

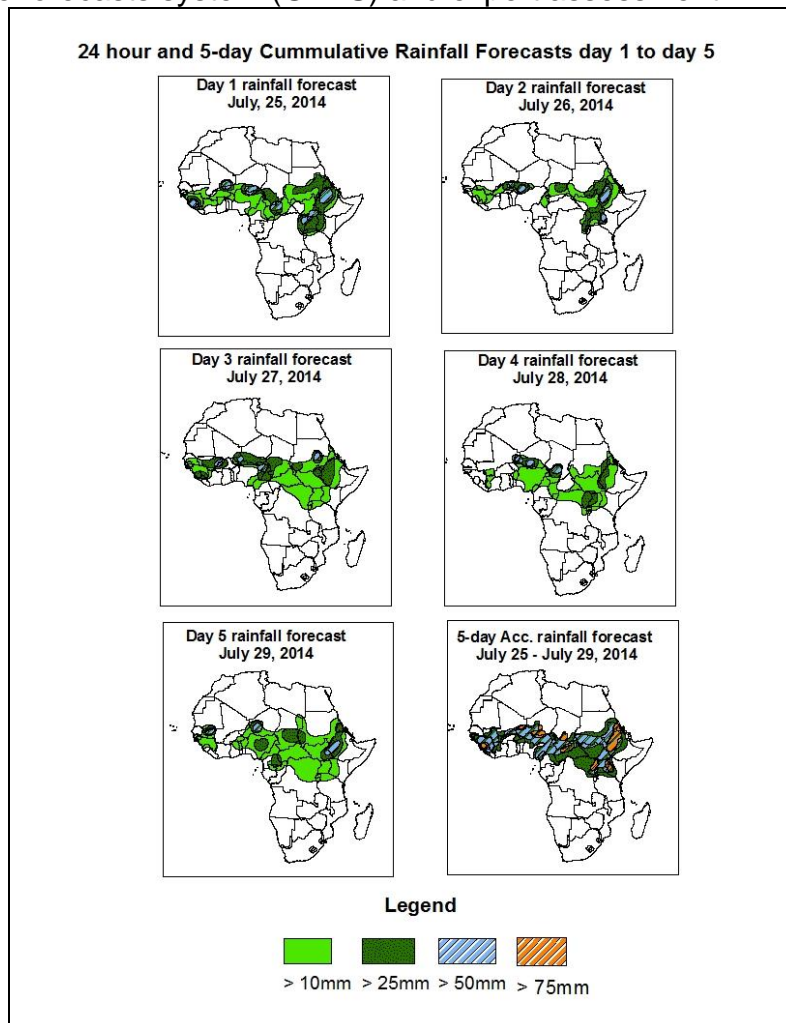


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid 06Z of July 25 – 06Z of July 29, 2014. (Issued at 1600Z of July 24, 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.

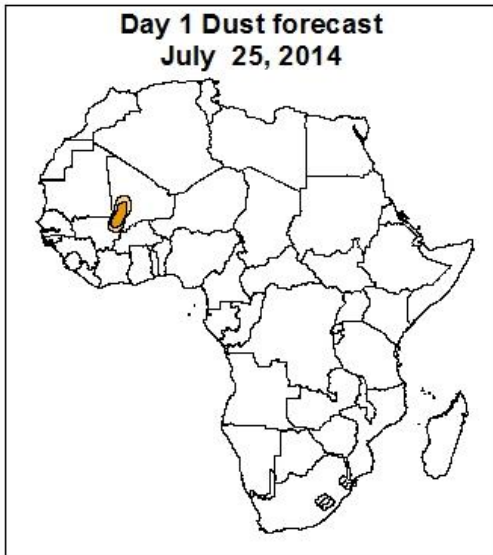


### Summary

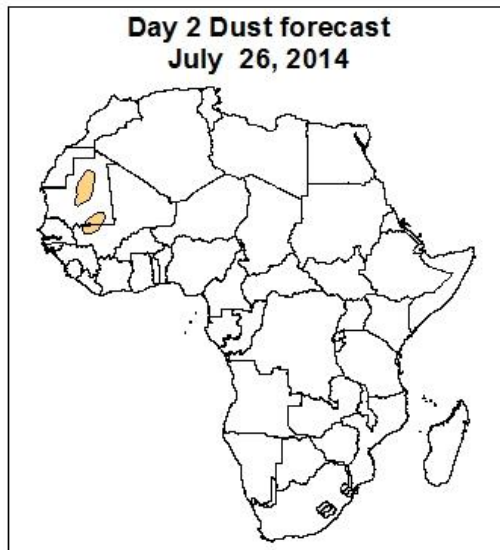
In the next five days, the monsoon flow from the Atlantic Ocean with its associated convergence across the Sahel region, localized wind convergences over Ethiopia, DRC, Uganda, and the neighboring areas, and westward propagating convective systems across West Africa are expected to enhance rainfall in their respective regions. Thus, there is an increased chance for moderate to heavy rainfall over Guinea-Conakry, Sierra Leone, Liberia, southern Mali, western Ivory-Coast, southern Niger and Chad, northern Burkina-Faso, portion of Nigeria, northern Cameroon, portion of CAR, Uganda and Sudan, northern DRC, Eritrea, western Kenya and Ethiopia.

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

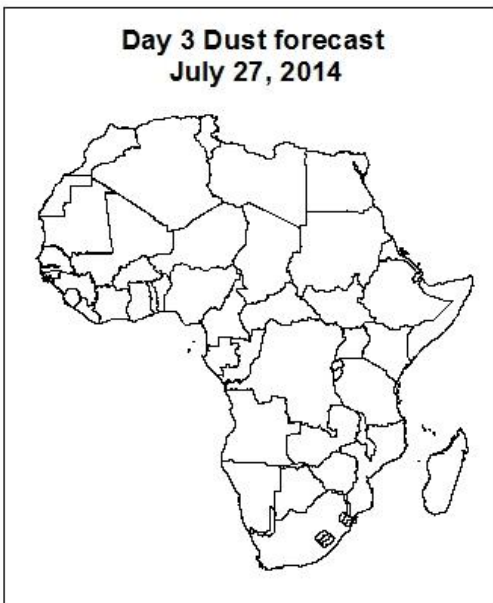
**Day 1 Dust forecast**  
July 25, 2014



**Day 2 Dust forecast**  
July 26, 2014



**Day 3 Dust forecast**  
July 27, 2014



**Highlights**

There is an increased chance  
for moderate to high dust  
concentration over Mali and  
Mauritania.

**Legend**



MDC, Vis. < 5km



HDC, Vis. < 1km

### **1.3. Model Discussion: Valid from 00Z of July 24, 2014**

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

The St Helena high pressure system over the Southeast Atlantic Ocean is expected to intensify through 24 to 96 hours with its central pressure value increasing from about 1036hpa in 24 hours to 1038hpa in 96 hours, and then it is expected to weaken from 96 to 120 hours with its central pressure value decreasing from about 1038hpa in 96 hours to 1033hpa 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 96 hours with its central pressure value of about 1037hpa in 24 hours to 1031hpa in 96 hours, and then it is expected to intensify from 96 to 120 hours with its central pressure value about 1031hpa in 96 hours to 1034hpa 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 1006hpa from 24 to 120 hours. The heat low over Sudan is expected to fill up from 24 to 96 hours with its central pressure value increasing from about 1004hpa in 24 hours to 1007hpa in 96hours, and then it is expected to weaken from 96 to 120 hours with its central pressure value decreasing from about 1007hpa in 96 hours to 1006hpa in 120 hours. The heat low across DRC is expected to deepen from 24 to 120 hours with its central pressure value decreasing about 1012hpa in 24 hours to 1009hpa 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, Rwanda, Burundi, Tanzania and Ethiopia during the period of forecast.

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, Tanzania and Ethiopia during the forecast period.

At 700hpa level, an anticyclonic circulation is expected to prevail over much of West Africa, and this may reduce westward propagation convective systems across the region from 24 to 48 hours.

At 500Hpa level, a zone of moderate easterly wind (30kts), associated with African easterly jet is expected to prevail over Mali, Niger, Senegal, Chad and Mauritania, 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, 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 Guinea-Conakry, Sierra Leone, Liberia, southern Mali, western Ivory-Coast, southern Niger and Chad, northern Burkina-Faso, portion of Nigeria, northern Cameroon, portion of CAR, Uganda and Sudan, northern DRC, Eritrea, western Kenya and Ethiopia.

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

(July 23, 2014 – July 24, 2014)

### 2.1. Weather assessment for the previous day (July 23, 2014)

During the previous day, moderate to heavy rainfall was observed over southern Senegal, Guinea-Bissau, local part of Mali, portion of Guinea-Conakry, Burkina-Faso, Ghana and Togo, northern Benin, Sierra-Leone, local part of Nigeria, Cameroon, and Chad, northern DRC and Congo-Brazzaville, southern Sudan, local part of Ethiopia and Uganda, Eritrea and western Kenya.

### 2.2. Weather assessment for the current day (July 24, 2014)

Intense clouds are observed over Mali, northern Ivory-Coast, western Burkina-Faso, local areas of Niger, southern Chad and Sudan, eastern DRC, portion of Uganda and western Ethiopia.

