

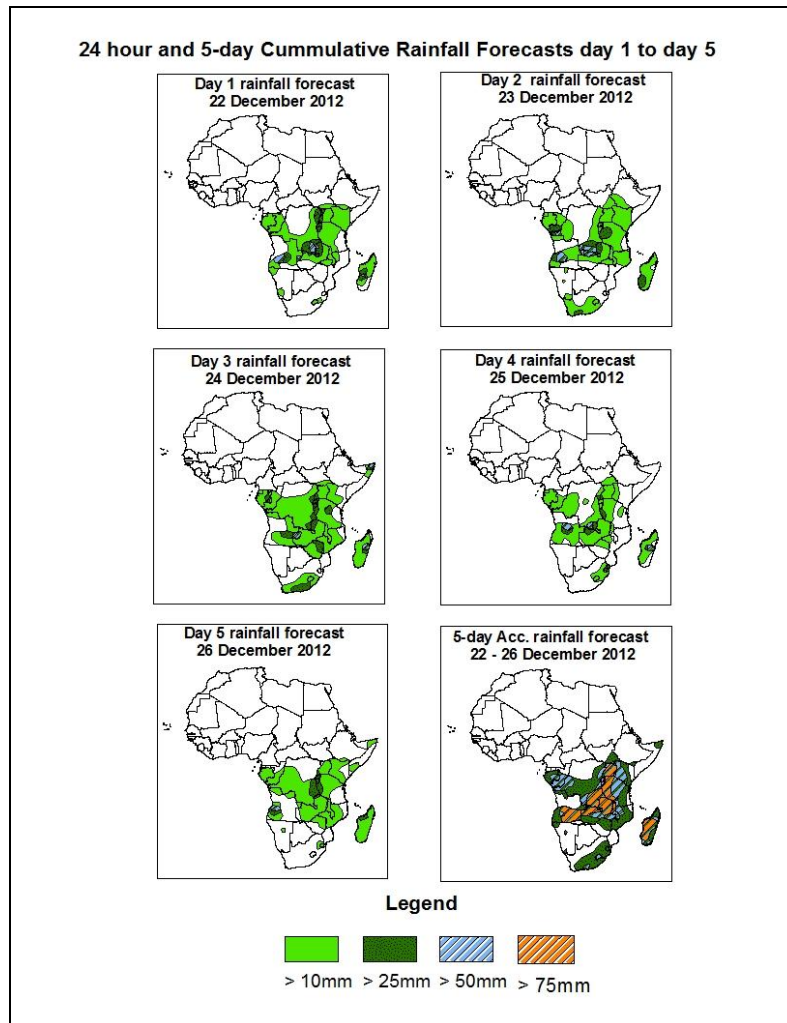


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid 06Z of 22 December – 06Z of 26 December 2012. (Issued at 16:00Z of 21 December 2012)

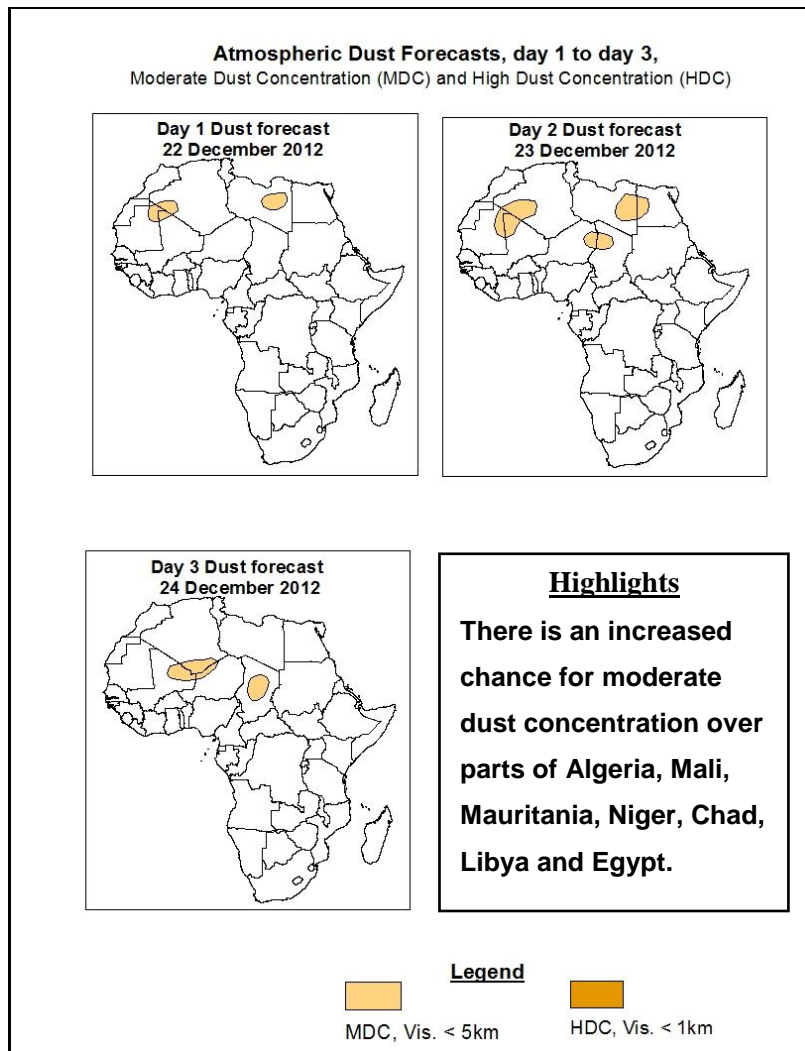
### 1.1. Twenty Four Hour Cumulative Rainfall Forecasts

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, localized wind convergences over Gabon and Congo, lower-level wind convergences over parts of Southern Africa countries are expected to enhance rainfall in their respective regions. Thus, there is an increased chance for heavy rainfall over local areas in Gabon, Congo, central region of Angola, Zambia, and Madagascar and parts of DR Congo.



## 1.2. Model Discussion: Valid from 00Z of 21 December 2012

*Model comparison (Valid from 00Z; 21 December 2012) 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 maintain its central pressure value of about 1020hpa throughout the forecast period according to the GFS, the ECMWF and the UKMET models.

The Mascarene high pressure system over southwestern Indian Ocean is also expected to maintain its central pressure of about 1019hpa through 24 to 48 hours, while shifting eastwards according to the ECMWF, the UKMET, and the GFS models. A new

Mascarene high pressure system is expected to form over Southwest Indian Ocean, after cutting itself from the St. Helena High pressure system through 72 to 96 hours. The central pressure value of the newly formed high is expected to remain weak, with its central pressure of about 1016hpa and 1018hpa according to the GFS and the ECMWF models respectively. In contrast, is expected to increase slightly from about 1016hpa to 1019hpa, according to the UKMET model.

The seasonal lows across DRC, South Sudan and the neighboring areas is expected to maintain central pressure value of about 1008hpa according to the GFS and the UKMET models, and about 1009hpa according to the ECMWF model. A low system is expected to form over Mozambique Channel towards end of the forecast period.

At the 850hpa level, the seasonal lower level wind convergence near the CAB region is expected to remain weak through 24 to 96 hours. In contrast to the CAB situation, lower level wind convergences are expected to remain active across Angola, southern region of DRC, and Zambia, while localized wind convergences are expected to dominate the flow over parts of Kenya, Uganda, Tanzania and northern Mozambique. An eastward propagating trough across South Africa is expected to remain active through 72 hours while a cut-of-low is expected to form in the end of forecast period.

At 500hpa, a trough in the mid-latitude westerlies is expected dominate the flow over Northeast Africa through 24 to 72 hours. A cut- of- cyclonic circulation is expected to form over central region of South Africa towards end of the forecast.

At 200hpa, the northern hemisphere sub-tropical westerly jet is expected to remain active with the core wind speed occasionally exceeding 130kts during the forecast period over Libya and Egypt.

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## 2.0. Previous and Current Day Weather Discussion over Africa

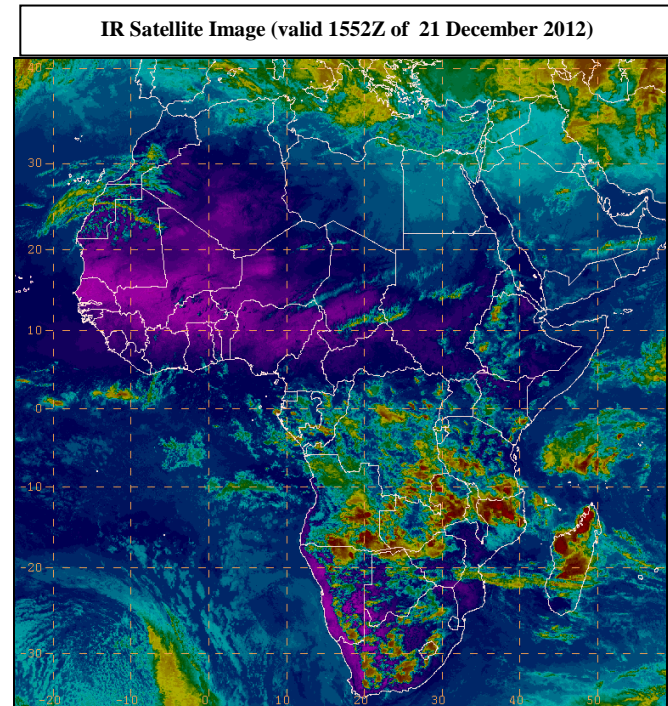
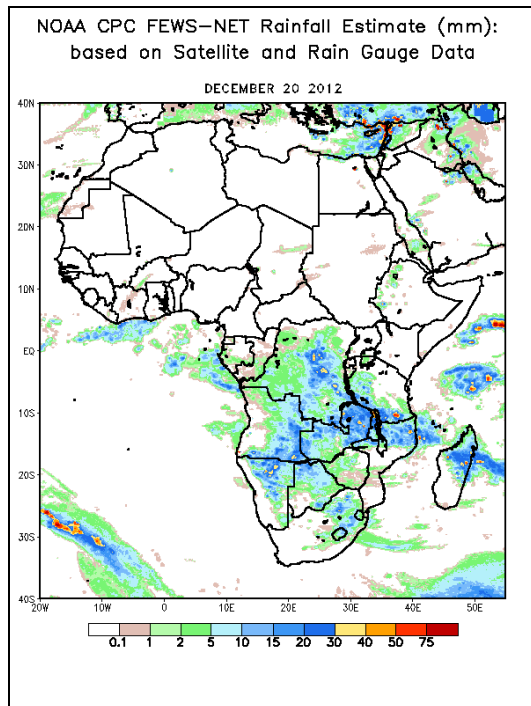
(20 December 2012 – 21 December 2012)

### 2.1. Weather assessment for the previous day (20 December 2012)

During the previous day, moderate to locally heavy rainfall was observed over much of Zambia, parts of DRC, eastern region of Angola, northern region of Namibia, southern region of Tanzania, northern region of Mozambique and northeastern region of Madagascar.

### 2.2. Weather assessment for the current day (21 December 2012)

Intense clouds are observed over Zambia; parts of Angola, South Africa, northern region of Mozambique 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*

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