

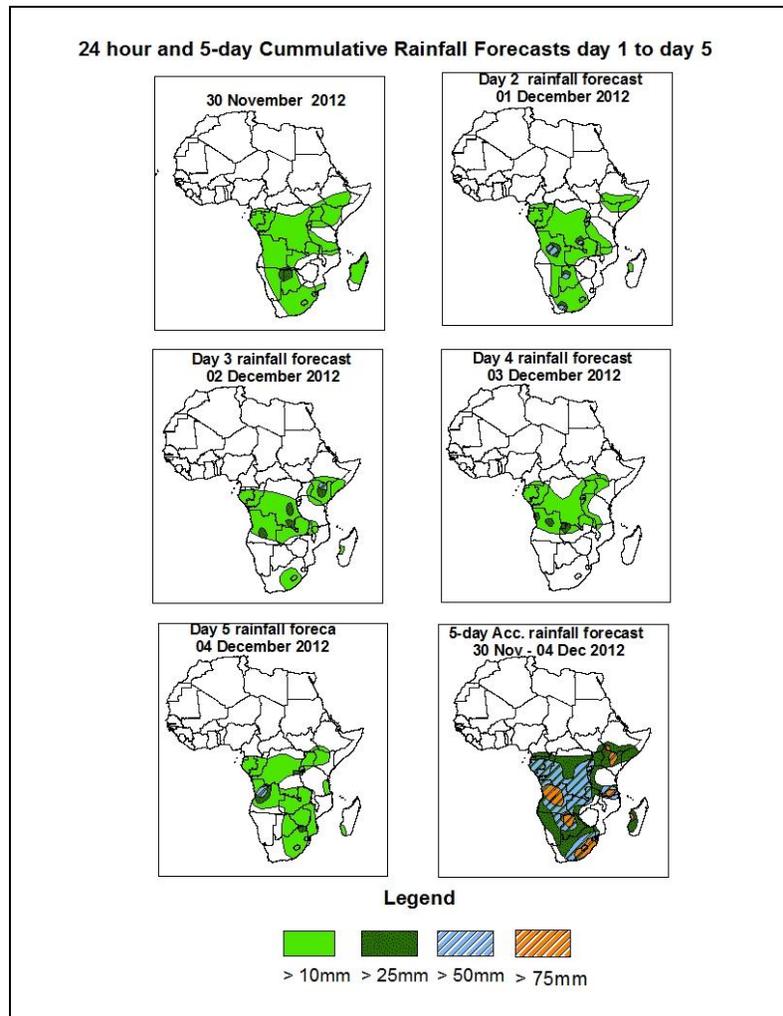


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid 06Z of 30 November – 06Z of 04 December 2012. (Issued at 16:00Z of 29 November 2012)

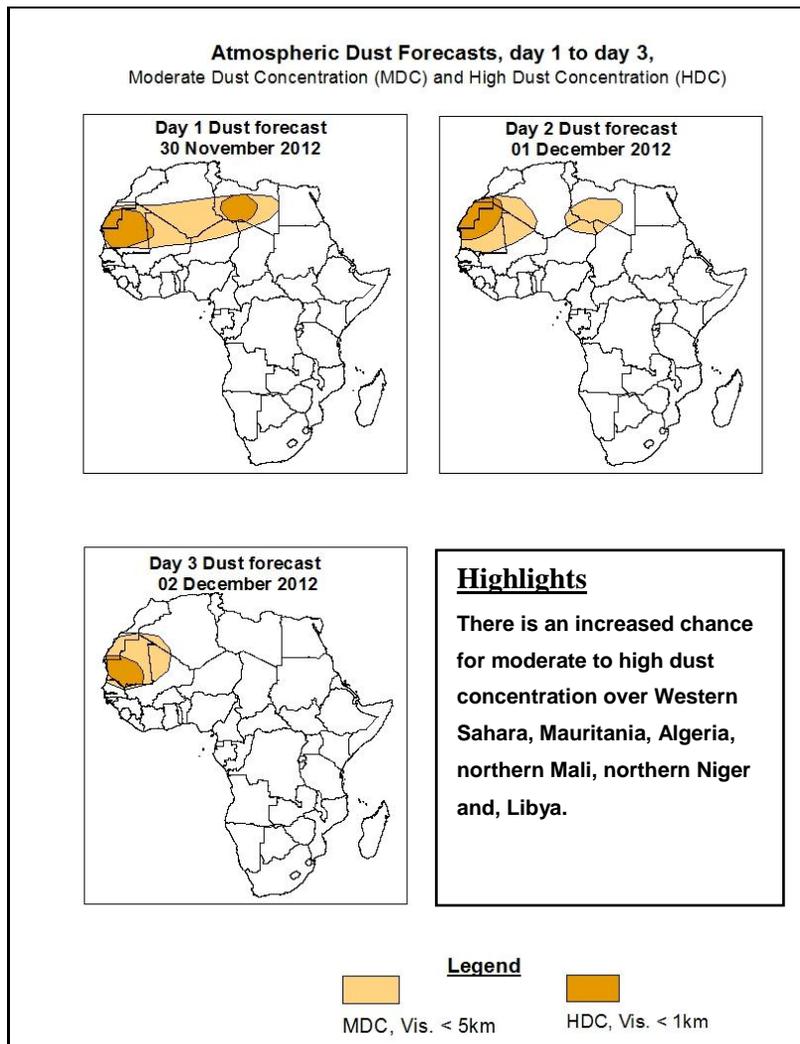
### 1.1. Twenty Four Hour Cumulative Rainfall Forecasts

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 near Gabon, and across East Africa, lower-level wind convergences over parts of South African 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 Gabon, parts of Congo, Angola, northern Botswana, northern Zambia, DRC, local areas in Uganda, parts of Tanzania and Kenya, local areas in Ethiopia, eastern South Africa and local areas in Madagascar, with the heaviest rainfall expected over portions of Angola and Botswana.



## 1.2. Model Discussion: Valid from 00Z of 29 November 2012

*Model comparison (Valid from 00Z; 29 November 2012) shows all the three models are in general agreement in terms of depicting eastward shift of the southern hemisphere high pressure systems (St. Helena and Mascarene). However, the models show differences in terms of central pressure values.*

The St. Helena High pressure system over southeast Atlantic Ocean is expected to weaken, while shifting to Southwest Indian Ocean, to become the Mascarene high pressure system through 24 to 72 hours. Its central pressure value is expected to decrease from 1030hpa to 1025hpa, according to the ECMWF, from 1030hpa to 1026hpa according to the GFS model, and from 1031hpa to 1028hpa according to the UKMET model. A new St Helena high pressure system is expected to form over Southeast Atlantic Ocean during the second half of the forecast period, with its central

pressure value increasing from 1027hpa to 1030hpa, according to the ECMWF model, from 1020hpa to 1028hpa, according to the GFS model, and from 1028hpa to 1032hpa according to the UKMET model.

The Mascarene high pressure system over southwestern Indian Ocean is expected to shift eastwards, while giving way to the newly forming high pressure system. The newly formed high pressure system is expected to attain central pressure value of 1024hpa according to the ECMWF and UKMET models, and 1028hpa according to the GFS model, towards end of the forecast period.

The seasonal lows across the southern African countries are expected to deepen through 24 to 48 hours, with their central pressure value becoming as low as 1007hpa according to the ECMWF model, 1005hpa, according to the GFS model and as low as 1008hpa according to UKMET model. A low pressure system is expected to propagate across southern South Africa through 24 to 96 hours.

At the 850hpa level, the seasonal lower level wind convergence near the CAB region is expected to remain weak during the forecast period. In contrast, lower level wind convergences are expected to remain active across Angola, parts of Zambia and Botswana during the forecast period. Wind convergences are also expected to dominate the flow over Gabon, parts of Kenya and Ethiopia, and Tanzania. A lower-level trough in westerlies expected to dominate the flow over eastern South Africa and Madagascar. In contrast, lower level anticyclonic flow is expected to dominate near Zimbabwe, northeastern South Africa and Mozambique through 24 to 72 hours.

At 500hpa, a trough in the mid-latitude westerlies is expected to dominate the flow over Northwest and North Africa, while a mid-tropospheric anticyclonic flow prevails over Northeast Africa.

At 200hpa, the northern hemisphere sub-tropical westerly jet is expected to remain strong across Northeast Africa, with the core wind speed occasionally exceeding 150kts.

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## 2.0. Previous and Current Day Weather Discussion over Africa (28 November 2012 – 29 November 2012)

### 2.1. Weather assessment for the previous day (28 November 2012)

During the previous day, moderate to locally heavy rainfall was observed over parts of Gabon, portions of DRC, Uganda, Tanzania, Kenya, Angola, and local areas in Ethiopia, southern Somalia and Madagascar.

### 2.2. Weather assessment for the current day (29 November 2012)

Intense clouds are observed across many parts of Central African region, portions of the Horn of Africa, and portions of Southern Africa countries, including Madagascar.

