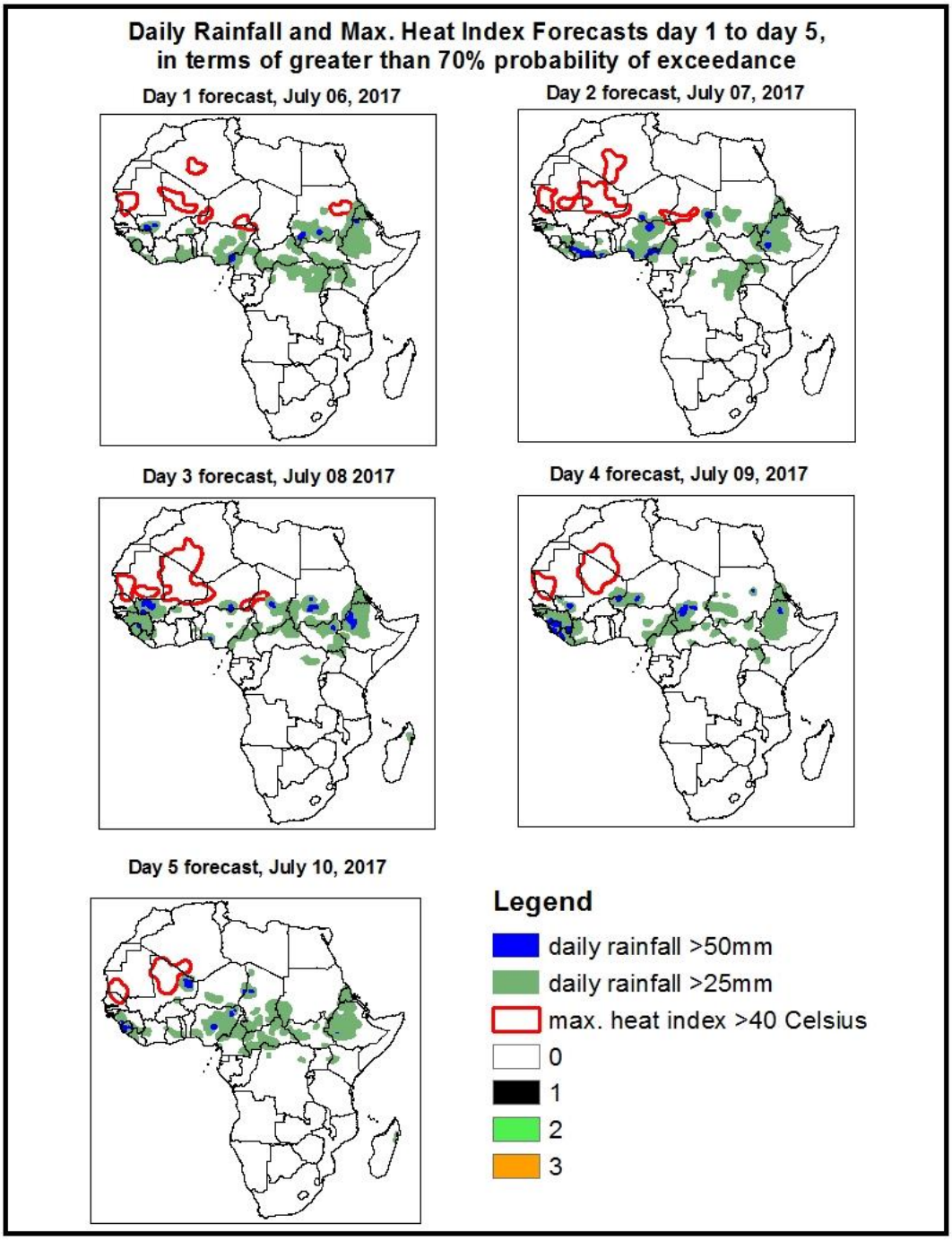
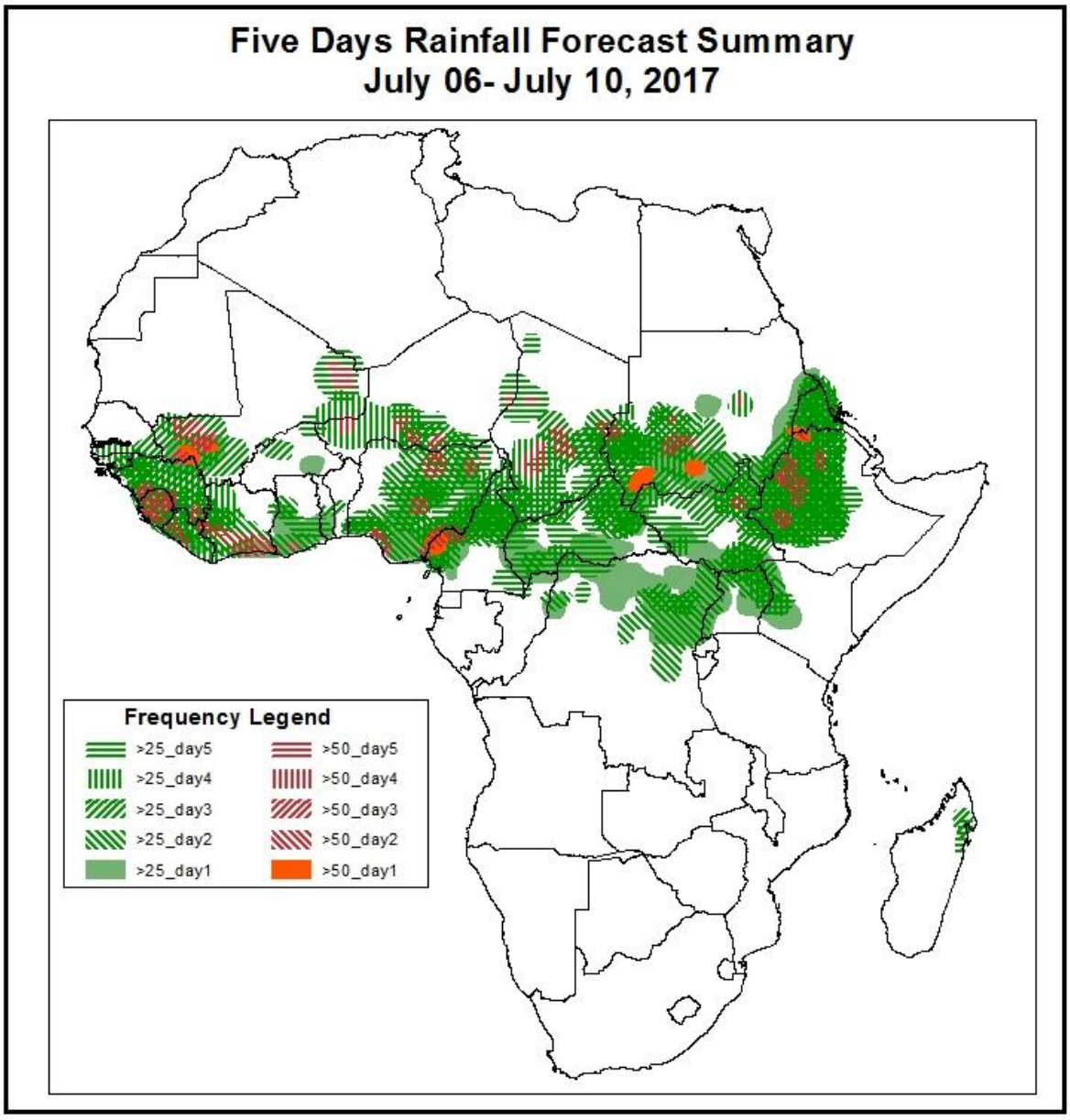
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on July 05, 2017)

1.1. Daily Rainfall and Maximum Heat Index Forecasts (valid: July 06– 10 July, 2017)

The forecasts are expressed in terms of high probability of precipitation (POP) and high probability of maximum heat index, based on the NCEP/GFS, ECMWF and the NCEP Global Ensemble Forecasts System (GEFS) and expert assessment.



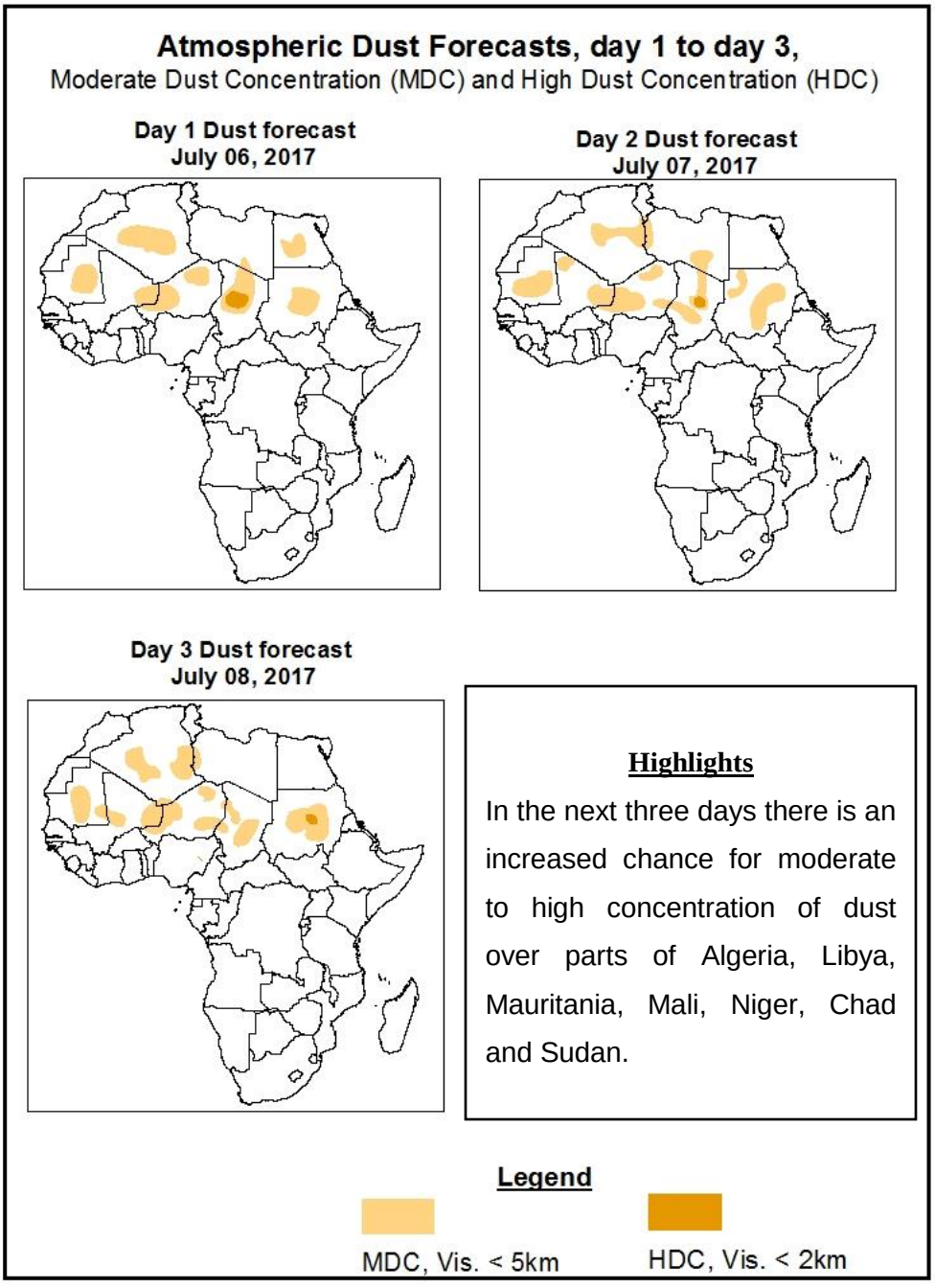


Highlights

In the next five days, a strong monsoon flow from the Atlantic Ocean across West and Central Africa combined with a lower-level cyclonic circulation propagating across the Sahel and Gulf of Guinea countries is expected to enhance rainfall over many places in West and Central Africa. Lower level wind convergence is expected to enhance rainfall over Sudan and Ethiopia. As a result, there is an increased chance for two or more days of moderate to heavy rainfall over many places in the Gulf of Guinea and parts of the Sahel countries, and portions of South Sudan, Sudan, northeastern DRC, western Kenya, northern Uganda and Ethiopia.

1.2. Atmospheric Dust Concentration Forecasts (valid: July 06–08, 2017)

The forecasts are expressed in terms of high probability of dust concentration, based on the Navy Aerosol Analysis and Prediction System, NCEP/GFS lower-level wind forecasts and expert assessment.



1.3. Model Discussion, *Valid: July 06– July 10, 2017*

The Azores High Pressure system over the North Atlantic Ocean is expected to maintain an average central pressure value of 1024 hPa 24 through 72 hours, and it tends to intensify towards end of the forecast period..

The St. Helena High Pressure system over the Southeast of the Atlantic Ocean is expected to weaken, with its central pressure value decreasing from 1021hPa to 1019 hPa though 72 hours and tends to intensify with central pressure value increasing to 1028 hPa towards end of the forecast period.

The Mascarene High Pressure system over the Southwest Indian Ocean is expected to intensify slightly, with its central pressure value increasing from 1031hPa to 1032hPa through 96 hours and tends to weaken with central pressure value decreasing to 1024hPa towards end of the forecast period.

The heat low over western Sahel is expected to deepen slightly with the lowest central pressure value of 1005 hPa through 72 hours.

At 925 hPa, strong dry northerly to southeasterly flow across northern Africa leading increased dust activity in the region.

At 850 hPa, a cyclonic circulation over western Niger is expected to propagate towards Mauritania across the Sahel region in 120hours. Another cyclonic circulation is expected to propagate between Chad and Mali during the forecast period. A zonal wind convergence is expected to prevail in the region between Mali and Nigeria during the forecast period.

At 700 hPa, a feeble trough in the easterlies is expected to propagate westwards between Ghana and Sierra leone during the forecast period.

At 500 hPa, a zone of strong wind (>30ts) associated African easterly Jet is expected to propagate westwards across the western portion of West Africa.

In the next five days, a strong monsoon flow from the Atlantic Ocean across West and Central Africa combined with a lower-level cyclonic circulation propagating across the Sahel and Gulf of Guinea countries is expected to enhance rainfall over many places in West and Central Africa. Lower level wind convergence is expected to enhance rainfall over Sudan and Ethiopia. As a result, there is an increased chance for two or more days of moderate to heavy rainfall over many places in the Gulf of Guinea and parts of the Sahel countries, and portions of South Sudan, Sudan, northeastern DRC, western Kenya, northern Uganda and Ethiopia.

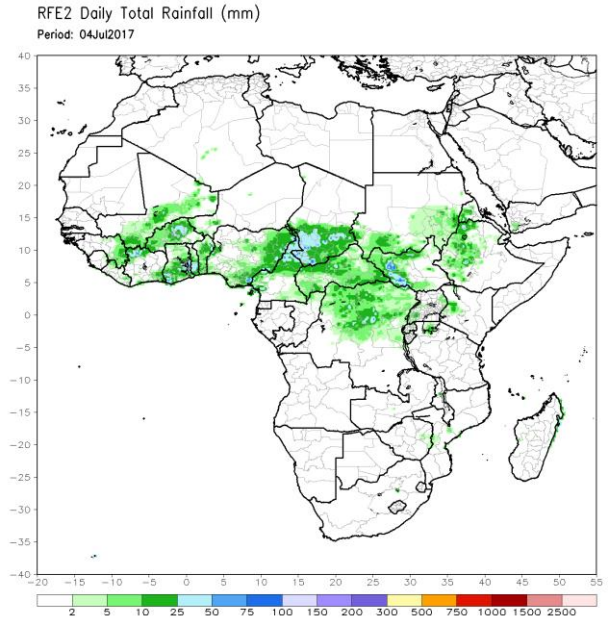
2.0. Previous and Current Day Weather over Africa

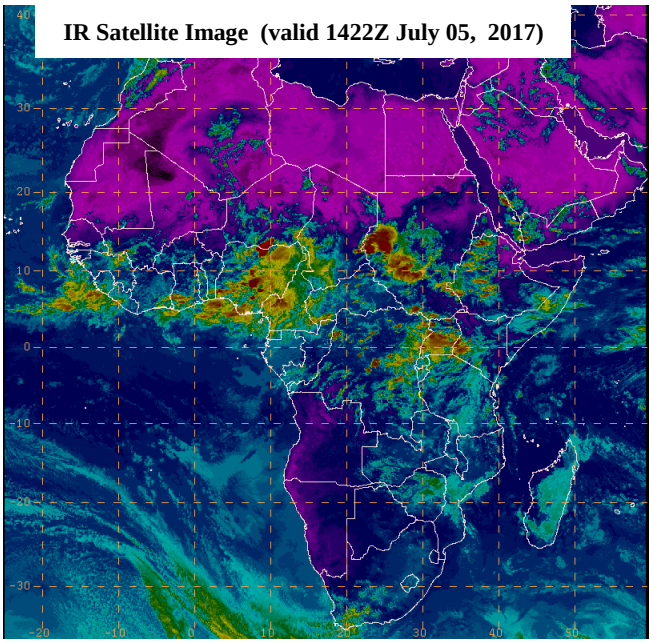
2.1. Weather assessment for the previous day (July 04, 2017)

Light to moderate rainfall was observed over parts of Mali, Burkina Faso, Cote d'Ivoire, Ghana, Togo, Benin, Nigeria, Chad, Cameroon, northern DRC, western South Sudan and western Ethiopia.

2.2. Weather assessment for the current day (July 05, 2017)

Intense convective clouds are observed over eastern Gulf of Guinea and Central African countries, and western Sudan.





Previous day rainfall condition over Africa (Left) based on the NCEP CPCE/RFE and current day cloud cover (right) based on IR Satellite image.

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