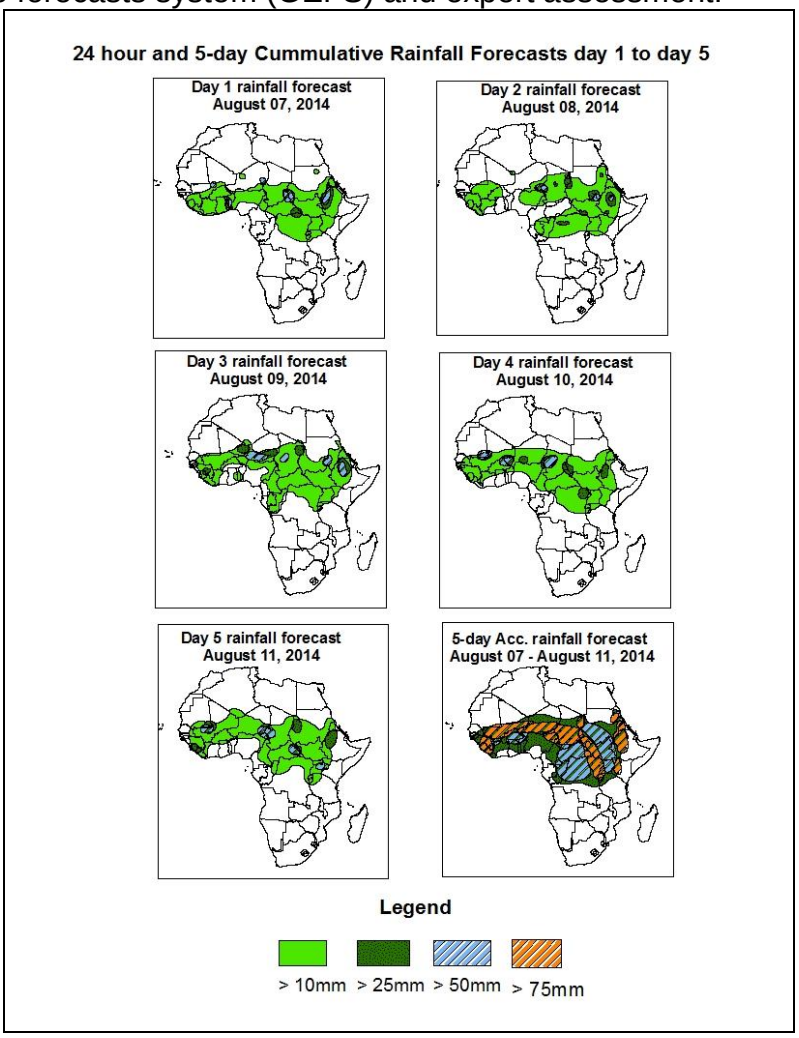
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Rainfall Forecast: Valid 06Z of August 08 – 06Z of August 12, 2014. (Issued at 1800Z of August 07, 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

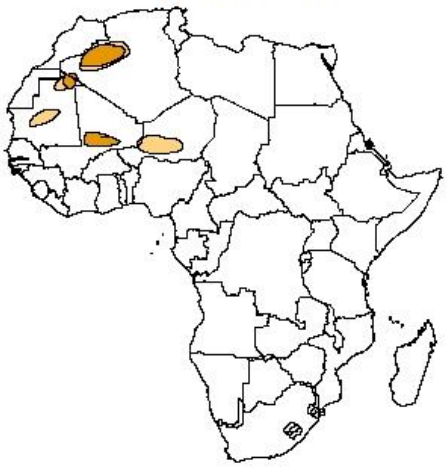
In the next five days, the monsoon flow from the Atlantic Ocean with its associated convergence across the Sahel region, localized wind convergences over Ethiopia, DRC, Uganda, and the neighboring areas, and westward propagating convective systems across West Africa are expected to enhance rainfall in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

.

Atmospheric Dust Forecasts, day 1 to day 3,

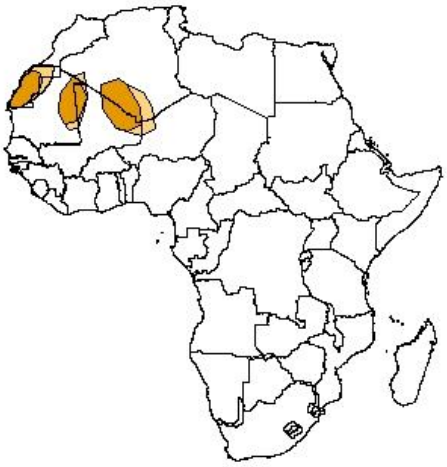
Moderate Dust Concentration (MDC) and High Dust Concentration (HDC)

Day 1 Dust forecast
August 07, 2014



Day 2 Dust forecast
August 08, 2014

Day 3 Dust forecast
August 09, 2014



Highlights

There is an increased chance for moderate to high dust concentration over Western Sahara, Mauritania, Algeria, Mali and Niger.

Legend

MDC, Vis. < 5km

HDC, Vis. < 1km

1.2. Model Discussion: Valid from 00Z of August 07, 2014

The Azores high pressure system over the Northeast Atlantic Ocean is expected to maintain central pressure value of 1028hpa through 24 to 48 hours, and then it is expected to weaken from 72 to 120 hours with its central pressure value decreasing from about 1027hpa in 72 hours to 1026hpa in 120 hours, according to the GFS model.

The St Helena high pressure system over the Southeast Atlantic Ocean is expected to weaken gradually with its central pressure value decreasing from 1025hpa in 24hours to 1023hpa in 48 hours, and then it is expected to increase from about 1026hpa in 72 hours to 1030hpa in 120 hours according to the GFS model.

The central pressure values associated with the Mascarene high pressure system over the southwestern Indian Ocean is expected to weaken with its central pressure decreasing from about 1031hpa in 24 hours to 1028hpa in 48 hours and then it is expected to increase from about 1026hpa in 72 hours to 1035hpa 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 about 1008hpa during the forecast period. The heat low over Sudan is also expected vary in the range between 1004hpa to 1009hpa during the forecast period. The heat low across DRC is expected to vary in the range between 1009hpa to about 1012hpa 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, Rwanda, Kenya and Ethiopia during the forecast period**.**

At 850Hpa level, seasonal wind convergences are expected to remain active in the region between western Sahel and Sudan through 24 to 120 hours. Local wind convergences are also expected to remain active over Senegal, Mali, Niger, chad, DRC, Uganda, Burundi, Rwanda Tanzania, Eritrea, and Ethiopia during the forecast period.

At 700hpa level, a cyclonic circulation is expected to form across central Africa, and expected to propagate across Southern Mali, Niger, with its associated trough extending across Nigeria- Benin-Togo Ghana and southeastern Ivory coast during the forecast period.

At 500Hpa level, a zone of strong wind, associated with African easterly jet is expected to prevail over West Africa, with its core propagating between Niger and southern Mauritania, across Mali.

At 150hpa level, moderate wind (>30kts) is expected to prevail over northern part of western and central Sahel through 24hours to 120 hours**,** whereas strong wind (>50kts) associated with the Tropical Easterly Jet (TEJ) is expected to prevail over southern parts of West Africa, and central and eastern Africa, 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, portions of Mali, northern Cote d'Ivoire, Burkina Faso, Niger, northern Nigeria, CAR, Chad and South Sudan, northern DRC, portions of Uganda, Eritrea, western Kenya and Ethiopia.

2.0. Previous and Current Day Weather Discussion over Africa

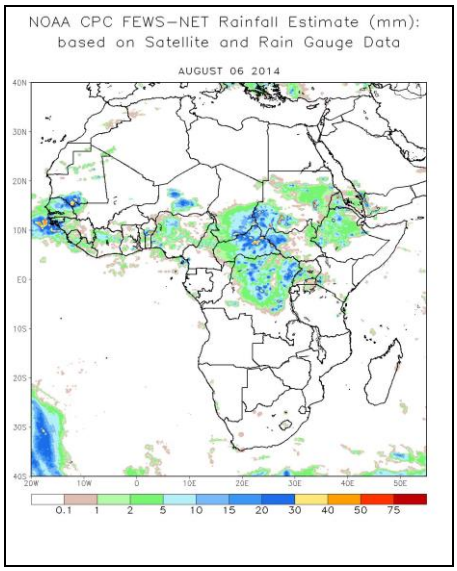
(August 06, 2014 – August 07, 2014)

2.1. Weather assessment for the previous day (August 06, 2014)

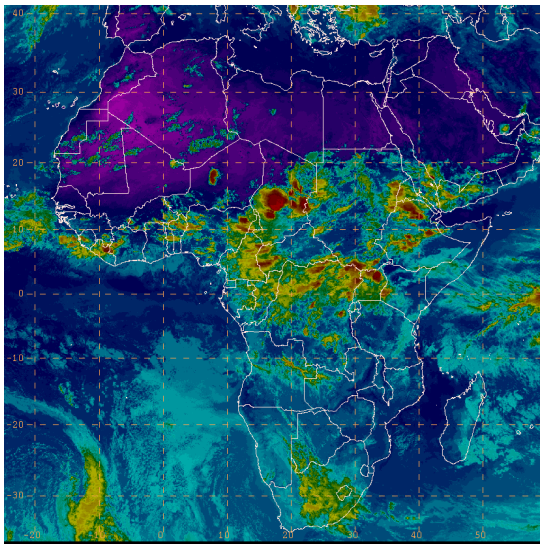
During the previous day, moderate to heavy rainfall was observed over portion of Senegal, southern Mauritania, Niger, northern Cote d'Ivoire, northern Nigeria, Benin, eastern CAR, southeastern Chad, portions of Sudan and South Sudan, DRC, local areas in Uganda and Kenya, portions of Ethiopia and Eritrea.

2.2. Weather assessment for the current day (August 07, 2014)

Intense clouds are observed over local areas in the Gulf of Guinea region, many places of the central Sahel and central Africa regions, and portions of the Horn of Africa countries.



IR Satellite Image (valid 1630 Z of August 06,



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