

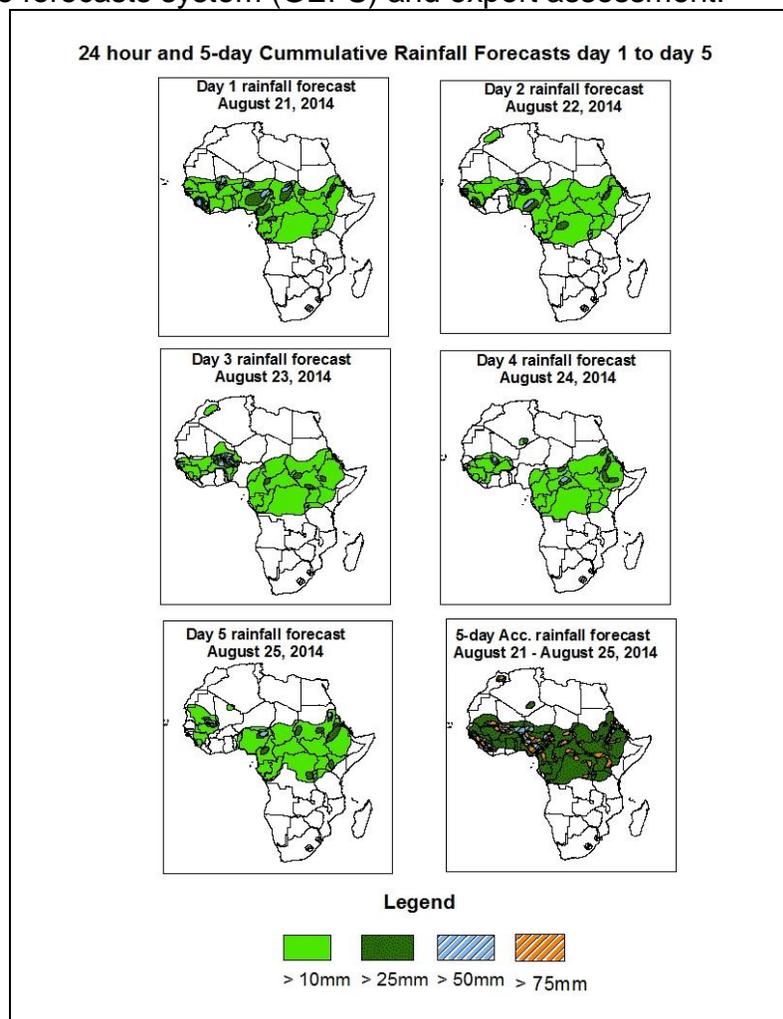


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1. Rainfall Forecast: Valid 06Z of August 21 – 06Z of August 25, 2014. (Issued at 1800Z of August 20, 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.

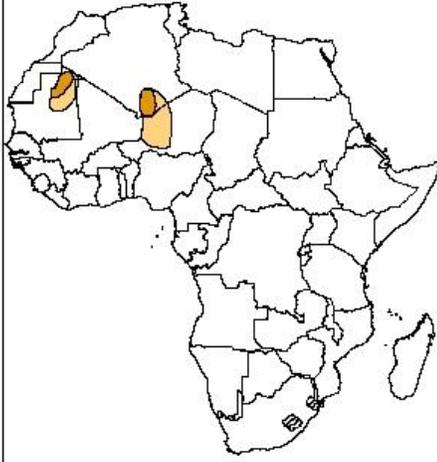


### Summary

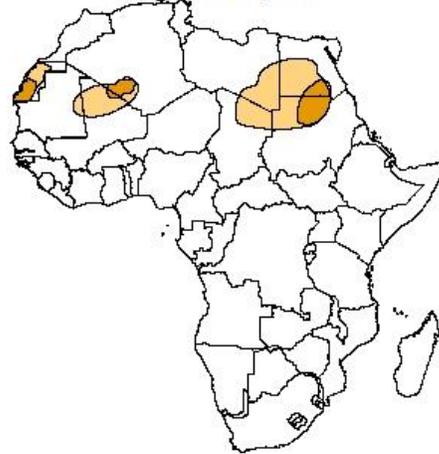
In the next five days, the monsoon flow from the Atlantic Ocean with its associated convergence across the Sahel region, localized wind convergences over Ethiopia, DRC, Uganda, and the neighboring areas, and westward propagating cyclonic circulation across West Africa are expected to enhance rainfall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

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

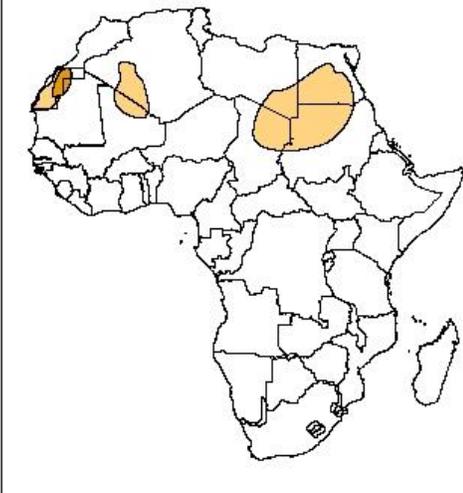
**Day 1 Dust forecast**  
**August 21, 2014**



**Day 2 Dust forecast**  
**August 22, 2014**



**Day 3 Dust forecast**  
**August 23, 2014**



**Highlights**

**There is an increased chance for moderate to high dust concentration over Western Sahara, northern Mauritania, southern Algeria, Libya, and Egypt, western Niger, northern Chad, Sudan and Mali.**



MDC, Vis. < 5km



HDC, Vis. < 1km

**Legend**

## **1.2. Model Discussion: Valid from 00Z of August 20, 2014**

The Azores high pressure system over the Northeast Atlantic Ocean is expected to weaken from 24 hours to 96 hours with its central pressure value decreasing from about 1028hpa in 24 hours to 1023hpa in 96hours, and then it is expected to intensify slightly with its central pressure value increasing from about 1023hpa in 96hours to 1024hpa in 120 hours according to the GFS model.

The St Helena high pressure system over the Southeast Atlantic Ocean is also expected to weaken from 24 hours to 96 hours with its central pressure value decreasing from about 1026hpa in 24 hours to 1022hpa in 96hours, and then it is expected to intensify slightly with its central pressure value increasing from about 1022hpa in 96hours to 1023hpa in 120 hours according to the GFS model.

The Mascarene high pressure system over the southwestern Indian Ocean is expected to weaken from 24 hours to 120 hours with its central pressure value decreasing from about 1027hpa in 24 hours to 1018hpa in 120hours, 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 about 1007hpa during the forecast period. The heat low over Sudan is also expected to vary in the range between 1003hpa to 1007hpa from 24 to 120 hours. The heat low across DRC is expected to vary in the range between 1008hpa to about 1010hpa during the forecast period, 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, Libya Egypt and northern Sudan. Local wind convergences are also expected over DRC, Tanzania, Uganda, Burundi, Rwanda, Kenya and Ethiopia during the forecast period.

At 850Hpa level, a cyclonic circulation is expected to propagate westwards between Chad and the southwestern of West Africa through 24 to 120 hours. Local wind convergences are expected to remain active over DRC, Uganda, Rwanda, Burundi Tanzania, Kenya, Eritrea, and Ethiopia during the forecast period.

At 700hpa level, a trough in the easterly flow is expected to propagate westwards between southern Chad and southern Mauritania across West Africa through 24 to 120 hours.

At 500Hpa level, a zone of moderate wind (>30kts), associated with African easterly jet is expected to prevail over West Africa and chad with its core propagating between Mali and southern Mauritania.

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 cyclonic circulation 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, eastern Liberia, southern Mauritania, portions of Mali, northwestern Ivory Coast, northern Benin, northern Burkina Faso, southern Niger, Nigeria, CAR, southern Chad, local areas in Sudan, portions of DRC, Cameroon, northern Gabon and Congo Brazzaville, local areas in Uganda, western Kenya, Eritrea and western Ethiopia.

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

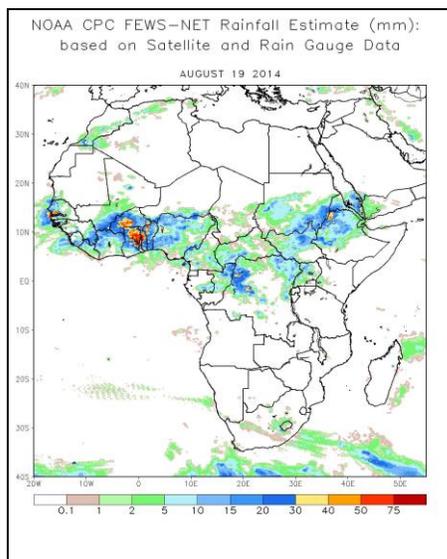
(August 19, 2014 – August 20, 2014)

### 2.1. Weather assessment for the previous day (August 19, 2014)

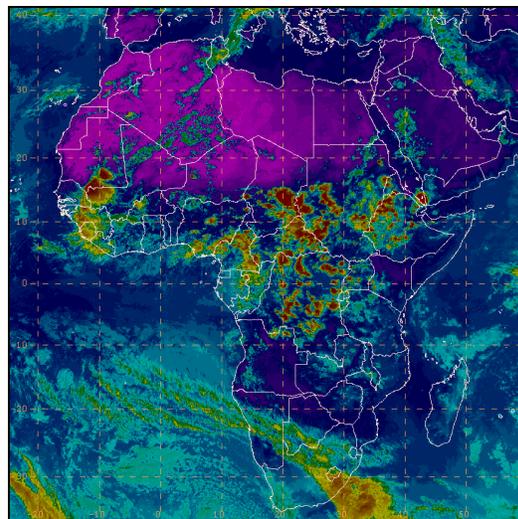
During the previous day, moderate to heavy rainfall was observed over western Senegal, southwestern Mauritania, local areas in Guinea, portion of Ivory Coast, local areas in Mali, local areas in Sierra Leon, local areas in Liberia, Burkina Faso, Ghana, Togo, Benin, southeastern Niger, Nigeria, local areas in DRC, local areas in CAR, local areas in Cameroun, northern Congo Brazzaville, eastern Gabon, portions of Sudan, portions of Uganda, western Ethiopia and Eritrea.

### 2.2. Weather assessment for the current day (August 20, 2014)

Intense clouds are observed over southern Mauritania, western Burkina Faso, southern Mali, eastern Senegal, western Guinea, Sierra Leon, local areas in Liberia, local areas in Nigeria, local areas in CAR, local areas in Chad, local areas in Cameroon, local areas in Uganda, western Kenya, local areas in Sudan, local areas in DRC, Eritrea and western Ethiopia.



IR Satellite Image (valid 1622 Z of August 20, 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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