

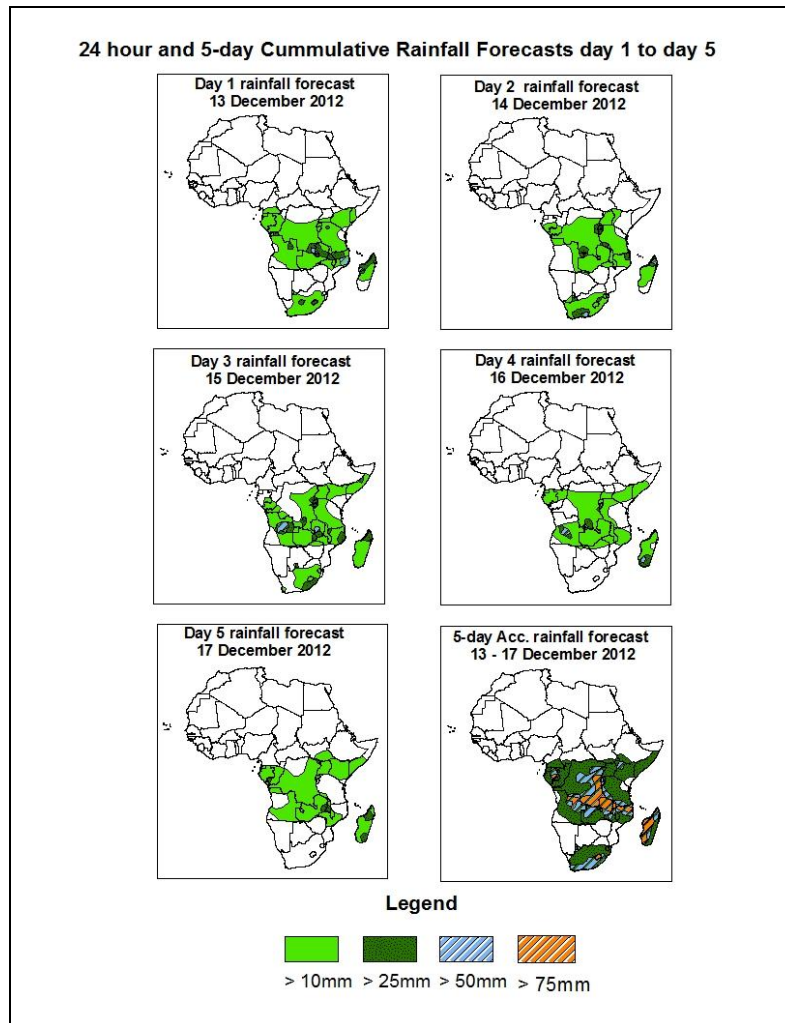


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid 06Z of 13 December – 06Z of 17 December 2012. (Issued at 16:00Z of 12 December 2012)

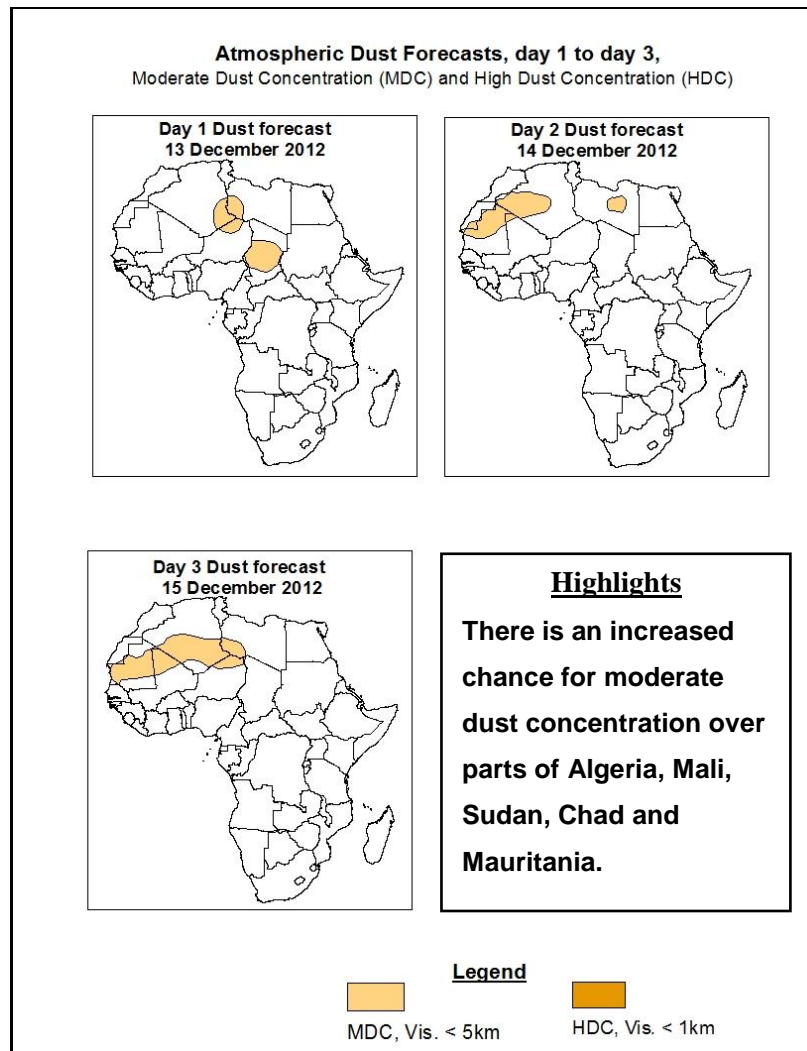
### 1.1. Twenty Four Hour Cumulative Rainfall Forecasts

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 across western Equatorial and East Africa, lower-level wind convergences over parts of Southern Africa countries, and eastward propagating trough across South Africa are expected to enhance rainfall in their respective regions. Thus, there is an increased chance for heavy rainfall over local areas in Gabon, Cameroon, DRC, Congo, parts of Angola, Zambia, Zimbabwe, Malawi, parts of Tanzania and Kenya, Madagascar, southeastern region of South Africa, and northern region of Mozambique.



## 1.2. Model Discussion: Valid from 00Z of 12 December 2012

*Model comparison (Valid from 00Z; 12 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 weaken through 24 to 96 hours, with its central pressure value decreasing from about 1023hpa to 1020hpa, according to the GFS, from about 1024hpa to 1018hpa according to the ECMWF model, and from 1026hpa to 1021hpa, according to the UKMET model.

The Mascarene high pressure system over southwestern Indian Ocean is expected to weaken slightly, while shifting eastwards with its central pressure value decreasing

through 24 to 96 hours, from 1021hpa to 1016hpa, according to the GFS, from 1021hpa to 1018hpa according to ECMWF and from about 1022hpa to 1018hpa according to the UKMET model. 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 48 to 72 hours. The central pressure value of the newly formed high is expected to strengthen slightly, with its central pressure increasing from about 1016hpa to 1021hpa according to the GFS model, from about 1018hpa to 1019hpa, according to the ECMWF model, and from about 1018hpa to 1020hpa according to the UKMET model.

The seasonal lows across equatorial and Central Africa countries are expected to deepen slightly through 24 to 120 hours, with its central pressure decreasing from 1007hpa to 1005hpa, according to GFS model, from 1007hpa to 1006hpa according to ECMWF model and from 1007hpa to 1005hpa according to ECMWF model.

At the 850hpa level, the seasonal lower level wind convergence near the CAB region is expected to remain active throughout forecasting period. Strong low level convergence is expected to prevail active over Gabon, Cameroon, Angola, Botswana, Zambia, Zimbabwe, Malawi while localized wind convergences are also expected to dominate the flow over southern, parts of DRC, Somalia, Tanzania and Mozambique. An eastward propagating trough across South Africa is expected to remain active through 48 hours.

At 500hpa, a trough in the mid-latitude westerly flow is expected to remain active over Northeast Africa through 24 to 72 hours. A cut of cyclonic circulation is expected to remain active through 24 to 48 hours over Central region of South Africa while a mid-latitude trough is expected to propagate over Southeast region of South Africa towards end of the forecast period.

At 200hpa, the northern hemisphere sub-tropical westerly jet is expected to remain strong across parts of Tunisia, Libya and Egypt, with the core wind speed occasionally exceeding 150kts through 24 to 72 hours, and tends to weaken towards end of the forecast period while moving to northeastern region.

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

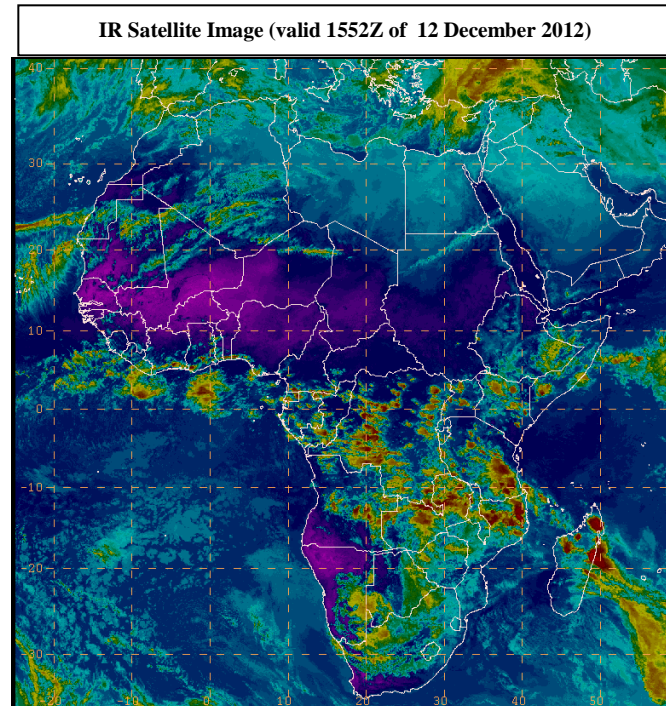
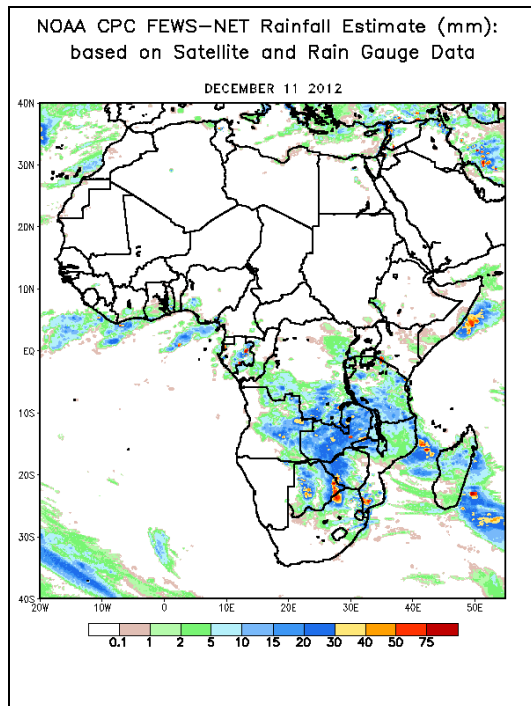
(11 December 2012 – 12 December 2012)

### 2.1. Weather assessment for the previous day (11 December 2012)

During the previous day, moderate to locally heavy rainfall was observed over parts of Gabon, localized areas over southern DRC, Tanzania, Botswana, central and eastern Angola, Zambia, northeastern parts of South Africa, southern and northern parts of Mozambique, Madagascar.

### 2.2. Weather assessment for the current day (12 December 2012)

Intense clouds are observed over central and eastern Angola, DRC, Zimbabwe, Tanzania and Zambia, northern region of Mozambique, local areas of East Africa, north and east 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*