

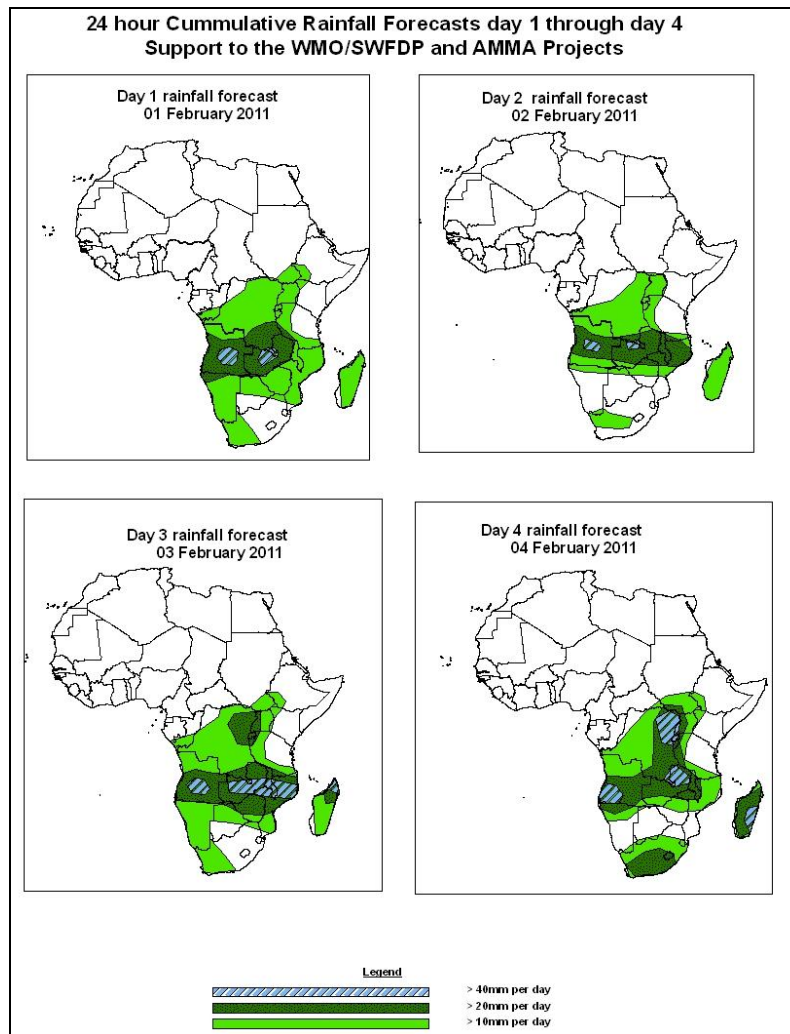


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid, 06Z of 01 February – 06Z of 04 February 2011, (Issued at 14:00Z of 31 January 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, strong lower level convergences across southern African countries, westward propagating mid-latitude trough across northeast Africa, and the cyclonic circulation in the vicinity of Madagascar are expected to enhance rainfall in their respective regions. Hence, there is an increased chance for rainfall to exceed 20mm per day over Madagascar, Zambia, Mozambique, Botswana, Angola and DRG.

## **1.2. Models Comparison and Discussion-Valid from 00Z of 31 JANUARY 2011.**

According to the GFS, ECMWF and UKMET models a series of cut off lows over the southern parts of the gulf of Guinea, parts of central African region and southern Sudan are expected to deepen during the next 24 to 96 hours. On the other hand, lows associated with the meridional arm of the ITCZ are also expected to persist in the area extending between central DRC and western Namibia. A low pressure system is expected to cross southern Madagascar and move further to the east while filling up through 24 to 96 hours.

According to the GFS, ECMWF and UKMET models, St. Helena High pressure system over southeast Atlantic Ocean is expected to intensify gradually through 24 to 96 hours, with its central pressure value changing from 1022 to 1028mb. Similarly, the Mascarene high pressure system over southwest Indian Ocean is expected to intensify through 24 to 96 hours as a result of weakening of the persistent low pressure system in the vicinity of Madagascar.

At 850hPa level, the GFS model indicates east-west oriented convergence line in the region between southern Nigeria and northeast DRC. A north-south oriented convergence line is also expected to dominate the flow across Uganda, western Tanzania and Malawi through 24 to 96 hours. Another convergence line is also expected in the region extending from western Angola to western South Africa across Namibia. The cyclonic circulation near southern Madagascar is expected to move eastwards while weakening through 24 to 96 hours.

At 700hPa level, the axis of a mid-latitude trough is expected to shift between 32° to 42° longitudes, with its southern tip reaching the latitudes of northern Sudan and northern Ethiopia through 24 to 96 hours. A strong lower tropospheric convergence is expected to dominate the flow over Angola, Zambia, DRC and Zambia, through 24 to 96 hours. The cyclonic circulation near Madagascar is expected to move eastwards while filling up through 24 to 96 hours.

At 200hPa, zone of strong wind (>50Kts) associated with the Sub Tropical westerly Jet in the sub-tropical region of northern Africa is expected to attain a wavy pattern through 24 to 96 hours. However, the maximum wind speed associated with jet is expected to decrease (to values of below 130kts) in the next 72 hours.

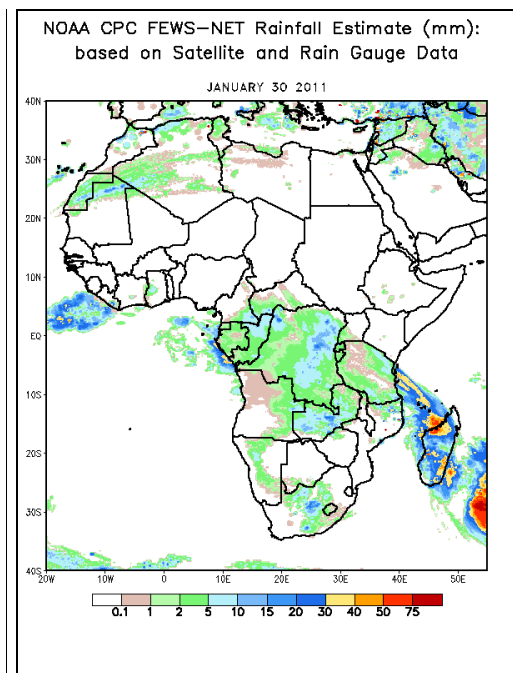
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## **2.0. Previous and Current Day Weather Discussion over Africa (30 January 2011 – 31 January 2011)**

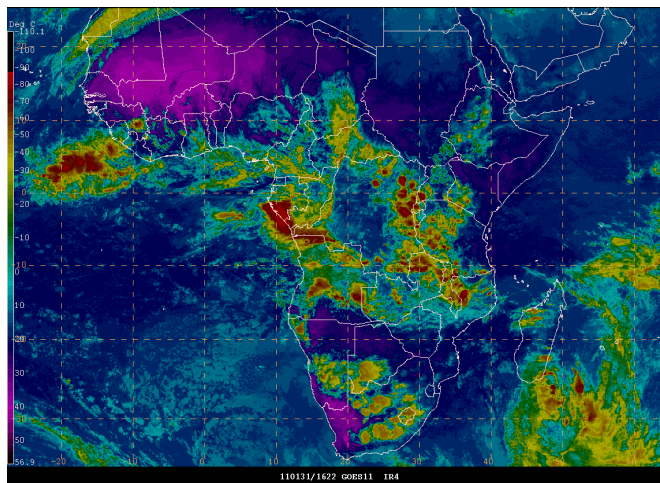
### **2.1. Weather assessment for the previous day (30 January 2011):**

During the previous day, light to moderate rainfall was observed over Gabon, Congo, DRC, Zambia, Tanzania and parts of South Africa, while some places in Madagascar received rainfall in excess of 30mm per day.

### **2.2. Weather assessment for the current day (31 January 2011):** Intense clouds are observed over eastern Congo, Uganda, parts of Tanzania, southern Kenya, Malawi, northern Mozambique and Angola.



IR Satellite Image, Valid 1622Z, January 31, 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*

**Disclaimer: This bulletin is for training purposes only and should be used as guidance. NOAA does not make forecasts for areas outside of the United States.**