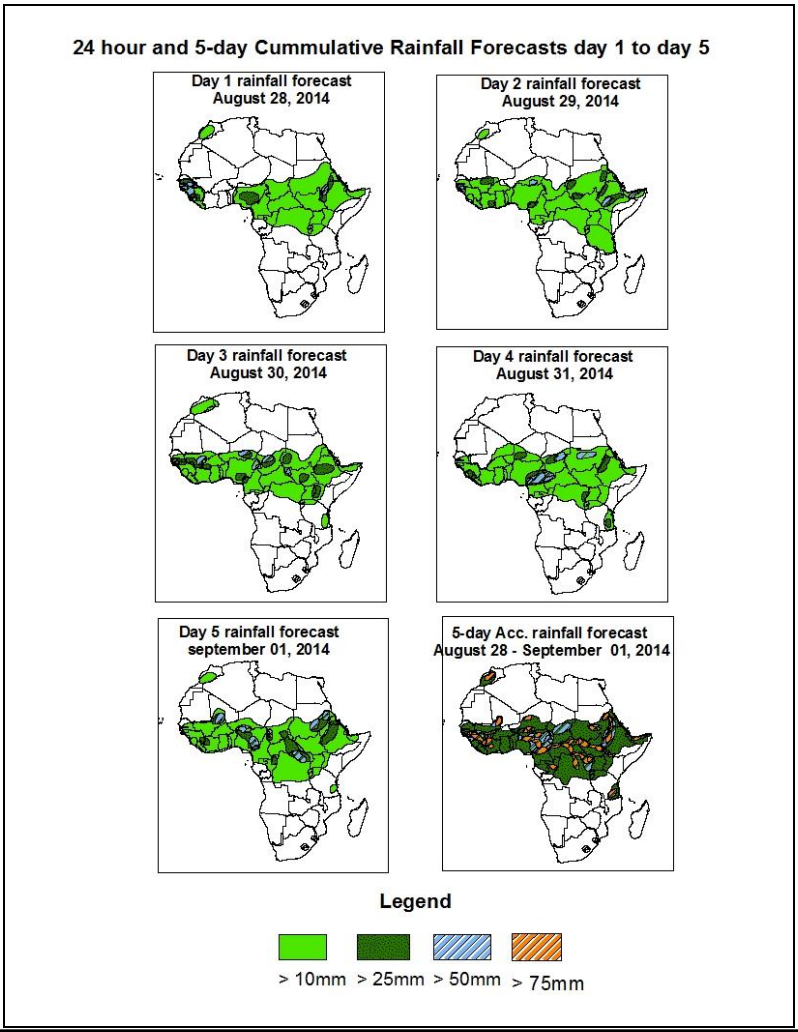
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Rainfall Forecast: Valid 06Z of August 28 – 06Z of September 01, 2014. (Issued at 1800Z of August 27, 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.

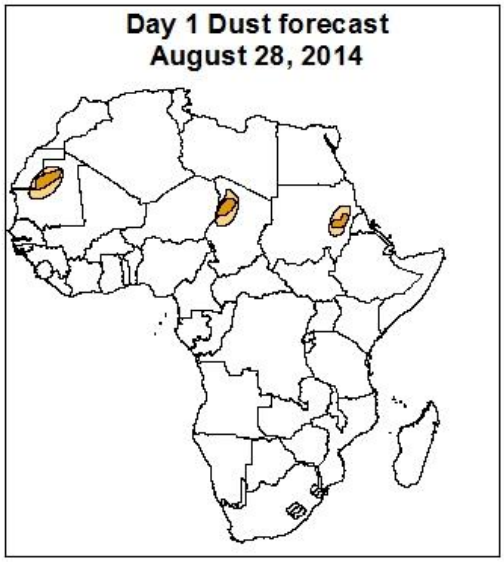


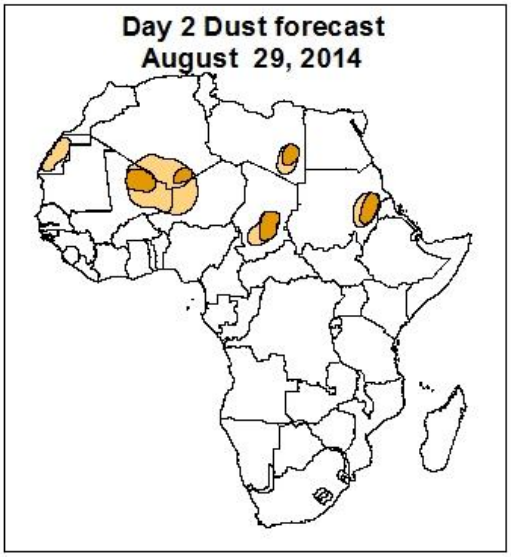
Summary

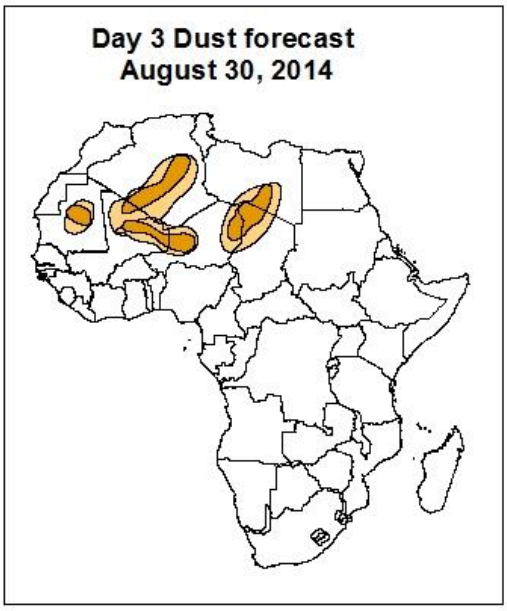
In the next five days, the monsoon flow from the Atlantic Ocean with its associated convergence across the southern Sahel, localized wind convergences over Ethiopia, DRC, Uganda, and the neighboring areas, and westward propagating cyclonic circulation across West Africa are expected to enhance rainfall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

Legend

MDC, Vis. < 5km

HDC, Vis. < 1km

1.2. Model Discussion: Valid from 00Z of August 27, 2014

The Azores high pressure system over the Northeast Atlantic Ocean is expected to weaken from 24 to 48 hours with its central pressure value decreasing from about 1023hpa in 24 hours to 1021hpa in 48hours, and it maintains its central pressure value of about 1021hpa through 48hours to 96 hours, and then is expected to intensify from 96 to 120 hours with its central pressure value increasing from about 1021hpa in 96hours to 1024hpa in 120 hours, according to the GFS model.

The St Helena high pressure system over the Southeast Atlantic Ocean is expected to weaken from 24 to 48 hours with its central pressure value decreasing from about 1030hpa in 24 hours to 1024hpa in 48hours, and it maintains its central pressure value of about 1024hpa through 48hours to 96 hours and then it is expected to weaken slightly from 96 to 120 hours with its central pressure value decreasing from about 1024hpa in 96 hours to 1023hpa in 120hours, according to the GFS model.

The Mascarene high pressure system over the southwestern Indian Ocean is expected to intensify from 24 to 48 hours with its central pressure value increasing from about 1018hpa in 24hours to 1034hpa in 48 hours, and then it is expected to weaken from 48 to 120 hours with its central pressure value decreasing from about 1034hpa in 48 hours to 1032hpa 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 and 1007hpa during the forecast period. The heat low over Sudan is expected to vary in the range between 1003hpa and 1004hpa from 24 to 120 hours. The heat low across DRC is expected to vary slightly in the range between 1007hpa and 1009hpa 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 Western Sahara, southern Algeria and Libya, northeastern Sudan. Local wind convergences are also expected over DRC, Tanzania, Uganda, Burundi, Rwanda, Kenya and Ethiopia during the forecast period**.**

At 850Hpa level, cyclonic circulation is expected to propagate westwards between Mali and Senegal through 24 to 48 hours. Local wind convergences are expected to remain active over DRC, Uganda, Tanzania, Burundi, Ruanda, Eritrea, and Ethiopia during the forecast period.

At 700hpa level, trough in the easterly flow is expected to propagate westwards between western Niger and Guinea-Conakry through 24 to 48 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 Senegal.

In the next five days, the monsoon flow from the Atlantic Ocean with its associated convergence across the southern Sahel, 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, Liberia, portions of Senegal, portions of Mali and Ivory Coast, Benin, local areas in Ghana and Togo, southern Burkina Faso, eastern Niger, Nigeria, CAR, portions of Chad, portions of Sudan, portions of DRC, Cameroon, northern Congo Brazzaville, Uganda, local areas in Tanzania, western Kenya, Eritrea and portions of Ethiopia.

2.0. Previous and Current Day Weather Discussion over Africa

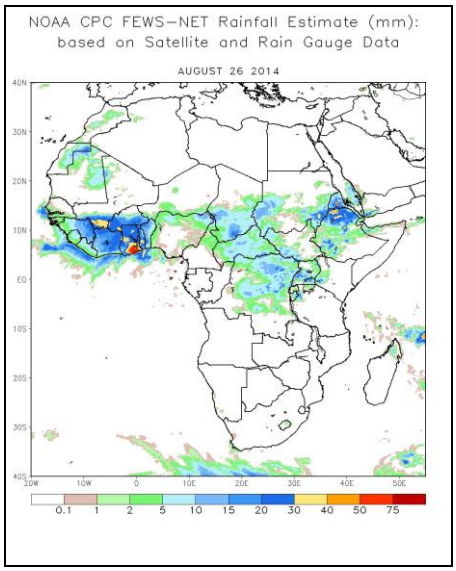
(August 26, 2014 – August 27, 2014)

2.1. Weather assessment for the previous day (August 26, 2014)

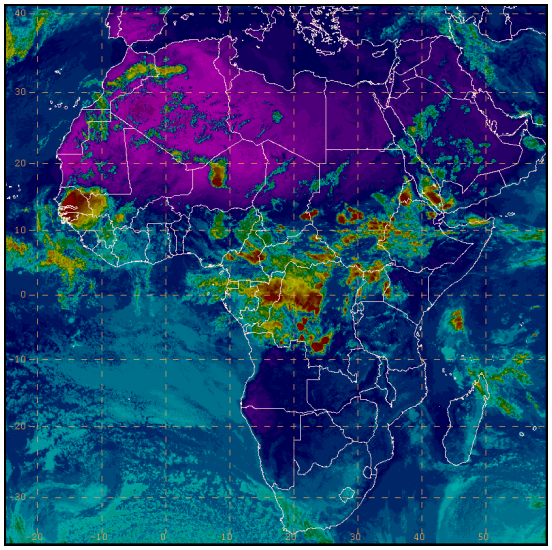
During the previous day, moderate to heavy rainfall was observed over local areas in Mauritania, Niger, Nigeria, Senegal and Mali, Guinea Conakry, Sierra Leon, Liberia, Ivory Coast, Ghana, Togo, Benin, portions of Chad and Burkina Faso, northern Cameroon and Congo Brazzaville, portions of DRC, CAR, local areas in Sudan, Uganda, northern Tanzania, Rwanda, Burundi, western Kenya, portions of Ethiopia and Eritrea.

2.2. Weather assessment for the current day (August 27, 2014)

Intense clouds are observed over southern Mali and Mauritania, Senegal, western Guinea Conakry and Niger, local areas in Cameroon, chad, CAR, Soudan, Ethiopia and Uganda, portions of DRC, northern Congo Brazzaville, western Kenya and Eritrea.



IR Satellite Image (valid 1622 Z of August 27, 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

Author: Kouakou YA (Cote d'Ivoire, Service National de la Meteorologique / CPC-African Desk); kouakou.ya@noaa.gov