

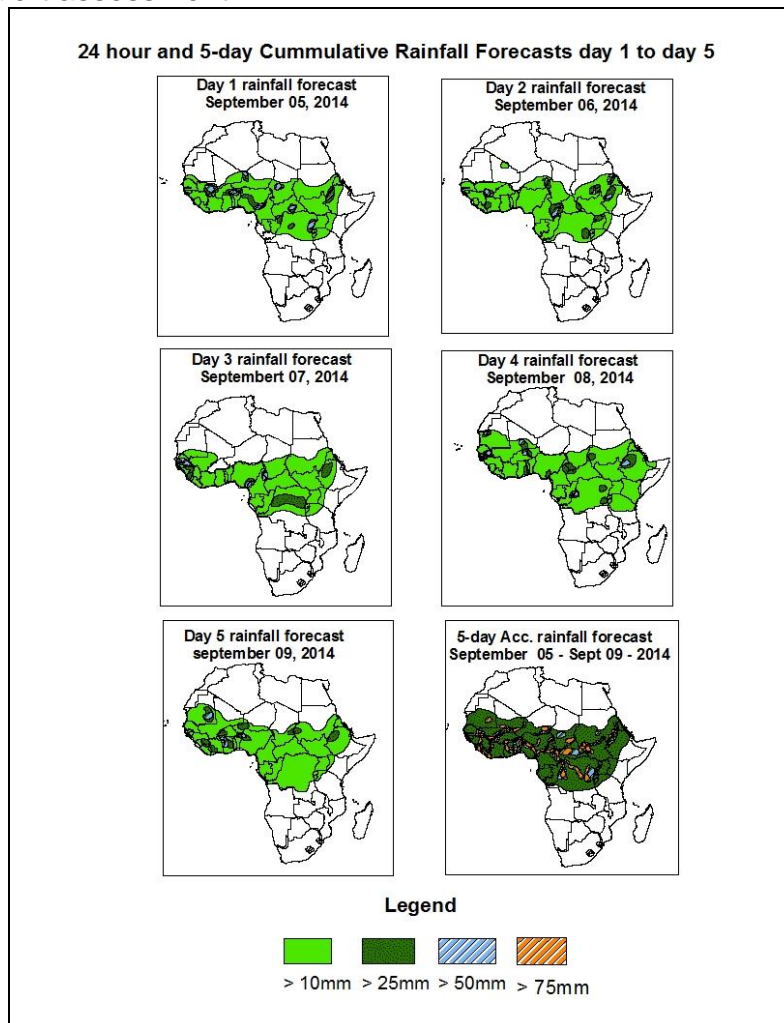


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1. Rainfall Forecast: Valid 06Z of September 05 – 06Z of September 09, 2014. (Issued at 1800Z of September 04, 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.

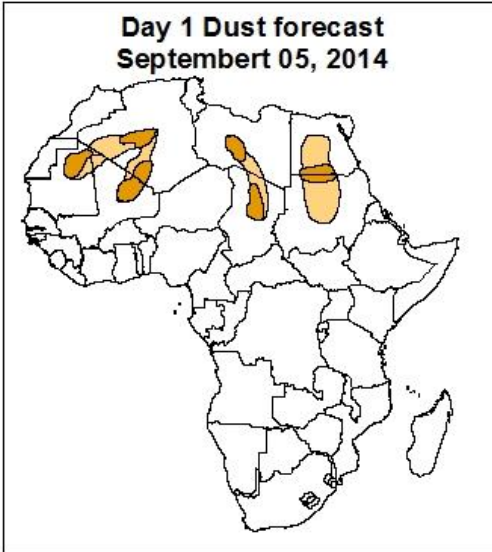


### Summary

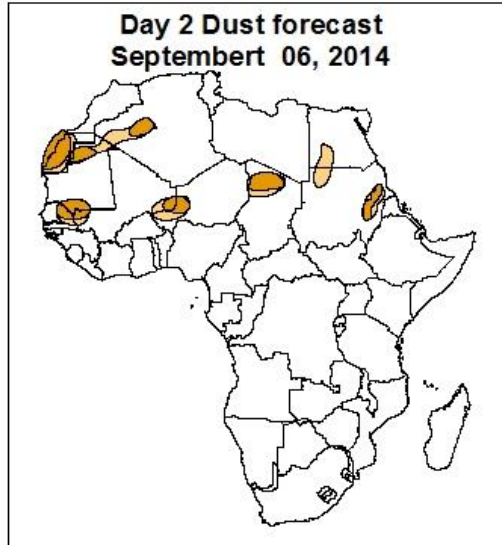
In the next five days, the monsoon flow from the Atlantic Ocean with its associated convergence across the southern Sahel, localized wind convergences over Ethiopia, DRC and Uganda and the neighboring areas, and active easterly wave activity across West Africa are expected to enhance rainfall in their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

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

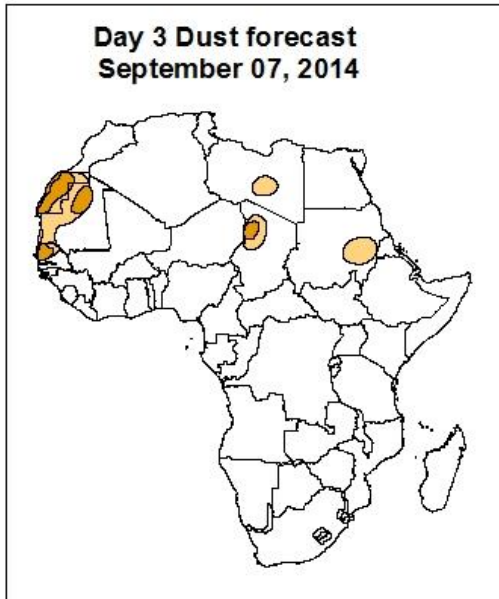
**Day 1 Dust forecast**  
**September 05, 2014**



**Day 2 Dust forecast**  
**September 06, 2014**



**Day 3 Dust forecast**  
**September 07, 2014**



**Highlights**

**There is an increased chance for moderate to high dust concentration over Western Sahara, Algeria and Libya, Egypt, Mauritania-Mali and northern Sudan.**

**Legend**



MDC, Vis. < 5km



HDC, Vis. < 1km

## **1.2. Model Discussion: Valid from 00Z of September 04, 2014**

The Azores high pressure system over the Northeast Atlantic Ocean is expected to weaken from 24 to 72hours, with its central pressure value decreasing from about 1025hpa in 24 hours to 1021hpa in 72hours, and it maintains its central pressure value of about 1021hpa through 72hours to 96hours, and then it is expected to intensify from 96hours to 120 hours, with its central pressure value increasing from about 1021hpa in 96hours to 1028hpa in 120 hours, according to the GFS model.

The St Helena high pressure system over the Southeast Atlantic Ocean is expected to weaken from 24 to 96 hours, with its central pressure value decreasing from about 1038hpa in 24 hours to 1033hpa in 96hours, and then it is expected to intensify slightly from 96hours to 120 hours, with its central pressure value increasing from about 1033hpa in 96hours to 1034hpa in 120 hours, according to the GFS model.

The Mascarene high pressure system over the southwestern Indian Ocean is expected to weaken from 24 to 96hours with its central pressure value decreasing from about 1037hpa in 24 hours to 1026hpa in 96hours, and then it is expected to intensify slightly from 96hours to 120 hours, with its central pressure value increasing from about 1026hpa in 96hours to 1027hpa in 120 hours, 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 1005hpa and 1008hpa during the forecast period. The heat low over Sudan is expected to vary in the range between 1005hpa and 1007hpa from 24 to 120 hours. The heat low across DRC is expected to vary slightly in the range between 1010hpa and 1011hpa 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 Western Sahara, Algeria and Libya, Egypt and Sudan. Local wind convergences are also expected over DRC, Tanzania, Burundi, Rwanda, Uganda, Kenya and Ethiopia during the forecast period.

At 850Hpa level, cyclonic circulation is expected to propagate westwards between Chad and Senegal through 24 to 120 hours. Local wind convergences are expected to remain active over DRC, Uganda, Kenya, Eritrea, and Ethiopia during the forecast period.

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

At 500Hpa level, a zone of moderate wind (>30kts), associated with African easterly jet is expected to propagate across Ghana, Burkina, Niger, Mali, Mauritania and Senegal through 24 to 120 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 local areas in Mauritania, Guinea-Conakry, Sierra Leone, Liberia, Nigeria, Burkina Faso, Benin, Togo, CAR, Congo Brazzaville, Uganda, and Eritrea, portions of DRC, Gabon, Ghana, Ivory Coast, Senegal, Chad, Mali, Niger, Sudan, Cameroon and Ethiopia, Northern Tanzania, western Kenya.

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

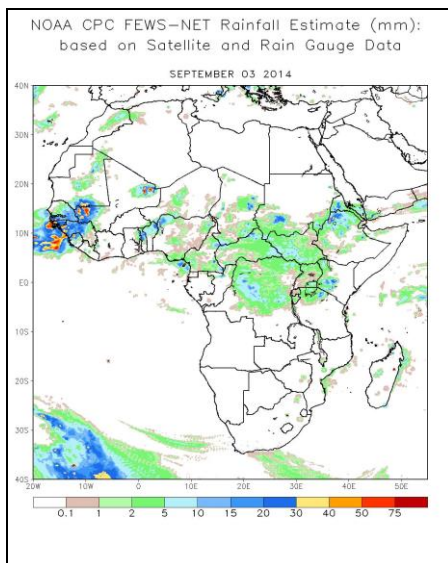
(September 03, 2014 – September 04, 2014)

### 2.1. Weather assessment for the previous day (September 03, 2014)

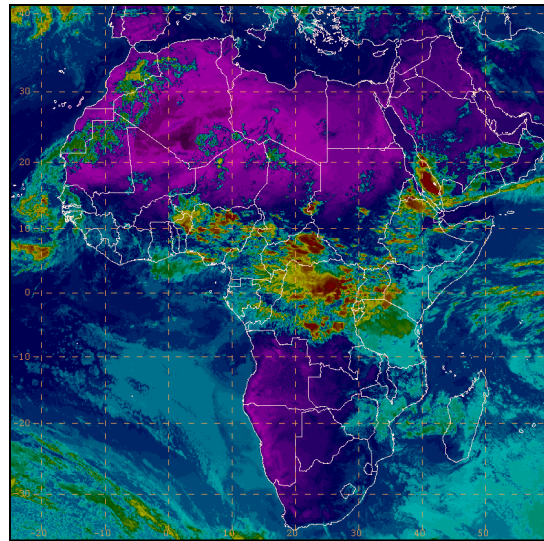
During the previous day, moderate to heavy rainfall was observed over local areas in Mali, Mauritania, Niger, Chad, Nigeria, Cameroon and Liberia, Guinea-Conakry, CAR and Uganda, portions of Senegal, Sierra Leon, DRC, Eritrea and Ethiopia, northern Togo, Congo Brazzaville, Benin, Gabon and Tanzania,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

### 2.2. Weather assessment for the current day (September 04, 2014)

Intense clouds are observed over portions of CAR and DRC, local areas in Nigeria, Cameroon, Chad, Sudan, Uganda, Burundi, Rwanda, Eritrea and Ethiopia, northern Benin and Tanzania, western Kenya.



IR Satellite Image (valid 1500 Z of September 04, 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*

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