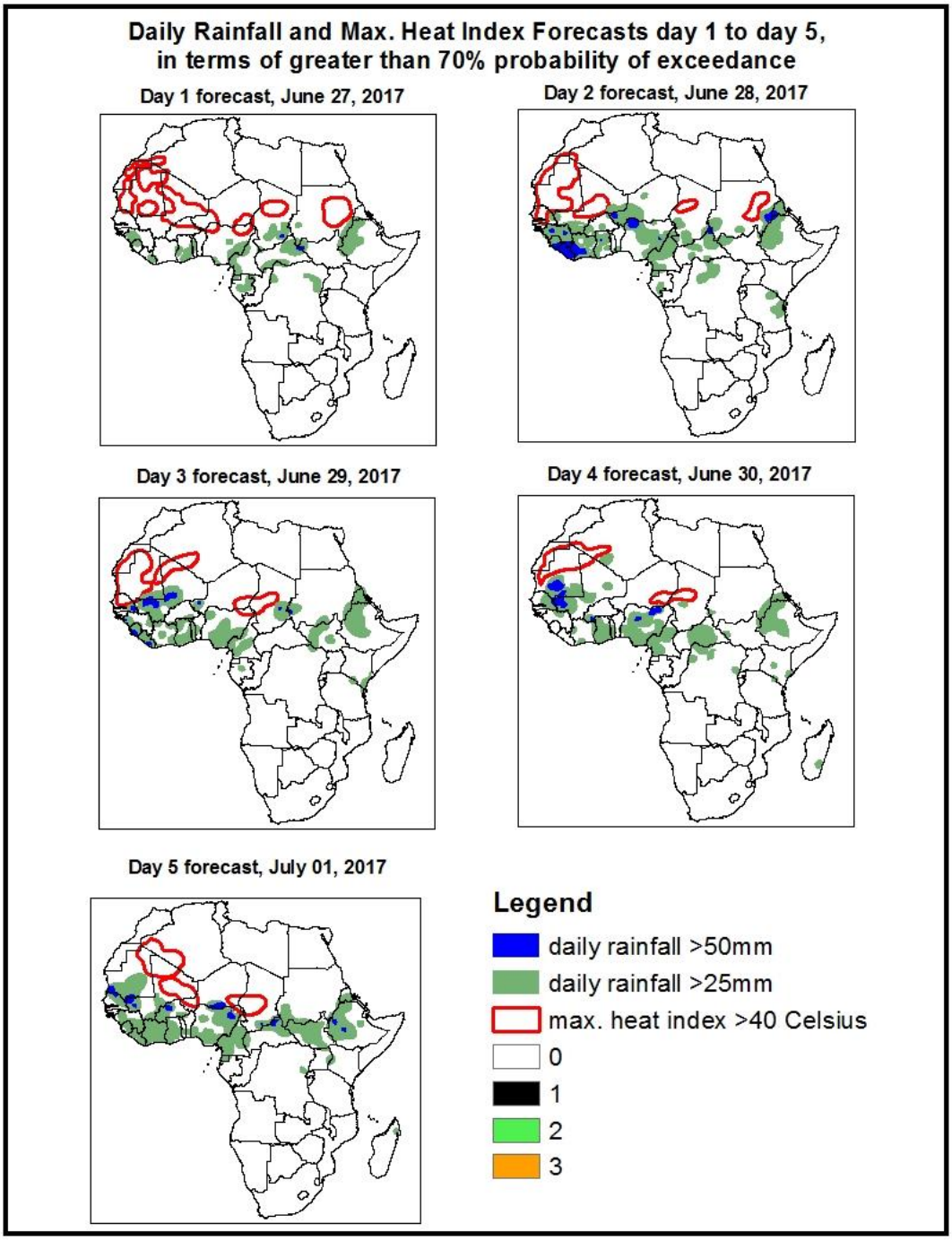
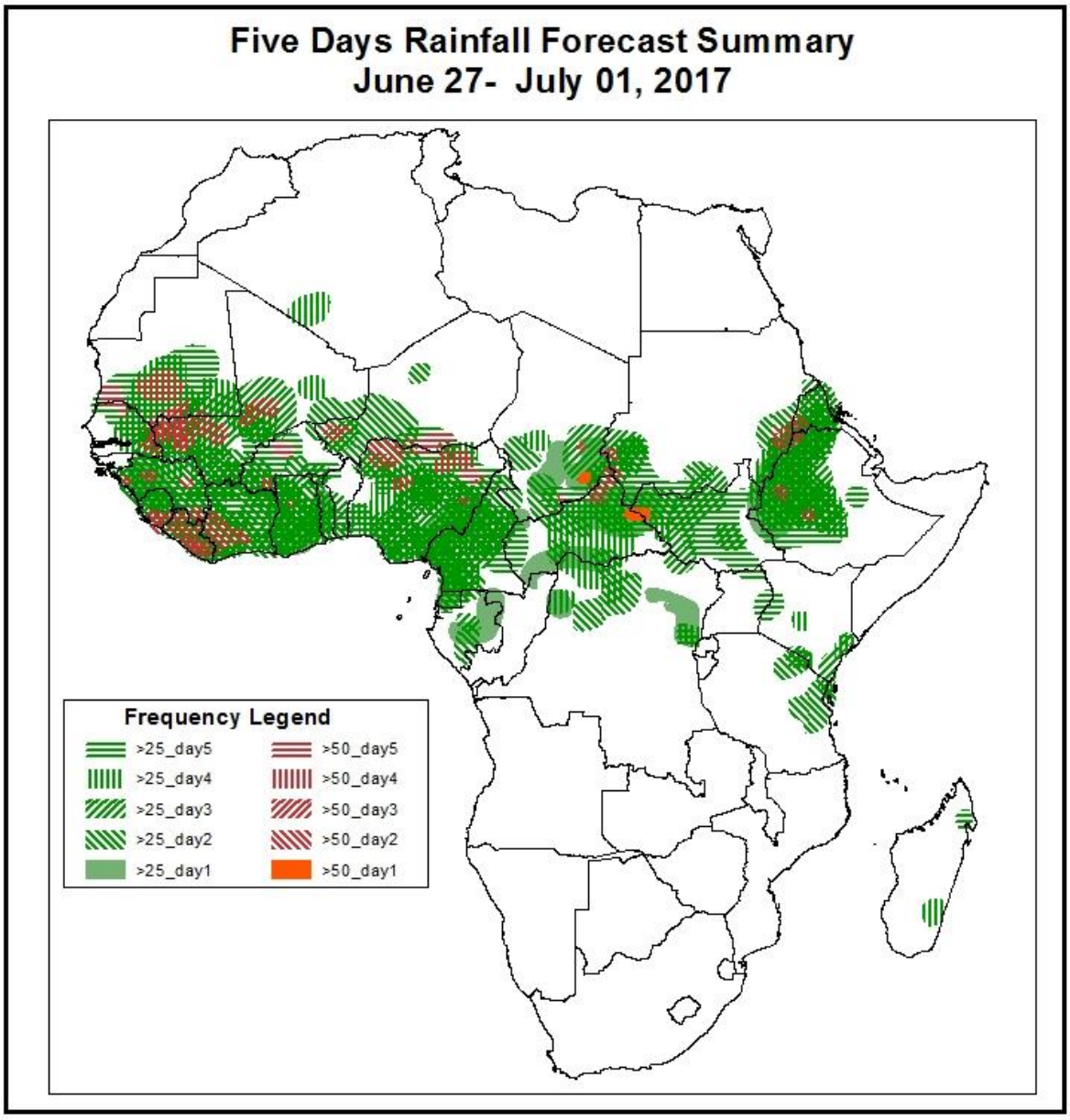
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on June 26, 2017)

1.1. Daily Rainfall and Maximum Heat Index Forecasts (valid: June 27– 01 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.



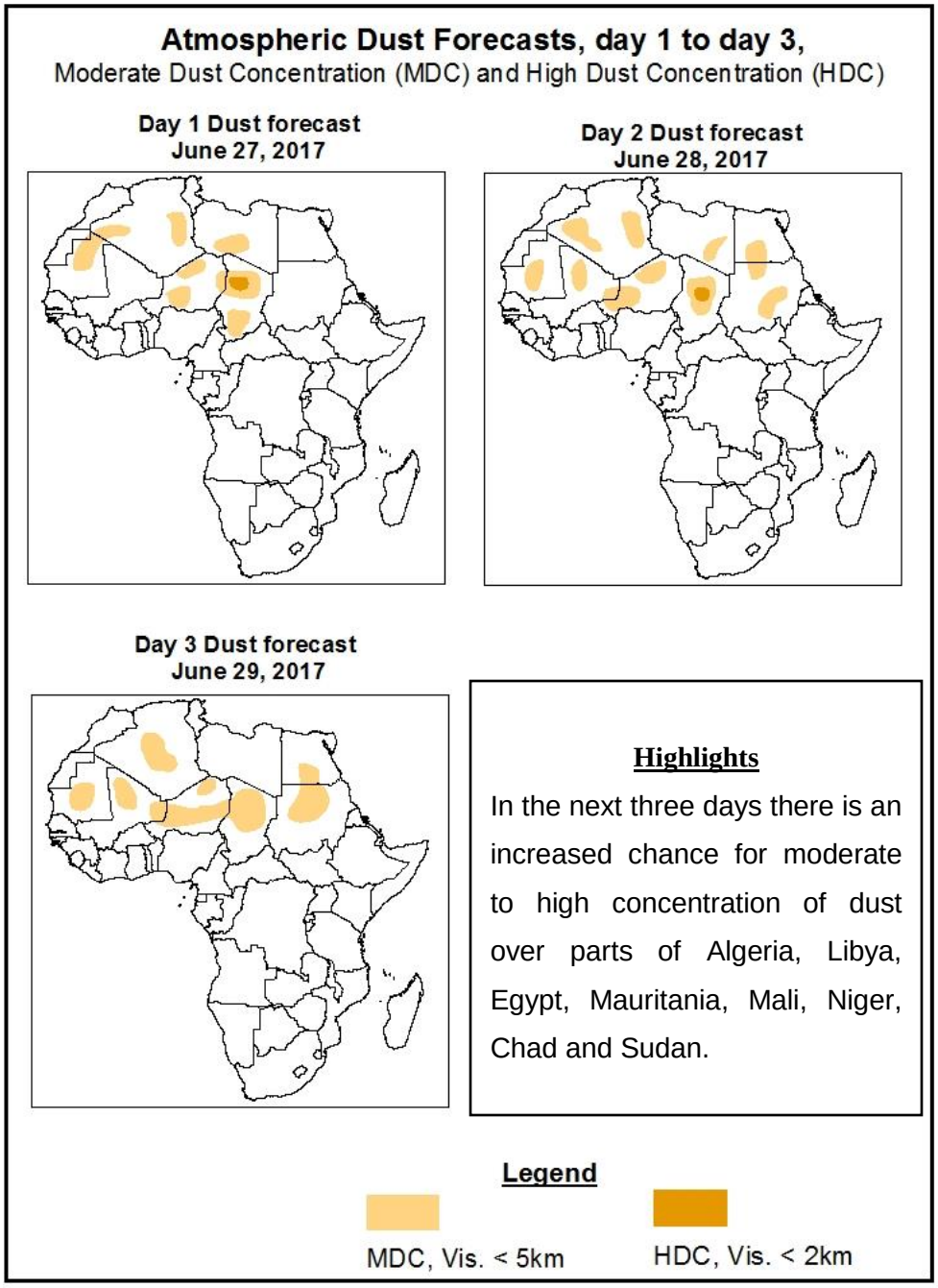


Highlights

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 Sahel countries, and portions of South Sudan, Sudan and Ethiopia.

1.2. Atmospheric Dust Concentration Forecasts (valid: June 27–29, 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: June 27– July 01, 2017*

The Azores High Pressure system over the North Atlantic Ocean is expected to intensify with its central pressure value increasing from 1020hPa to 1032hPa from 48 to the next 96 hours and maintain to 1031hPa during 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 increasing from 1028hPa to 1024hPa during the forecast period.

The Mascarene High Pressure system over the Southwest Indian Ocean is expected to intensify, with its central pressure value increasing from 1030hPa to 1036hPa during the forecast period.

The heat low over western Sahel is expected to deepen slightly with its central pressure value decreasing from 1008 hPa to 1005 hPa through 72 hours, and it tends to fill up towards end of the forecast period. The heat low over Central Sahel is expected to maintain an average central pressure value of 1008 hPa during the forecast period.

At 925 hPa, strong dry northerly to southeasterly flow across northern Africa is expected to lead to increased dust activity in the areas extending between northern Mauritania and Egypt.

At 850 hPa, a cyclonic circulation over Chad is expected to propagate towards Mauritania in 120 hours. A zonal wind convergence is expected to prevail in the region between eastern Mauritania and Sudan during the forecast period.

At 700 hPa, a trough in easterly flow is expected to propagate westwards in the region between Ghana and Guinea through 72 hours.

At 500 hPa, a zone of strong wind (>30ts) associated African easterly Jet is expected to propagate westwards in the region between Togo and Guinea through 72 hours.

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 Sahel countries, and portions of South Sudan, Sudan and Ethiopia.

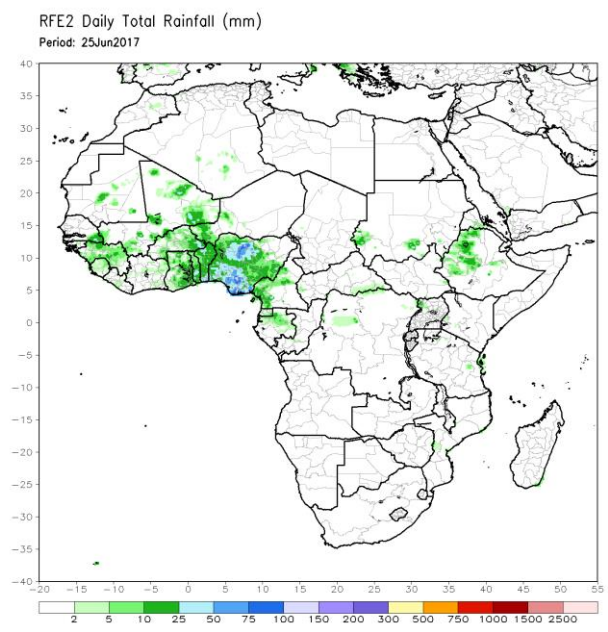
2.0. Previous and Current Day Weather over Africa

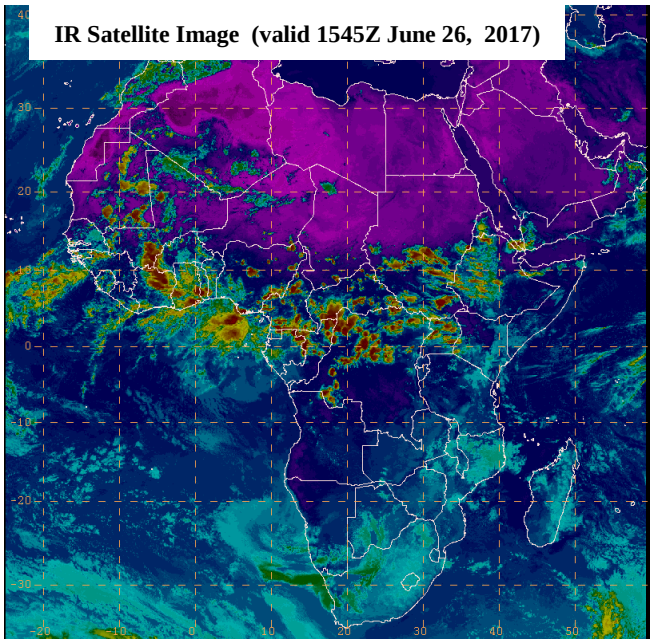
2.1. Weather assessment for the previous day (June 25 2017)

Light to moderate rainfall was observed over parts of Senegal, Mali, Burkina Faso, Sudan, Ghana, Togo, Benin, Nigeria, Congo, and Cameroon.

2.2. Weather assessment for the current day (June 26, 2017)

Intense convective clouds are observed many places in Gulf of Guinea, Central Africa countries and locals areas of 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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