

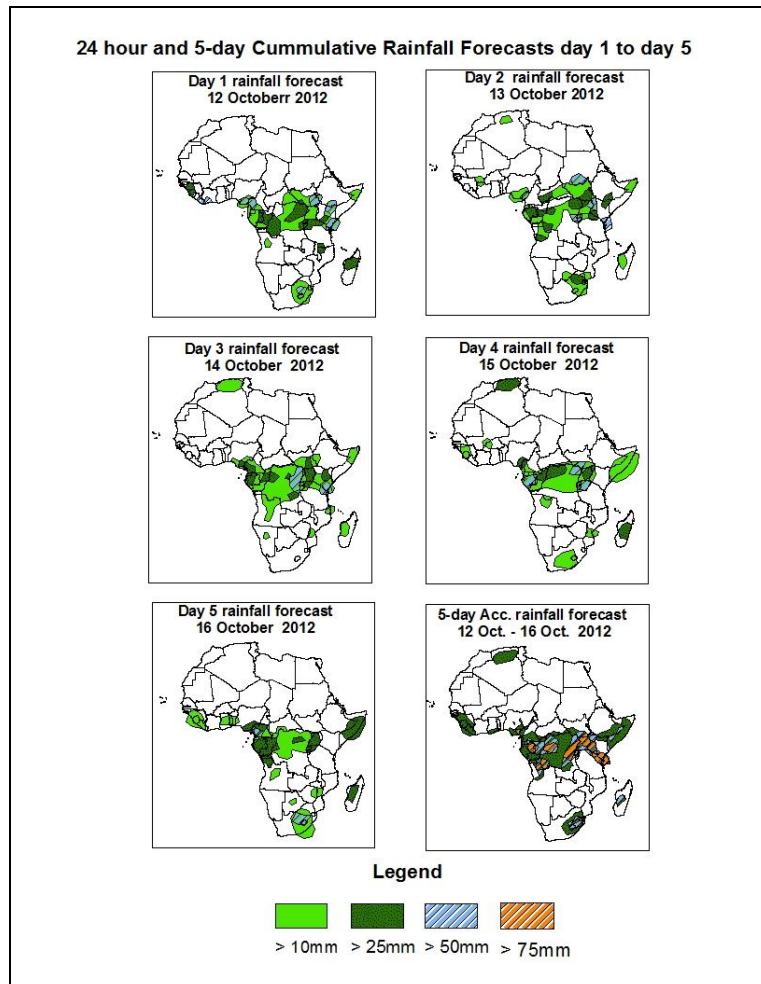


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid 06Z of October 12<sup>th</sup> – 06Z of October, 16<sup>th</sup> 2012. (Issued at 13:00Z of October, 11<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 convergence lines over the CAB region and the surrounding areas of East Africa are expected to enhance and maintain rainfall activities within the regions. Hence, there is an increased chance for moderate to heavy rainfall over parts of East and Central Africa into Cameroon, Nigeria along with Morocco, Senegal, Algeria, Mozambique and the eastern parts of South Africa.

## **1.2. Model Discussion: Valid from 00Z of October, 11<sup>th</sup> 2012.**

*Model comparison (Valid from 00Z; October, 11<sup>th</sup> 2012) shows all the three models are in general agreement only with respect to the positioning of large scale features, the UK model tends to give somewhat slightly higher values than both the GFS and ECMWF models especially in the Equatorial region (10°S and 10°N) with regards to the heat lows.*

The St. Helena High pressure system over southeast Atlantic Ocean is expected to intensify, with its MSLP value increasing from 1030hpa to 1032hpa in 72 hours and tends to weaken to 1025hpa in 120 hours according to the GFS model. According to the UKMET model, this same high pressure system is expected to increase its central pressure value of 1029hpa to 1034hpa in 48 hours and then tends to weaken to a MSLP value of 1029hpa through 72 to 120 hours. Finally on the ECMWF model, it is expected to weaken from 1031hpa to a central value of 1027hpa through 24 to 120hours.

The Mascarene high pressure system over southwest Indian Ocean is expected to decrease in value from 1027hpa to 1024hpa in 72 hours and tends to intensify, with its MSLP value increasing to 1026hpa through 72 to 120 hours according to both the GFS and ECMWF models during the forecast period. According to UKMET model, the same high pressure system is expected to steadily decrease in value from 1027hpa, as it weakens, to 1025hpa during the forecast period.

At the 850hpa level, a cyclonic circulation is expected to dominate the flow over southwest Mali, north-east Sudan and southern Niger within 24 to 120 hours with an extended trough line across East and Central Africa. A weak trough line is expected to dominate the flow across parts of Cote d'Ivoire, Ghana, Togo and Benin Republic through 48 to 120 hours. The convergence associated with the Congo Air mass is expected to persist over the Congo Air Boundary (CAB) region. Strong wind convergences are expected to prevail over Namibia, Democratic Republic of Congo, Uganda, Tanzania, Zambia and Angola and will continue to influence moderate to

heavy rainfall in the region. Also the westerly trough associated with the mid-latitude frontal system is expected to dominate the flow over parts of South Africa.

At 500hpa, the trough associated with the Northern Hemisphere westerly jet extending is expected to dominate the flow over the Mediterranean Sea and coastal North Africa during the forecast period. A mid latitude frontal system is expected to propagate eastwards across South Africa within 24 to 120 hours.

At 200hpa, the northern Hemisphere sub-tropical westerly jet is also expected to intensify across Algeria, Egypt and Libya with strong winds of about 70 knots dominating the flow across North Africa within 24 to 120 hours. A weak quasi-stationary trough is also expected to affect the area. The trough associated with the mid-latitude frontal system is expected to have its axis extending towards South Africa with strong winds of about 90 knots expected to dominate the flow over the region, while intensifying gradually during the forecast period.

In the next five days, the seasonal convergence lines over the CAB region and the surrounding areas of East Africa are expected to enhance and maintain rainfall activities within the regions. Hence, there is an increased chance for moderate to heavy rainfall over parts of East and Central Africa into Cameroon, Nigeria along with Burkina Faso, Liberia, Ghana, Togo, Benin Republic, Mali, Senegal, Algeria, Mozambique and the eastern parts of South Africa.

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

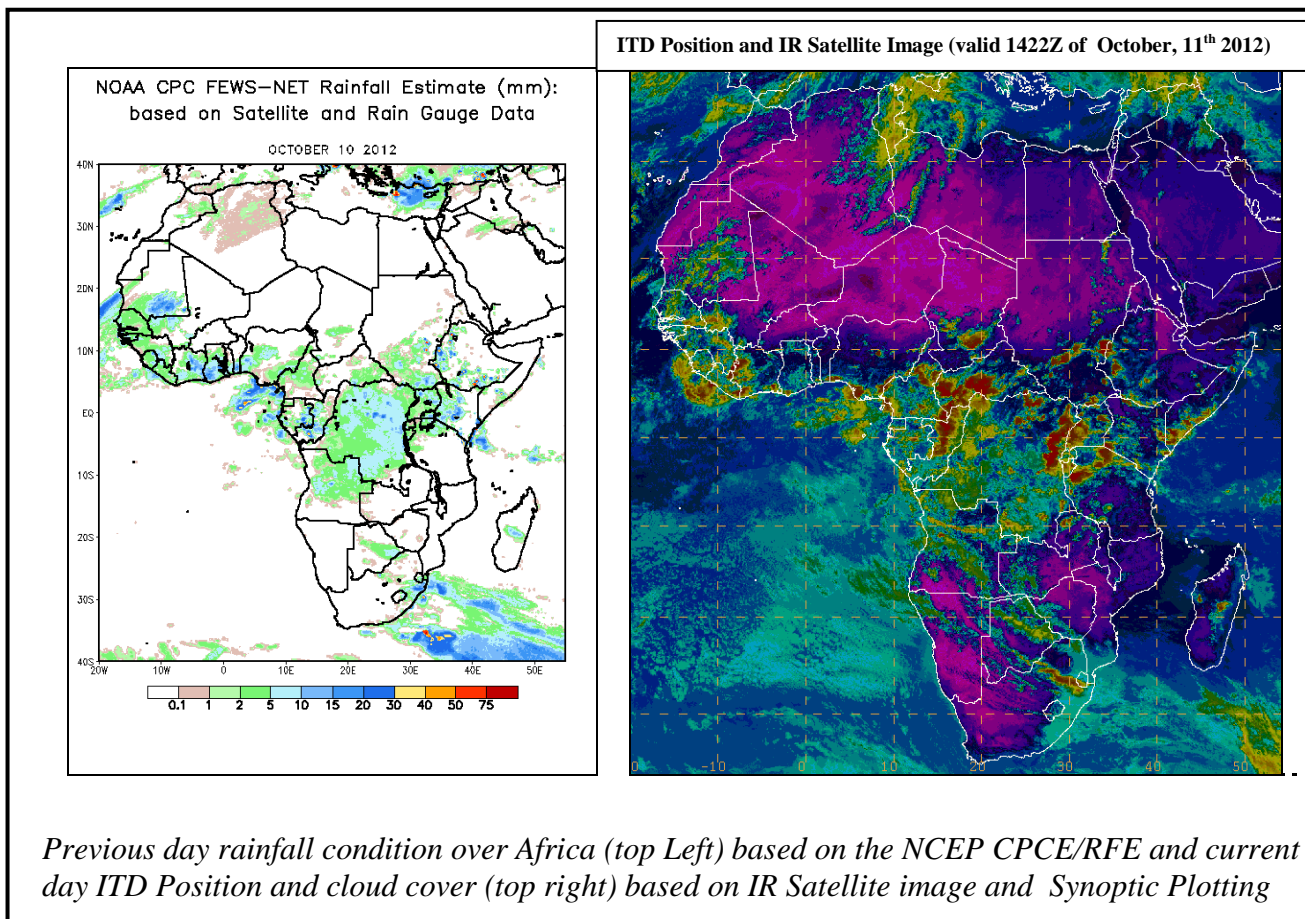
(October, 10<sup>th</sup> 2012 – October, 11<sup>th</sup> 2012)

### 2.1. Weather assessment for the previous day (October, 10<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, 11<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.



**Author:** Izuchukwu Ebenebe, (Nigeria Meteorological Agency / CPC-African Desk); [izu.ebenebe@noaa.gov](mailto:izu.ebenebe@noaa.gov)