

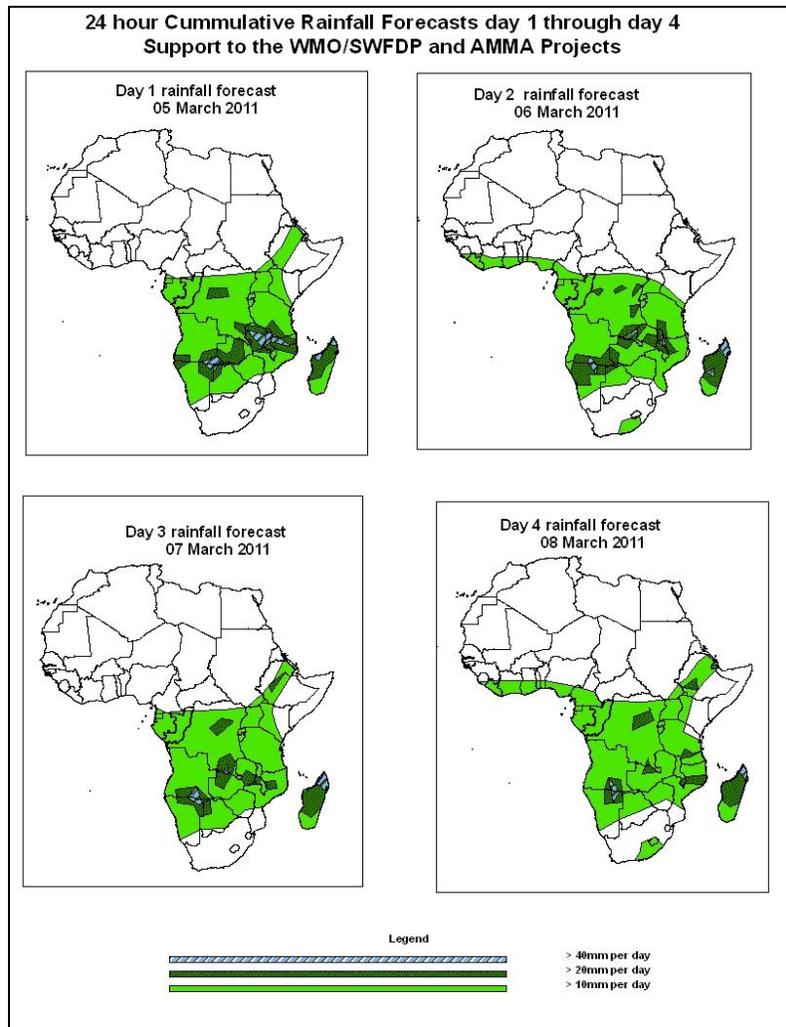


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid, 06Z of 05 March – 06Z of 08 March 2011, (Issued at 12:00Z of 04 March 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 days, moderate to heavy rainfall will continue over southern Africa, the Congo Air Boundary and parts of the greater horn of Africa as strong lower level convergence over southern Africa, the greater horn of Africa and persistence of the North-south arm of the ITCZ over the Congo Air Boundary (CAB) region will favor moderate to heavy rainfall over their respective areas. Hence, there is an increased chance for rainfall to exceed 20mm per day over Angola, Namibia, DRC, Botswana, Zambia, Malawi, Mozambique, Ethiopia, Madagascar and Tanzania.

## **1.2. Models Comparison and Discussion-Valid from 00Z of 05 March 2011**

An east-west oriented trough formed by a series of cut off lows over the southern parts of the Gulf of Guinea, parts of central African region and southern Sudan is expected to persist through the next four days as shown by the GFS, ECMWF and UKMET models. A central value of 1002 - 1003hpa is expected along its eastern end (mainly over Central African Republic / Sudan region) and 1005hpa 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 all through. In general, there appears to be some level of similarity in pressure patterns as depicted by the GFS, ECMWF and UKMO models.

The GFS, ECMWF and UKMET models show the St. Helena High pressure system over southeast Atlantic remaining quasi-stationary with a central value of 1020hpa all through. While the Mascarene high pressure system over southwest Indian Ocean has a central value of 1020hpa. It intensifies to 1024hpa by 72 hours and weakens to 1020hpa by 96 hours.

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 is expected to persist. The north-south oriented convergence line is expected to persist equally. 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, Namibia, Zambia, Malawi, Mozambique, Botswana, southern DRC and the vicinity of the greater horn of Africa within 24 to 96 hours. The cyclonic circulation in the Mozambique Channel is expected to persist all through.

A zone of strong wind (>130Kts) at 200hPa associated with the Sub Tropical westerly Jet in the sub-tropical region of northern Africa and the Atlantic is expected to attain a wavy pattern through 24 to 72 hours and weaken slightly (>110Kts) by 96 hours.

Similarly, strong winds (>90Kts) associated with the Sub-Tropical Westerly Jet in the Sub Tropical region of southern Africa is expected to be wavy and over the Atlantic ocean from 24 to 72 hours and weaken (> 70Kts) by 96 hours.

In the next four days, moderate to heavy rainfall will continue over southern Africa, the Congo Air Boundary and parts of the greater horn of Africa as strong lower level convergence over southern Africa, the greater horn of Africa and persistence of the North-south arm of the ITCZ over the Congo Air Boundary (CAB) region will favor moderate to heavy rainfall over their respective areas. Hence, there is an increased chance for rainfall to exceed 20mm per day over Angola, Namibia, DRC, Botswana, Zambia, Malawi, Mozambique, Ethiopia, Madagascar and Tanzania.

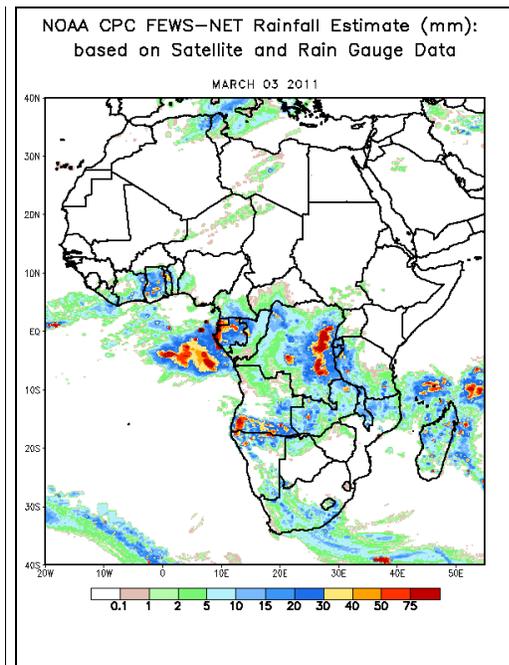
## 2.0. Previous and Current Day Weather Discussion over Africa (03 March – 04 March 2011)

### 2.1. Weather assessment for the previous day (03 March 2011):

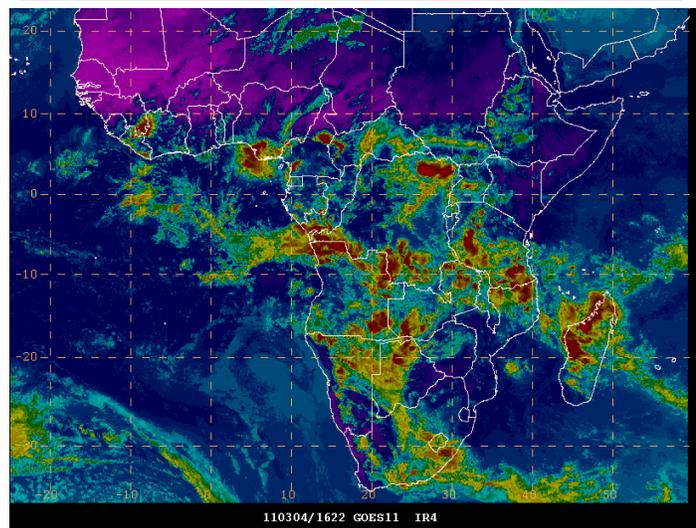
During the previous day, a combination of moderate and heavy rainfall was observed over Gulf of Guinea coast, Congo, DRC, Burundi, Rwanda, Tanzania, Mozambique, Zambia, Madagascar, Malawi, Angola, Namibia and South Africa.

### 2.2. Weather assessment for the current day (04 March 2011):

Intense clouds are observed over the coast of Gulf of Guinea, CAR, DRC, Uganda, Tanzania, Mozambique, Zambia, Congo, Angola, Namibia, Botswana, South Africa and Madagascar.



IR Satellite Image, Valid 1622Z, March 04, 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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