

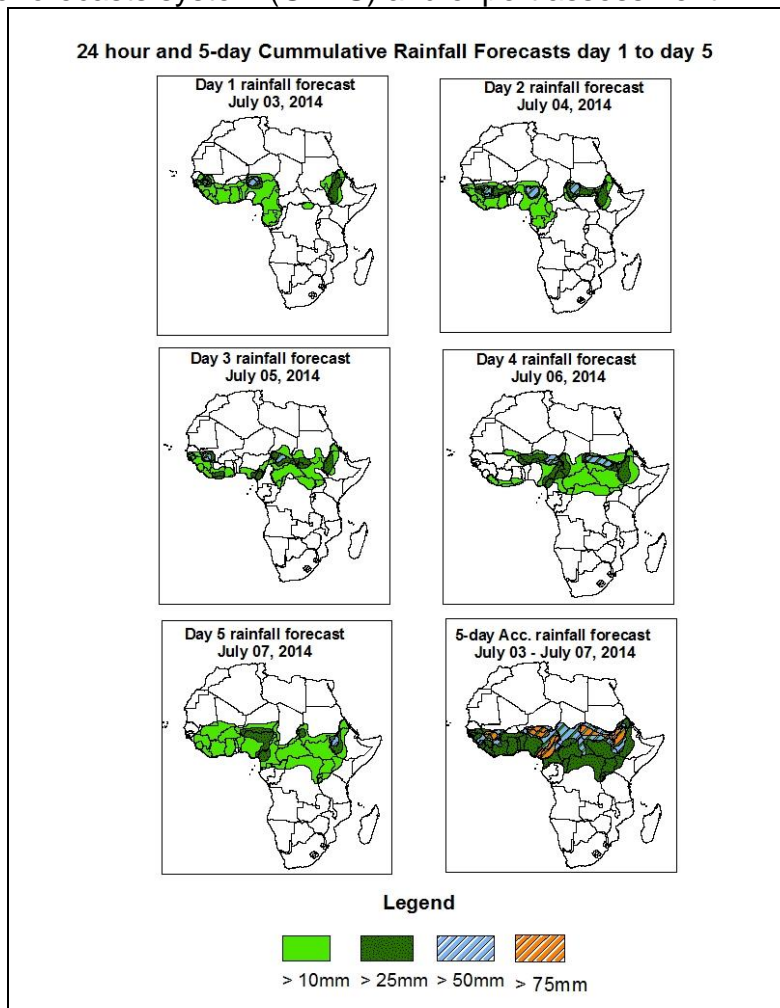


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid 06Z of July 04 – 06Z of July 08, 2014. (Issued at 1600Z of July 03, 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.

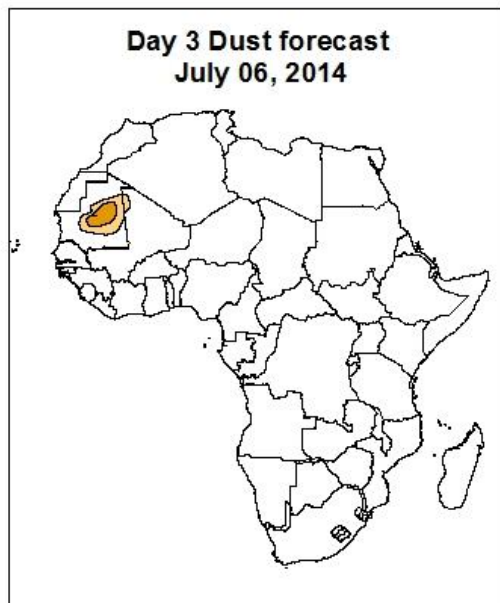
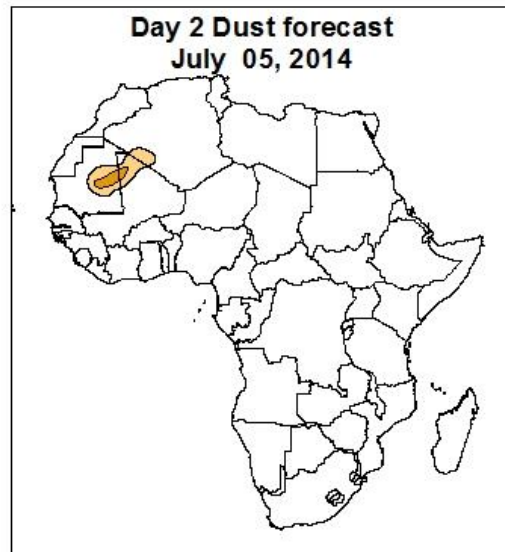


### Summary

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, DCR, Gabon, Cameroon 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 southern Senegal, portion of Mali and Burkina-Faso, Niger, Sierra Leone, Liberia, Guinea-Conakry, portion of Ivory-Coast, Ghana, Togo, Benin, Nigeria and Cameroon, CAR, southern Chad and Sudan, northern Congo-Brazzaville and DRC, western Kenya, Ethiopia and Djibouti.

**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  
Mauritania, Mali and  
Algeria,.



### **1.3. Model Discussion: Valid from 00Z of July 03, 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 1034hpa in 24hours to 1029hpa in 96hours, and then it is expected to intensify from 96 to 120 hours with its central value increasing from about 1029hpa in 96hours to 1034hpa 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 1044hpa in 24 hours to 1038hpa in 96hours, then it is expected to intensify from 96 to 120hours with its central pressure value increasing through about 1038hpa in 96 to 1039hpa in 120hours, according to the GFS model.

The Mascarene high pressure system over the southwestern Indian Ocean is expected to weaken through 24 to 48 hours with its central pressure value decreasing from about 1025hpa in 24 hours to 1021hpa in 48 hours, and then it is expected to intensify trough 72 to 120hours hours with its central pressure value increasing from about 1029hpa in 72 hours to 1031hpa 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 72 hours in the range between 1004hpa to 1006hpa, and then it is expected to fill up from about 96 to 120 hours with it central pressure value increasing through 1006hpa in 96 hours to 1008hpa in 120 hours. The heat low over Sudan is expected to fill up from 24 to 96 hours with it central pressure value from about 1001hpa in 24 hours to 1007hpa in 96 hours, then it is expected to deepen from 96 to 120 hours with it central pressure decreasing about 1007hpa in 96 hours to 1005hpa in 120 hours. The heat low across central Sahel is expected to weaken from 24 to 72 hours with its central pressure value slightly decreasing about 1011hpa from 24 to 1010hpa in 72hours, and then it is expected to fill up from 72 to 96 hours with it central pressure increasing about 1010hpa in 72 hours to 1012hpa in 96 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 and Ethiopia during the period of forecast.

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

At 700hpa level, easterly flow with wind speed about 30kts is expected to propagate across the western and central Sahel from 24 to 120 hours, whereas western winds are expected to flows in eastern Sahel during the forecast period.

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

At 150hpa level, moderate wind (>30kts) is expected to prevail over west and central Sahel through 24hours to 120 hours, and strong wind (>50kts) associated with the Tropical Easterly Jet (TEJ) is expected to prevail over Sudan, Ethiopia, Djibouti, Cameron, Ghana, Togo, Benin, Nigeria 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, DCR, Gabon, Cameroon 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 southern Senegal, portion of Mali and Burkina-Faso, Niger, Sierra Leone, Liberia, Guinea-Conakry, portion of Ivory-Coast, Ghana, Togo, Benin, Nigeria and Cameroon, CAR, southern Chad and Sudan, northern Congo-Brazzaville and DRC, western Kenya, Ethiopia and Djibouti.

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

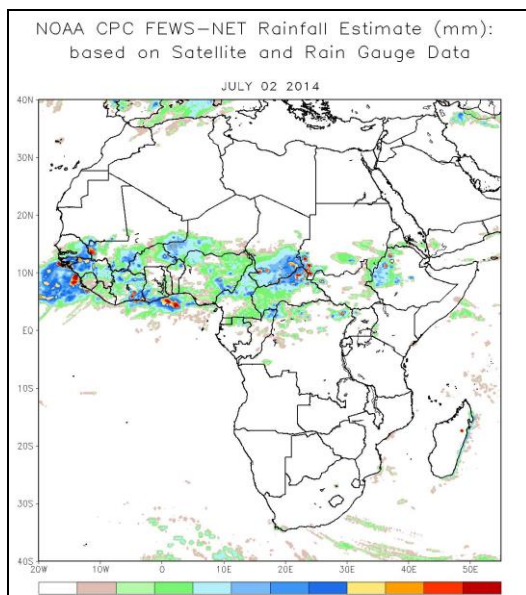
(July 02 2014 – July 03, 2014)

### 2.1. Weather assessment for the previous day (July 02, 2014)

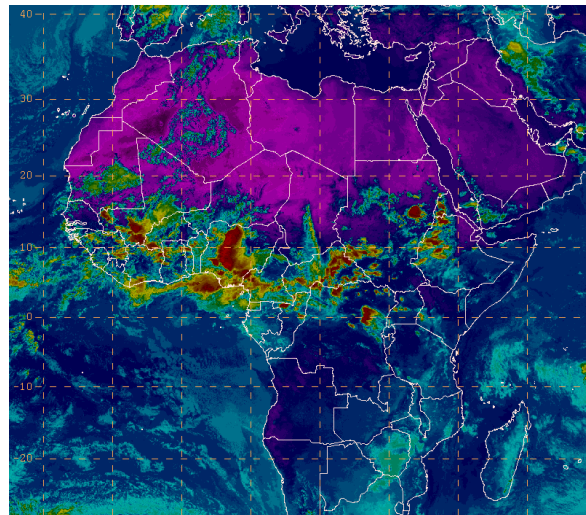
During the previous day, moderate to heavy rainfall was observed over Guinea-Conakry, portion of Mali, Senegal, Ivory-Coast, Burkina-Faso, Ghana, Nigeria, Cameroon, CAR, northern Gabon, Congo-Brazzaville and DRC, southern Chad and Sudan, and western Ethiopia.

### 2.2. Weather assessment for the current day (July 03, 2014)

Intense clouds are observed over portion of Guinea-Conakry, Mali, Ivory-Coast, Ghana, Burkina-Faso, Benin, Togo and Cameroon, CAR, northern DRC and Congo-Brazzaville, local part of Uganda, Kenya and Sudan, western Ethiopia and Djibouti.



IR Satellite Image (valid 1552 Z of July 03, 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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