

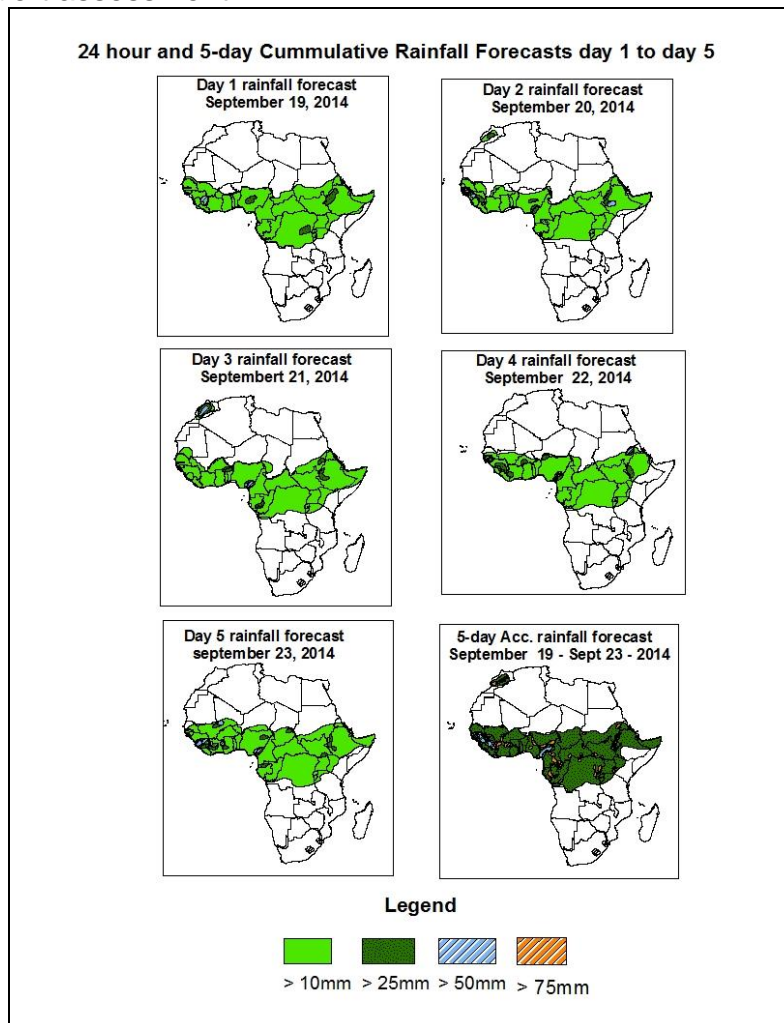


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1. Rainfall Forecast: Valid 06Z of September 19 – 06Z of September 23, 2014. (Issued at 1800Z of September 18, 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.

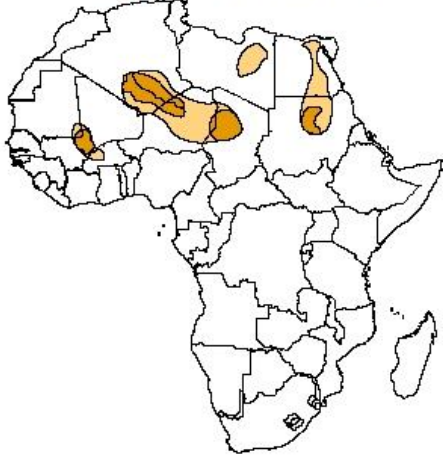


### Summary

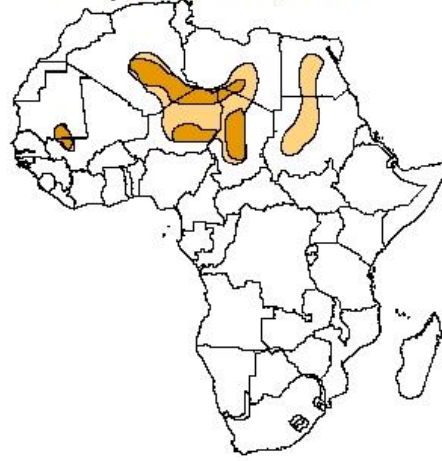
In the next five days, the monsoon flow from the Atlantic Ocean with its associated convergence across the southern Sahel, localized wind convergences over Ethiopia, DRC and Uganda and the neighboring areas, and active easterly wave activity across West Africa are expected to enhance rainfall in their 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 and CAR, portions of Burkina Faso, Sudan, DRC, Mali, Senegal and Congo Brazzaville, local areas in Nigeria, Ethiopia and Uganda, western Kenya, southern Chad.

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

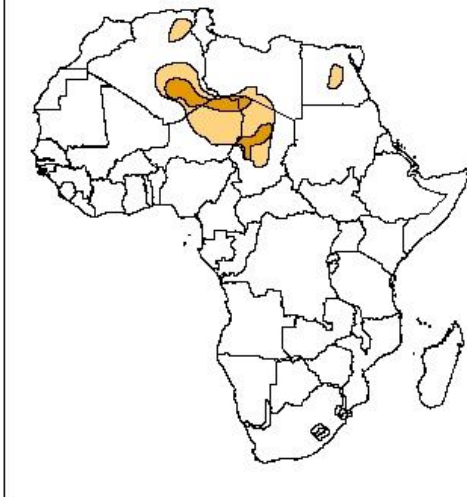
**Day 1 Dust forecast**  
September 19, 2014



**Day 2 Dust forecast**  
September 20, 2014



**Day 3 Dust forecast**  
September 21, 2014



**Highlights**

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



MDC, Vis. < 5km

**Legend**



HDC, Vis. < 1km

## **1.2. Model Discussion: Valid from 00Z of September 18, 2014**

The Azores high pressure system over the Northeast Atlantic Ocean is expected to maintain from 24 to 48 hours, its central pressure value of about 1022hpa, and then it is expected to intensify from 48hours to 120 hours, with its central pressure value increasing from about 1022hpa in 48hours to 1033hpa in 120 hours, according to the GFS model.

The St Helena high pressure system over the Southeast Atlantic Ocean is expected to intensify from 24 to 48 hours, with its central pressure value increasing from about 1026hpa in 24 hours to 1027hpa in 48hours, and it weakens from 48 to 96hours with its central pressure value decreasing from about 1027hpa in 48 hours to 1025hpa in 96hours, and then it is expected to intensify from 96 to 120 hours, with its central pressure value increasing from about 1025hpa in 96 hours to 1027hpa in 120hours, according to the GFS model.

The Mascarene high pressure system over the southwestern Indian Ocean is expected to weaken from 24 to 48 hours, with its central pressure value decreasing from about 1031hpa in 24 hours to 1029hpa in 48hours, and it weakens from 48 to 72hours with its central pressure value decreasing from about 1029hpa in 48 hours to 1027hpa in 72hours, and then it is expected to maintain from 72 to 120 hours, its central pressure value of about 1027hpa, 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 1009hpa 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, Sudan, Niger, Chad and southern Mali. 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 southern Mauritania 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 Senegal through 24 to 120 hours.

At 500Hpa level, a zone of moderate wind (>30kts), associated with African easterly jet is expected to propagate across Ivory Coast and Senegal into the Atlantic Ocean through 72 hours to 96 hours.

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 active easterly wave activity across West Africa 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 and CAR, portions of Burkina Faso, Sudan, DRC, Mali, Senegal and Congo Brazzaville, local areas in Nigeria, Ethiopia and Uganda, western Kenya, southern Chad.

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

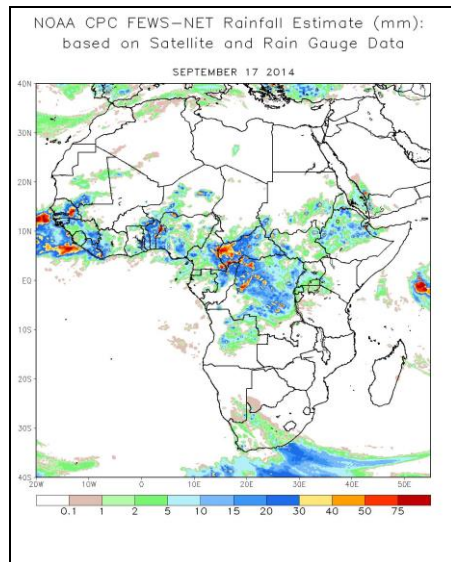
(September 17, 2014 – September 18, 2014)

### 2.1. Weather assessment for the previous day (September 17, 2014)

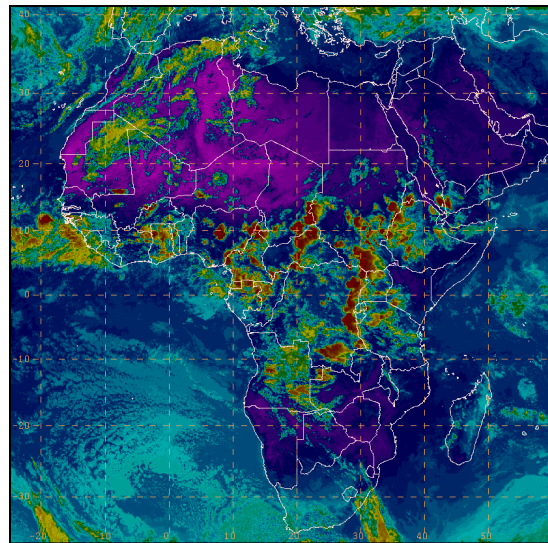
During the previous day, moderate to heavy rainfall was observed over Guinea-Conakry, Benin, Togo, Liberia, Sierra Leone, CAR, Cameroon, Rwanda and Eritrea, portions of Senegal, Nigeria, Ivory Coast, Ghana, Congo Brazzaville, DRC, Uganda, Burundi, Ethiopia and Sudan, local areas in Mauritania, Mali,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

### 2.2. Weather assessment for the current day (September 18, 2014)

Intense clouds are observed over portions of Cameroon, CAR, Chad and Sudan, local areas in Mali, Niger, Nigeria, Ivory Coast, Ghana, Togo, Congo Brazzaville, DRC, Ethiopia, Tanzania, Kenya, Rwanda and Uganda, southern Mauritania and Eritrea, western Senegal, Northern Guinea-Conakry and Gabon.



IR Satellite Image (valid 1600 Z of September 18, 2014)



*Previous day rainfall condition over Africa (top Left) based on the NCEP CPCE/RFE and current day cloud cover (top right) based on IR Satellite image*

**Author: Kouakou YA** (Cote d'Ivoire, Service National de la Meteorologie / CPC-African Desk); [kouakou.ya@noaa.gov](mailto:kouakou.ya@noaa.gov)