

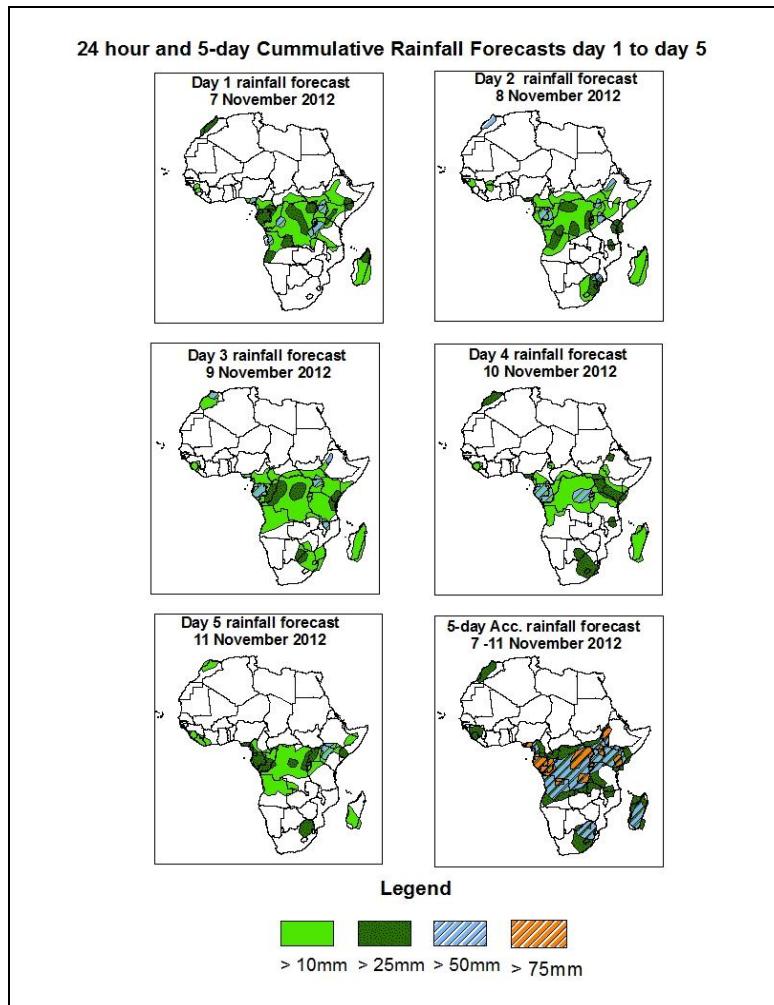


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid 06Z of 07 November – 06Z of 11 November 2012. (Issued at 19:00Z of 06 November 2012)

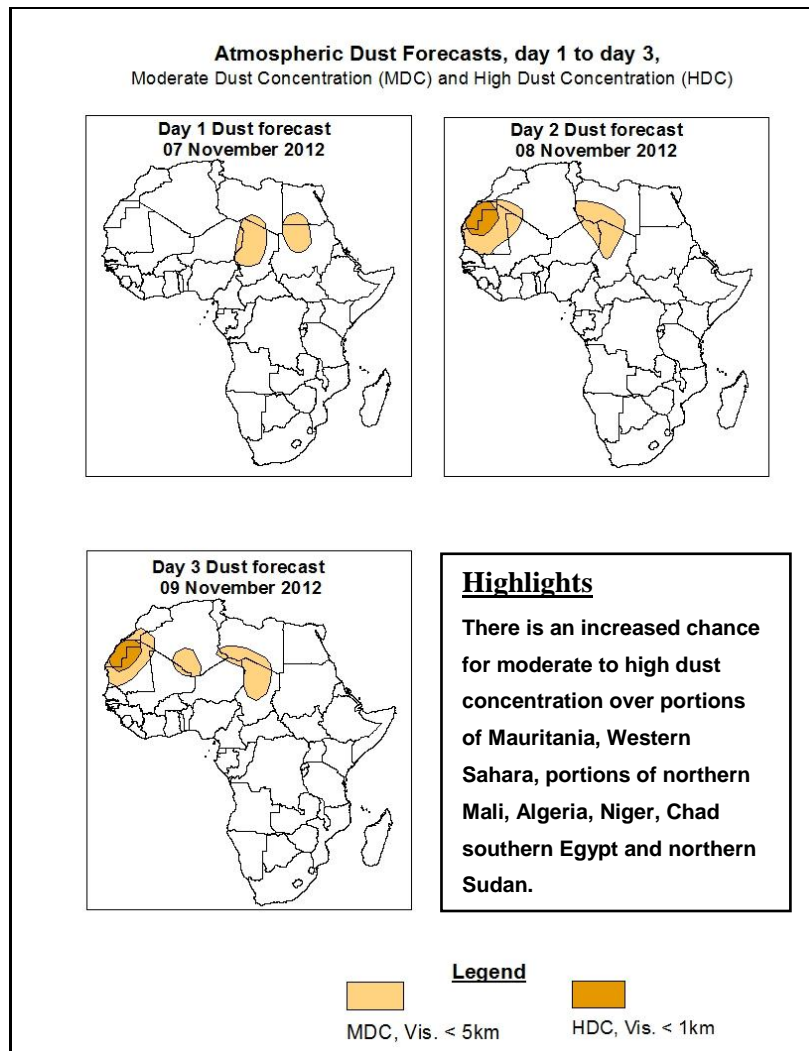
### 1.1. Twenty Four Hour Cumulative Rainfall Forecasts

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, seasonal low level wind convergences in the Congo Air Boundary (CAB) region, a deep lower level cyclonic shear across western parts of Equatorial Africa, localized wind convergences over Angola, and interaction between mid-latitude and tropical systems across Southeast Africa are expected to enhance rainfall in their respective regions. Thus, there is an increased chance for heavy rainfall over southern Cameroon, Gabon, Equatorial Africa, western Angola, eastern DRC, Uganda, Rwanda, Burundi, portions of Kenya, western and northern Tanzania, portions of Ethiopia and eastern South Africa.



## 1.2. Model Discussion: Valid from 00Z of 06 November 2012

*Model comparison (Valid from 00Z; 06 November 2012) shows all the three models are in general agreement in terms of depicting the eastward movement 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 maintain central pressure value of 1028hpa through 24 to 48 hours according to the ECMWF model, before it shifts eastward to become the Mascarene high pressure system. A new St. Helena high pressure system is expected to develop with its central pressure value increasing to 1024hpa towards end of the forecast period. According to the GFS model, the central pressure value of this high press pressure system tends to increase from 1026hpa to 1028hpa through 24 to 28 hours, and it tends to shift

eastwards to become the Mascarene high pressure system. The newly developed St. Helena high pressure system is expected to maintain central pressure value of 1024hpa through 72 to 120 hours. Similarly, the central pressure value of the St Helena high pressure system is expected to increase slightly from 1028hpa to 1029hpa through 24 to 48 hours according to the UKMET office. The High pressure system tends to shift eastward to become the Mascarene high pressure system through 72 to 96 hours, leaving a way for a newly developing high pressure system. The new St Helena high tends to maintain central pressure value of 1023hpa through 72 to 120 hours.

The Mascarene high pressure system over southwestern Indian Ocean is expected to weaken gradually with its central pressure value decreasing from 1028hpa to 1026hpa through 24 to 72 hours, while shifting eastwards and its position is expected to be taken by a new high pressure system that comes from the Atlantic Ocean through 96 to 120 hours according to the ECMWF and GFS and UKMET models.

The seasonal lows across the southern African countries are expected to deepen gradually with their central pressure value decreasing from about 1009hpa to about 1005hpa according the ECMWF model, from 1009hpa to 1004hpa according to the UKMET model, and fro 1008hpa to 1004hpa according to the GFS model through 24 to 120 hours.

At the 850hpa level, the seasonal lower level wind convergence is expected to remain active in the region between Southwest Ethiopia and northwestern Tanzania, across Uganda and western Kenya as well as eastern DRC through 24 to 96 hours, and the convergence tends to weaken slightly towards end of the forecast period. A deep lower level cyclonic shear is expected to dominate the flow near Congo and Gabon through 24 to 96 hours, and it tends to move westward into the Atlantic Ocean towards end of the forecast period. Localized wind convergences are also expected to dominate the flow over Angola and Namibia during the forecast period. A mid-latitude frontal system is expected to interact with tropical systems across Southeast Africa including Madagascar.

At 500hpa, a trough in the mid-latitude westerlies is expected to remain deep across Egypt through 24 to 120hours. A trough associated with mid-latitude frontal system is

also expected to propagate across the Mozambique Channel and Madagascar during the forecast period.

At 200hpa, the northern hemisphere sub-tropical westerly jet is expected to remain weak within the extent of the African domain, while a core of strong wind, associated with the southern hemisphere sub-tropical westerly jet is expected to propagate across the southern tip of South Africa during the forecast period.

In the next five days, seasonal low level wind convergences in the Congo Air Boundary (CAB) region, a deep lower level cyclonic shear across western parts of Equatorial Africa, localized wind convergences over Angola, and interaction between mid-latitude and tropical systems across Southeast Africa are expected to enhance rainfall in their respective regions. Thus, there is an increased chance for heavy rainfall over southern Cameroon, Gabon, Equatorial Africa, western Angola, eastern DRC, Uganda, Rwanda, Burundi, portions of Kenya, western and northern Tanzania, portions of Ethiopia and eastern South Africa.

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

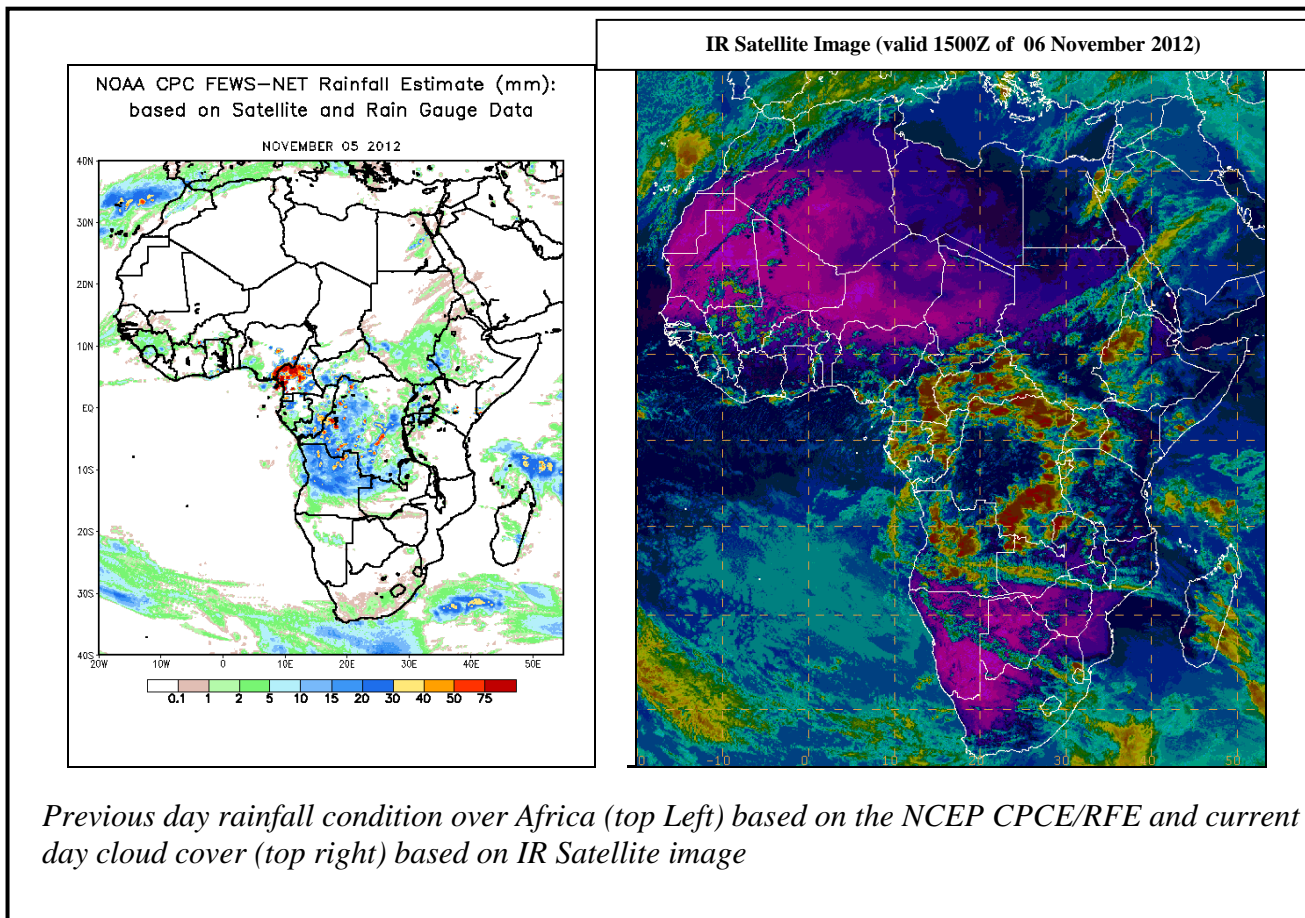
(05 November 2012 – 06 November 2012)

### 2.1. Weather assessment for the previous day (05 November 2012)

During the previous day, moderate to locally heavy rainfall was observed over parts of Burkina Faso, Ghana, Cameroon, Sudan, Guinea Conakry, Zambia, South Africa, DRC, Angola, much of Uganda, Kenya and Tanzania.

### 2.2. Weather assessment for the current day (06 November 2012)

Intense clouds are observed across the Gulf of Guinea countries, Sudan, South Sudan, CAR, DRC, Gabon, Angola, South Africa, Cameroon and northern Zambia.



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