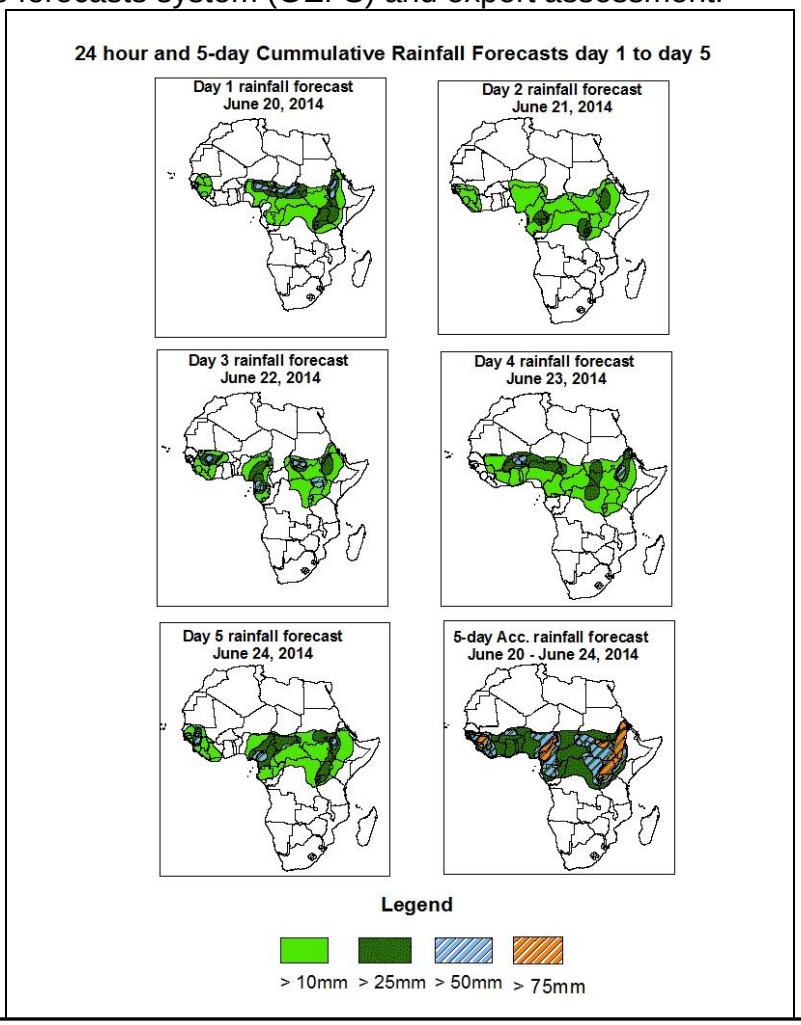
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of June 20 – 06Z of June 24, 2014. (Issued at 1600Z of June 19, 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.

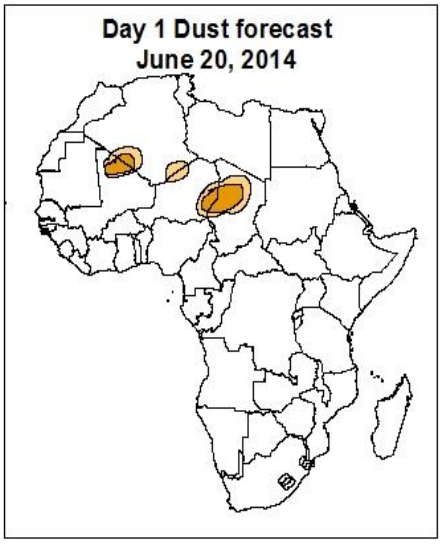


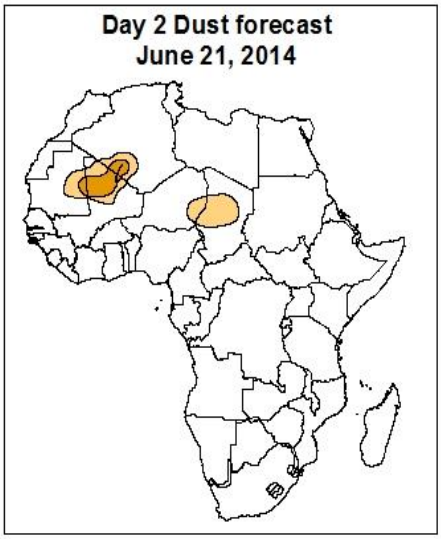
Summary

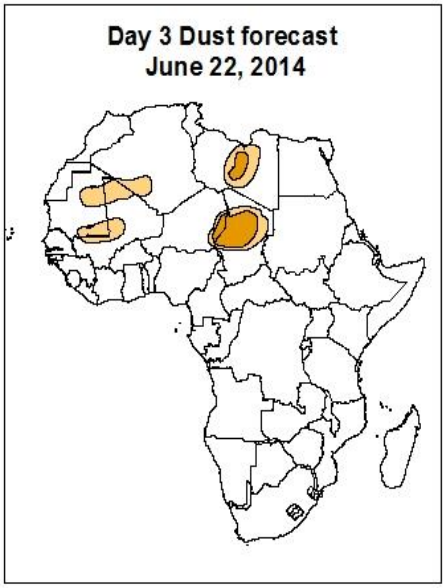
In the next five days, the monsoon flow from the Atlantic Ocean with its associated convergence across the Sahel region, localized wind convergences over Ethiopia, DCR, Gabon, Cameroon and Congo-Brazzaville the neighboring areas, and westward propagating convective systems across West Africa are expected to enhance rainfall in their respective regions. Thus, there is an increased chance for moderate to heavy rainfall over Guinea Conakry, Sierra Leone, Liberia, western Cote d'Ivoire, southern Mali, local areas in Ghana, Benin, portion of Nigeria, Cameroon, southern Chad, Gabon, portion of Congo-Brazzaville, northern DRC, portion of CAR, Rwanda, Burundi, Uganda, Southern of Chad and Sudan, Djibouti, western Kenya and Ethiopia.

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 portions of Algeria, Mauritania, Libya, Niger and Chad.

Legend

MDC, Vis. < 5km

HDC, Vis. < 1km

1.3. Model Discussion: Valid from 00Z of June 19, 2014

The Azores high pressure system over the Northeast Atlantic Ocean is expected to weaken through 24 to 72 hours with its central value decreasing from about 1026hpa in 24hours to 1024hpa in 72hours, and then it is increasing from 96 to 120hours with its central value increasing from about 1029hpa in 96hours to 1031hpa 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 1037hpa in 24 hours to 1022hpa in 72 hours, and then expected to intensify from 96hours to 120hours with its central pressure value increasing from about 1022hpa in 96 hours to 1031hpa 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 120 hours with its central pressure value decreasing from about 1036hpa in 24 hours to 1028hpa in 120 hours according to the GFS model.

The heat low across between the west Sahel region and Chad is expected to maintain it pressure value from 24 to 72hours with its central pressure value about 1005hpa in 24hours to 72 hours, and then it is expected to fill up slightly through 96 to 120 hours with its pressure value maintain about 1008hpa in 96hours to 120 hours. The heat low across Sudan is expected to fill up through 24 to 120hours with its central pressure value about 1003hpa in 24 hours to 1006hpa 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, north of Sudan and Egypt. Local wind convergences are also expected over DRC, Congo-Brazzaville, Uganda, Rwanda 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, Uganda, Tanzania and CAR, DRC and Ethiopia during the forecast period.

At 700hpa level, easterly flow with wind speed about 30kts is expected to propagate across the western part of the Gulf of Guinea countries, whereas northeasterly flow is expected to prevail over eastern and central Sahel.

At 500Hpa level, a zone of moderate easterly wind (30kts), associated with African easterly jet is expected prevail over Senegal, Gambia, Guinea-Conakry, Mali, Burkina-Faso, Niger, Togo, Benin, 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) associated with the Tropical Easterly Jet (TEJ) is expected to prevail over Chad, Sudan, CAR, DRC Mali, Guinea-Conakry, and Cameroon through 24hours to 120 hours, and then strong wind (>50kts) associated with the Tropical Easterly Jet (TEJ) is expected to prevail over Sudan, Somalia, Ethiopia and Djibouti through 24hours 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 and Congo-Brazzaville 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, western Cote d'Ivoire, southern Mali, local areas in Ghana, Benin, portion of Nigeria, Cameroon, southern Chad, Gabon, portion of Congo-Brazzaville, northern DRC, portion of CAR, Rwanda, Burundi, Uganda, Southern of Chad and Sudan, Djibouti, western Kenya and Ethiopia.

2.0. Previous and Current Day Weather Discussion over Africa

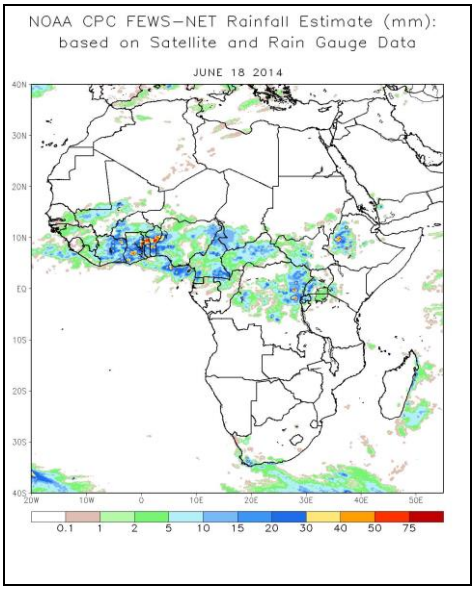
(June 18, 2014 – June 19, 2014)

2.1. Weather assessment for the previous day (June 18, 2014)

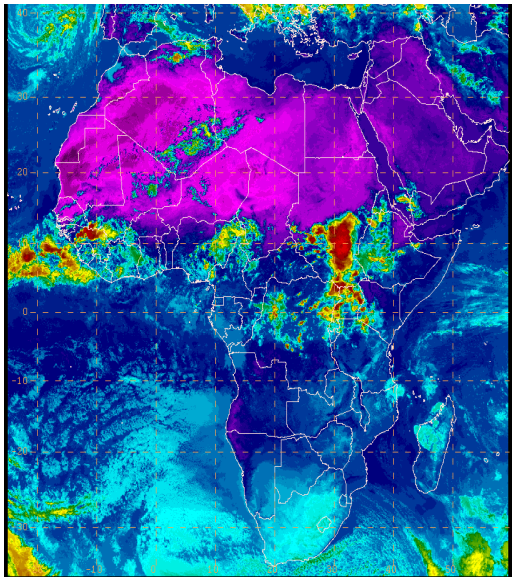
During the previous day, moderate to heavy rainfall was observed over eastern Senegal, western Mali, Burkina-Faso, Cote d'Ivoire, Ghana, Togo, Benin, Nigeria, Cameroon, CAR, southern Chad, portion DRC, south Sudan, portion Uganda, Rwanda, western Ethiopia, and Kenya.

2.2. Weather assessment for the current day (June 19, 2014)

Intense clouds are observed over western Mali, Guinea-Conakry, portion of Sudan, local areas of DRC, Rwanda, Uganda, western Kenya and Ethiopia.



IR Satellite Image (valid 1552 Z of June 19, 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: Brahima TIMBO (Mali, Centre de Prevision Meteorologique / CPC-African Desk); brahima.tambo@noaa.gov