

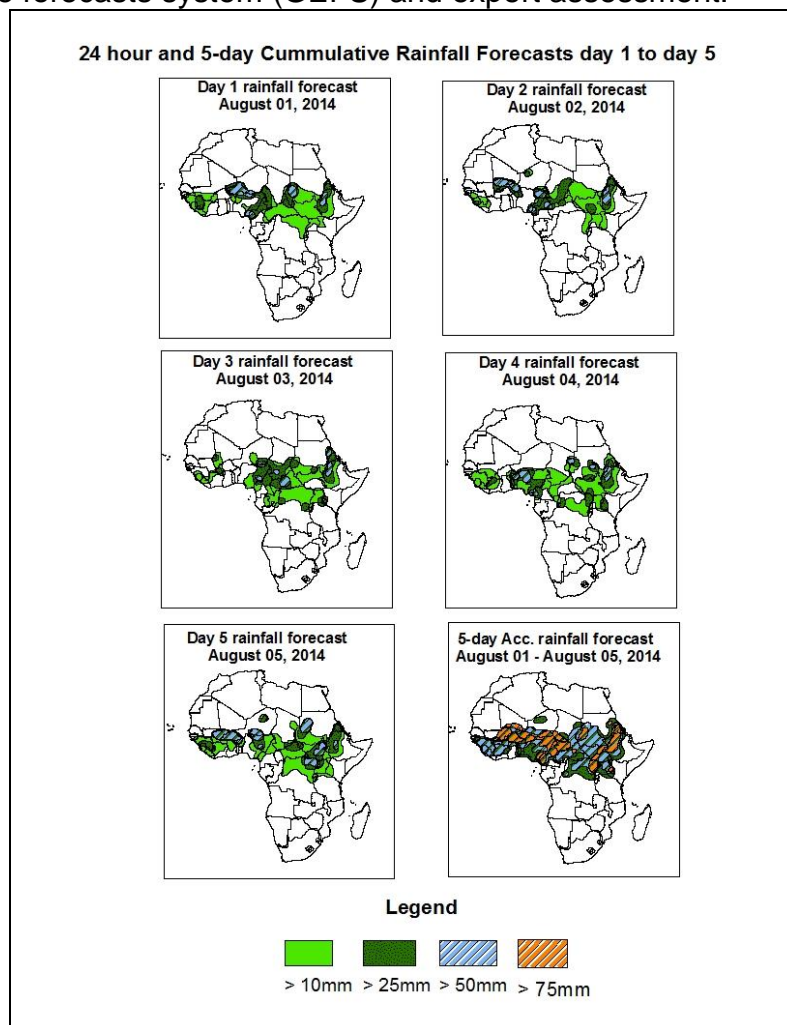


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1. Rainfall Forecast: Valid 06Z of August 01 – 06Z of August 05, 2014. (Issued at 1600Z of July 31, 2014)

### 1.1. Twenty Four Hour Cumulative Rainfall Forecasts

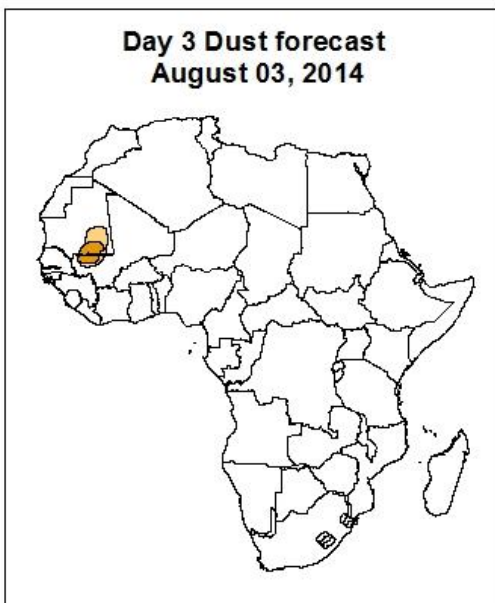
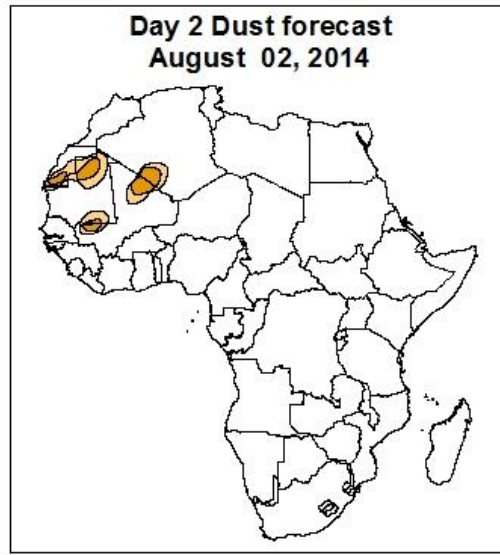
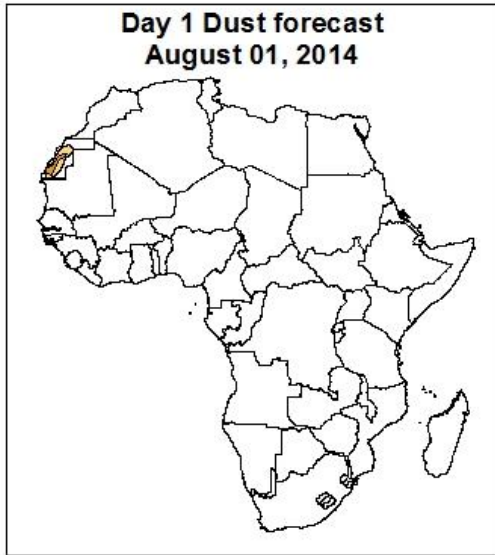
The forecasts are expressed in terms of 75% probability of precipitation (POP) exceeded, based on the NCEP/GFS and UK Met Office NWP outputs, and the NCEP global ensemble forecasts system (GEFS) and expert assessment.



### Summary

In the next five days, the monsoon flow from the Atlantic Ocean with its associated convergence across the Sahel region, localized wind convergences over Ethiopia, DRC, Uganda, and the neighboring areas, and westward propagating convective systems 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, Sierra Leone, western Liberia, northern Cote d'Ivoire and Ghana, portions of Mali, Burkina-Faso, Niger, Togo, Benin and Nigeria, southern Chad, portion of Cameroon, CAR and Sudan, northern DRC, local areas in Uganda, Eritrea, western Kenya and Ethiopia.

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



**Highlights**  
There is an increased chance  
for moderate to high dust  
concentration over **Algeria,  
Mali, Western Sahara and  
Mauritania.**



## **1.2. Model Discussion: Valid from 00Z of July 31, 2014**

The Azores high pressure system over the Northeast Atlantic Ocean is expected to weaken through 24 to 120 hours with its central pressure value decreasing from about 1030hpa in 24hours to 1026hpa 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 72 hours with its central pressure value decreasing from about 1026hpa in 24 hours to 1023hpa in 72 hours, and then it is expected to intensify from 96 to 120hours with it central pressure value increasing from about 1025hpa in 96 hours to 1027hpa in 120 hours, according to the GFS model.

The Mascarene high pressure system over the southwestern Indian Ocean is expected to weaken slightly from 24 to 48 hours with its central pressure value decreasing from about 1031hpa in 24 hours to 1030hpa in 48 hours, then it is expected to intensify from 72 to 120hours with it central pressure value increasing from about 1034hpa in 72 hours to 1037hpa 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 1003hpa to 1007hpa from 24 to 120 hours. The heat low over Sudan is expected to maintain its central pressure value about 1005hpa from 24 to 72 hours and then it is expected to weaken from 72 to 120 hours with its central pressure value increasing from about 1005hpa in 72 hours to 1003hpa in 120 hours. The heat low across DRC is expected to weaken slightly from 24 to 72 hours with its central pressure value decreasing about 1010hpa in 24 hours to 1009hpa in 72 hours, and then it is expected to maintain it central pressure value about 1010hpa from 96 to 120 hours, 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 Mauritania, Mali, Algeria, Chad, Libya and northern Sudan. Local wind convergences are also expected over DRC, Uganda and Ethiopia during the forecast period.

At 850hpa level, seasonal wind convergences are expected to remain active in the region between the northwestern Sahel and Sudan through 24 to 120 hours. Local wind convergences are also expected to remain active over DRC, Uganda and Ethiopia during the forecast period.

At 700hpa level, northeasterly to easterly flow with a feeble trough is expected to propagate across West Africa during the forecast period.

At 500Hpa level, a zone of moderate easterly wind (30kts), associated with African easterly jet is expected to prevail over Mauritania, Senegal, Mali, Burkina-Faso, Niger, Ivory-Coast, Nigeria, Chad and Sudan, with the core of the jet propagating westward between central Sahel and western Sahel, through 24hours to 120 hours.

At 150hpa level, moderate wind (>30kts) is expected to prevail over northern part of western and central Sahel through 24hours to 120 hours, whereas strong wind (>50kts) associated with the Tropical Easterly Jet (TEJ) is expected to prevail over southern parts of West Africa, and central and eastern Africa, through 24 hours to 120 hours.

In the next five days, the monsoon flow from the Atlantic Ocean with its associated convergence across the Sahel region, localized wind convergences over Ethiopia, DRC, Uganda, and the neighboring areas, and westward propagating convective systems 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, Sierra Leone, western Liberia, northern Cote d'Ivoire and Ghana, portions of Mali, Burkina-Faso, Niger, Togo, Benin and Nigeria, southern Chad, portion of Cameroon, CAR and Sudan, northern DRC, local areas in Uganda, Eritrea, western Kenya and Ethiopia.

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

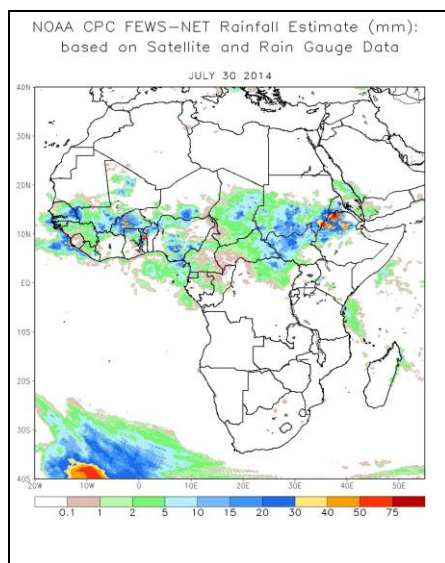
(July 30, 2014 – July 31, 2014)

### 2.1. Weather assessment for the previous day (July 30, 2014)

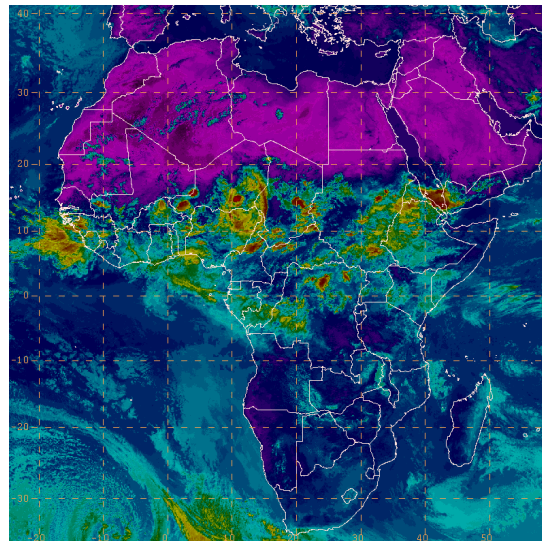
During the previous day, moderate to heavy rainfall was observed over eastern Senegal, local part of Mali, Burkina-Faso, local part of Ghana, portion of Togo and Benin, local part of Nigeria, southern Niger, eastern Chad, and portion of Sudan, Eritrea and western Ethiopia.

### 2.2. Weather assessment for the current day (July 31, 2014)

Intense clouds are observed over western Guinea-Conakry, local part of Mali, Burkina-Faso, Niger, Nigeria and Chad, northern Cameroon, CAR, DRC and Sudan, western Ethiopia.



IR Satellite Image (valid 1552 Z of July 31, 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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