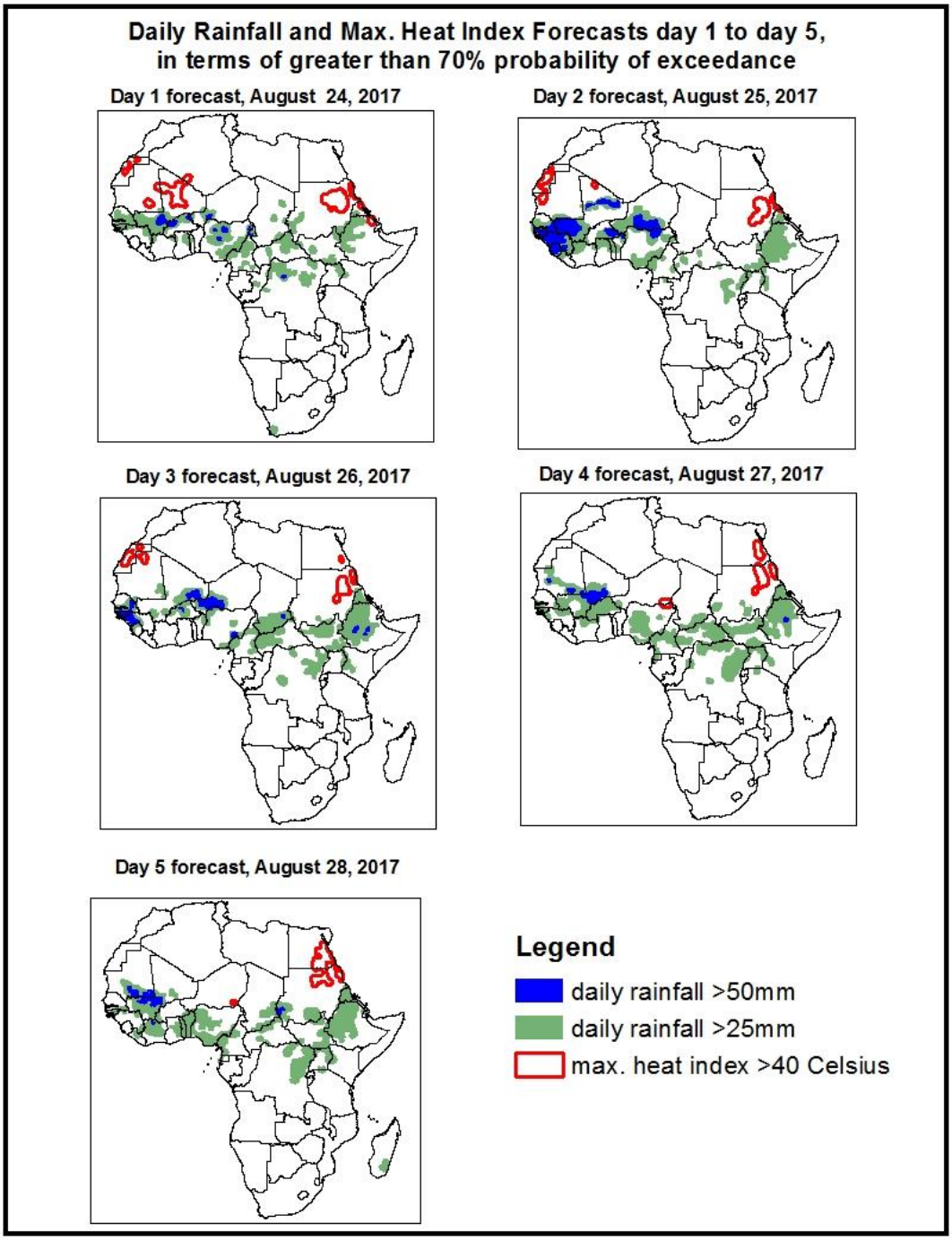
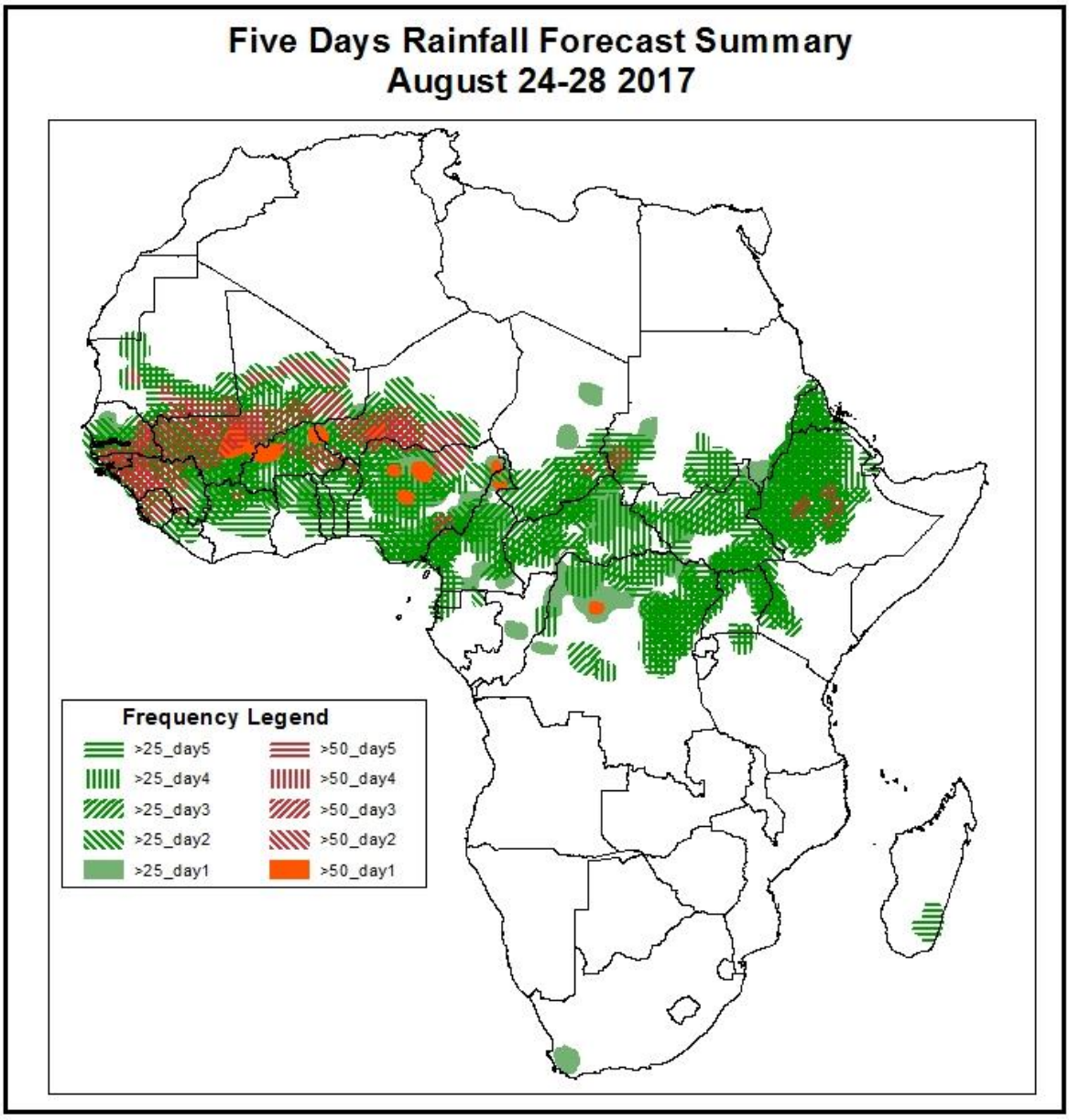
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on August 23, 2017)

1.1. Daily Rainfall and Maximum Heat Index Forecasts *(valid: August 24–28 August, 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.

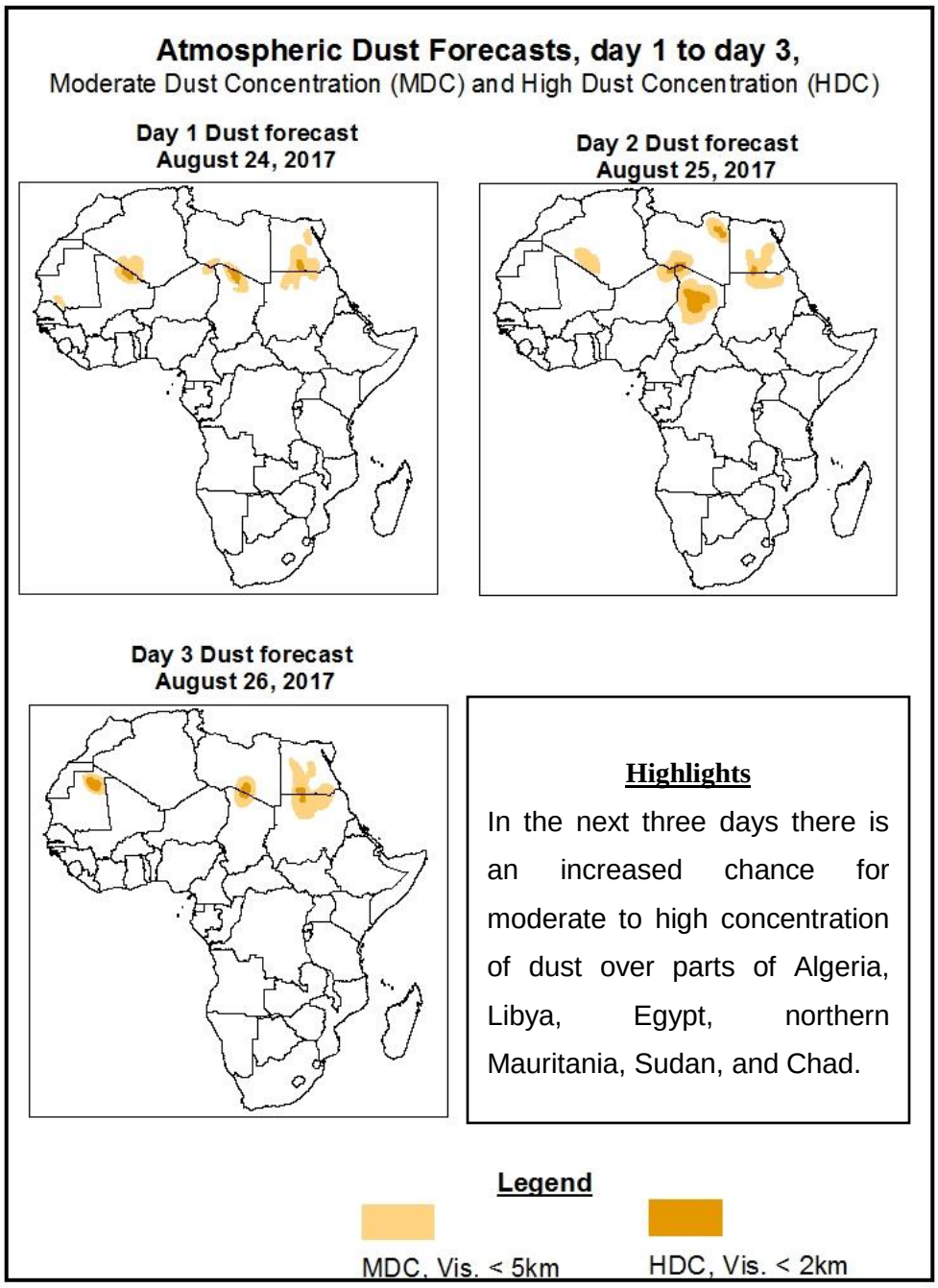




Highlights

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 countries coupled with upper level divergence is expected to enhance rainfall over many places in West and Central African countries. Active lower-level convergence near the Lake Victoria region, South Sudan and Ethiopia is also expected to enhance rainfall in the region. As a result, there is an increased chance for two or more days of moderate to heavy rainfall over many places in Senegal, Guinea Bissau, Guinea, Sierra Leone, Northern Cote D'Ivoire, Burkina Faso, southern Mauritania, southern Mali, southern Niger, northern Togo, Benin, Nigeria, southern Chad, Cameroon, CAR, northern DRC, South Sudan and Ethiopia.

1.2. Atmospheric Dust Concentration Forecasts (*valid: August 24-26, 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: August 24-28 2017*

The Azores High Pressure system over the North Atlantic Ocean is expected to intensify from its central pressure value of 1020hPa to 1027hpa after 48hours and then it maintains this value all through the end of the forecast period.

The St. Helena High Pressure system over the Southeast Atlantic Ocean is expected to gradually weaken from its central pressure value of 1037hpa to 1027hpa towards the end of the forecast period.

The Mascarene High Pressure system over the Southwest Indian Ocean is expected to maintain its central pressure value of 1035hpa for 24hours, and then gradually weakens to 1032hpa towards the end of the end of the forecast period. However, the center is farther east in the Indian Ocean.

The heat low over western Sahel is expected to maintain its value of 1008hpa in the next 72hours and then gradually deepens to 1005hpa towards the end of the forecast period. Over the central Sahel, the heat low is expected to maintain its value of 1006hpa for 72hours and then slightly fill up to 1007hpa and later deepens again to 1005hpa towards the end of the forecast period. Over the Sudan area, the heat low is expected to gradually fill up from 1003hpa to 1005hpa towards the end of the forecast period.

At 925hPa, there is a low pressure system established over Chad which is dominated by continental northeasterly winds and moving westwards in the next 72hours. After that the south westerlies gradually retard the north easterlies to the end of the forecast period. Another convergence over DRC with the trough line extending to Lake Victoria towards the north east direction with its propagation fluctuating in a west to east direction during the forecast period. The dry north easterlies propagating from the subtropical high pressure over North Africa will gradually suppress the south westerlies over West Africa in the next 48hours which will result to the increased spreading and transport of the dust over Algeria, Libya, Egypt and the northern parts of Mauritania, Mali, Chad and Sudan.

At 850hPa, the cyclonic circulation over West Africa is gradually dominated by the north easterlies as a result of the intensification of the subtropical high pressure system into the region. The convergence zone over central and some parts of east Africa is intensifying and continually developing resulting from the passage of the mid latitude trough all through the forecast period.

At 700hPa, there is the divergence of an easterly flow from the subtropical high pressure system over West Africa to its coast to the end of the forecast period. Divergence over central, eastern to the southern part of Africa is predominant all through the forecast period.

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 countries coupled with upper level divergence is expected to enhance rainfall over many places in West and Central African countries. Active lower-level convergence near the Lake Victoria region, South Sudan and Ethiopia is also expected to enhance rainfall in the region. As a result, there is an increased chance for two or more days of moderate to heavy rainfall over many places in Senegal, Guinea Bissau, Guinea, Sierra Leone, Northern Cote D'Ivoire, Burkina Faso, southern Mauritania, southern Mali, southern Niger, northern Togo, Benin, Nigeria, southern Chad, Cameroon, CAR, northern DRC, South Sudan and Ethiopia.

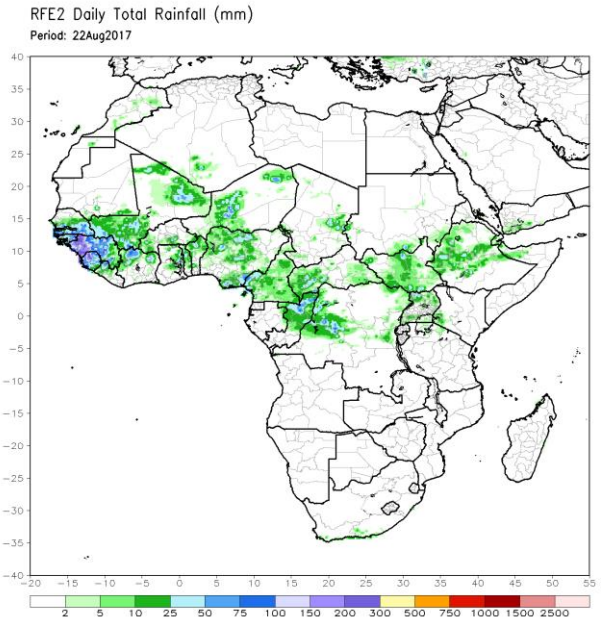
2.0. Previous and Current Day Weather over Africa

2.1. Weather assessment for the previous day (August 22, 2017)

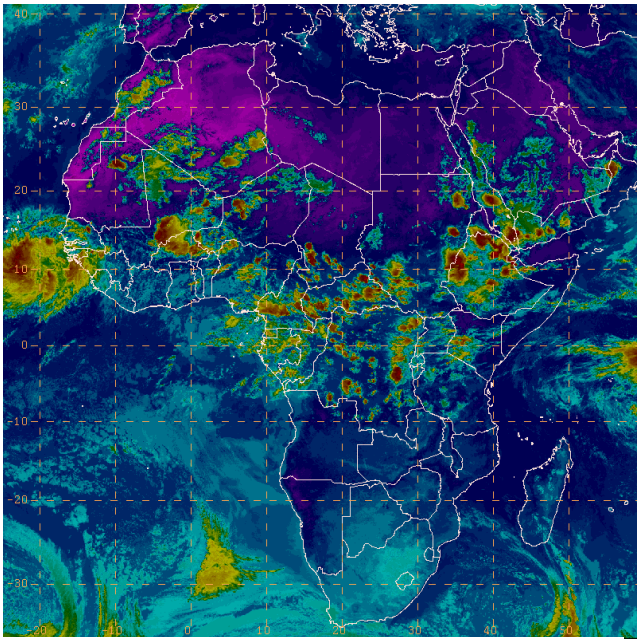
Moderate to locally heavy rainfall was observed over parts of southern Senegal, Gambia, Guinea, Guinea Bissau, Sierra Leone, northern Liberia, southern Burkina Faso, northern Cote D'Ivoire, parts of Mali, northern (Ghana, Togo and Benin), south western Niger, parts of Nigeria, Cameroon, western CAR, Republic of Congo, western DRC, south Sudan, northern Uganda and some parts of Ethiopia.

2.2. Weather assessment for the current day (August 23, 2017)

Intense convective clouds are observed over portions of West, Central and East Africa.



IR Satellite Image (valid 1652Z August 23 , 2017)



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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