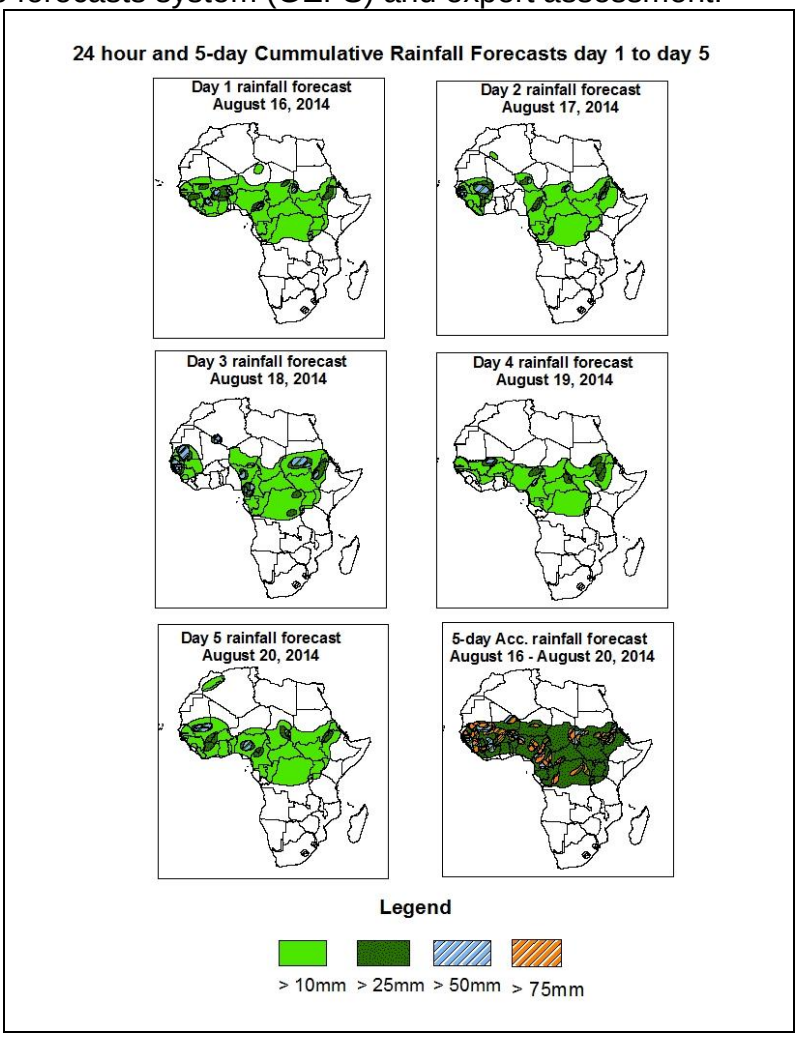
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Rainfall Forecast: Valid 06Z of August 16 – 06Z of August 20, 2014. (Issued at 1800Z of August 15, 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.



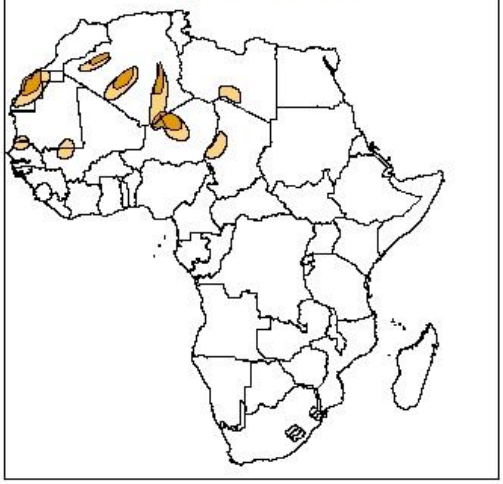
Summary

. 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, northern Liberia and portions of Mali, northern Ivory Coast, northern Ghana, Northern Togo, northern Benin, Burkina Faso, local areas of Niger, Nigeria, CAR, eastern Chad, Sudan, northern DRC, Cameroon, northern Gabon and Congo Brazzaville, portions of Uganda, Eritrea and western Ethiopia.

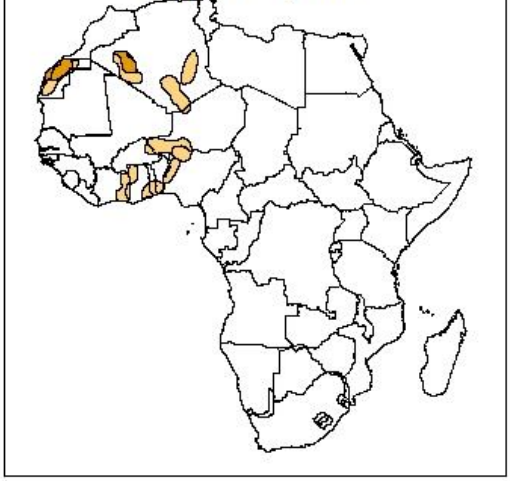
Atmospheric Dust Forecasts, day 1 to day 3,

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

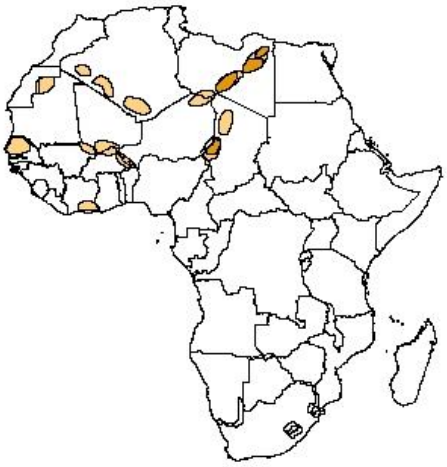
Day 1 Dust forecast
August 16, 2014



Day 2 Dust forecast
August 17, 2014



Day 3 Dust forecast
August 18, 2014



Highlights

There is an increased chance for moderate to high dust concentration over Libya, Western Sahara, southern Mauritania, southern Algeria, northern Chad, Niger, Mali, and eastern portions of western Africa.

Legend

MDC, Vis. < 5km

HDC, Vis. < 1km

1.2. Model Discussion: Valid from 00Z of August 15, 2014

The Azores high pressure system over the Northeast Atlantic Ocean is expected to weaken from 24 hours to 48 hours with its central pressure value of about 1029hpa in 24 hours to 1025hpa in 48hours and then it is expected to intensify with its central pressure value increasing from about 1025hpa in 48hours to 1028hpa in 120 hours, according to the GFS model.

The St Helena high pressure system over the Southeast Atlantic Ocean is expected to intensify with its central pressure value increasing from about 1034hpa in 24hours to 1036hpa in 48 hours, and then it is expected to weaken from 48 hours to 120 hours with its central pressure value of about 1036hpa in 48 hours to 1024hpa in 120hours, according to the GFS model.

The Mascarene high pressure system over the southwestern Indian Ocean is expected to weaken from 24 hours to 96 hours with its central pressure value decreasing from about 1034hpa in 24 hours to 1032hpa in 96 hours, and then then it is expected to intensify with its central pressure value increasing from about 1032hpa in 96hours to 1033hpa 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 1005hpa to about 1009hpa during the forecast period. The heat low over Sudan is also expected to vary in the range between 1004hpa to 1007hpa from 24 to 120 hours. The heat low across DRC is expected to vary in the range between 1009hpa 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 Senegal, 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, Rwanda, Burundi and Ethiopia during the forecast period**.**

At 850Hpa level, a cyclonic circulation is expected to propagate westwards between Chad and the southwestern Corner of West Africa through 24 to 96 hours. Local wind convergences are expected to remain active over DRC, Uganda, Kenya, Burundi, Rwanda Tanzania, Eritrea, and Ethiopia during the forecast period.

At 700hpa level, a cyclonic circulation and its associated trough is expected to propagate westwards between southern Chad and Mauritania across West Africa through 24 to 96 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 Niger and southern Mauritania.

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, 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 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, northern Liberia and portions of Mali, northern Ivory Coast, northern Ghana, Northern Togo, northern Benin, Burkina Faso, local areas of Niger, Nigeria, CAR, eastern Chad, Sudan, northern DRC, Cameroon, northern Gabon and Congo Brazzaville, portions of Uganda, Eritrea and western Ethiopia.

2.0. Previous and Current Day Weather Discussion over Africa

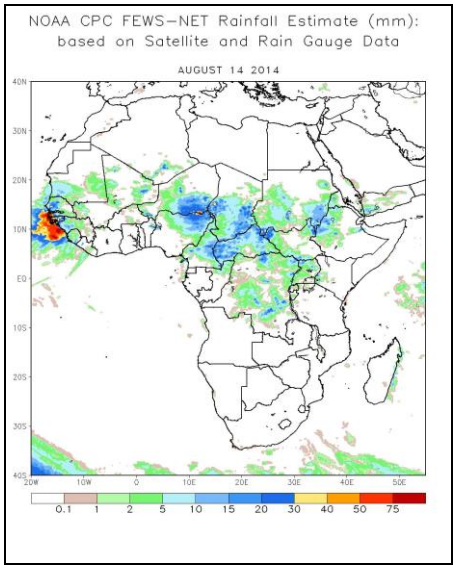
(August 14, 2014 – August 15, 2014)

2.1. Weather assessment for the previous day (August 14, 2014)

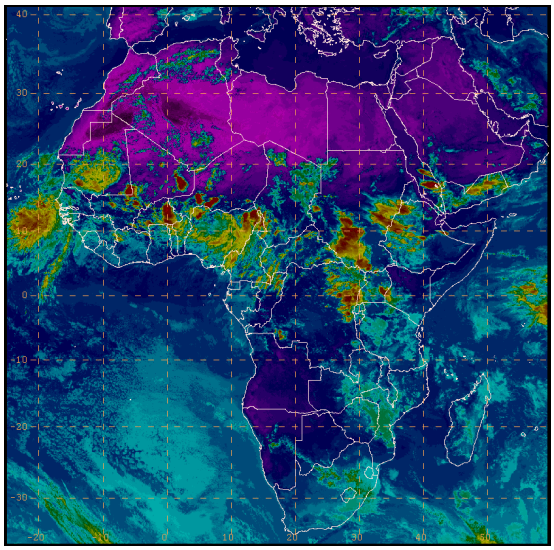
During the previous day, moderate to heavy rainfall was observed over portions of Senegal, local areas in Mali, local areas of Sierra Leon, northeast Benin, northern Nigeria, local areas of Niger, portions of Chad, local areas of DRC, CAR, portions of Cameroun, local areas of Sudan, local areas of Uganda, western Ethiopia and Eritrea.

2.2. Weather assessment for the current day (August 15, 2014)

Intense clouds are observed over southern Mauritania, local areas of Mali, local areas of Burkina Faso, portions of Niger, local areas of Chad, Sudan, DRC, Uganda and western Ethiopia.



IR Satellite Image (valid 1630 Z of August 15, 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