

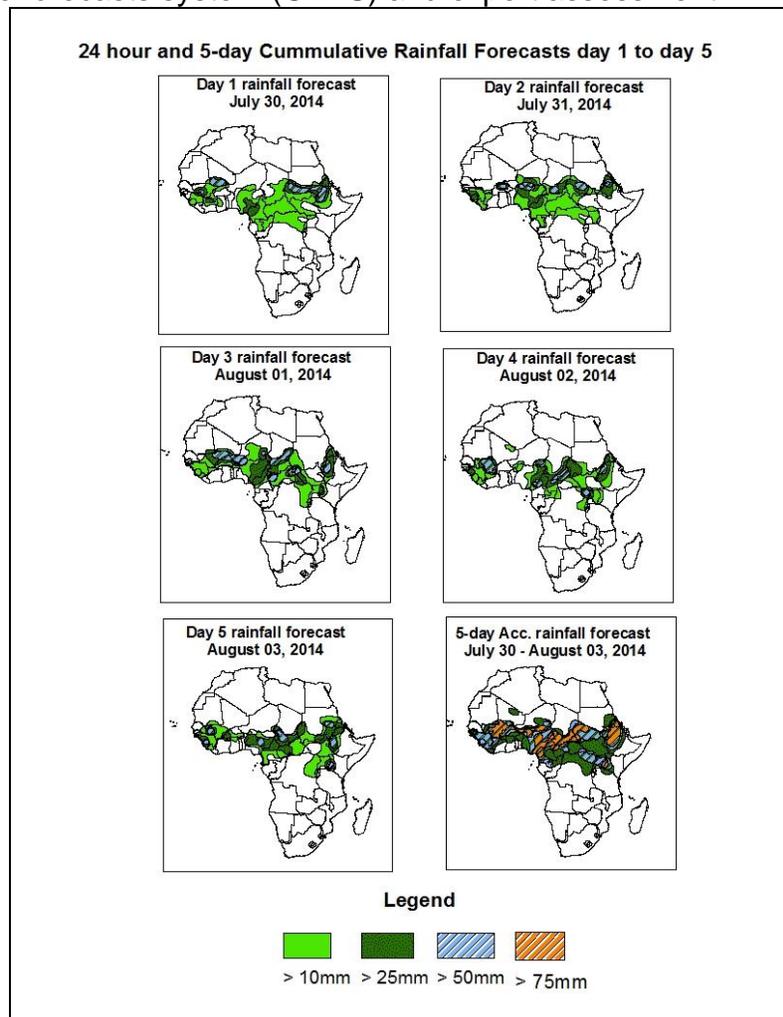


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid 06Z of July 31 – 06Z of August 04, 2014. (Issued at 1600Z of July 30, 2014)

### 1.1. Twenty Four Hour Cumulative Rainfall Forecasts

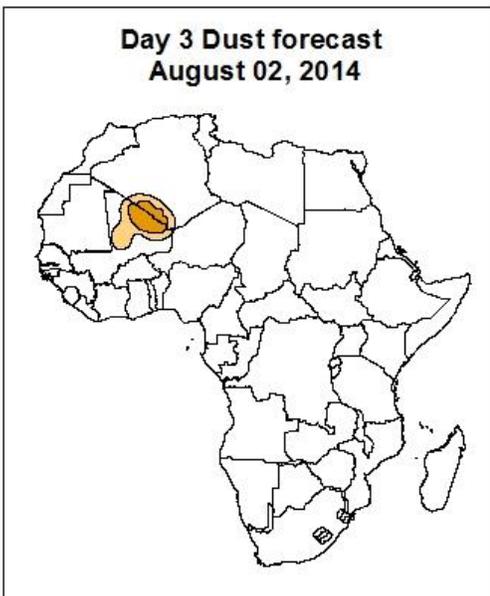
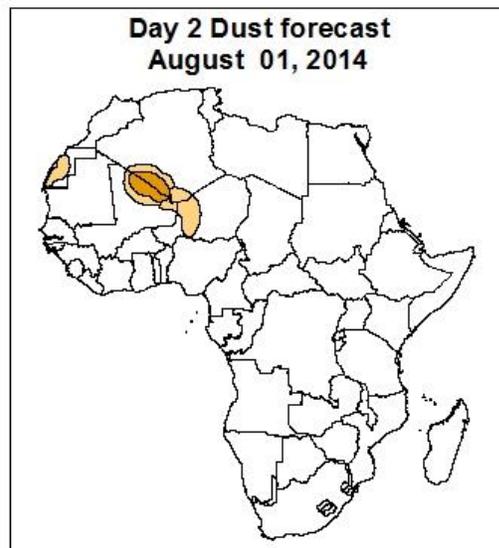
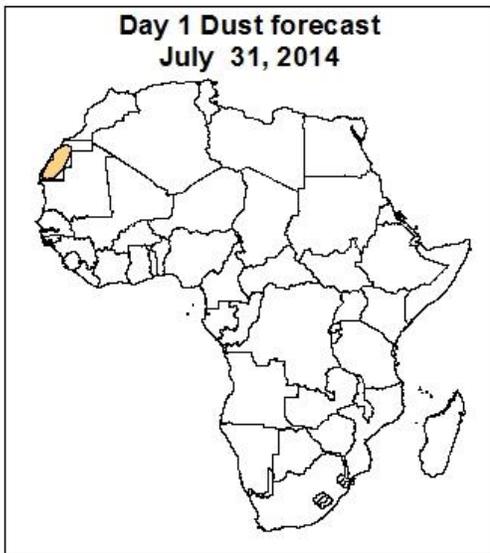
The forecasts are expressed in terms of 75% probability of precipitation (POP) exceeded, based on the NCEP/GFS and UK Met Office NWP outputs, and the NCEP global ensemble forecasts system (GEFS) and expert assessment.



### 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 Ivory-Coast and Ghana, portions of Mali and Burkina-Faso, local part of Niger, Chad and Sudan, Nigeria, portion of Cameroon, local areas of Uganda and CAR, northern DRC, Congo-Brazzaville, 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, Niger, Western Sahara and Mauritania.



### **1.3. Model Discussion: Valid from 00Z of July 30, 2014**

The Azores high pressure system over the Northeast Atlantic Ocean is expected to intensify through 24 to 72 hours with its central pressure value increasing from about 1028hpa in 24hours to 1031hpa in 72hours, and then it is expected to weaken from 96 to 120 hours with its central pressure value decreasing from about 1028hpa in 96 hours 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 96 hours with its central pressure value decreasing from about 1031hpa in 24 hours to 1024hpa in 96 hours, and then it is expected to intensify from 96 to 120hours with it central pressure value increasing from about 1024hpa in 96 hours to 1031hpa in 120 hours, according to the GFS model.

The Mascarene high pressure system over the southwestern Indian Ocean is expected to intensify from 24 to 48 hours with its central pressure value increasing from about 1025hpa in 24 hours to 1030hpa in 48 hours, then it is expected to weaken slightly from 48 to 72hours with it central pressure value decreasing from about 1030hpa in 48 hours to 1029hpa in 72 hours, and it is expected to intensify again from 72 to 96 hours with its central pressure value increasing from about 1029hpa in 72 hours to 1033hpa in 96 hours, and finally it is expected to weaken from 96 to 120hours with its central pressure value decreasing from about 1033hpa in 96 hours to 1023hpa 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 1004hpa to 1007hpa from 24 to 120 hours. The heat low over Sudan is expected to maintain its central pressure value about 1006hpa from 24 to 48 hours and then it is expected to vary in the range between 1004hpa to 1006hpa from 72 to 120 hours. The heat low across DRC is expected to weaken slightly from 24 to 120 hours with its central pressure value decreasing about 1011hpa in 24 hours to 1010hpa in 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, CAR, Uganda and Ethiopia during the forecast period.

At 700hpa level, 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, Ghana, Nigeria and Chad, 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 western and central Sahel through 24hours to 120 hours, and strong wind (>50kts) associated with the Tropical Easterly Jet (TEJ) is expected to prevail over southern parts of West Africa from 72 to 120 hours, and over Chad, Sudan, Uganda, Kenya, Ethiopia, Eritrea, and Somalia 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 Ivory-Coast and Ghana, portions of Mali and Burkina-Faso, local part of Niger, Chad and Sudan, Nigeria, portion of Cameroon, local areas of Uganda and CAR, northern DRC, Congo-Brazzaville, Eritrea, western Kenya and Ethiopia.

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

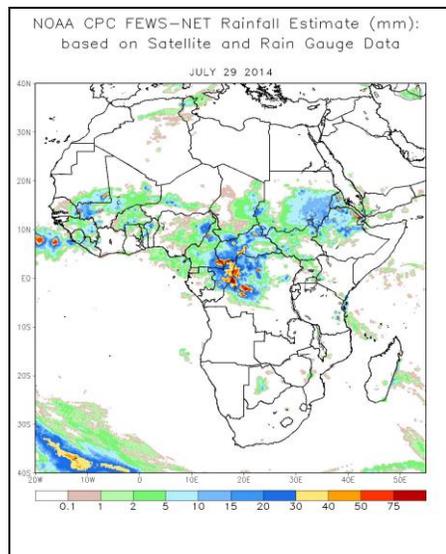
(July 29, 2014 – July 30, 2014)

### 2.1. Weather assessment for the previous day (July 29, 2014)

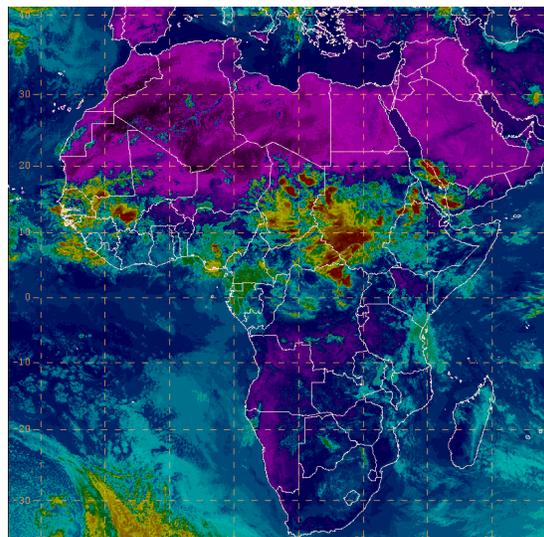
During the previous day, moderate to heavy rainfall was observed over southern Mauritania, local part of Guinea-Conakry, Sierra-Leone, Liberia, Mali, Burkina-Faso, Togo, Niger and Benin, eastern Senegal and Nigeria, local part of Cameroon, Chad and CAR, portion of Congo-Brazzaville, DRC and Sudan, eastern Tanzania, Eritrea and portion of Ethiopia.

### 2.2. Weather assessment for the current day (July 30, 2014)

Intense clouds are observed over southern Mauritania and Mali local part of Senegal, Nigeria, portion of Chad and Sudan, eastern CAR and DRC, local part of Eritrea, western Ethiopia.



IR Satellite Image (valid 1422 Z of July 30, 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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