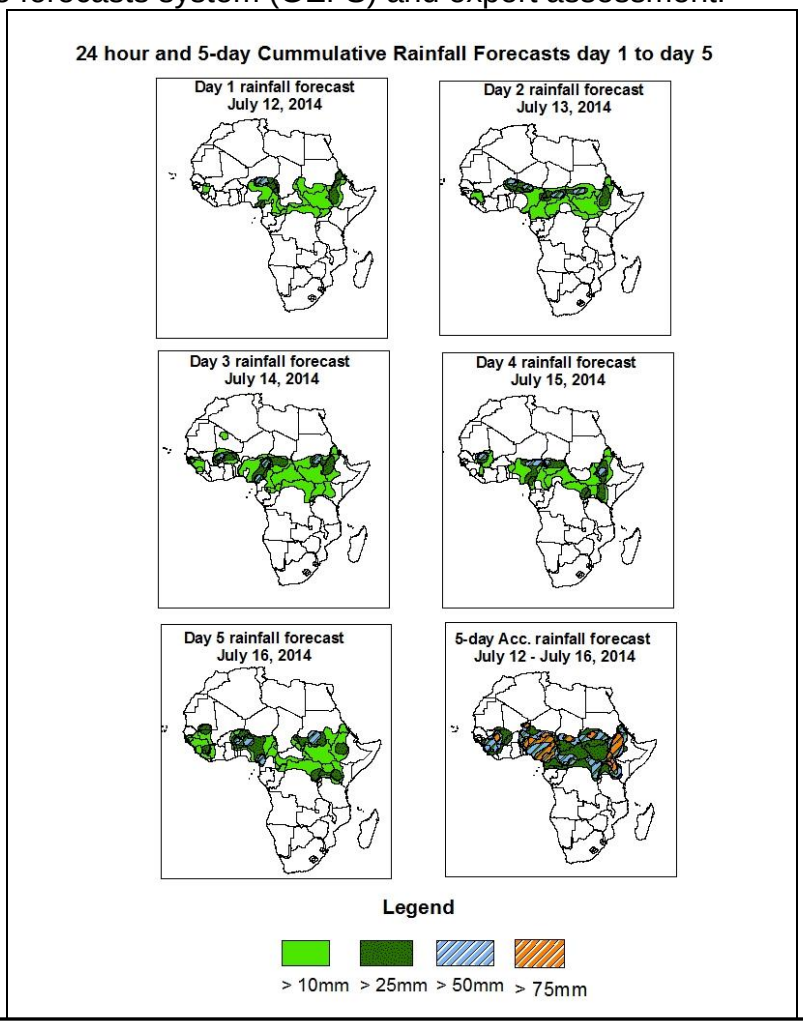
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of July 12 – 06Z of July 16, 2014. (Issued at 1600Z of July 11, 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, 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, Guinea-Conakry, local part of Mali, eastern Burkina-Faso, local part of Niger and Ivory-Coast, portion of Benin and Nigeria, Cameroon, CAR, southern Chad, portion of Sudan, northern DRC and Congo-Brazzaville, portion of Uganda, Djibouti, 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
July 12, 2014

Day 2 Dust forecast
July 13, 2014

Day 3 Dust forecast
July 14, 2014

Highlights

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

Legend

MDC, Vis. < 5km

HDC, Vis. < 1km

1.3. Model Discussion: Valid from 00Z of July 11, 2014

The Azores high pressure system over the Northeast Atlantic Ocean is expected to weaken through h 24 to 96 hours with its central value decreasing from about 1031hpa in 24hours to 1028hpa in 96hours, then it is expected to intensify from 96 to 120 hours with its central value increasing from about 1028hpa in 96hours to 1029hpa in 120hours, according to the GFS model.

The St Helena high pressure system over the Southeast Atlantic Ocean is expected to weaken through 24 to 72 hours with its central pressure value decreasing from about 1032hpa in 24 hours to 1029hpa in 72hours, and then it is expected to intensify from 96 to 120 hours with its central pressure value increasing from about 1039hpa in 96hours to 1040hpa in 120 hours according to the GFS model.

The Mascarene high pressure system over the southwestern Indian Ocean is expected to weaken through 24 to 48 hours with its central pressure value decreasing from about 1028hpa in 24 hours to 1023hpa in 48 hours, it is expected to intensify from 72 to 96 hours with its central pressure value increasing from about 1028hpa in 72hours to 1029hpa in 96 hours, and then it is expected to weaken slightly from 96 to 120 hours with its central pressure value decreasing from about 1029hpa in 96hours to 1028hpa 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 1005hpa to 1007hpa. The heat low over Sudan is expected to fill up from 24 to 48 hours with it central pressure value increasing from about 1005hpa in 24 hours to 1006hpa in 48 hours, and then it is expected to deepen from 72 to 120 hours with it central pressure decreasing about 1005hpa in 72 hours to 1004hpa in 120 hours. The heat low across central Sahel is expected to deepen from 48 to 120 hours with it central pressure value from about 1012hpa in 48 hours to 1010hpa in 120 hours, according to the GFS model.

At 925Hpa level, a zonal wind convergence is expected to prevail in the region between Guinea-Conakry 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 and Ethiopia during the period of forecast**.**

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

At 700hpa level, a feeble trough in the easterly wind flow 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 to prevail over Mali, Senegal, Burkina-Faso, Niger, Nigeria Cameroon and Chad with the core of the jet propagating westward between central Sahel and western Sahel, through 24hours to 120 hours.

At 150hpa level, moderate wind (>30kts) is expected to prevail over western 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, DRC, 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, Guinea-Conakry, local part of Mali, eastern Burkina-Faso, local part of Niger and Ivory-Coast, portion of Benin and Nigeria, Cameroon, CAR, southern Chad, portion of Sudan, northern DRC and Congo-Brazzaville, portion of Uganda, Djibouti, western Kenya and Ethiopia.

2.0. Previous and Current Day Weather Discussion over Africa

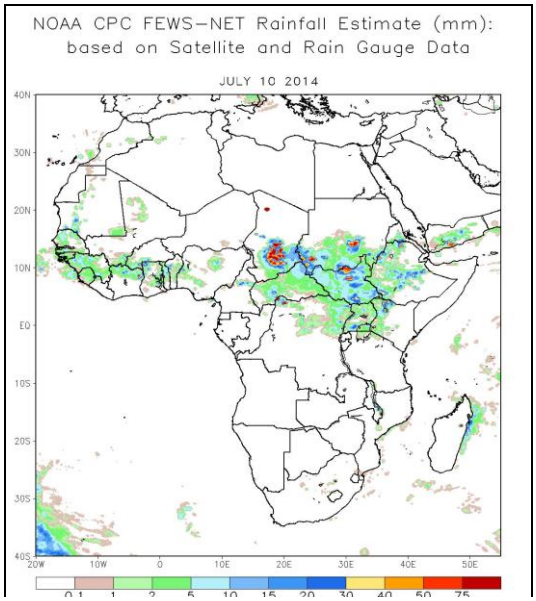
(July 10 2014 – July 11, 2014)

2.1. Weather assessment for the previous day (July 10, 2014)

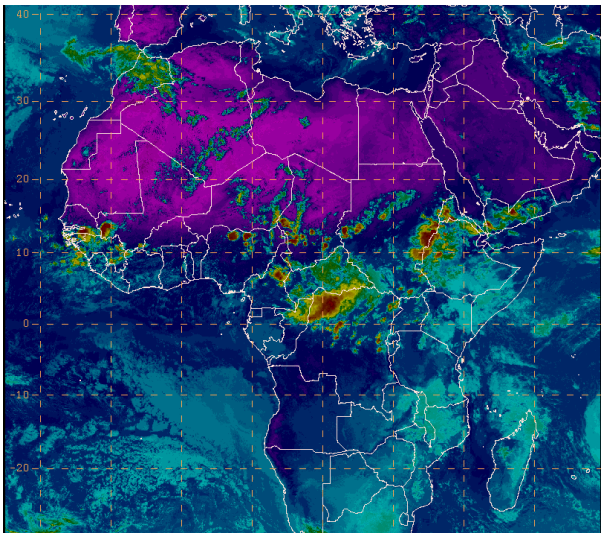
During the previous day, moderate to heavy rainfall was observed over local part of Ivory-Coast, Ghana, Chad, Sudan and northern DRC.

2.2. Weather assessment for the current day (July 11, 2014)

Intense clouds are observed over southern Senegal, western Mali, local part of Guinea-Conakry, Niger, Nigeria, Chad, Cameroon and Sudan, portion of DRC, western Ethiopia and Djibouti.



IR Satellite Image (valid 1622 Z of July 11, 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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