

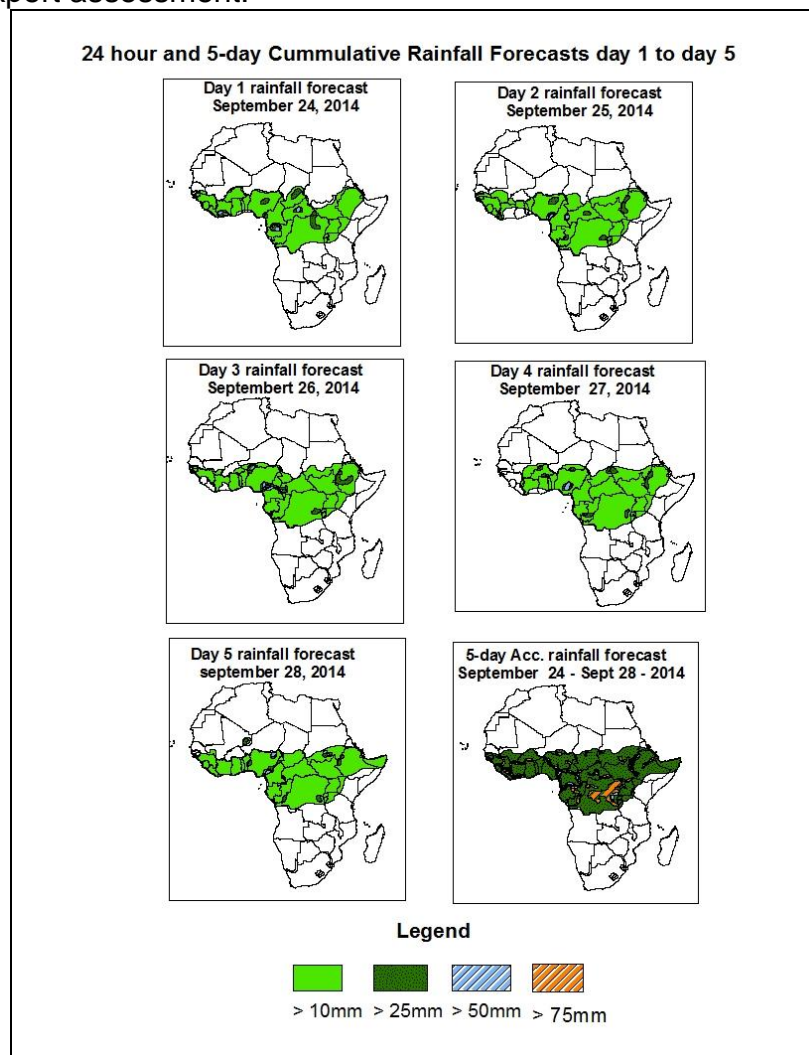


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1. Rainfall Forecast: Valid 06Z of September 24 – 06Z of September 28, 2014. (Issued at 1800Z of September 23, 2014)

### 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/GFS and the NCEP global ensemble forecasts system (GEFS) and expert assessment.



### Summary

In the next five days, the monsoon flow from the Atlantic Ocean with its associated convergence across the southern Sahel, localized wind convergences over Ethiopia, DRC and Uganda and the neighboring areas, and eastward propagating trough across the Gulf of Guinea region are expected to enhance rainfall in their respective regions. Thus, there is an increased chance for moderate to heavy rainfall over Guinea-Conakry, Liberia, Benin, Togo, Ghana, Ivory Coast, Gabon, Sierra Leone, Cameroon, Nigeria, CAR, Congo Brazzaville, Burundi and Rwanda, portions of Sudan, DRC, Mali, Chad and Burkina Faso, local areas in Ethiopia, Eritrea and Uganda, southern Senegal, eastern Niger and western Kenya.

**Atmospheric Dust Forecasts, day 1 to day 3,**  
Moderate Dust Concentration (MDC) and High Dust Concentration (HDC)

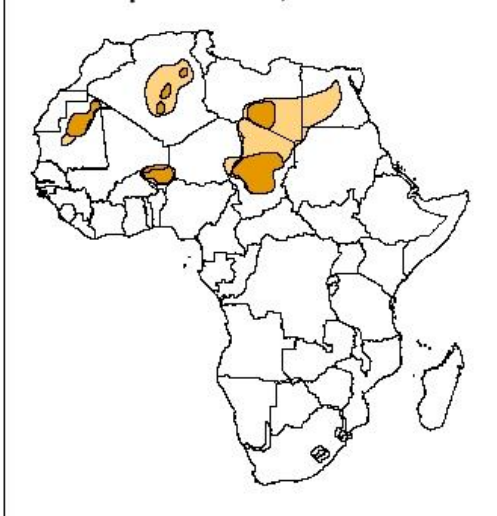
**Day 1 Dust forecast**  
**September 24, 2014**



**Day 2 Dust forecast**  
**September 25, 2014**



**Day 3 Dust forecast**  
**September 26, 2014**



**Highlights**

**There is an increased chance  
for moderate to high dust  
concentration over Algeria,  
Libya, Mauritania, Niger and  
Chad.**

**Legend**



MDC, Vis. < 5km



HDC, Vis. < 1km

## **1.2. Model Discussion: Valid from 00Z of September 23, 2014**

The Azores high pressure system over the Northeast Atlantic Ocean is expected to weaken from 24 to 48hours with its central pressure value decreasing from about 1034hpa in 24 hours to 1029hpa in 48hours, and it maintains from 48 to 72 hours, its central pressure value of about 1029hpa, and then it is expected to weaken again from 72 to 120hours, with its central pressure value decreasing from about 1029hpa in 72 hours to 1023hpa in 120hours, according to the GFS model.

The St Helena high pressure system over the Southeast Atlantic Ocean is expected to intensify from 24 to 96 hours, with its central pressure value increasing from about 1030hpa in 24 hours to 1037hpa in 96hours, and then it is expected to weaken from 96 to 120hours, with its central pressure value decreasing from about 1037hpa in 96 hours to 1035hpa in 120hours, according to the GFS model.

The Mascarene high pressure system over the southwestern Indian Ocean is expected to intensify from 24 to 72 hours, with its central pressure value increasing from about 1033hpa in 24 hours to 1038hpa in 72hours, and then it is expected to weaken from 72 to 120hours with its central pressure value decreasing from about 1038hpa in 72 hours to 1030hpa in 120hours, according to the GFS model.

The central pressure value associated with the heat low in the region between western and central Sahel is expected to vary in the range between 1007hpa and 1009hpa during the forecast period. The heat low over Sudan is expected to vary in the range between 1006hpa and 1008hpa from 24 to 120 hours. The heat low across DRC is expected to vary in the range between 1008hpa and 1010hpa during the forecast period, according to the GFS model.

At 925Hpa level, a zonal wind convergence is expected to prevail in the region between Mauritania and Sudan through 24 to 120 hours. Dry northeasterly winds are expected to prevail over parts of Algeria, Libya, Mauritania, Niger and Chad. Local wind convergences are also expected over DRC, Tanzania, Uganda, Burundi, Rwanda and Ethiopia during the forecast period.

At 850Hpa level, a cyclonic circulation with its associated trough is expected to propagate westwards between Nigeria and Liberia through 24 to 120 hours. Local wind convergences are expected to remain active over DRC, Uganda, Tanzania, Burundi, Rwanda, Eritrea and Ethiopia during the forecast period.

At 700hpa level, a trough in the easterly flow is expected to propagate westwards between Nigeria and southern Sierra Leone through 24 to 120 hours.

At 500hpa level, a zone of moderate wind (>30kt) associated with African easterly jet is expected to propagate Nigeria and Ivory Coast into the Atlantic ocean toward end of the forecast.

In the next five days, the monsoon flow from the Atlantic Ocean with its associated convergence across the southern Sahel, localized wind convergences over Ethiopia, DRC and Uganda and the neighboring areas, and eastward propagating trough across the Gulf of Guinea region are expected to enhance rainfall in their respective regions. Thus, there is an increased chance for moderate to heavy rainfall over Guinea-Conakry, Liberia, Benin, Togo, Ghana, Ivory Coast, Gabon, Sierra Leone, Cameroon, Nigeria, CAR, Congo Brazzaville, Burundi and Rwanda, portions of Sudan, DRC, Mali, Chad and Burkina Faso, local areas in Ethiopia, Eritrea and Uganda, southern Senegal, eastern Niger and western Kenya.

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

(September 22, 2014 – September 23, 2014)

### 2.1. Weather assessment for the previous day (September 22, 2014)

During the previous day, moderate to heavy rainfall was observed over Senegal, Nigeria, Liberia, Sierra Leone, CAR, Cameroon, Guinea-Conakry, Uganda, portions of Mali, Congo Brazzaville, DRC, Gabon, Burkina Faso, Ghana, Benin, Togo, Ivory Coast, Sudan and Ethiopia, local areas in Mauritania and Niger, western Kenya, Burundi and Rwanda, southern Chad.

### 2.2. Weather assessment for the current day (September 23, 2014)

Intense clouds are observed over portions of CAR, Uganda and Sudan, local areas in Nigeria, DRC, Cameroon, Gabon, Mali, Ghana, Benin, Togo and Ethiopia, southern Niger, southeastern Mauritania and Chad, Northern Burkina Faso, southwestern Eritrea.

