

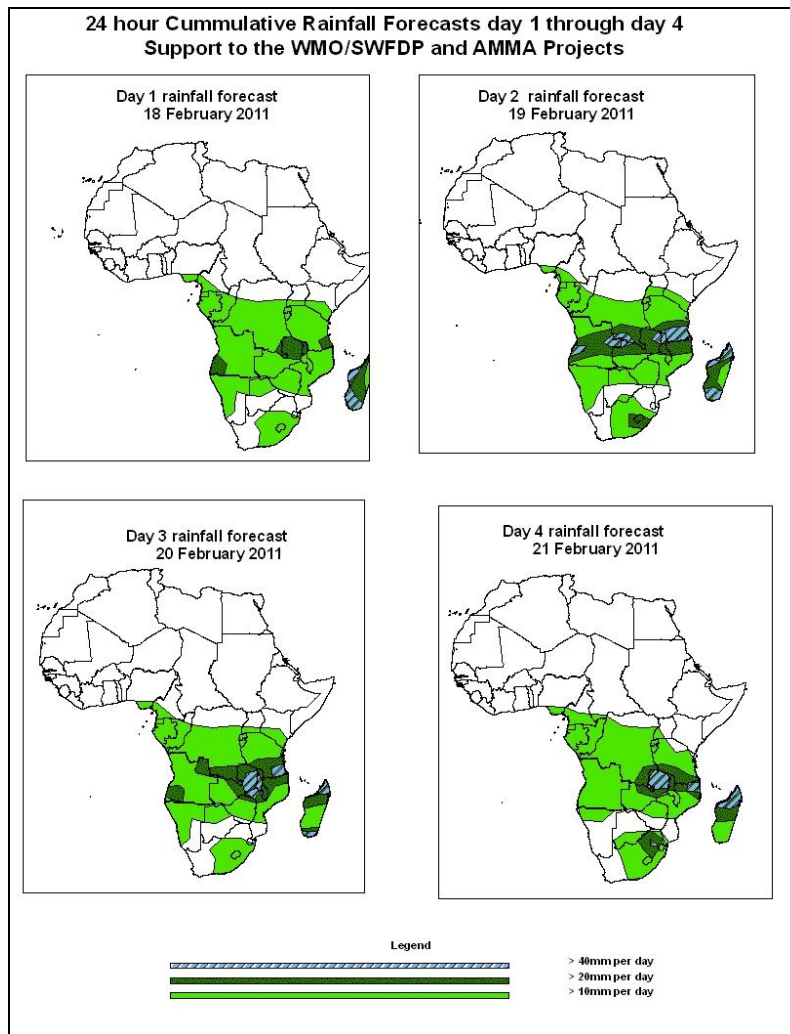


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid, 06Z of 18 February – 06Z of 21 February 2011, (Issued at 12:00Z of 17 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

In the next four day period, moderate to heavy rainfall is expected to continue over Tanzania, Zambia, southern DRC, Malawi, Angola and Mozambique due to the persistent lower level convergence in the region and the deepening cyclonic circulation in the vicinity of Mozambique Channel. Moderate to heavy rains in excess of 20.0 – 40.0 mm are expected over Madagascar within the next 24 hours as cyclone Bingiza is expected to fizzes out after then. Hence, there is an increased chance for rainfall to exceed 20mm per day over Madagascar, Zambia, Angola, Malawi, southeastern DRC, Mozambique, Tanzania and South Africa.

## **1.2. Models Comparison and Discussion-Valid from 00Z of 18 February 2011**

The GFS, ECMWF and UKMET models, indicates a series of cut off lows over the southern parts of the Gulf of Guinea, parts of central African region and southern Sudan should form an east-west oriented trough. In the coming four days, this trough is expected to persist with a central value of about 1003hpa in its eastern end (mainly over Central African Republic / Sudan region) and a central value of 1007hpa along its western end. The lows associated with the meridional arm of the ITCZ are hardly active except for 72 to 96 hour period when it is to the east of DRC. A low pressure system in the vicinity of Mozambique Channel and Madagascar is expected to maintain its position and 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 progressively from 1024hpa by 24hours to 1020hpa by 96 hour period. The Mascarene high pressure system over southwest Indian Ocean has a central value of 1020hpa by 24 hours but absent from its climatological position from 48 through 96 hour period.

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. The convergence is expected to persist all through the period and fill up a bit along its western end. The north-south oriented convergence line is however inactive except for 72 to 96 hour period. Another convergence line is expected over the Angola region, while a localized cyclone is expected to extend into South Africa. The cyclonic circulation near Madagascar is expected to persist through the period in consideration.

At 700hPa level, mostly northeasterly to easterly winds dominate across western and central African countries. A strong lower tropospheric convergence is expected to dominate the flow over Angola, Malawi, DRC, Mozambique and Zambia within 24 to 96 hours. The cyclonic circulation in the Mozambique Channel is expected to persist despite the chances of cyclone Bingiza dissipating and fizzling out in the next 24 hours..

At 200hPa, a zone of strong wind (>130Kts) associated with the Sub Tropical westerly Jet in the sub-tropical region of northern Africa is expected to attain a wavy pattern

through 24 then becoming zonal by 48 to 96 hour period. Similarly, strong winds (>110Kts) associated with the Sub-Tropical Westerly Jet in the Sub Tropical region of southern Africa is expected to appear as pockets over the Indian ocean by 24 to 48 hour period.

In the next four day period, moderate to heavy rainfall is expected to continue over Tanzania, Zambia, southern DRC, Malawi, Angola and Mozambique due to the persistent lower level convergence in the region and the deepening cyclonic circulation in the vicinity of Mozambique Channel. Moderate to heavy rains in excess of 20.0 – 40.0 mm are expected over Madagascar within the next 24 hours as cyclone Bingiza is expected to fizzle out after then. Hence, there is an increased chance for rainfall to exceed 20mm per day over Madagascar, Zambia, Angola, Malawi, southeastern DRC, Mozambique, Tanzania and South Africa.

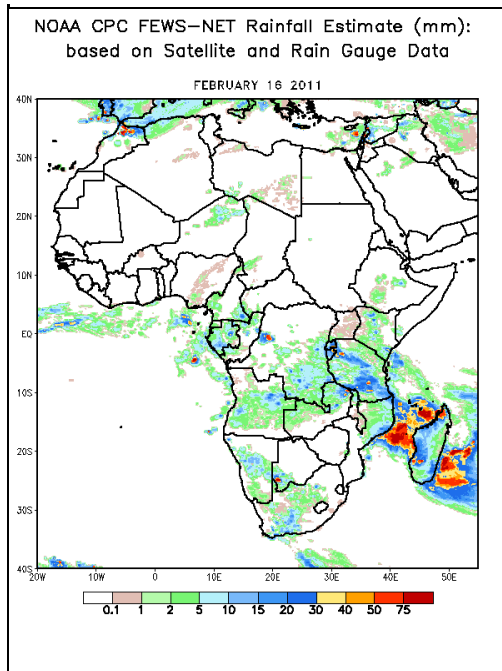
## 2.0. Previous and Current Day Weather Discussion over Africa (16 – 17 February 2011)

### 2.1. Weather assessment for the previous day (16 February 2011):

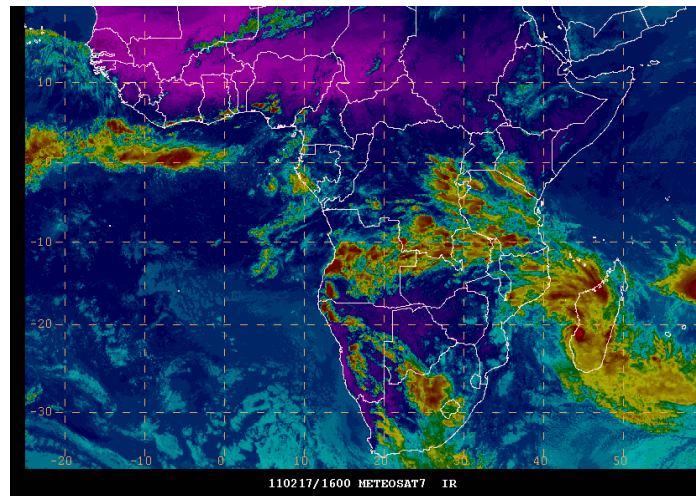
During the previous day, a combination of moderate and heavy rainfall was observed over Cameroun, Gabon, Congo, DRC, Namibia, Tanzania, Kenya, Malawi, Mozambique, Burundi, Rwanda, Zambia, Madagascar and South Africa.

### 2.2. Weather assessment for the current day (17 February 2011):

Intense clouds are observed over parts of Gulf of Guinea, Madagascar, Mozambique, Tanzania, Kenya, Rwanda, Burundi, DRC, Namibia, Botswana, Angola, Zambia, Gabon, Eq. Guinea and South Africa.



IR Satellite Image, Valid 1600Z, February 17, 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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