

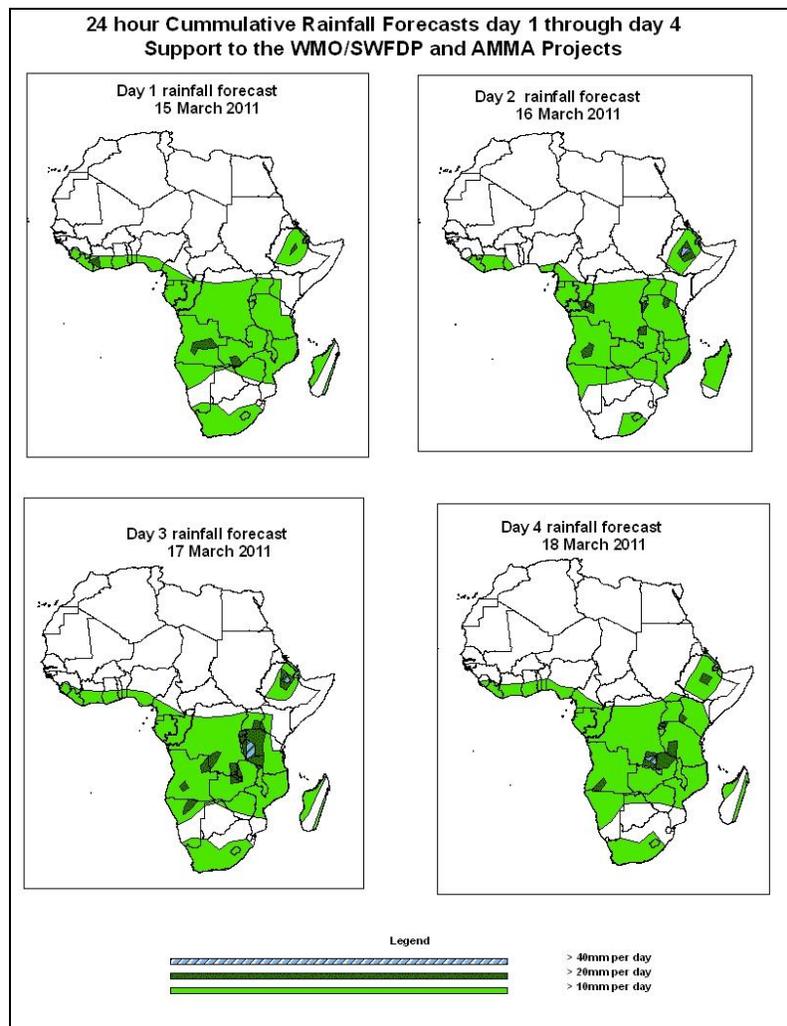


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid, 06Z of 15 March – 06Z of 18 March 2011, (Issued at 12:00Z of 14 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

Strong lower level convergence over southern Africa and increased extra tropical activities around the vicinity of the greater Horn of Africa will enhance moderate rainfall in these regions in the next four days, with pockets of heavy rainfall. A relative dryness sets in over Madagascar and the Mozambique Channel as a ridging effect dominates over that vicinity. Hence, there is an increased chance for rainfall to exceed 20mm per day over Cote D'Ivoire, Sierra Leone, Mozambique, Ethiopia, Angola, Zambia, Tanzania, Burundi, Namibia, Congo, Uganda, Kenya, DRC, Malawi and Rwanda.

## **1.2. Models Comparison and Discussion-Valid from 00Z of 15 March 2011**

An east-west oriented trough formed by a series of cut off lows over southern Sudan, parts of Central African region and the coast of Gulf of Guinea as presented by the GFS, ECMWF and UKMET models, is expected to persist through the next four days. A central pressure value of 1005hpa is expected along its eastern end (mainly over Central African Republic / Sudan region), and a pressure value of 1006hpa along its western end. The lows associated with the meridional arm of the ITCZ are active. There is another low pressure system over Angola region. In general, there appears to be some level of similarity in pressure patterns as depicted by the GFS, ECMWF and UKMO models.

These models show the St. Helena High pressure system over southeast Atlantic with a central pressure value of 1024hpa by 24 hours weakens to 1020hpa by 48 hours and remains so for the rest of the period. The Mascarene high pressure system over southwest Indian Ocean on the other hand remains quasi-stationary with a central pressure value of 1020hpa.

The GFS model shows an east-west oriented convergence line in the region between the coastal areas of the Gulf of Guinea and northeast DRC at 850hpa level, which is expected to persist. The north-south oriented convergence line and the convergence lines over Angola region are expected to persist as well.

Northeasterly to easterly winds dominate across western and central African countries at 700hPa level with strong lower tropospheric convergence dominating the flow over Angola, southern DRC, Tanzania, Namibia, and the vicinity of the Greater Horn of Africa.

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

Similarly, strong winds (>70Kts) associated with the Sub-Tropical Westerly Jet in the Sub Tropical region of South Africa and the Atlantic is expected to be wavy and increase in strength (>110Kts) by 72 and 96 hours period.

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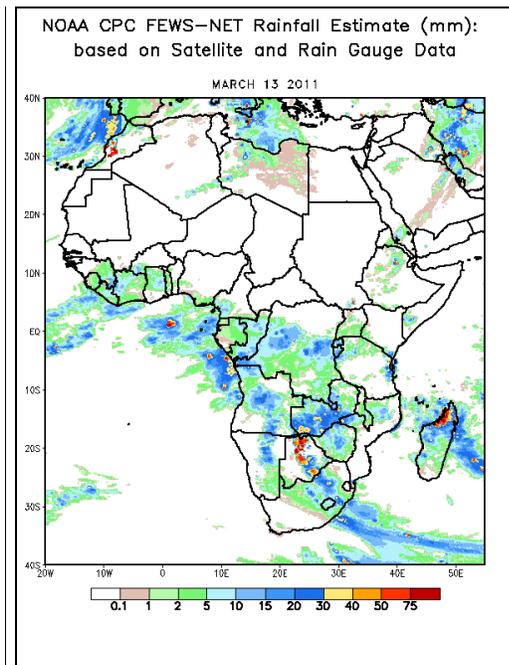
## 2.0. Previous and Current Day Weather Discussion over Africa (13 March – 14 March 2011)

### 2.1. Weather assessment for the previous day (13 March 2011):

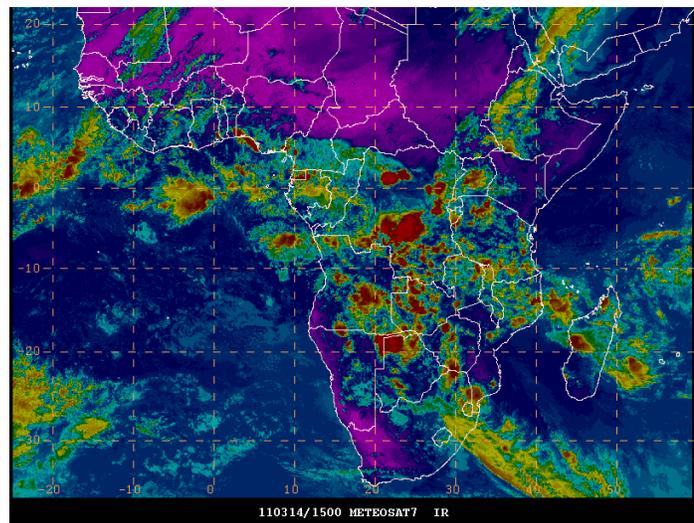
During the previous day, a combination of moderate and heavy rainfall was observed over Guinea, Sierra Leone, Congo, DRC, Angola, Namibia, Zambia, South Africa, Tanzania, Burundi, Mozambique, Madagascar, Ethiopia, and Zimbabwe.

### 2.2. Weather assessment for the current day (14 March 2011):

Intense clouds are observed over the coast of Gulf of Guinea, DRC, Angola, Namibia, Botswana, Zambia, Mozambique, Madagascar, Burundi, Uganda, Tanzania and Zimbabwe.



IR Satellite Image, Valid 1500Z, March 14, 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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