

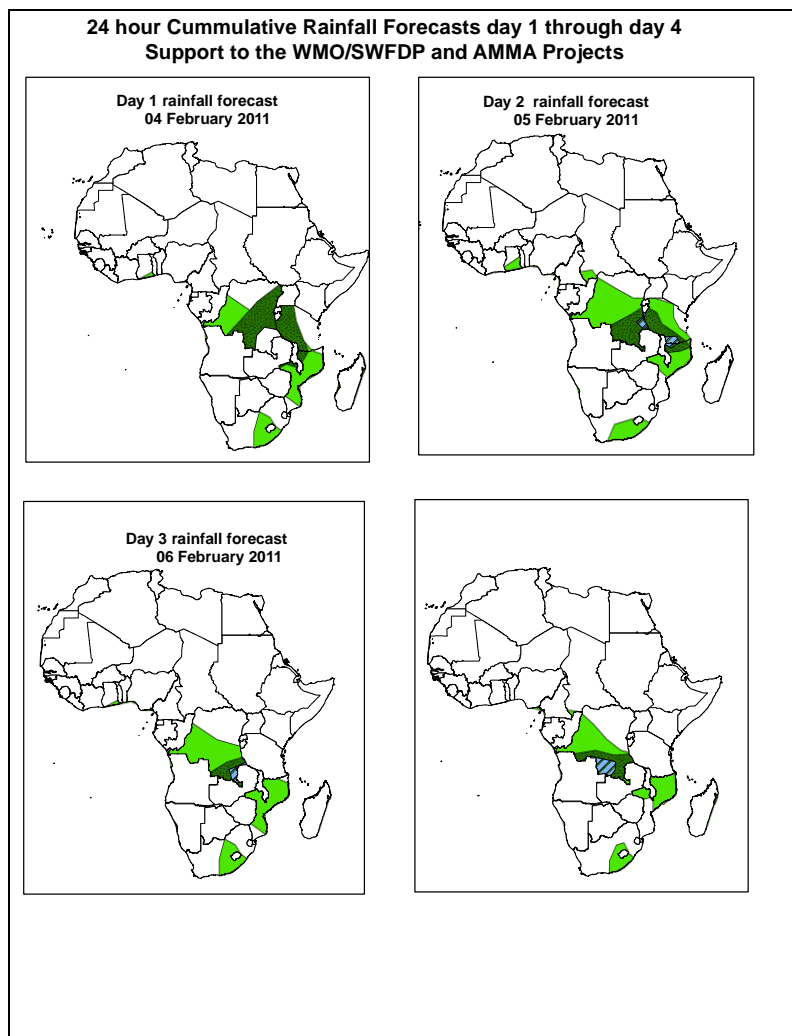


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid, 06Z of 04 February – 06Z of 07 February 2011, (Issued at 14:00Z of 03 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 coming four days, weakening of lower level convergences across the Gulf of Guinea and central African countries are expected to suppress rainfall in their respective regions. Meanwhile, moderate to heavy rainfall is expected to continue over southern African countries due to the persistent lower level convergence in the region and cyclonic circulation in the vicinity of Mozambique Channel. Hence, there is an increased chance for rainfall to exceed 20mm per day over Madagascar, Zambia, Angola, Burundi, Namibia, Malawi, Uganda, DRC and Western and southern Tanzania.

## **1.2. Models Comparison and Discussion-Valid from 00Z of 02 February 2011**

A look at the GFS, ECMWF and UKMET models, shows a series of cut off lows over the southern parts of the Gulf of Guinea, parts of central African region and southern Sudan which should form an east-west oriented trough. In the coming four days, this trough is expected to deepen in its eastern end (over Central African Republic) from about 1005hpa to 1003hpa, while the trough is expected to fill up along its western end, and probably disappear completely. The lows associated with the meridional arm of the ITCZ are expected to persist in 24hours period and shift westwards over DRC. It however weakens in 48 to 72 hour period and deepens in 96 hour period over Namibia, Angola and DCR. A low pressure system in the vicinity of Mozambique Channel and Madagascar is expected to maintain its position and deepen in 24hour period, while slightly weakening for 48 and 72 hour periods, before deepening again. In general, there appears to be a great 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 remain quasi-stationary, with its central pressure value at 1020hpa. Similarly, the Mascarene high pressure system over southwest Indian Ocean is expected to be quasi-stationary through 24 to 72 hours with a central value of 1028hpa and thereafter, weaken to 1024hpa.

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 line is expected to weaken comparatively within 48 to 72 hours, and deepening by 96hour period, while persisting over Northeastern Cameroun and Most of CAR. A north-south oriented convergence line is expected to shift to western DCR in 24hours and fill up in 48 to 72hours and re-establish itself by 96hour. Another convergence line is expected in the region extending from western Angola to western Namibia, while localized cyclonic is expected to extend into South Africa. The cyclonic circulation near Madagascar is also expected to weaken slightly and then strengthen by 96 hours.

At 700hPa level, mostly northeasterly to easterly winds dominate across western and central African countries. A weak lower tropospheric convergence is expected to dominate the flow over Angola, Zambia, DRC and Zambia, through 24 to 48 hours and

fill up by 72 to 96hours. The cyclonic circulation in the Mozambique Channel is expected to also weaken gradually through 24 to 96 hours.

At 200hPa, 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 24hours, getting stronger by 72hours (>150Kts) and becoming zonal. Similarly, strong winds (>90Kts) associated with the Sub-Tropical Westerly Jet in the Sub Tropical region of southern Africa is expected to be wavy in 24hours, and then zonal for 48 to 96 hours period.

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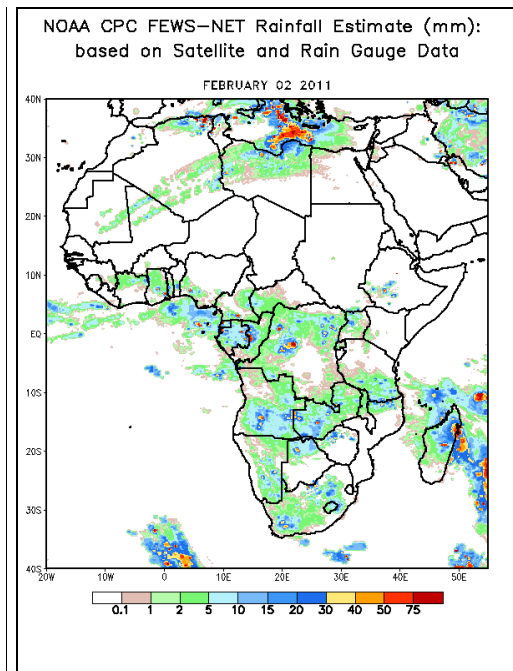
## 2.0. Previous and Current Day Weather Discussion over Africa (02 – 03 February 2011)

### 2.1. Weather assessment for the previous day (02 February 2011):

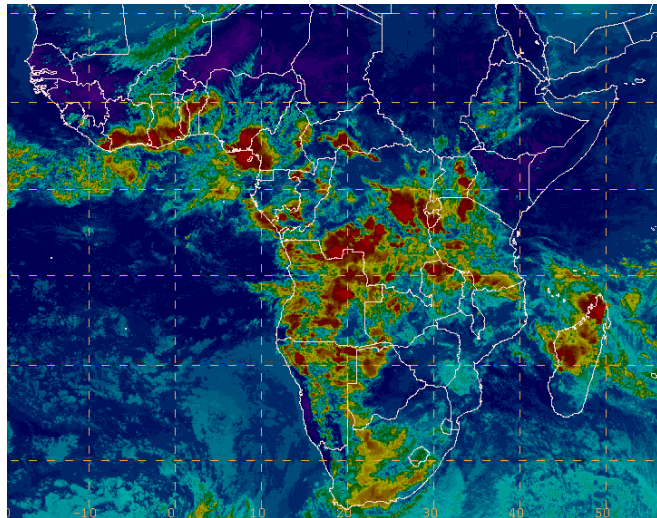
During the previous day, light to moderate rainfall was observed over DRC, Uganda, Angola, Portions of Tanzania, Eastern Zambia, Malawi, Gabon, Congo, Southern parts of Cameroun and Nigeria, Southern Namibia Northern Madagascar and South Africa. Localized heavy rainfall observed over DRC and Madagascar.

### 2.2. Weather assessment for the current day (03 February 2011):

Intense clouds are observed over southern parts of the Gulf of Guinea countries, DRC, Uganda, Zambia, Congo, Tanzania, Zambia, Malawi, Madagascar, Angola and Northern Namibia.



IR Satellite Image, Valid 1722Z, February 3, 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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