

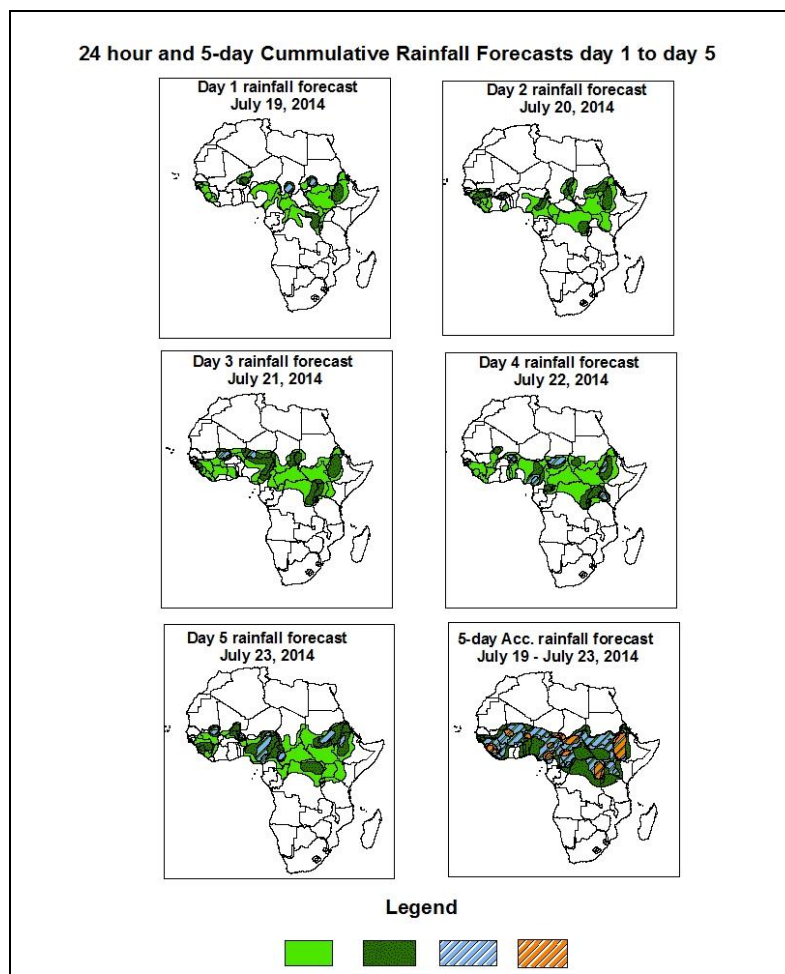


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid 06Z of July 19 – 06Z of July 23, 2014. (Issued at 1600Z of July 18, 2014)

### 1.1. Twenty Four Hour Cumulative Rainfall Forecasts

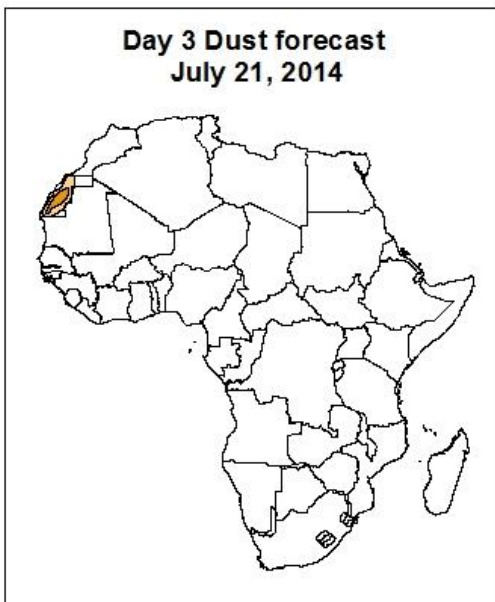
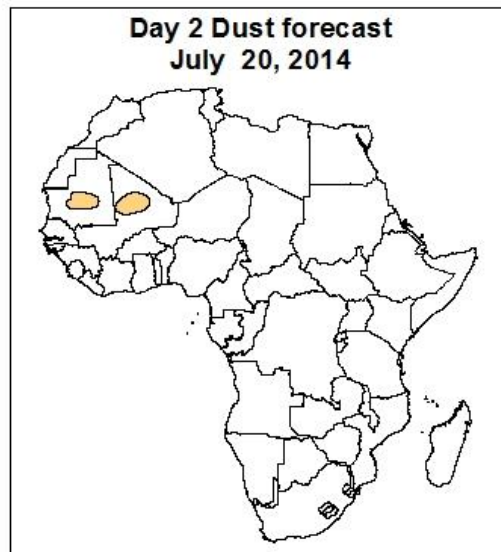
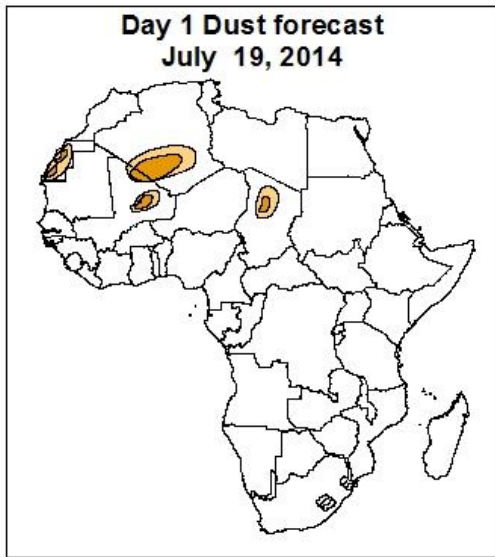
The forecasts are expressed in terms of 75% probability of precipitation (POP) exceeded, based on the NCEP/GFS and UK Met Office NWP outputs, and the NCEP global ensemble forecasts system (GEFS) and expert assessment.



### 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 I, Guinea-Conakry, Sierra Leone, Liberia, portion of Mali, western Cote d'Ivoire, local part of Ghana, Togo and Benin, southern Niger and Chad,, portion of Cameroon, CAR, Sudan and Uganda, northern DRC, 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 Western Sahara, Mauritania, Algeria and Chad.



### **1.3. Model Discussion: Valid from 00Z of July 18, 2014**

The Azores high pressure system over the Northeast Atlantic Ocean is expected to weaken through h 24 to 72 hours with its central value decreasing from about 1030hpa in 24hours to 1026hpa in 72hours, it is expected to intensify from 72 to 96 hours with its central value increasing from about 1026hpa in 72hours to 1028hpa in 96hours, and then it is expected to weaken slightly through 96 to 120 hours with its central value decreasing from about 1028hpa in 96hours to 1027hpa in 120hours, according to the GFS model.

The St Helena high pressure system over the Southeast Atlantic Ocean is expected to intensify slightly through 24 to 72hours with it central pressure value increasing from about 1030hpa in 24 hours to 1031hpa in 72 hours, it is expected to weaken from 72 to 96 hours with its central value decreasing from about 1031hpa in 72hours to 1027hpa in 96hours, and then it is expected to intensify through 96 to 120 hours with its central value increasing from about 1027hpa in 96hours to 1029hpa in 120hours, according to the GFS model.

The Mascarene high pressure system over the southwestern Indian Ocean is expected to intensify through 24 to 72 hours with its central pressure value increasing from about 1026hpa in 24 hours to 1028hpa in 72 hours, it is expected to weaken from 72 to 96 hours with it central pressure value decreasing from about 1028hpa in 72 hours to 1026hpa in 96 hours, and then it is expected to intensify through 96 to 120 hours with its central value increasing from about 1026hpa in 96hours to 1032hpa in 120hours, according to the GFS model.

The central pressure 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 deepen with its central pressure value decreasing from about 1006hpa in 24 hours to 1003hpa in 96hours, and then it is expected to fill up slightly through 96 to 120 hours with its central value increasing from about 1003hpa in 96hours to 1004hpa in 120hours. The heat low across central Africa is expected to deepen slightly from 48 to 120 hours with its central pressure value decreasing from 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, Tanzania and Ethiopia during the period of forecast.

At 850Hpa level, seasonal wind convergences are expected to remain active in the region between Mali 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, a trough in the easterly wind flow is expected to propagate across the western and central Sahel from 24 to 120 hours. A cyclonic circulation and its associated trough is expected to propagate across the southwestern corner of West Africa towards end of the forecast period.

At 500Hpa level, a zone of moderate easterly wind (30kts), associated with African easterly jet is expected to prevail over Senegal, Mauritania, Mali, Burkina-Faso, Niger, Nigeria and Ivory-Coast, 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, Niger, Chad, Sudan, 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 I, Guinea-Conakry, Sierra Leone, Liberia, portion of Mali, western Cote d'Ivoire, local part of

Ghana, Togo and Benin, southern Niger and Chad, portion of Cameroon, CAR, Sudan and Uganda, northern DRC, Eritrea, western Kenya and Ethiopia.

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

**(July 17 2014 – July 18, 2014)**

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

During the previous day, moderate to heavy rainfall was observed over, local part of Mali, Burkina-Faso, Niger, Ghana and Togo, portion of Guinea-Conakry, Benin, Nigeria and CAR, northern DRC, southern Sudan, local part of Uganda, Western Kenya and Ethiopia.

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

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

