mostly northeasterly to easterly winds dominate across western and central African countries at 700hPa level. A strong lower tropospheric convergence is expected to dominate the flow over Angola, Zambia, and northern Mozambique within 24 to 96 hours. The cyclonic circulation in the Mozambique Channel is expected to persist from 24 to 48 hours. It then weakens by 72 hours and fills up to a ridge by 96 hours.

A zone of strong wind (>150Kts) at 200hPa associated with the Sub Tropical westerly Jet in the sub-tropical region of northern Africa and the Mediterranean is expected to attain a wavy pattern through 24 to 72 hours, weakening slightly (>130Kts).

Similarly, strong winds (>90Kts) associated with the Sub-Tropical Westerly Jet in the Sub Tropical region of southern Africa is expected to appear as pockets over the Atlantic ocean by 24 to 96 hours.

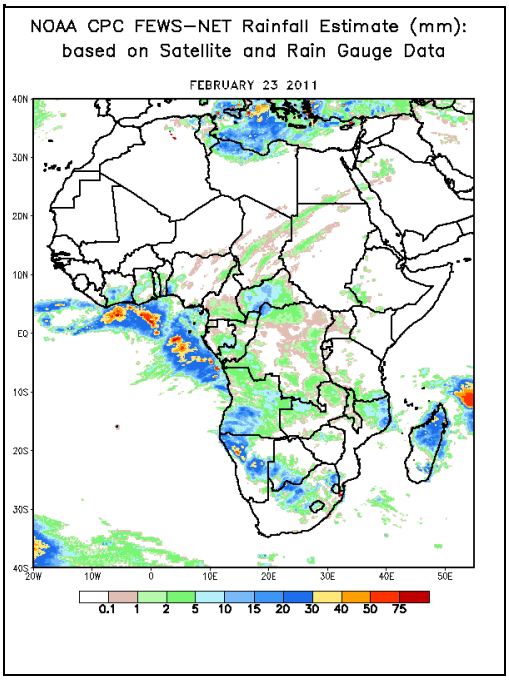
Within the next four days, we expect rainfall to reduce over southern Africa and South Africa as a result of anticyclonic effect at lower tropospheric levels, but to increase over the Gulf of Guinea and parts of central Africa as a result of the incursion of the mid-latitude trough. Hence, there is an increased chance for rainfall to exceed 20mm per day over parts of Madagascar, Zambia, Angola, Malawi, northern Mozambique, CAR, parts of G.G, Gabon, and parts of DRC.

2.0. Previous and Current Day Weather Discussion over Africa (23 – 24 February 2011)

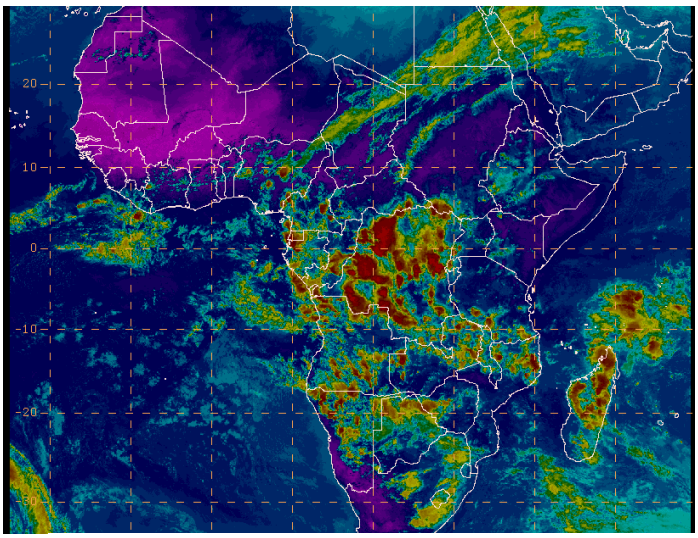
2.1. Weather assessment for the previous day (23 February 2011):

During the previous day, a combination of moderate and heavy rainfall was observed over Gulf of Guinea, Cameroun, Namibia, Angola, Botswana, Mozambique, Madagascar, CAR and South Africa.

2.2. Weather assessment for the current day (24 February 2011): Intense clouds are observed over parts of Gulf of Guinea, Cameroun, Madagascar, CAR, DRC, Tanzania, Zambia, Angola, Namibia, Zimbabwe, Mozambique, southern Sudan and Botswana.



IR Satellite Image, Valid 1622Z, February 24, 2011



Previous day rainfall condition over Africa (Left) based on the NCEP CPCE/RFE and current day cloud cover (top) based on IR Satellite image

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