

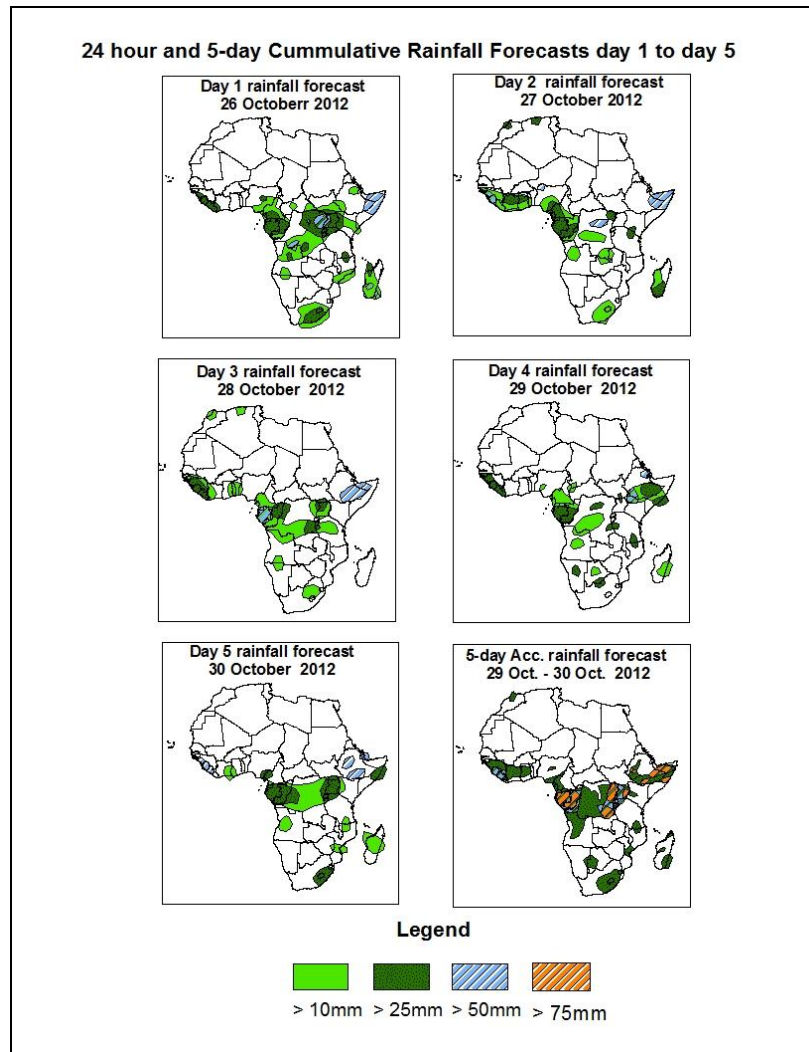


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid 06Z of 26 October – 06Z of 30 October 2012. (Issued at 13:00Z of 25 October 2012)

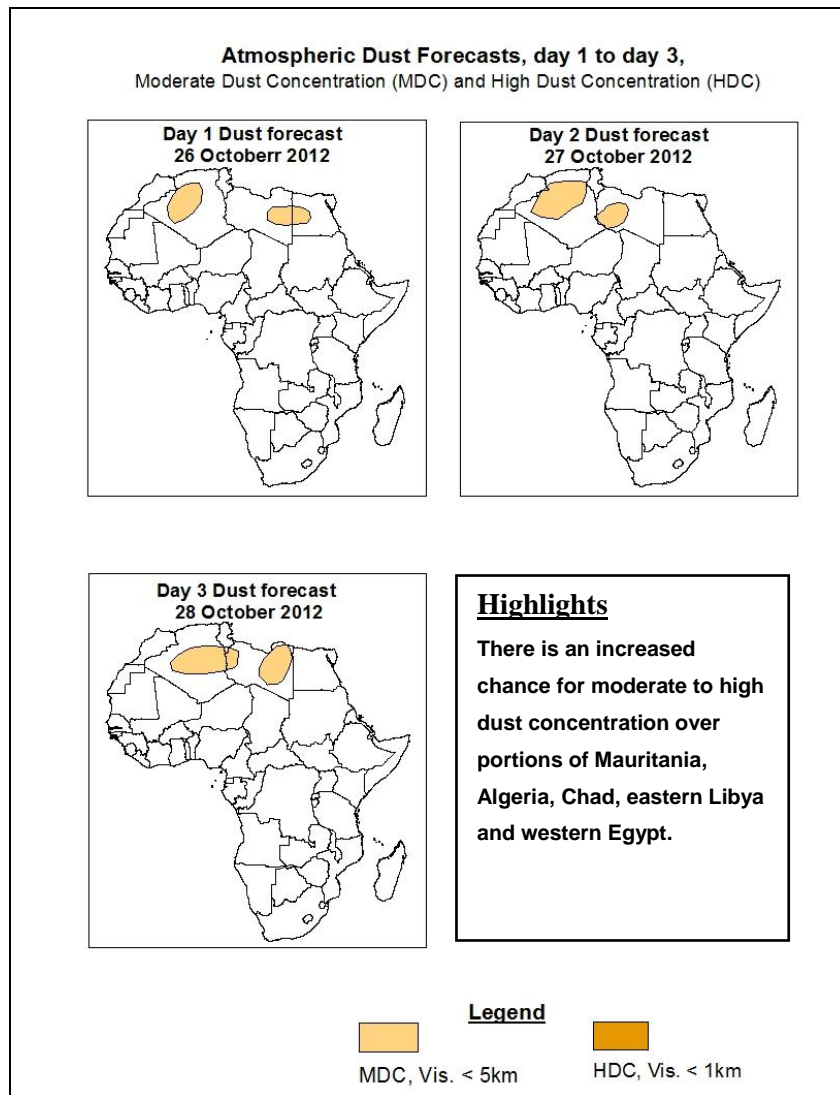
### 1.1. Twenty Four Hour Cumulative Rainfall Forecasts

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 remnants of tropical storm Murjan across the Horn of Africa, the seasonal low level wind convergences near the Congo Air Boundary (CAB) region and lower level wind convergences over the Gulf of Guinea and western Equatorial Africa are expected to enhance rainfall in their respective regions. Thus, there is an increased chance for heavy rainfall over local areas in the Gulf of Guinea, Gabon, portions of DRC, Uganda, portions of Tanzania, western Kenya, portions of Ethiopia and Somalia.



## 1.2. Model Discussion: Valid from 00Z of 25 October 2012

*Model comparison (Valid from 00Z; 25 October 2012) shows all the three models are in general agreement in tracking the movement and landfall of tropical storm Murjan across northern Indian Ocean and the Horn of Africa. The models also show agreement with respect to positioning of synoptic scale features, such as, seasonal lows across Central and Southern Africa countries and the eastward shift of the southern hemisphere sub-tropical 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 shift towards Indian Ocean to become the Mascarene high pressure system through 24 to 72 hours according to the ECMWF, UKMET and GFS models. Its central pressure value is expected to increase slightly, from about 1025hpa to 1027hpa according to the ECMWF

model, from 1025hpa to 1027hpa according to the UKMET and GFS models, before it becomes the Mascarene high pressure system. A new St Helena high pressure system is expected to develop in the Atlantic Ocean, with its central pressure value increasing from 1023hpa to 1030hpa according to the ECMWF model, from 1024hpa to 1029hpa according to the UKMET and GFS models through 72 to 120 hours.

The Mascarene high pressure system over southwestern Indian Ocean is expected to maintain central pressure value of 1036hpa according to the ECMWF model, and tends to decrease from 1037hpa to 1035hpa according to the UKMET and GFS models through 24 to 48 hours, and it is expected to shift eastwards and its position will be taken by a high pressure system that will shift from the Atlantic Ocean. The new Mascarene high pressure system is expected to weaken gradually, with its central pressure value decreasing from 1026hpa to 1022hpa according to the ECMWF model, from 1026hpa to 1025hpa according to the UKMET model and maintaining central pressure value of about 1026hpa according to the GFS model through 72 to 120 hours. The East African ridge across Southeast and East Africa is expected to remain more or less strong during the forecast period.

The central pressure value of the seasonal lows across the southern African countries is expected to remain about 1008hpa during the forecast period according to the three models. A low pressure system associated with tropical storm Murjan is expected to dominate the flow over the Horn of Africa through 24 to 48 hours.

At the 850hpa level, a cyclonic circulation, associated with tropical cyclone Murjan, is expected to dominate the flow over the Horn of Africa through 24 to 72. The seasonal low level wind convergence in the CAB region is expected to remain active during the forecast period. Low level wind convergences are expected to prevail over portions of the Gulf of Guinea through 24 to 72 hours and they tend to weaken towards the end of the forecast period. Wind convergences are also expected to remain active across western parts of Equatorial Africa during the forecast period.

At 500hpa, a feeble trough associated with the Northern Hemisphere mid-latitude system is expected to shift eastward across Northeast Africa and the neighboring areas, while weakening during the forecast.

At 200hpa, zone of strong winds (>70kts), associated with the northern Hemisphere sub-tropical westerly jet is expected to propagate between Northeast Africa and the Persian Gulf while weakening through 24 to 72 hours. In the southern hemisphere, the subtropical westerly jet, with its core of strong winds (>90kts), is expected to propagate between the Atlantic Ocean and Indian Ocean while weakening through 24 to 72 hours.

In the next five days, the remnants of tropical storm Murjan across the Horn of Africa, the seasonal low level wind convergences near the Congo Air Boundary (CAB) region and lower level wind convergences over the Gulf of Guinea and western Equatorial Africa are expected to enhance rainfall in their respective regions. Thus, there is an increased chance for heavy rainfall over local areas in the Gulf of Guinea, Gabon, portions of DRC, Uganda, portions of Tanzania, western Kenya, portions of Ethiopia and Somalia.

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

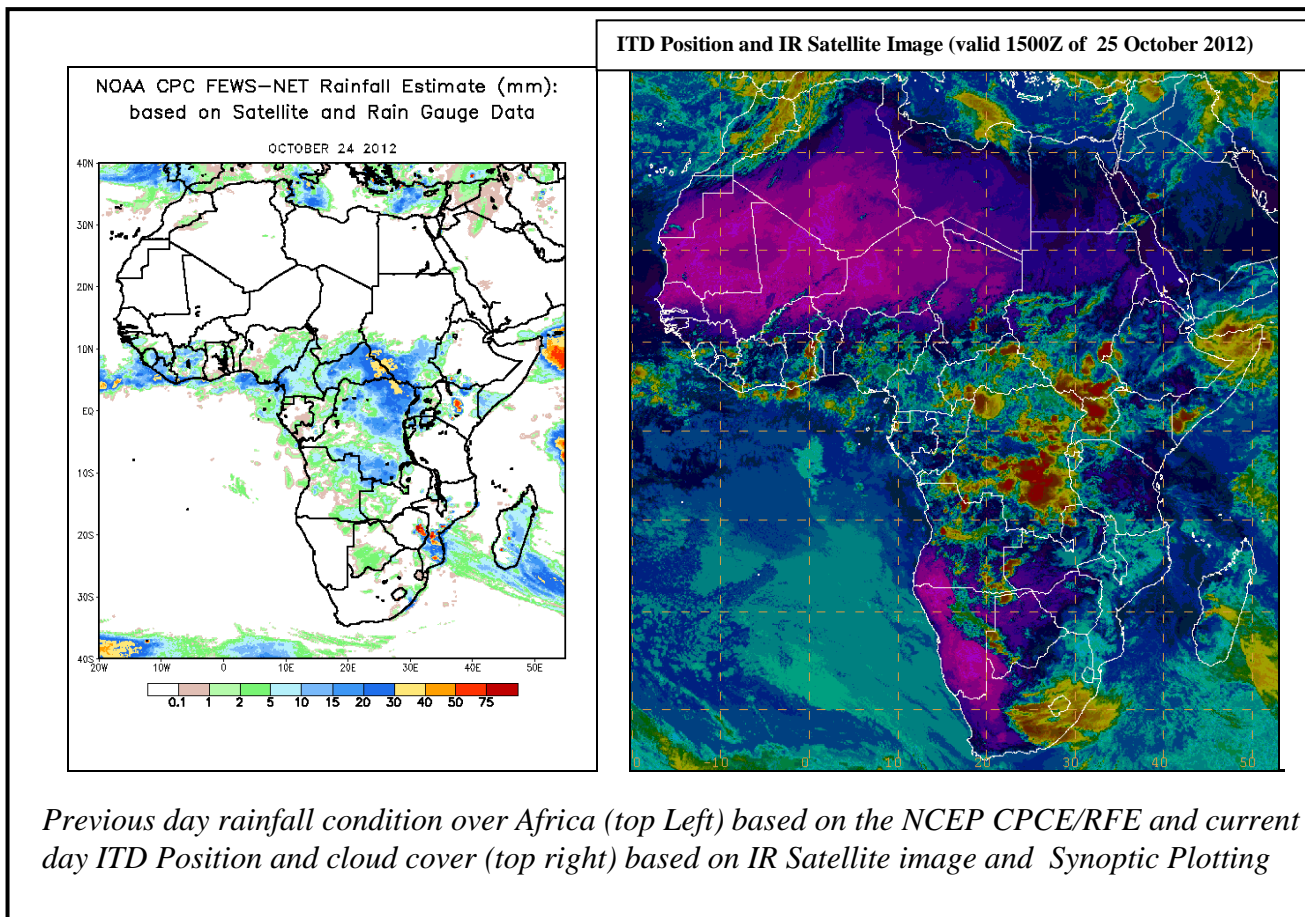
(24 October 2012 – 25 October 2012)

### 2.1. Weather assessment for the previous day (24 October 2012)

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

### 2.2. Weather assessment for the current day (25 October 2012)

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



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