

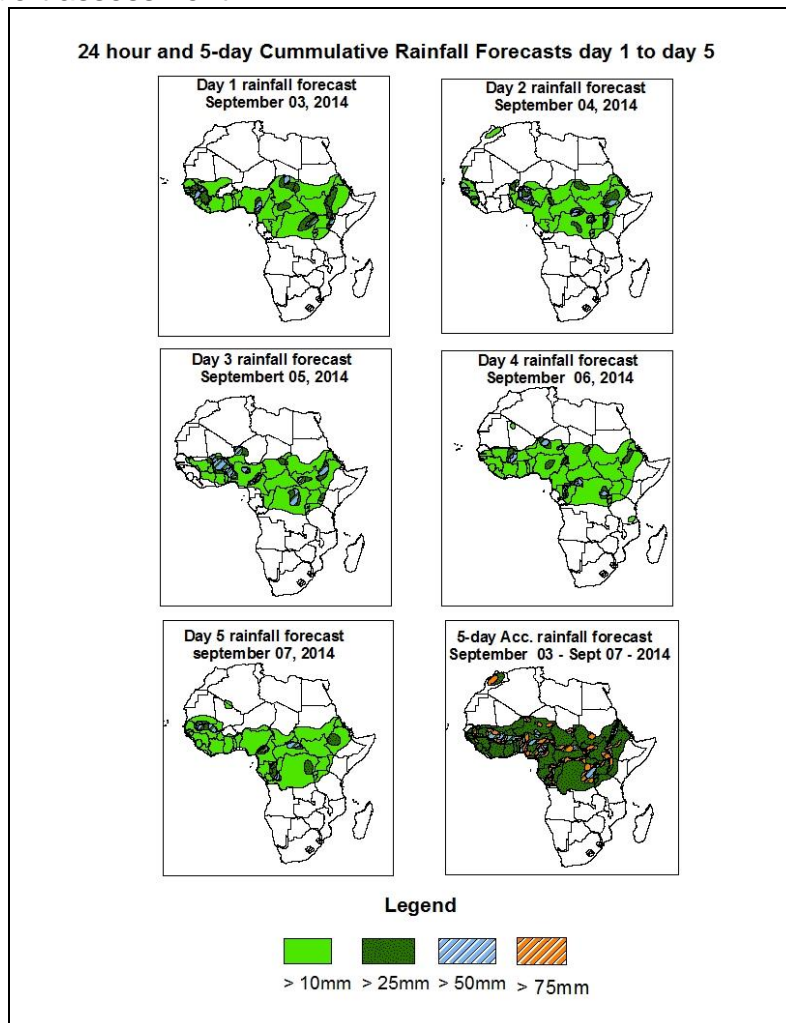


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1. Rainfall Forecast: Valid 06Z of September 03 – 06Z of September 07, 2014. (Issued at 1800Z of September 02, 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.

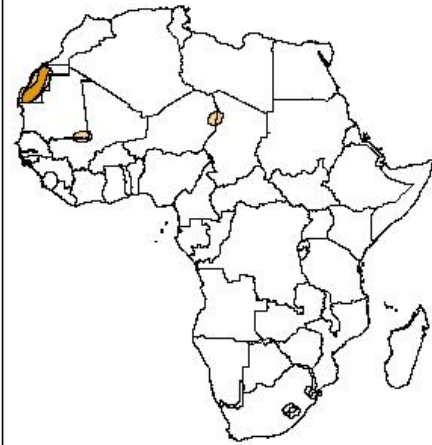


### Summary

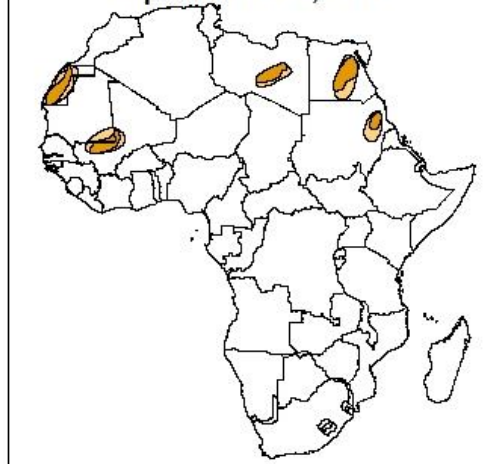
In the next five days, the monsoon flow from the Atlantic Ocean with its associated convergence across the southern Sahel, localized wind convergences over Ethiopia, DRC, and Tanzania and the neighboring areas, and active easterly wave activity across West Africa are expected to enhance rainfall in their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

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

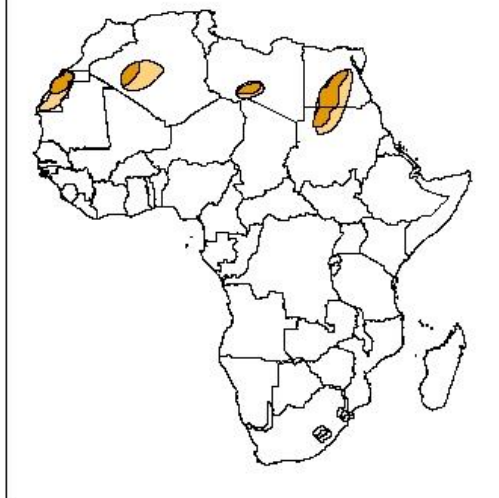
**Day 1 Dust forecast**  
**September 03, 2014**



**Day 2 Dust forecast**  
**September 04, 2014**



**Day 3 Dust forecast**  
**September 05, 2014**



**Highlights**

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

**Legend**



MDC, Vis. < 5km



HDC, Vis. < 1km

## **1.2. Model Discussion: Valid from 00Z of September 02, 2014**

The Azores high pressure system over the Northeast Atlantic Ocean is expected to vary slightly between 24 to 72 hours, with its central pressure value from about 1021hpa to 1022hpa, and then it is expected to maintain its central pressure value of about 1021hpa through 72hours to 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 48 hours with its central pressure value decreasing from about 1023hpa in 24 hours to 1020hpa in 48hours, and it tends to intensify from 48hours to 72 hours, with its central pressure value increasing from about 1023hpa in 48hours to 1038hpa in 72 hours, and then it is expected to weaken from 72 to 120 hours with its central pressure value decreasing from about 1038hpa in 72 hours to 1032hpa in 120hours, according to the GFS model.

The Mascarene high pressure system over the southwestern Indian Ocean is expected to intensify from 24hours to 72 hours, with its central pressure value increasing from about 1030hpa in 24hours to 1036hpa in 72 hours, and then it is expected to weaken from 72 to 120 hours with its central pressure value decreasing from about 1036hpa in 72 hours to 1032hpa 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 1003hpa and 1007hpa during the forecast period. The heat low over Sudan is expected to vary in the range between 1005hpa and 1006hpa from 24 to 120 hours. The heat low across DRC is expected to vary slightly 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 Western Sahara, southern 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 Niger and southern Mauritania through 24 to 120 hours. Local wind convergences are expected to remain active over DRC, Tanzania, Burundi, Rwanda, Uganda, Eritrea, and Ethiopia during the forecast period.

At 700hpa level, a trough in the easterly flow is expected to propagate westwards between southern Sudan and 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 Nigeria, Niger, Burkina-Faso, 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 Tanzania 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 southern Mauritania, Guinea-Conakry, Sierra Leone, Nigeria, Burkina Faso, Benin, CAR, northern Togo, Liberia, Ghana and Ivory Coast, portions of Senegal, Chad, Mali and Niger, portions of Sudan, DRC, Gabon, Cameroon and Congo Brazzaville, southern Sudan, Uganda, local areas in Tanzania, western Kenya, Eritrea and portions of Ethiopia.

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

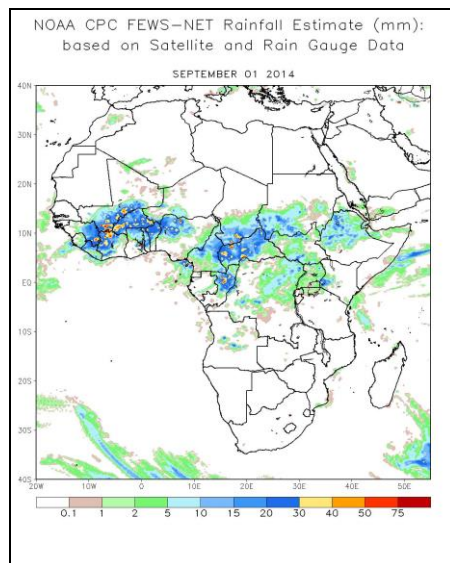
(September 01, 2014 – September 02, 2014)

### 2.1. Weather assessment for the previous day (September 01, 2014)

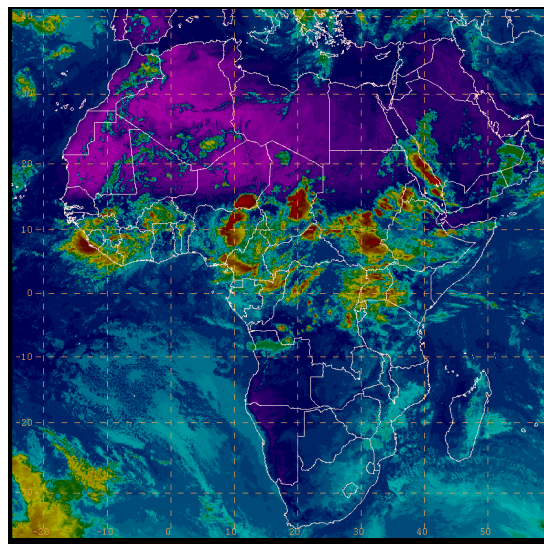
During the previous day, moderate to heavy rainfall was observed over portions of Mali, Ivory Coast, Nigeria, Guinea Conakry, Niger, Chad, Sierra Leon, Ghana, Togo and Benin, Burkina Faso, Liberia, Cameroon, CAR, Uganda, western Kenya, portions of Sudan, DRC, Congo Brazzaville, Ethiopia and Eritrea.

### 2.2. Weather assessment for the current day (September 02, 2014)

Intense clouds are observed over southern local areas in Guinea Conakry, Liberia, Sierra Leon, Burkina Faso, Ivory Coast, Chad, CAR, DRC and Ethiopia, portions of Sudan, Uganda, Rwanda and Eritrea, western Kenya, southern Mali and Cameroon, northern Niger.



IR Satellite Image (valid 1622 Z of September 02, 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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