

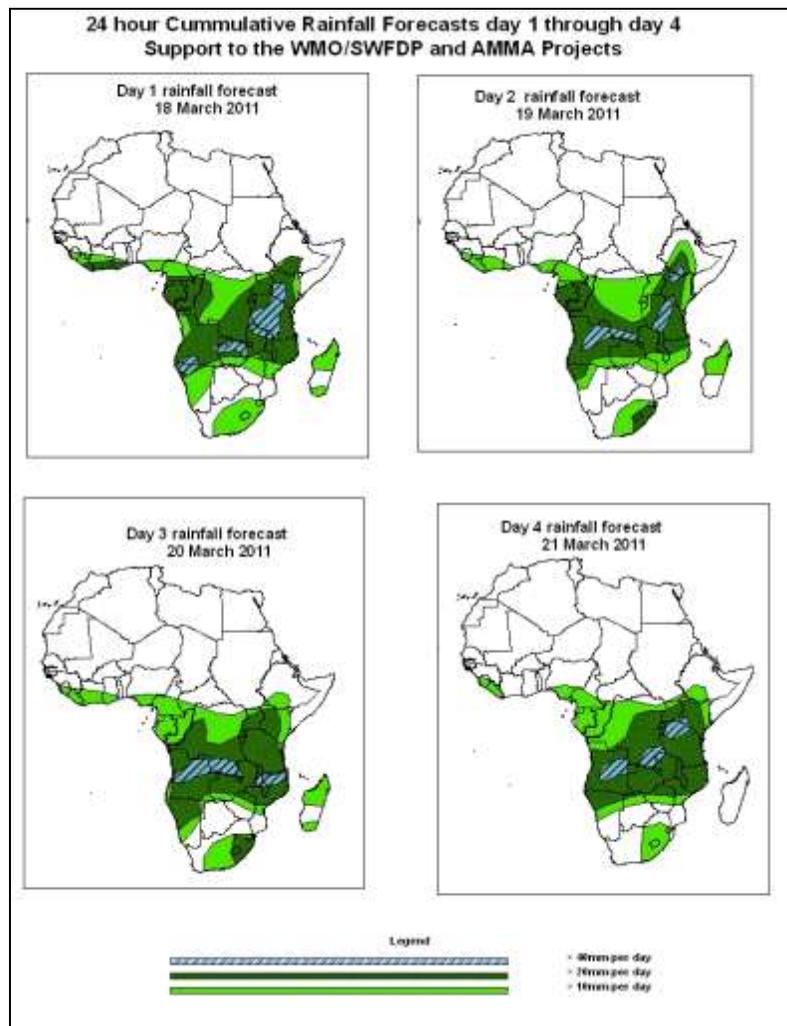


## NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

### 1.0. Rainfall Forecast: Valid, 06Z of 18 March – 06Z of 21 March 2011, (Issued at 14:50Z of 17 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

The persistence and deepening of cyclonic activities over southern Africa, the Congo Air Boundary and the vicinity of the Greater Horn of Africa is expected to enhance rainfall over their various regions, increasing chances of moderate to heavy rainfall within the next four days. Localized cyclonic over South Africa will also enhance rainfall over there. Hence, there is an increased chance for rainfall to exceed 20mm per day over Cote D'Ivoire, Liberia, Gabon, Eq. Guinea, Congo, Ethiopia, Uganda, Kenya, Burundi, Rwanda, DRC, Tanzania, Malawi,

## **1.2. Models Comparison and Discussion-Valid from 00Z of 18 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 the Gulf of Guinea as presented by the GFS, ECMWF and UKMET models, is expected to persist within the next four days. A central pressure value of 1003hpa - 1004hpa 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 1020hpa by 24 hours absent from its climatological position by 48 and 72 hours, reappearing by 96 hours with a value of 1020hpa. Similarly, the Mascarene high pressure system over southwest Indian Ocean however 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 fill up slightly before deepening again. The north-south oriented convergence line shows a similar behaviour as the east-west oriented convergence line. While the convergence lines over Angola region deepens progressively, with localized cyclonic over South Africa. A weak trough appears over the Mozambique Channel by 48 hours.

A combination of northeasterly, northerly to westerly 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, Zambia, the vicinity of the Greater Horn of Africa and parts of South Africa.

At 200hPa level, a zone of strong wind (>110Kts) associated with the Sub Tropical westerly Jet in the sub-tropical region of north Africa and the Atlantic is expected to be zonal all through.

Similarly, strong winds (>110Kts) associated with the Sub-Tropical Westerly Jet in the Sub Tropical region of the southern Atlantic is expected to be wavy and decrease in strength (>90Kts) by 48 hour period.

The persistence and deepening of cyclonic activities over southern Africa, the Congo Air Boundary and the vicinity of the Greater Horn of Africa is expected to enhance rainfall over their various regions, increasing chances of moderate to heavy rainfall within the next four days. Localized cyclonic over South Africa will also enhance rainfall over there. Hence, there is an increased chance for rainfall to exceed 20mm per day over Cote D'Ivoire, Liberia, Gabon, Eq. Guinea, Congo, Ethiopia, Uganda, Kenya, Burundi, Rwanda, DRC, Tanzania, Malawi, Mozambique, Zambia, Angola, Namibia and South Africa.

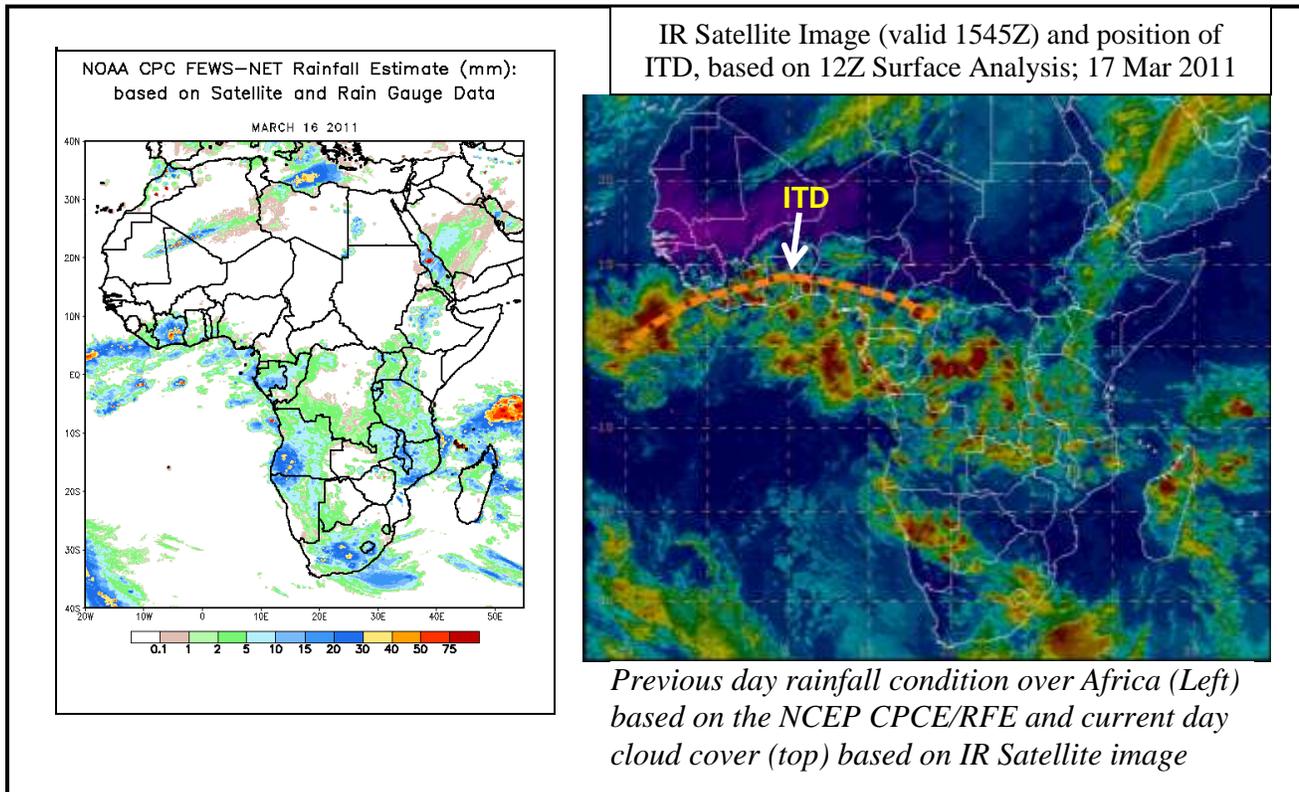
## 2.0. Previous and Current Day Weather Discussion over Africa (16 March – 17 March 2011)

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

During the previous day, a combination of moderate and heavy rainfall was observed over Gabon, Cote D'Ivoire, Angola, Namibia, Mozambique, Madagascar, Ethiopia, Kenya, Zimbabwe, Malawi and South Africa.

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

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



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