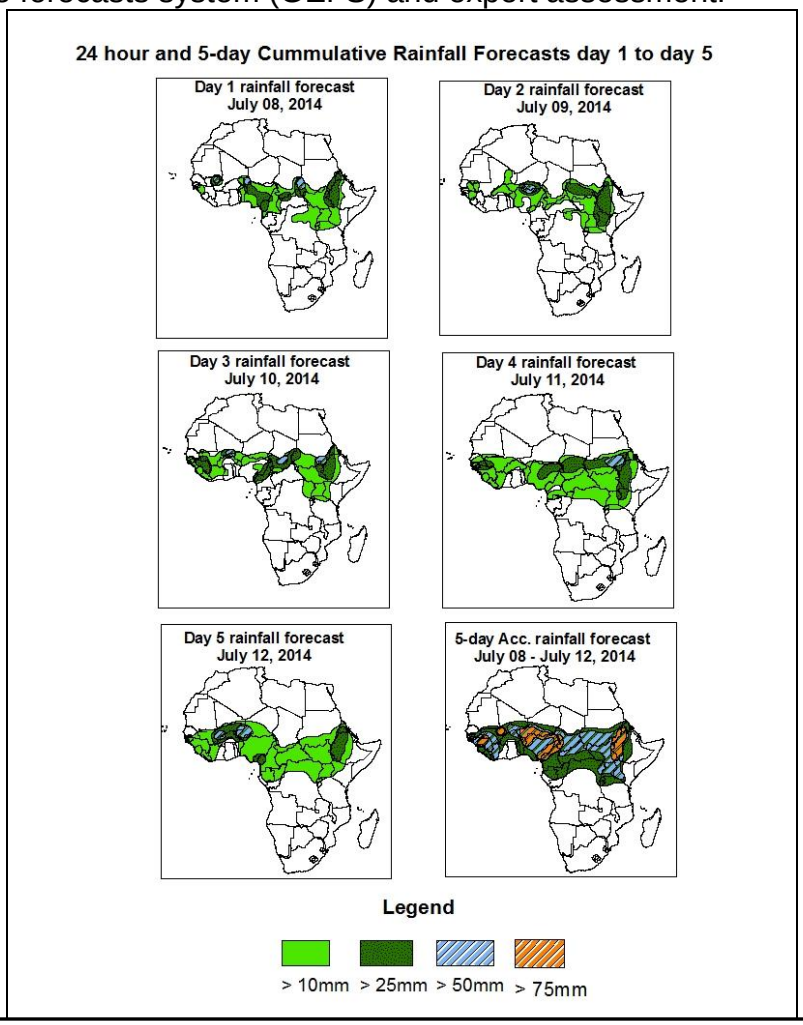
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of July 08 – 06Z of July 12, 2014. (Issued at 1600Z of July 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.

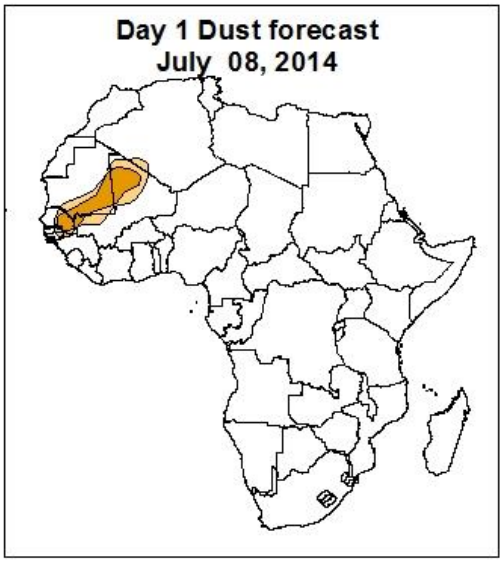


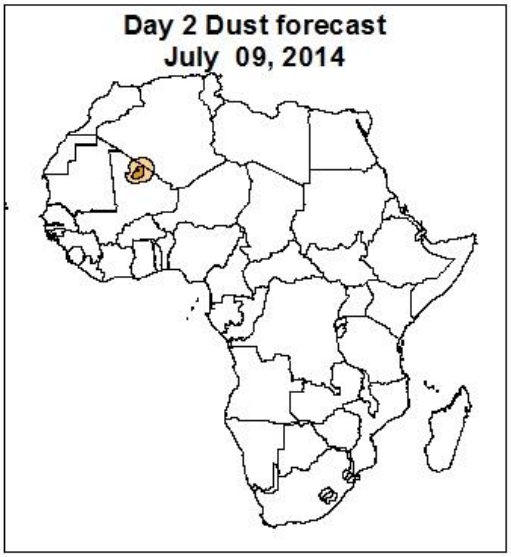
Summary

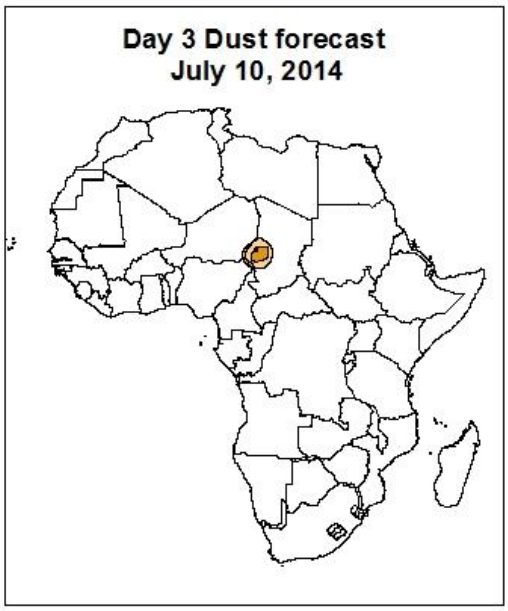
In the next five days, the monsoon flow from the Atlantic Ocean with its associated convergence across the Sahel region, localized wind convergences over Ethiopia, DCR, Gabon, CAR, Uganda and the neighboring areas, and westward propagating convective systems across West Africa are expected to enhance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

Legend

MDC, Vis. < 5km

HDC, Vis. < 1km

1.3. Model Discussion: Valid from 00Z of July 07, 2014

The Azores high pressure system over the Northeast Atlantic Ocean is expected to intensify slightly through 24 to 96 hours with its central value increasing from about 1032hpa in 24hours to 1033hpa in 96hours, and then it is expected to weaken from 96 to 120 hours with its central value decreasing from about 1033hpa in 96hours to 1030hpa in 120hours according to the GFS model.

The St Helena high pressure system over the Southeast Atlantic Ocean is expected to intensify through 24 to 48 hours with its central pressure value increasing from about 1037hpa in 24 hours to 1040hpa in 48hours, and then it is expected to weaken from 72 to 120hours with its central pressure value decreasing through about 1038hpa in 72 to 1030hpa in 120hours, according to the GFS model.

The Mascarene high pressure system over the southwestern Indian Ocean is expected to weaken through 24 to 120 hours with its central pressure value decreasing from about 1035hpa in 24 hours to 1026hpa 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 120 hours in the range between 1006hpa to 1009hpa. The heat low over Sudan is expected to deepen from 24 to 48 hours with it central pressure value decreasing from about 1005hpa in 24 hours to 1004hpa in 48 hours, then it is expected to fill up from 48 to 120 hours with it central pressure increasing about 1004hpa in 48 hours to 1006hpa in 120 hours. The heat low across central Sahel is expected to maintain central pressure value of about 1012hpa from 48 to 72 hours, and central pressure value of about 1011hpa from 96 to 120 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, Uganda and Ethiopia during the period of forecast**.**

At 850Hpa level, seasonal wind convergences are expected to remain active in the region between Senegal and Sudan through 24 to 120 hours. Local wind convergences are also expected to remain active over DRC, CAR, Congo-Brazzaville, Gabon, Uganda and Ethiopia during the forecast period.

At 700hpa level, easterly flow with a feeble trough is expected to propagate across the western and central Sahel from 24 to 120 hours.

At 500Hpa level, a zone of moderate easterly wind (30kts), associated with African easterly jet is expected prevail over Mali, Mauritania, Senegal, Guinea-Conakry, Nigeria and Chad 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, 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, CAR, 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 Sierra Leone, Liberia, Guinea-Conakry, southern Senegal, portions of Mali, Burkina-Faso and Niger, portions of Ivory-Coast, Benin, Nigeria, portion of Cameroon and CAR, southern Chad and Sudan, northern DRC, portion of Uganda, western Kenya and Ethiopia, and Djibouti.

2.0. Previous and Current Day Weather Discussion over Africa

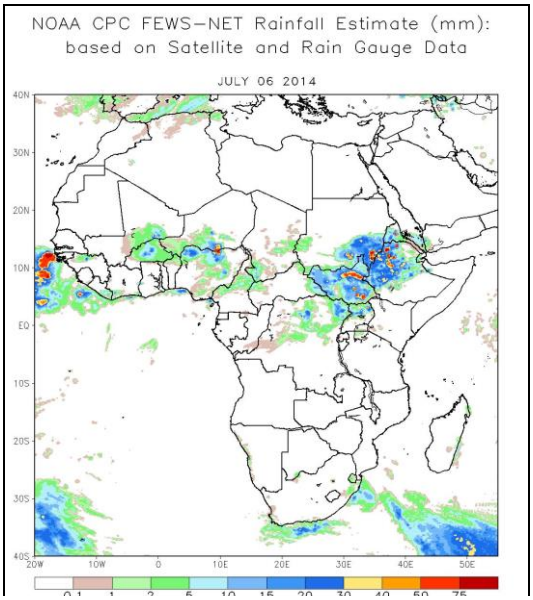
(July 06 2014 – July 07, 2014)

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

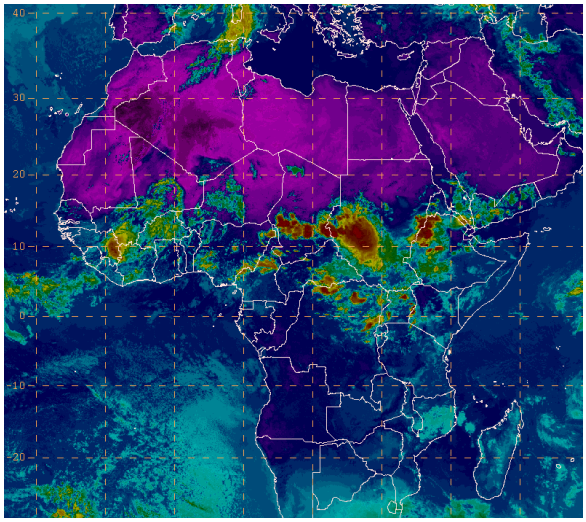
During the previous day, moderate to heavy rainfall was observed over northern Guinea-Conakry, local parts of Mali and Niger, portion of Burkina-Faso, northern Nigeria, southern Chad, portion of Ethiopia and Sudan, Djibouti and northern DRC.

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

Intense clouds are observed over eastern Guinea-Conakry, southern Mali, local part of Ivory-Coast, Nigeria, Cameroon and CAR, northern DRC, Uganda, portion of Sudan, western Ethiopia.



IR Satellite Image (valid 1552 Z of July 07, 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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