

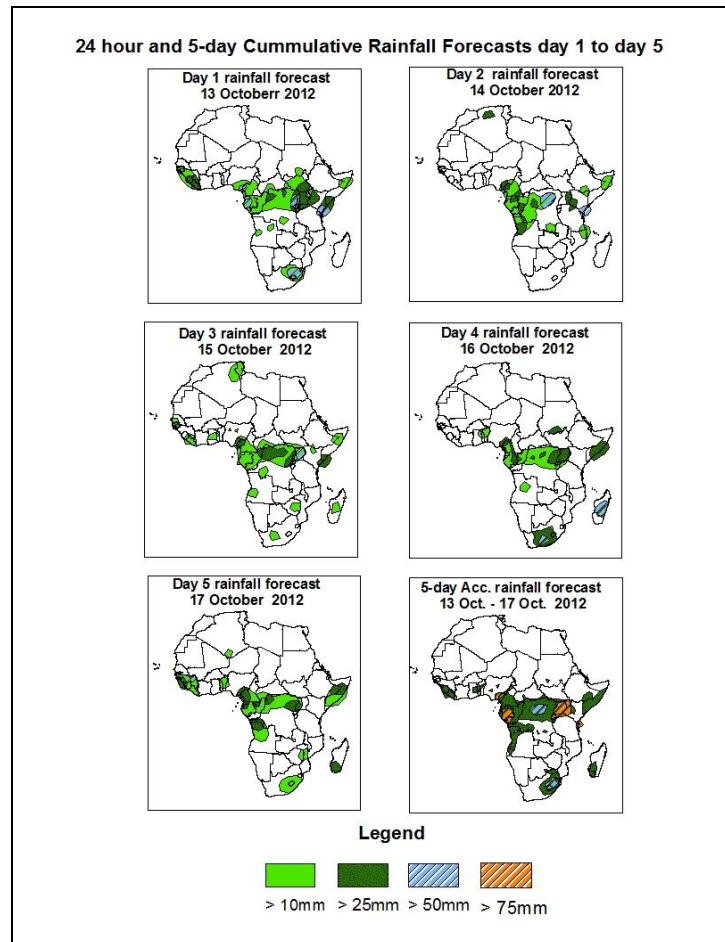


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid 06Z of October 13<sup>th</sup> – 06Z of October, 17<sup>th</sup> 2012. (Issued at 13:00Z of October, 12<sup>th</sup> 2012)

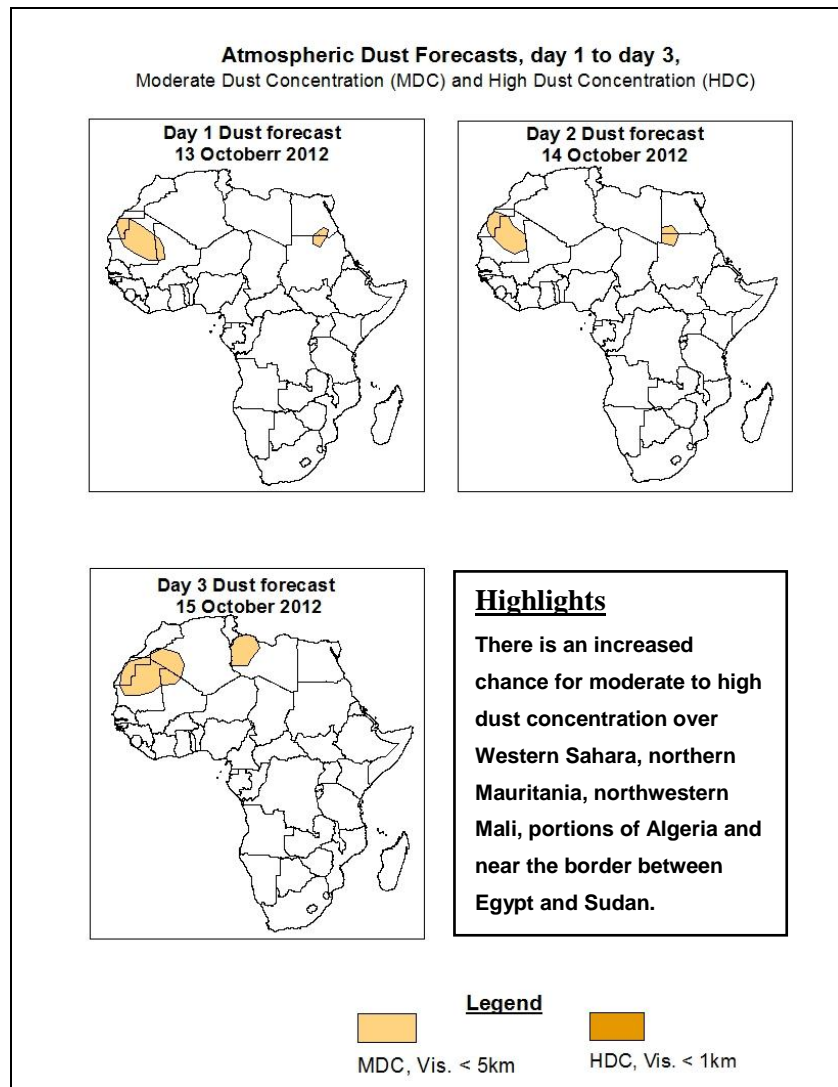
### 1.1. Twenty Four Hour Cumulative Rainfall Forecasts

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, the seasonal low level wind convergences near the Congo Air Boundary (CAB) region, wind convergences associated with the monsoon flow over eastern Gulf of Guinea and western Equatorial Africa, and the eastward propagating mid-latitude frontal systems across South Africa are expected to enhance rainfall in their respective regions. Thus, there is an increased chance for heavy rainfall over southeastern Nigeria, portions of Cameroon, Gabon, Congo, eastern DRC, Uganda, western Kenya and southern Ethiopia.



## 1.2. Model Discussion: Valid from 00Z of October, 12<sup>th</sup> 2012.

*Model comparison (Valid from 00Z; October, 12<sup>th</sup> 2012) shows all the three models are in general agreement with respect to positioning of synoptic scale features, like the seasonal lows across Angola and DRC, the eastward propagating frontal systems across Libya and Egypt, and also across southeastern Africa, the eastward shift of the St. Helena and Mascarene anticyclones. However, the models show differences in terms of central pressure values.*

According to the ECMWF model St. Helena High pressure system over southeast Atlantic Ocean is expected to weaken, with its MSLP value decreasing from 1028hpa to 1024hpa in 120 hours while shifting slightly eastward. According to the GFS and UKMET models, this same high pressure system is expected to decrease its central pressure value of 1029hpa to 1024hpa in 120 hours, while slightly shifting eastward.

The Mascarene high pressure system over southwest Indian Ocean is expected to decrease in value from 1026hpa to 1024hpa in 120 hours according to the GFS model and its central pressure tends to decrease from 1025mb to 1024 according to the ECMWF model, while shifting eastward. According to UKMET model, this high pressure system tends to maintain its central pressure value of 1024mb during the forecast period.

The seasonal lows across Angola and DRC tend to slightly deepen, with their pressure values decreasing from about 1009mb to 1007mb during the forecast period according to the UKMET and GFS models. The East African ridge across Southeast and East Africa is expected to weaken slightly, along with the weakening of the Mascarene high pressure system.

At the 850hpa level, northeast-southwest oriented wind convergence is expected to remain active across between eastern Angola and South Sudan, across DRC and Uganda through 24 hours. This seasonal wind convergence is expected to weaken gradually across its southern end, and remain active over eastern DRC and, Uganda and Sudan during 48 to 120 hours. Active lower level wind convergence is also expected to dominate the flow across eastern Gulf of Guinea western parts of Equatorial Africa. Moist easterly flow is expected to prevail over eastern Botswana, northeastern South Africa and southern Madagascar through 24 to 96 hours, and tends to weaken towards end of the forecast period.

At 500hpa, the trough associated with the Northern Hemisphere mid-latitude system is expected to propagate across northern Libya and Egypt during the forecast period. A mid latitude frontal system is also expected to propagate eastwards across South Africa within 24 to 72 hours.

At 200hpa, the northern Hemisphere sub-tropical westerly jet is expected to remain more or less weak during the forecast period. The southern hemisphere subtropical system is also expected to remain south of the African domain during the forecast period.

In the next five days, the seasonal low level wind convergences near the Congo Air Boundary (CAB) region, wind convergences associated with the monsoon flow over eastern Gulf of Guinea and western Equatorial Africa, and the eastward propagating mid-latitude frontal systems across South Africa are expected to enhance rainfall in their respective regions. Thus, there is an increased chance for heavy rainfall over southeastern Nigeria, portions of Cameroon, Gabon, Congo, eastern DRC, Uganda, western Kenya and southern Ethiopia.

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

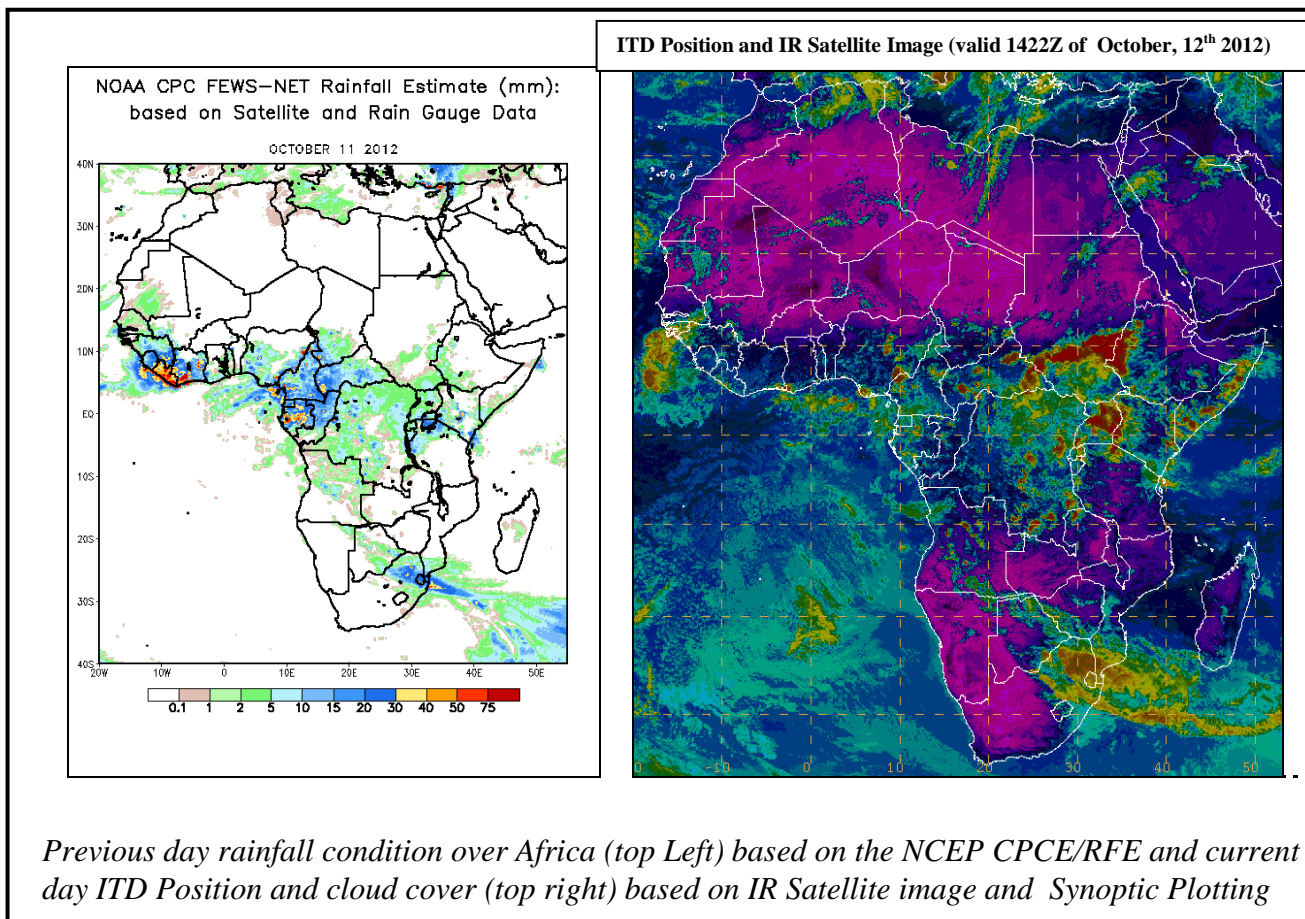
(October, 11<sup>th</sup> 2012 – October, 12<sup>th</sup> 2012)

### 2.1. Weather assessment for the previous day (October, 11<sup>th</sup> 2012)

During the previous day, light rains were observed over parts of Mauritania; Mali; Morocco; Algeria; Chad; Congo Brazzaville and South Africa with moderate to heavy rainfall over parts of Togo; Sierra Leone; Nigeria; Gabon; Cameroon; Democratic Republic of Congo; Central African Republic; South Sudan Republic; Ethiopia; Ghana and Angola.

### 2.2. Weather assessment for the current day (October, 12<sup>th</sup> 2012)

Convective clouds are observed across parts of Mali; Mauritania; Nigeria; Chad; Democratic Republic of Congo; Cameroon; Sudan; Congo Brazzaville; South Sudan Republic; Ethiopia; Uganda; Somalia; South Africa; Senegal; Guinea-Conakry; Sierra Leone; Gambia; Togo; Kenya; Gabon; Angola; South Africa and Central African Republic.



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