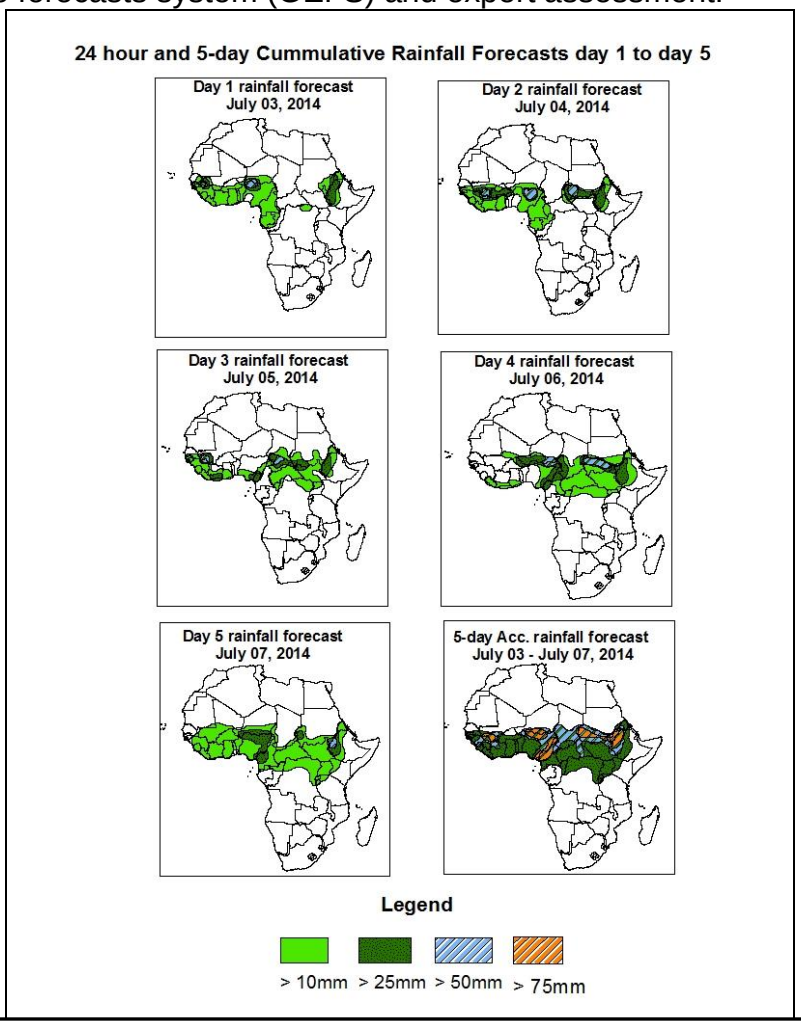
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of July 03 – 06Z of July 07, 2014. (Issued at 1600Z of July 02, 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.

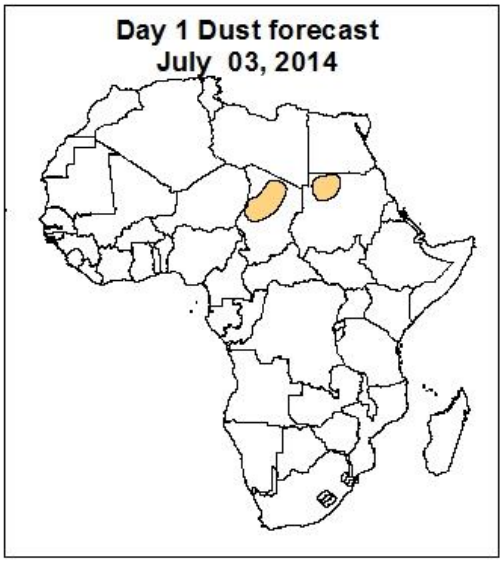


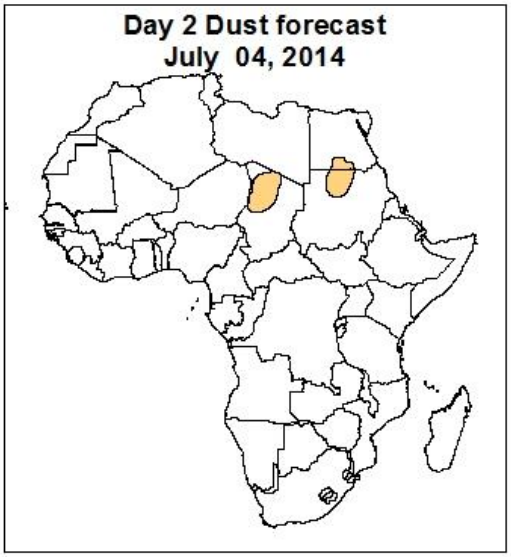
Summary

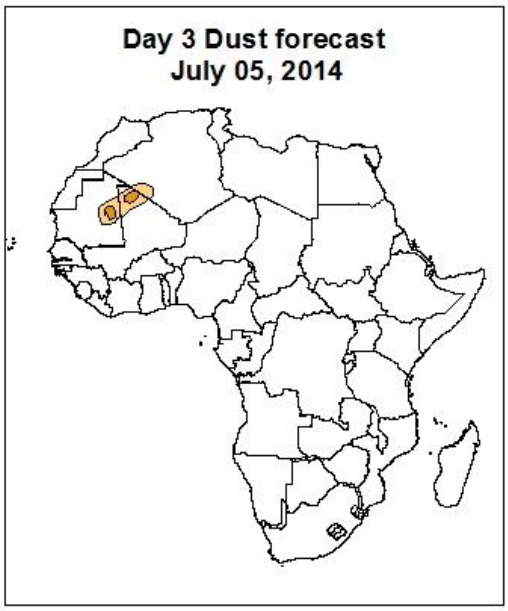
In the next five days, the monsoon flow from the Atlantic Ocean with its associated convergence across the Sahel region, localized wind convergences over Ethiopia, DCR, Gabon, Cameroon, CAR, and Congo-Brazzaville and the neighboring areas, and westward propagating convective systems across West Africa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

Legend

MDC, Vis. < 5km

HDC, Vis. < 1km

1.3. Model Discussion: Valid from 00Z of July 02, 2014

The Azores high pressure system over the Northeast Atlantic Ocean is expected to weaken through 24 to 120 hours with its central value decreasing from about 1036hpa in 24hours to 1029hpa 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 72 hours with its central pressure value increasing from about 1038hpa in 24 hours to 1042hpa in 72 hours, then it is expected to weaken from 96 to 120hours with its central pressure value decreasing through about 1040hpa in 96 to 1039hpa in 120hours, according to the GFS model.

The Mascarene high pressure system over the southwestern Indian Ocean is expected to weaken through 24 to 96 hours with its central pressure value decreasing from about 1026hpa in 24 hours to 1020hpa in 96 hours, and then it is expected to intensify trough 96 to 120hours hours with its central pressure value increasing from about 1020hpa in 96 hours to 1033hpa 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 in the range between 1005hpa to 1008hpa during the forecast period. The heat low over Sudan is expected to maintain it central pressure value from about 1004hpa in 24 to 72 hours, then it is expected to intensify from 72 to 96 hours with it central pressure increasing about 1004hpa in 96 hours to 1005hpa in 96 hours and then it tend to weaken from 96 to 120 hours with its central pressure value decreasing from about 1005hpa in 96 hours to 1004hpa in 120 hours. The heat low across central Sahel is expected to weaken from 24 to 96 hours with its central pressure value slightly decreasing about 1011hpa from 24 to 1010hpa in 96hours, and then it is expected to intensify from 96 to 120 hours with it central pressure increasing about 1010hpa in 96 hours to 1011hpa in 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, Congo-Brazzaville and Ethiopia during the period of forecast**.**

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

At 700hpa level, easterly flow with wind speed about 30kts is expected to propagate across the western and central Sahel from 24 to 120 hours, whereas western winds are expected to flows in eastern Sahel during the forecast period.

At 500Hpa level, a zone of moderate easterly wind (30kts), associated with African easterly jet is expected prevail over Mali, Mauritania, Senegal, Guinea-Conakry, Ghana, Togo, Benin, Burkina-Faso, Nigeria, Cameroon, Chad and Sudan, 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 72 hours and it is expected to remain active from 96 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, Cameroon, CAR, and Congo-Brazzaville 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 southern Senegal and Mali, Sierra Leone, Liberia, Guinea-Conakry, Ivory-Coast, Ghana, portion of Togo Burkina-Faso, Nigeria, Cameroon and CAR, southern Niger, Chad and Sudan, northern Congo-Brazzaville and DRC, western Ethiopia and Djibouti.

2.0. Previous and Current Day Weather Discussion over Africa

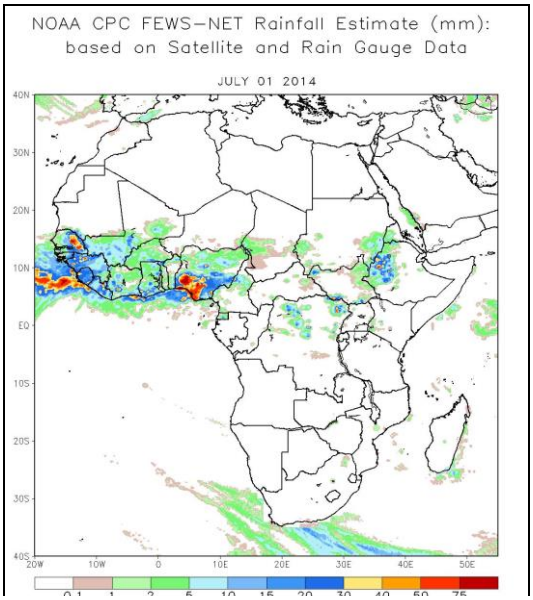
(July 01 2014 – July 02, 2014)

2.1. Weather assessment for the previous day (July 01, 2014)

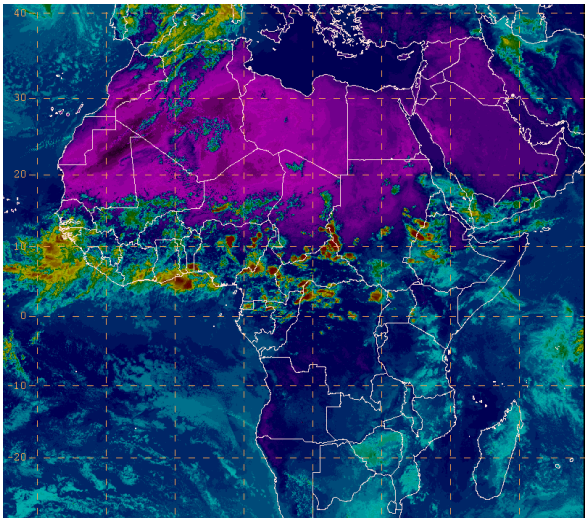
During the previous day, moderate to heavy rainfall was observed over Senegal, Guinea-Conakry, Sierra-Leone, Liberia, Ivory-Coast, Ghana, Nigeria, portion of Mali, Togo, Benin and Burkina-Faso, northern Cameroon and DRC, and western Ethiopia.

2.2. Weather assessment for the current day (July 02, 2014)

Intense clouds are observed over southern Guinea-Conakry, Liberia, Ivory-Coast, Ghana, Benin, and Togo, local part of Niger, Nigeria, Cameroon, Gabon, CAR, northern DRC and Congo-Brazzaville and western Ethiopia.



IR Satellite Image (valid 1552 Z of July 02, 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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