

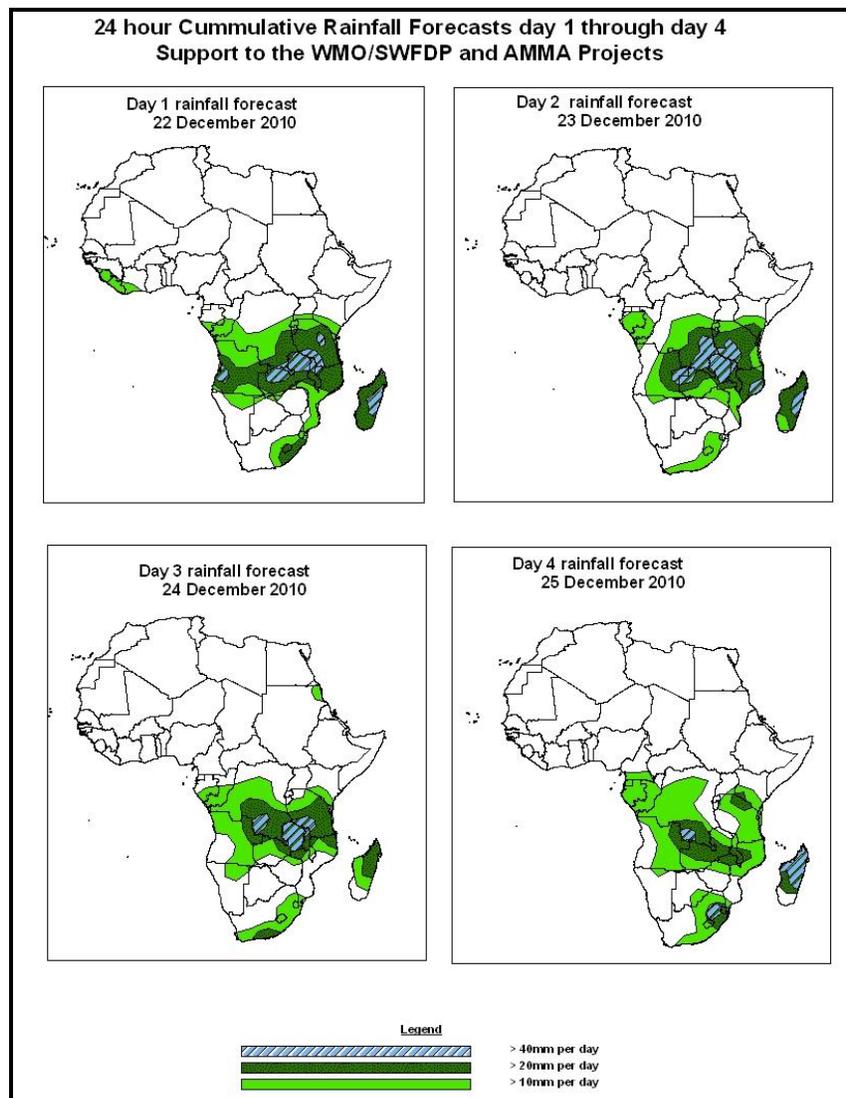


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid, 07Z of 22 DECEMBER – 06Z of 25 DECEMBER 2010, (Issued at 14:00Z of 21 DECEMBER 2010)

### 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, there is an increased chance for rainfall to exceed 20mm per day over Southern Africa and DRC with chances of locally heavy rainfall over Zambia, Angola, DRC, Malawi, Tanzania, Mozambique, South Africa and Madagascar.

## **1.2. Models Comparison and Discussion-Valid from 00Z of 21 DECEMBER 2010.**

According to the GFS, ECMWF and UKMET models a cut off low over Madagascar and Mozambique is expected to become slightly weak during the next 72 hours. Another cut off low over Namibia and Botswana is expected to extend to Zimbabwe in the next 8 hours. The models are also indicating a weak trough across the West African coast during the next 24 to 48 hours. ECMWF is indicating a cut off low over Botswana and South Africa in the next 24 hours. The cut off low is expected to move eastwards and extends to the southern parts of Mozambique in the next 48 to 72 hours.

The seasonal low pressure system (Meridional component of the ITCZ) is expected to be active over the southern parts of the Continent and DRC.

According to the GFS, ECMWF and UKMET models, St. Helena High pressure system over southern hemisphere is expected to be weak and remain to the southwest of the continent. Also Mascarene high pressure system is expected to remain generally weak.

At 850hPa level, The GFS model indicates convergence over the Lake Victoria extending to the northeastern parts of DRC in the next 24 48 hours and later to the southern parts of Cameroon. Another cyclonic convergence over Angola is expected to DRC in the next 72 hours. A cyclonic convergence along the Mozambique coast extending to Malawi and Zambia in the next 48 hours and later extends further to DRC in the next 72 to 96 hours.

At 700hPa level, cyclonic convergence over Angola is expected to persist during the next 72 hours and move slightly northwards. A convergence line over Zambia, Malawi and Mozambique is expected to become strong cyclonic convergence in the next 48hours. GFS model also indicates a cyclonic convergence off the Somali and Kenya coast during the next 24 to 48 hours. Another convergence over Madagascar is expected to move southwards in the next 48 to 72hours.

At 200hPa, zone of strong wind (>50Kts) associated with the Sub Tropical westerly Jet in the southern Hemisphere is expected to move off the east coast of South Africa in the next 72 hours. Wind speed is expected to be in the range of 90 to 110 kts.

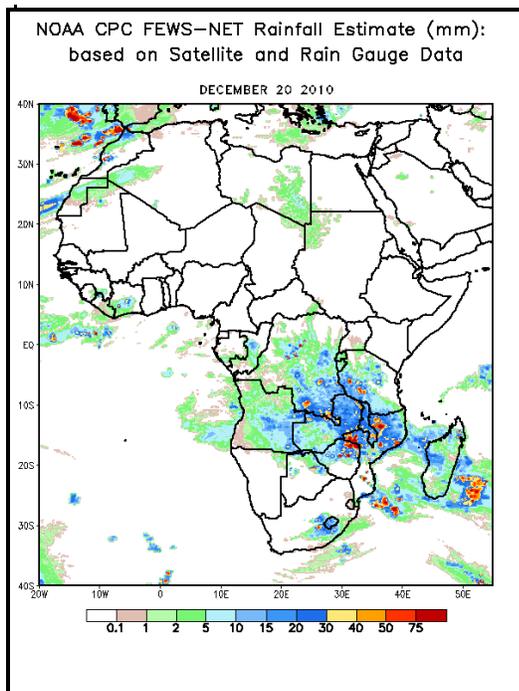
In the coming four days, there is an increased chance for rainfall to exceed 20mm per day over Southern Africa and DRC with chances of locally heavy rainfall over Zambia, Angola, DRC, Malawi, Tanzania, Mozambique, South Africa and Madagascar.

## **2.0. Previous and Current Day Weather Discussion over Africa (20 December 2010 – 21 December 2010)**

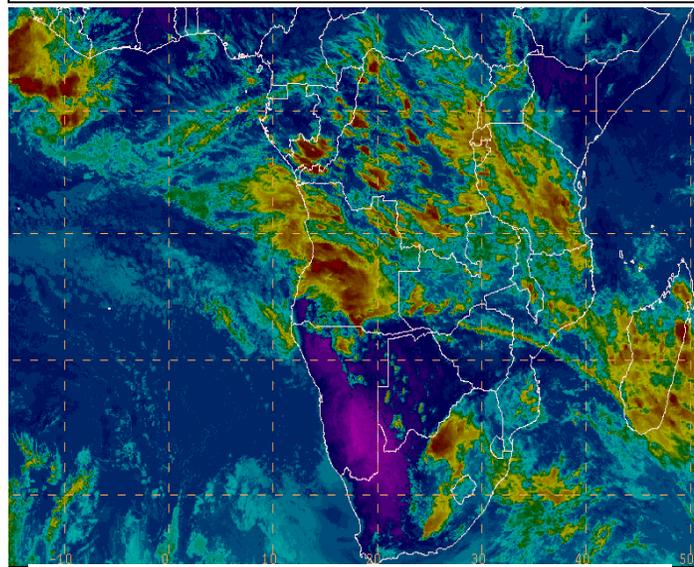
### **2.1. Weather assessment for the previous day (20 December 2010):**

During the previous day, only moderate rainfall was observed over Mozambique, Tanzania, DRC and Zimbabwe.

### **2.2. Weather assessment for the current day (21 December 2010):** Intense clouds are observed over Angola, Congo, DRC, Tanzania, Madagascar and South Africa.



IR Satellite Image, Valid 1700, December 21, 2010



*Previous day rainfall condition over Africa (Left)  
based on the NCEP CPCE/RFE and current day  
cloud cover (top) based on IR Satellite image*

**Author(s):** Samwel Mbuya (Tanzania Meteorological Agency) / CPC-African Desk), [samwel.mbuya@noaa.gov](mailto:samwel.mbuya@noaa.gov)

Omar Gouled Allaleh (Djibouti Meteorological Office / CPC-African Desk), [omar.allaleh@noaa.gov](mailto:omar.allaleh@noaa.gov)

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