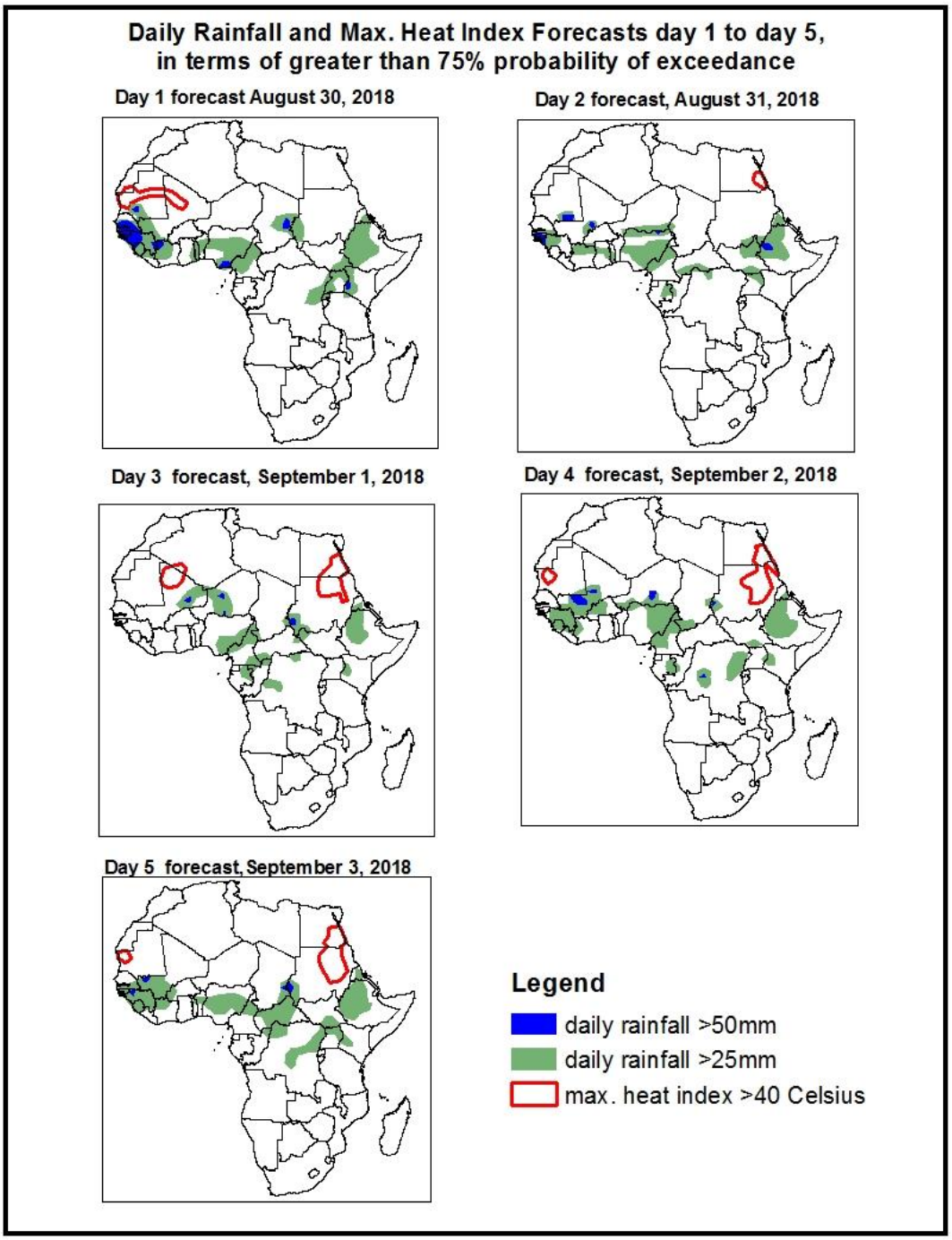
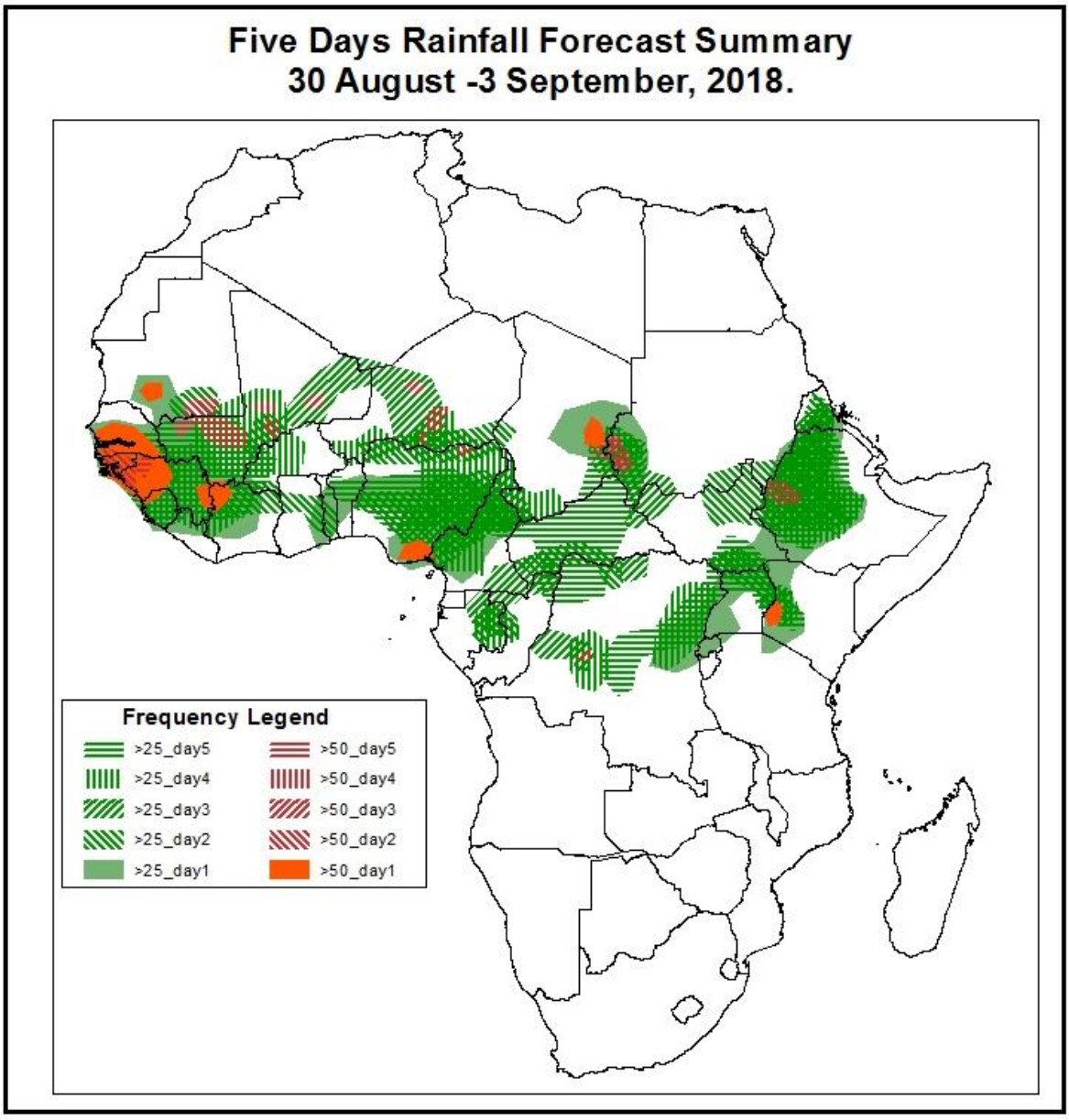
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on *August 29*, 2018)

1.1. Daily Rainfall and Maximum Heat Index Forecasts (valid: Aug 30, – Sept32, 2018)

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



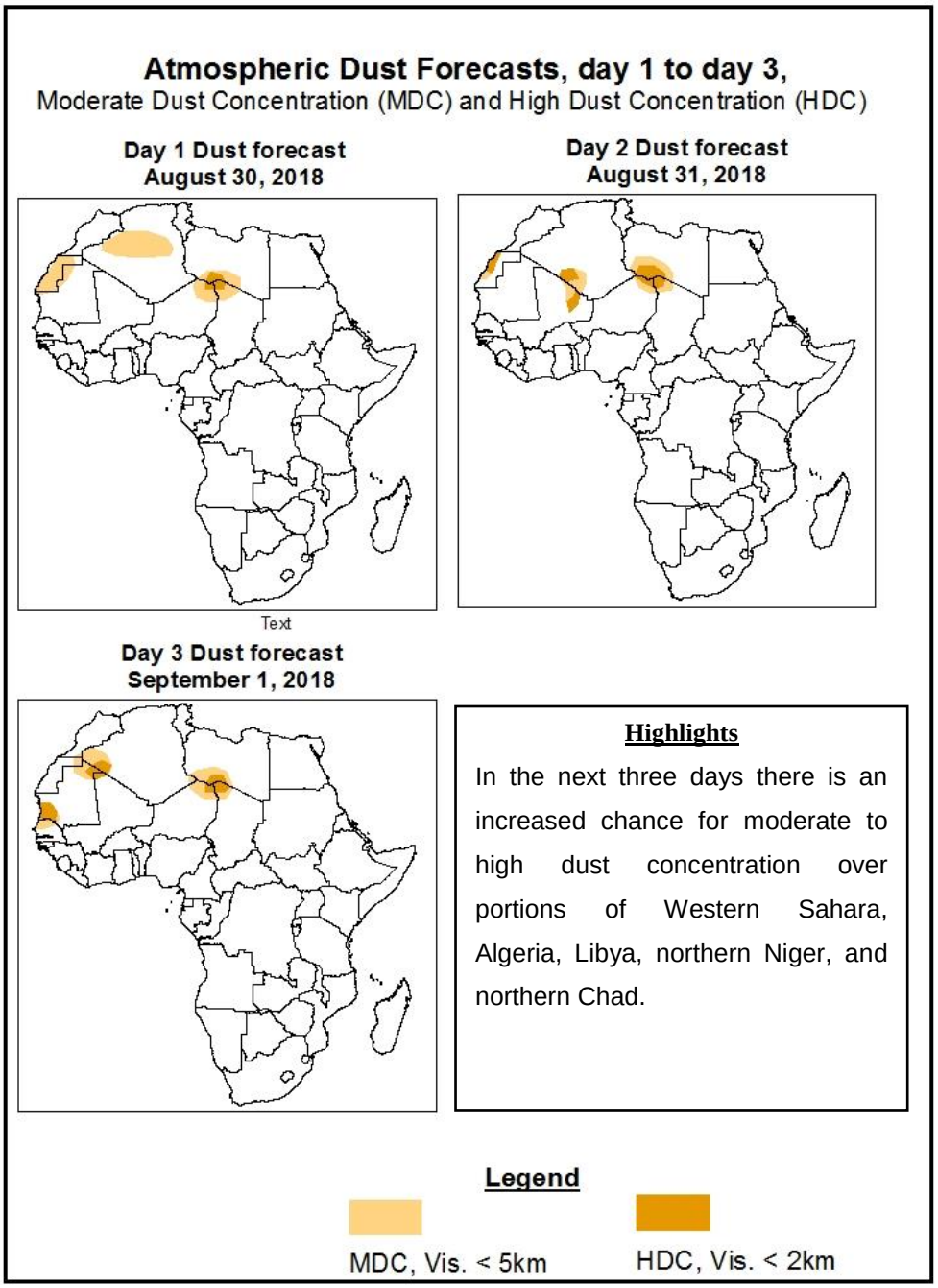


Highlights

- In the next five days, westward propagating lower-level cyclonic systems across West Africa, active lower-level wind convergences in the Sahel and Lake Victoria regions, including portions of the Greater Horn of Africa are expected to enhance rainfall.
- There is an increased chance for 2 or more days of moderate to heavy rainfall over portions of West and Central Africa, the Lake Victoria region, and portions of the Greater Horn of Africa.
- There is an increased chance for high heat index values over local areas in in Mauritania, northern Algeria, parts of Egypt and Sudan.

1.2. Atmospheric Dust Concentration Forecasts *(valid: August 30 – September 1,2018)*

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 29 – September 3, 2018*

The Azores High Pressure system over the North Atlantic Ocean is expected to intensify during the forecast period. The central pressure value increased from 1026hPa to 1036hPa in the forecast period.

The St. Helena High Pressure system over the Southeast Atlantic Ocean is expected to weaken gradually through 96 hours, and re-intensify towards end of the forecast period. The central pressure values decreased from 1036hPa to 1023hPa through 96 hours.

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The Mascarene High Pressure system over the Southwest Indian Ocean is expected to intensify during the forecast period. The central pressure value increased from 1032hPa to 1039hPa.

The thermal low near northeastern Mali and southern Algeria is expected to shift towards northern Mauritania while deepening. Its central pressure value is expected to decrease from about 1007hPa to 1004hPa through 96 hours. A thermal low across Chad and Niger is expected to maintain an average central pressure value of 1006hPa during the forecast period.

At 925hPa, dry strong northeasterly to easterly flow is expected to prevail over the far northwestern and northern Africa, and portions of northeastern Africa. In contrast, moist southwesterly to westerly monsoon flow from the Atlantic Ocean is expected to remain active across much of the Gulf of Guinea countries and the neighboring areas of the Sahel region.

At 850hPa, a cyclonic circulation over the far western Africa is expected to leave West Africa coast while deepening through 48 hours. A cyclonic circulation over Chad is expected to shift towards Nigeria, while another cyclonic circulation is expected to deepen across Sudan during the forecast period. Moist southwesterly to westerly flow from the Gulf of Guinea region, with its associated lower-level wind Convergence in Sudan and Ethiopia is expected to enhance rainfall in the region. Lower-level meridional wind convergence is expected to remain active near the Lake Victoria region during the forecast period.

At 700-hPa, a cyclonic circulation over the far western West Africa with its associated trough is expected to propagate westwards, leaving the West Africa coast in 48 hours. Another cyclonic trough is expected to propagate westward in the region between southern Cameroon and Guinea during the forecast period.

At 500-hPa, an area of strong wind (>30kts), associated with African Easterly Jet, is expected to prevail in the far western West Africa through 48 hours.

In the next five days, westward propagating lower-level cyclonic systems across West Africa, active lower-level wind convergences in the Sahel and Lake Victoria regions, including portions of the Greater Horn of Africa are expected to enhance rainfall. There is an increased chance for 2 or more days of moderate to heavy rainfall over portions of West and Central Africa, the Lake Victoria region, and portions of the Greater Horn of Africa. There is an increased chance for high heat index values over local areas in in Mauritania, northern Algeria, parts of Egypt and Sudan.

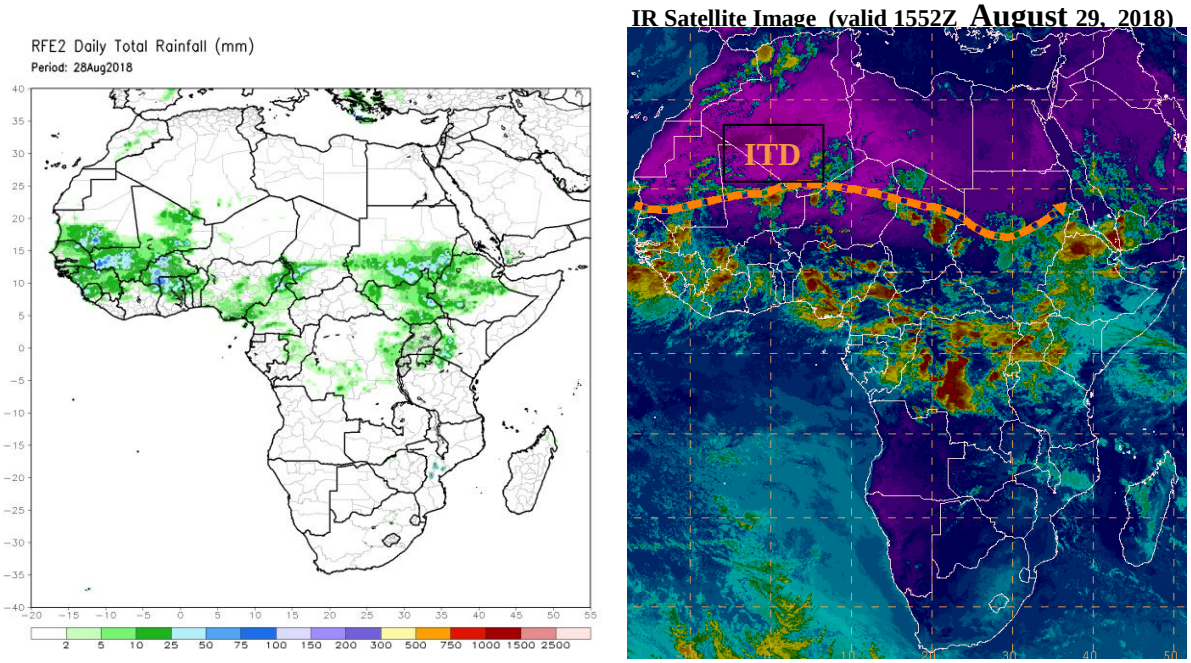
2.0. Previous and Current Day Weather over Africa

2.1. Weather assessment for the previous day (August 28, 2018)

Moderate to locally heavy rainfall was observed over parts of Mauritania, Senegal, Mali, Guinea Bissau, Guinea, Sierra Leone, Cote d'Ivoire, Burkina Faso, Togo, Benin, Nigeria, Cameroon, Chad, Sudan, South Sudan, Ethiopia and Mozambique.

2.2. Weather assessment for the current day (*August 29*, 2018)

Intense convective clouds are observed over parts of Algeria, Mauritania, Senegal, Mali, Gambia, Guinea Bissau, Guinea, Burkina Faso, Niger, Nigeria, Cameroon, Chad, Congo, DRC, Uganda, Kenya, Sudan, South Sudan, Eritrea and Ethiopia.



Previous day rainfall condition over Africa (Left) based on the NCEP CPCE/RFE and current day cloud cover and ITD (right) based on IR Satellite image and 925hPa wind.

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