

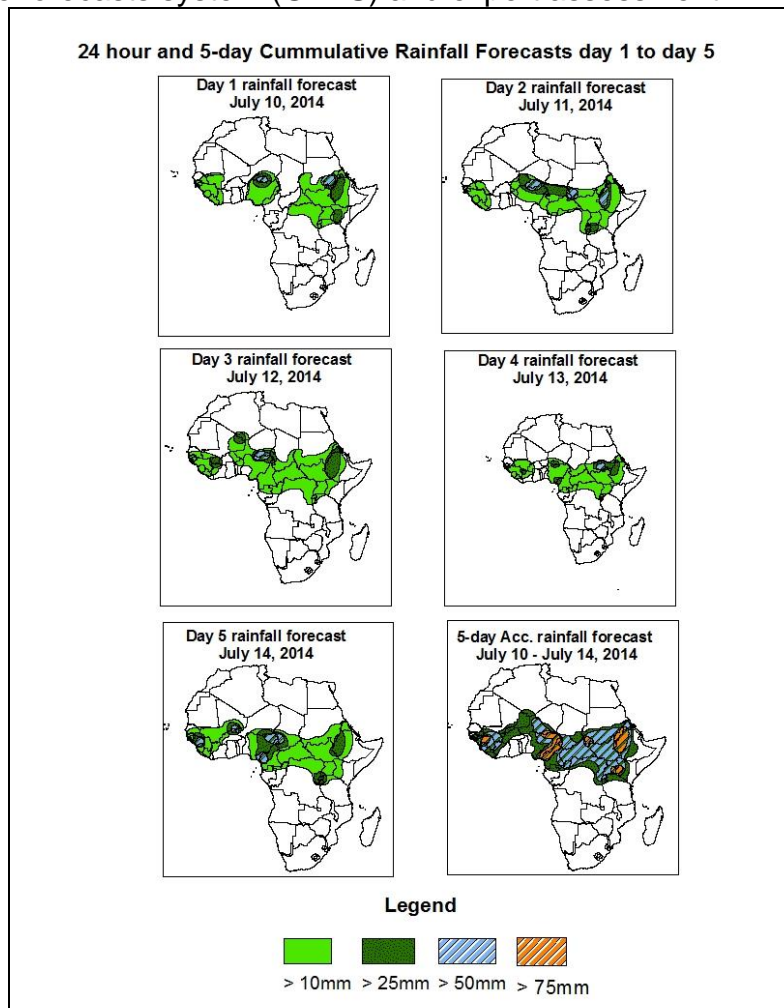


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid 06Z of July 10 – 06Z of July 14, 2014. (Issued at 1600Z of July 09, 2014)

### 1.1. Twenty Four Hour Cumulative Rainfall Forecasts

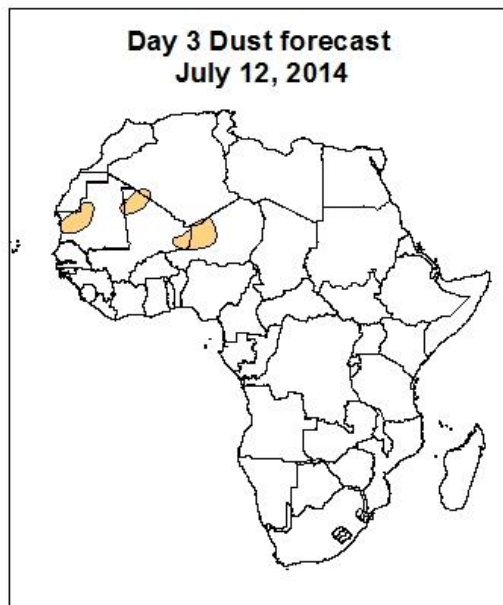
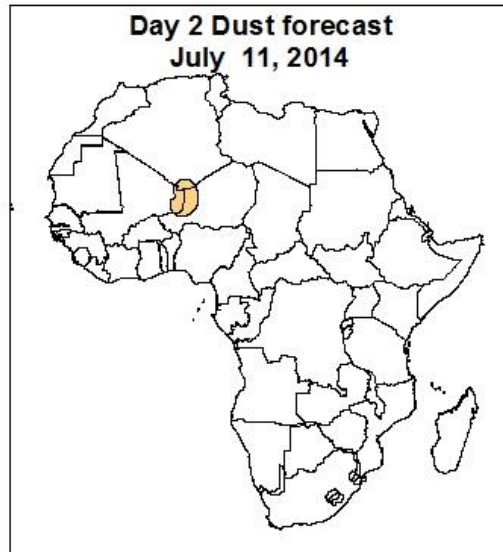
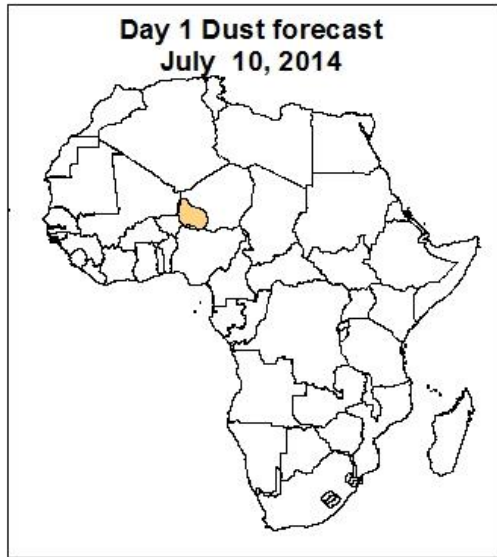
The forecasts are expressed in terms of 75% probability of precipitation (POP) exceeded, based on the NCEP/GFS and UK Met Office NWP outputs, and the NCEP global ensemble forecasts system (GEFS) and expert assessment.



### 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, CAR, Uganda, Kenya 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 Sierra Leone, Liberia, Guinea-Conakry, southern Senegal, local part of Mali, Burkina-Faso, Niger and Ivory-Coast, portion of Nigeria, Cameroon, CAR, southern Chad and Sudan, northern DRC, portion of Uganda, Djibouti, 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  
Mali, Niger, and Mauritania.



### **1.3. Model Discussion: Valid from 00Z of July 09, 2014**

The Azores high pressure system over the Northeast Atlantic Ocean is expected to weaken through 24 to 120 hours with its central value decreasing from about 1033hpa in 24hours to 1029hpa in 120hours, according to the GFS model.

The St Helena high pressure system over the Southeast Atlantic Ocean is expected to weaken through 24 to 96 hours with its central pressure value decreasing from about 1037hpa in 24 hours to 1030hpa in 96hours, and then it is expected to intensify from 96 to 120 hours with its central pressure value increasing from about 1030hpa in 96hours to 1039hpa in 120 hours according to the GFS model.

The Mascarene high pressure system over the southwestern Indian Ocean is expected to weaken through 24 to 96 hours with its central pressure value decreasing from about 1034hpa in 24 hours to 1024hpa in 96 hours, and then it is expected to intensify from 96 to 120 hours with its central pressure value increasing from about 1024hpa in 96hours to 1028hpa in 120 hours according to the GFS model.

The central pressure associated with the heat low in the region between western Sahel and Chad is expected to vary from 24 to 120 hours in the range between 1007hpa to 1008hpa. The heat low over Sudan is expected to fill up from 48 to 72 hours with its central pressure value increasing from about 1006hpa in 48 hours to 1008hpa in 72 hours, then it is expected to deepen from 96 to 120 hours with its central pressure decreasing about 1005hpa in 96 hours to 1004hpa in 120 hours. The heat low across central Sahel is expected to maintain its central pressure value from about 1011hpa 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 Senegal and Sudan through 24 to 120 hours. Dry northeasterly winds are expected to prevail over parts of Mauritania, Mali, Algeria, Chad, Libya and north of Sudan. Local wind convergences are also expected over DRC, Uganda 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, CAR, Kenya, Uganda, Djibouti 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.

At 500Hpa level, a zone of moderate easterly wind (30kts), associated with African easterly jet is expected prevail over Senegal, Mali, Ghana, Togo, Guinea-Conakry 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 Niger, Burkina-Faso, Benin, Nigeria, Togo, Ivory-Coast, Sudan and central Sahel through 24hours to 120 hours, and strong wind (>50kts) associated with the Tropical Easterly Jet (TEJ) is expected to prevail over, Ethiopia, Djibouti, 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, CAR, Uganda, Kenya 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 Sierra Leone, Liberia, Guinea-Conakry, southern Senegal, local part of Mali, Burkina-Faso, Niger and Ivory-Coast, portion of Nigeria, Cameroon, CAR, southern Chad and Sudan, northern DRC, portion of Uganda, Djibouti, western Kenya and Ethiopia.

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

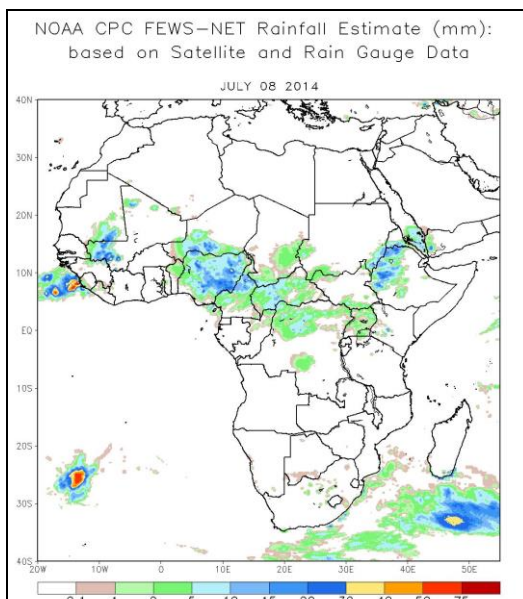
(July 08 2014 – July 09, 2014)

### 2.1. Weather assessment for the previous day (July 08, 2014)

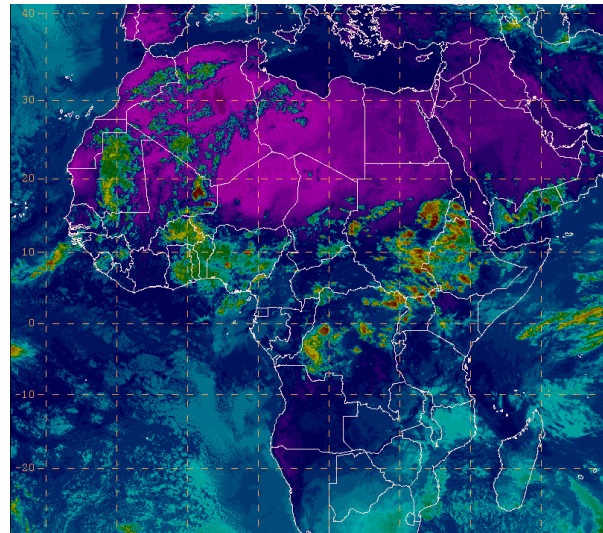
During the previous day, moderate to heavy rainfall was observed over portion of Mali, Niger, Cameroon and CAR, local part of Chad and Sudan, Nigeria, northern DRC, local part of Kenya, southern Djibouti and western Ethiopia, .

### 2.2. Weather assessment for the current day (July 09, 2014)

Intense clouds are observed over northern Mali, local part of Burkina-Faso, Nigeria, Uganda, portion of DRC, Sudan and Ethiopia, Djibouti.



IR Satellite Image (valid 1552 Z of July 09, 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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