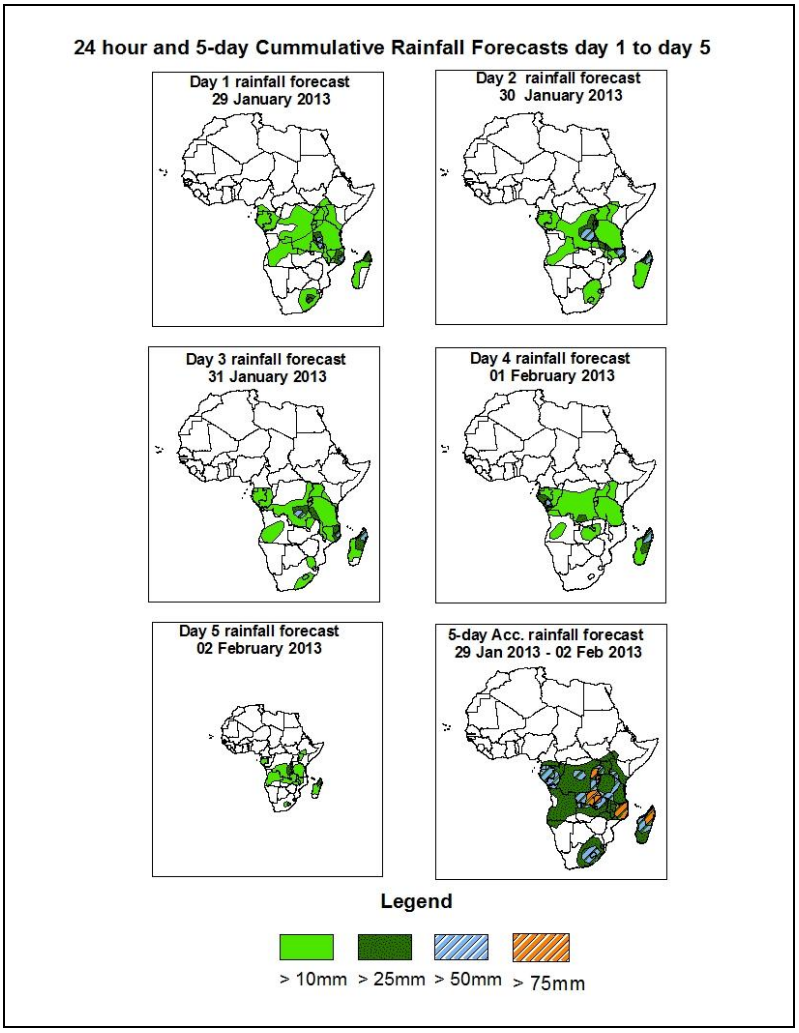
# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## *1.0. Rainfall Forecast: Valid 06Z of 29 January – 06Z of 02 February 2013. (Issued at 19:30Z of 28 January 2013)*

### 1.1. Twenty Four Hour Cumulative Rainfall Forecasts

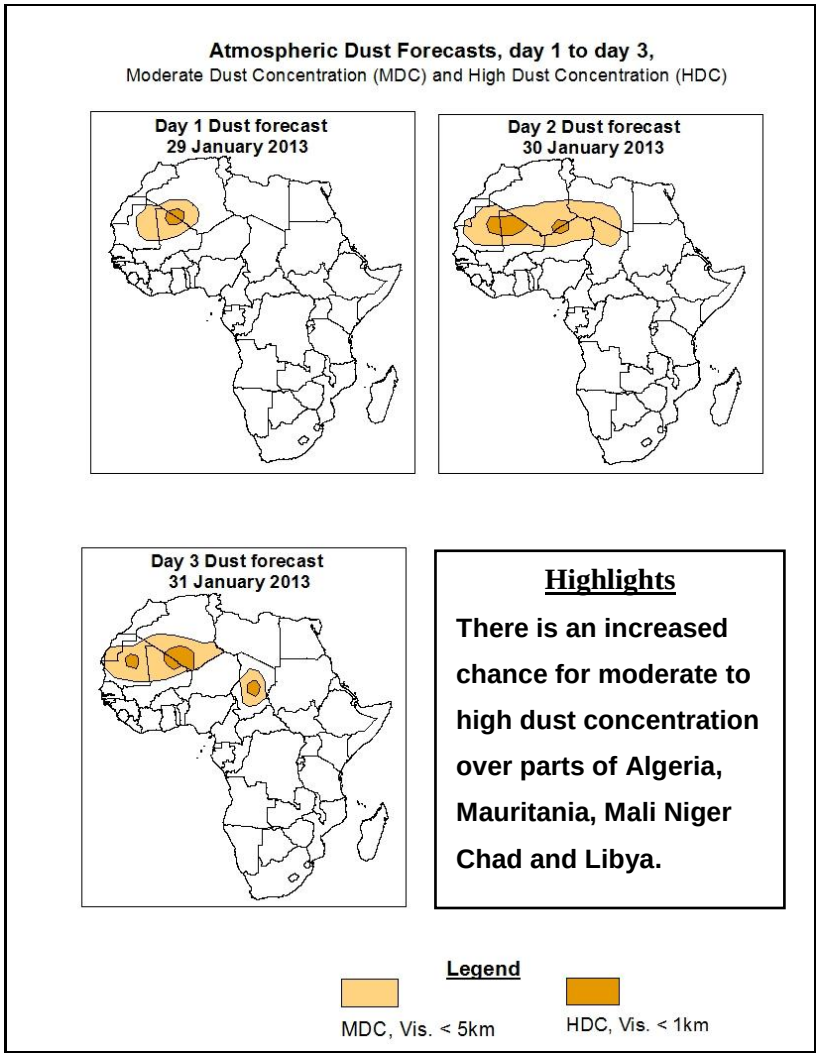
The forecasts are expressed in terms of 75% probability of precipitation (POP) exceeded, based on the NCEP, UK Met Office and the ECMWF NWP outputs, the NCEP global ensemble forecasts system (GEFS) and expert assessment.





**Summary**

In the next five days, moderate low level convergence over Angola, DRC, Malawi, Kenya, Mozambique, and a low system over Mozambique Channel are expected to enhance rainfall in their respective regions. Thus, there is an increased chance for moderate to heavy rainfall over local areas over parts of Angola, northern region of Mozambique, parts of DRC, Malawi, southeastern region of South Africa and Madagascar.




## 1.2. Model Discussion: Valid from 00Z of 28 January 2013

*Model comparison (Valid from 00Z; 28 January 2013) shows all the three models are in general agreement in terms of depicting eastward movement of the Mascarene and St Helena high pressure systems during the forecast period. However, the models show slight differences in terms of central pressure values.*

The St. Helena High Pressure System over southeast Atlantic Ocean is expected to heighten slightly throughout the forecast period. The central pressure value is expected to increase from about 1021hpa to 1029hpa according to the GFS, from about 1020hpa to 1029hpa according to the ECMWF model, and from about 1024hpa to 1030hpa according to the UKMET model.

The Mascarene high pressure system over southwestern Indian Ocean is also expected to heighten slightly, while shifting eastwards with its central pressure value increasing from about 1024hpa to 1033hpa, according to the GFS, from about 1023hpa to 1030hpa according to ECMWF model and from about 1024hpa to 1030hpa according to the UKMET model.

The seasonal lows across DRC, South Sudan and the neighboring areas is expected to heighten slightly throughout the forecast period, with the central pressure values increasing from about 1004hpa to 1008hpa according to the GFS and the UKMET models and from about 1006hpa to 1008hpa according to the ECMWF. A low system over Mozambique Channel is expected to prevail throughout the forecast period; the central pressure value is expected to deepen along the forecast period from about 1008hpa to 1000hpa according to the GFS model, from about 1008hpa to 1004hpa according to the UKMET model. According to the ECMWF model this low will prevail with 1008hpa throughout the forecast period.

At the 850hpa level, the seasonal lower level wind convergence near the CAB region is expected to remain with moderate to poor convergence conditions through 24 to 96 hours. Moderate low level convergence is expected to prevail active over parts of Angola, DRC, Malawi, South Africa and Mozambique, throughout the forecast period.

At 500hpa, an eastward propagation is expected to dominate the flow over northern countries of Africa and Mediterranean Sea through 24 to 48 hours and a trough in the mid-latitude westerly is expected dominate the flow over the previously mentioned area towards end of the forecast period. A cut-of-low is expected to form over South Africa through 48 to 72 hours.

At 200hpa, the northern hemisphere sub-tropical westerly jet is expected to remain active through the forecast period; the core wind speed occasionally will exceed 150kts over northern countries of Africa and Mediterranean Sea.

In the next five days, moderate low level convergence over Angola, DRC, Malawi, Kenya, Mozambique, and a low system over Mozambique Channel are expected to enhance rainfall in their respective regions. Thus, there is an increased chance for

moderate to heavy rainfall over local areas over parts of Angola, northern region of Mozambique, parts of DRC, Malawi, southeastern region of South Africa and Madagascar.

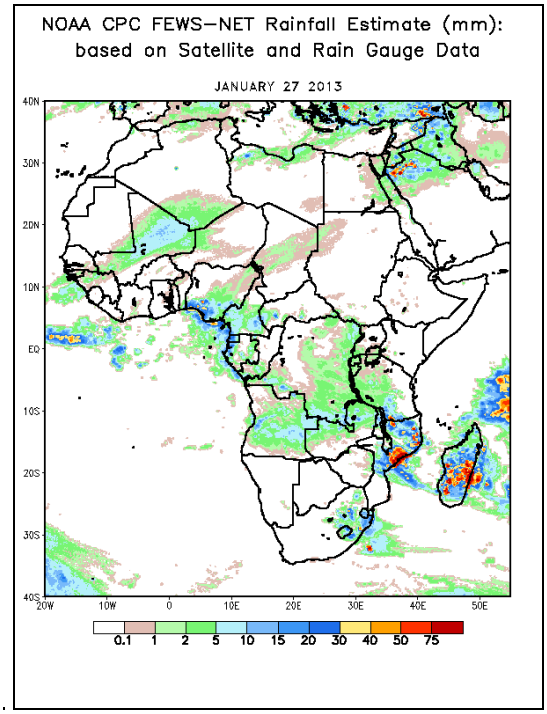
## 2.0. Previous and Current Day Weather Discussion over Africa (27 January 2013 – 28 January 2013)

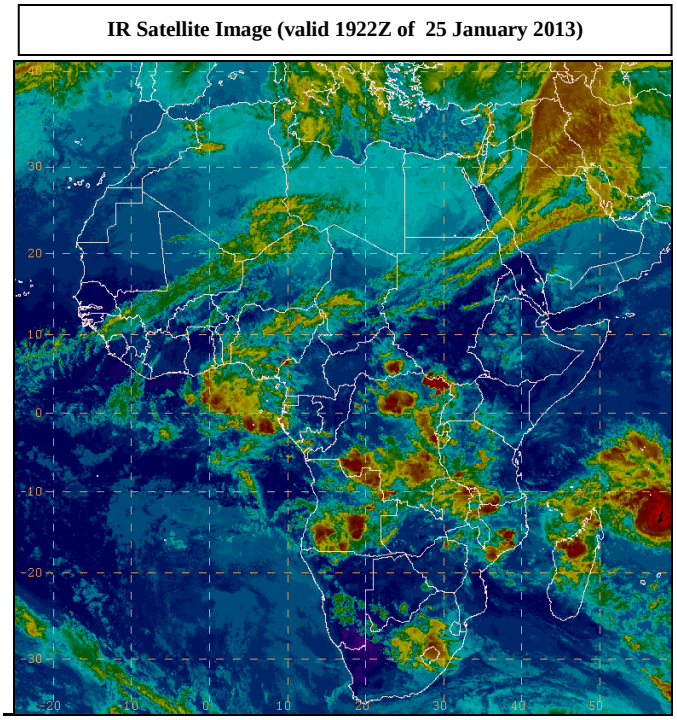
### 2.1. Weather assessment for the previous day (27 January 2013)

During the previous day, moderate to locally heavy rainfall was observed over parts of Madagascar, Mozambique and Congo and the coastal areas of Cameron and Nigeria.

### 2.2. Weather assessment for the current day (28 January 2013)

Intense clouds are observed over DRC, Angola, northern region of Mozambique, South Africa and Madagascar.




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

***Author:*** **Lameque Arone Matimbe**, (Mozambique National institute of Meteorology / CPC-African Desk); lameque.matimbe@noaa.gov