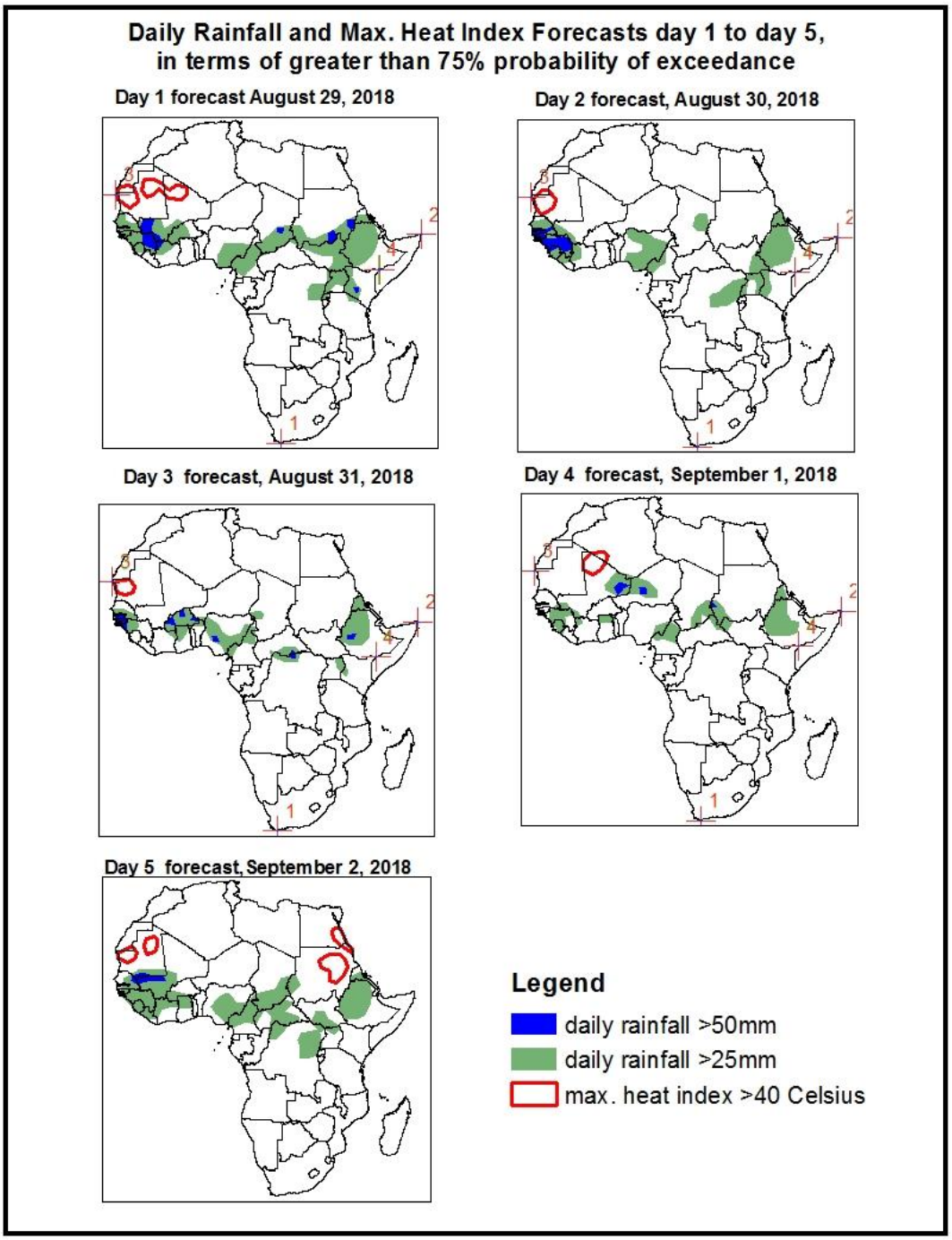
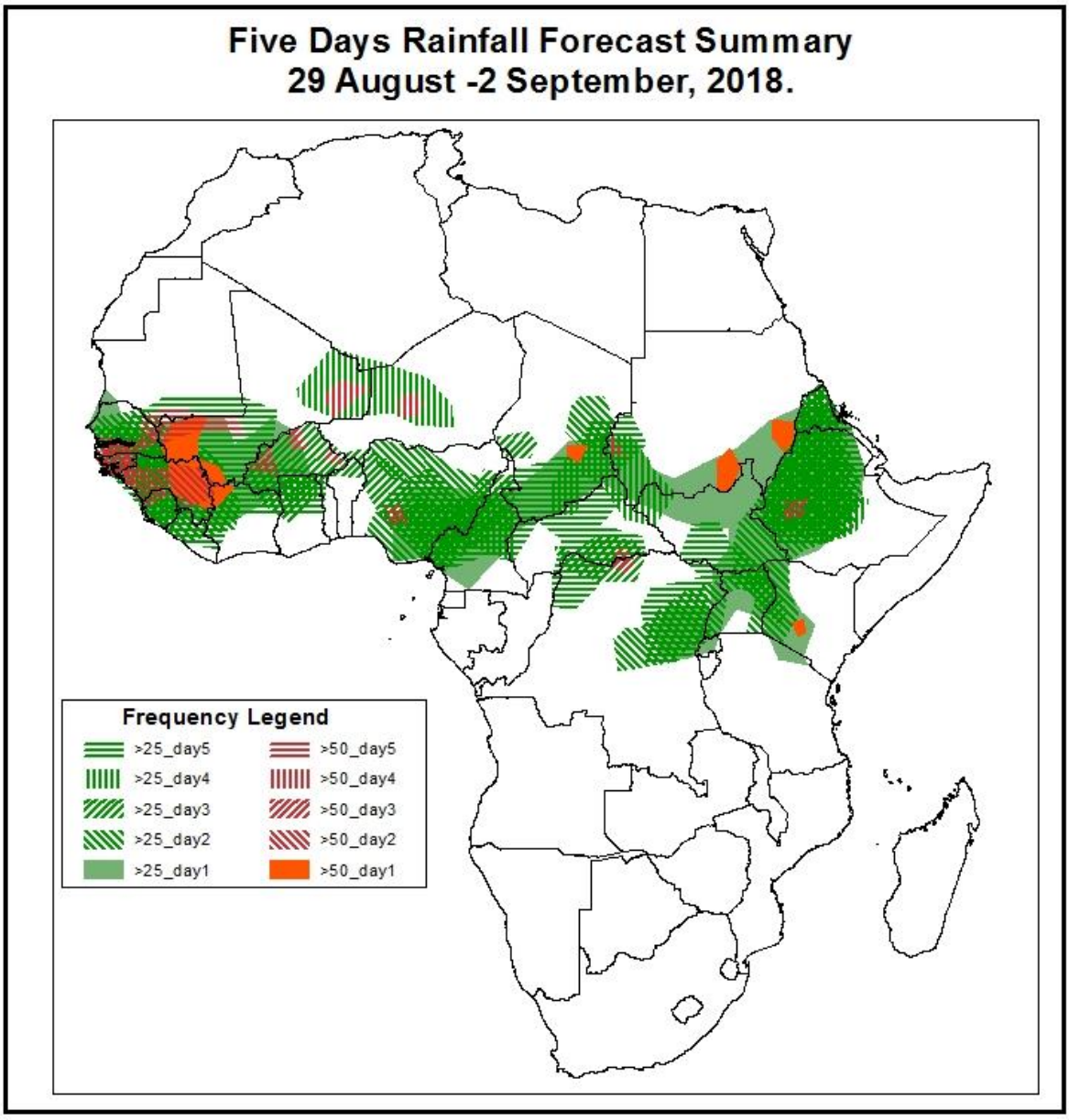
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on *August 28*, 2018)

1.1. Daily Rainfall and Maximum Heat Index Forecasts (valid: Aug 29, – Sept 2, 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.



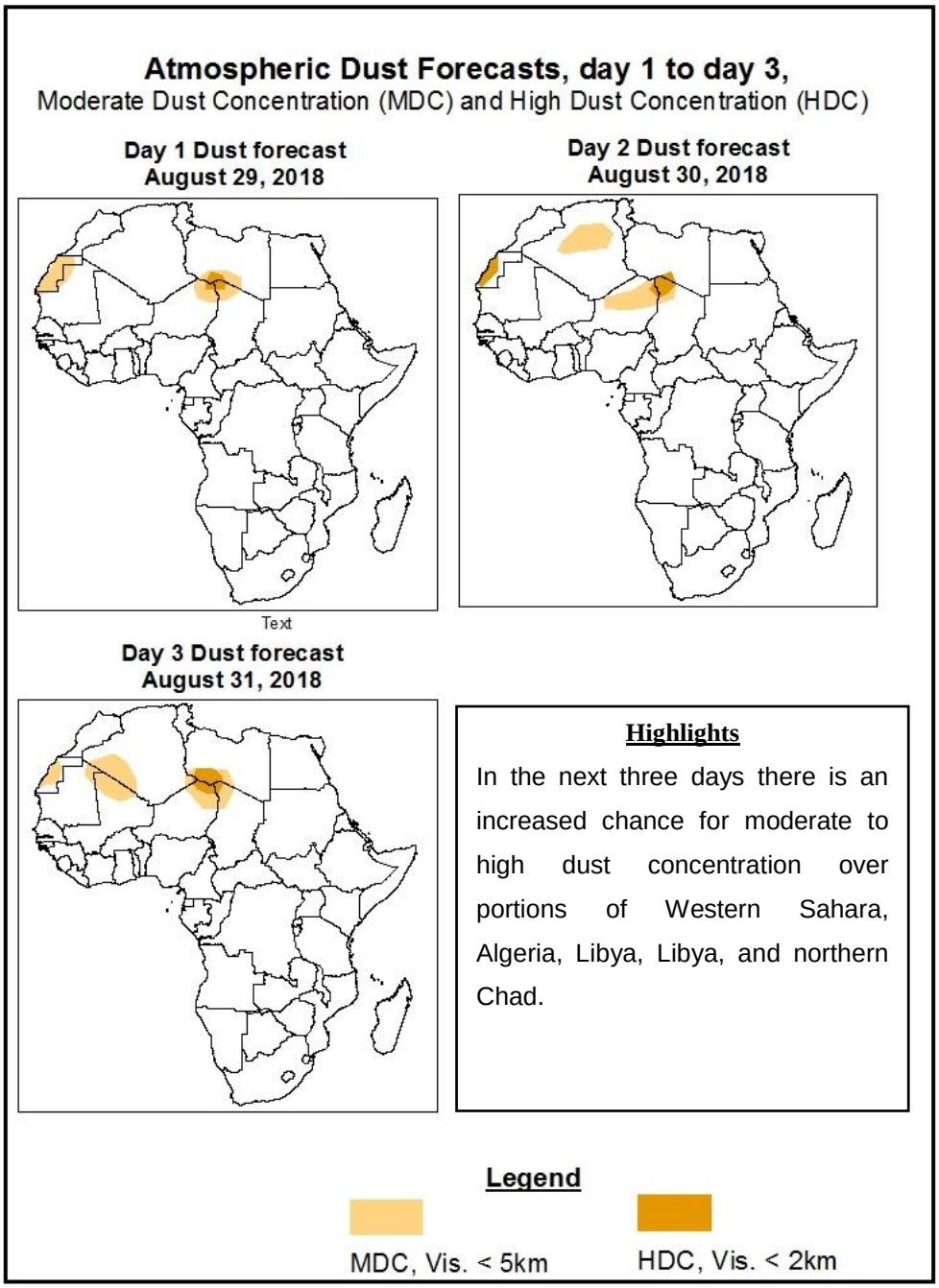


Highlights

- 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 29 – September 3,2018)*

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 28 – September21, 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 1035hPa in the forecast period.

The St. Helena High Pressure system over the Southeast Atlantic Ocean is expected to weaken in the forecast period. The central pressure values decreased from 1032hPa to 1025hPa in the forecast period.

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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 1028hPa 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 1008hPa to 1004hPa during the forecast period. 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 northeasterly wind is expected to prevail across northern Africa. In contrast, moist southwesterly to westerly flow from the Atlantic Ocean is expected to prevail across much of the Gulf of Guinea countries and the neighboring areas of the Sahel region.

At 850hPa, a cyclonic circulation over southern Mali is expected to propagate westwards, leaving the West Africa coast in 72 hours. Another cyclonic circulation is expected to propagate westwards between Cameroon and Guinea, across the Gulf of Guinea countries during the forecast period. A zonal wind convergence is expected to remain active across the Sahel region during the forecast period. Moist southwesterly 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 southern Mali with its associated trough is expected to propagate westwards, leaving the West Africa coast in 72 hours. Another cyclonic tough 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 region between Senegal and southern Niger during the first half of the forecast period.

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.

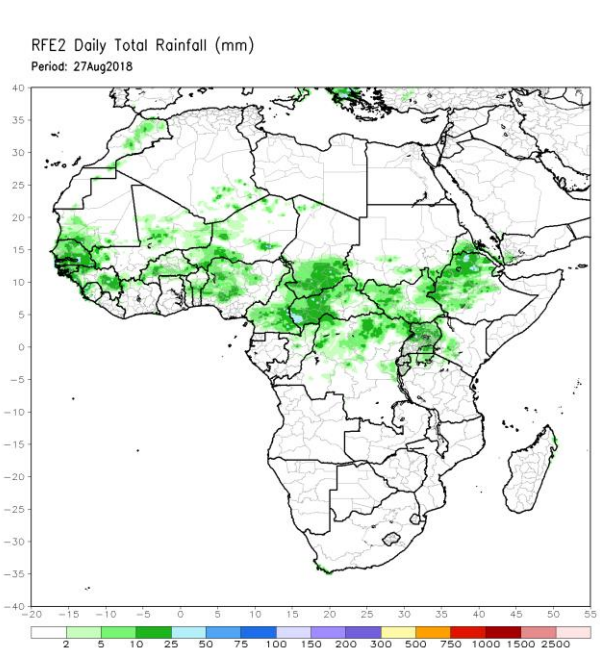
2.0. Previous and Current Day Weather over Africa

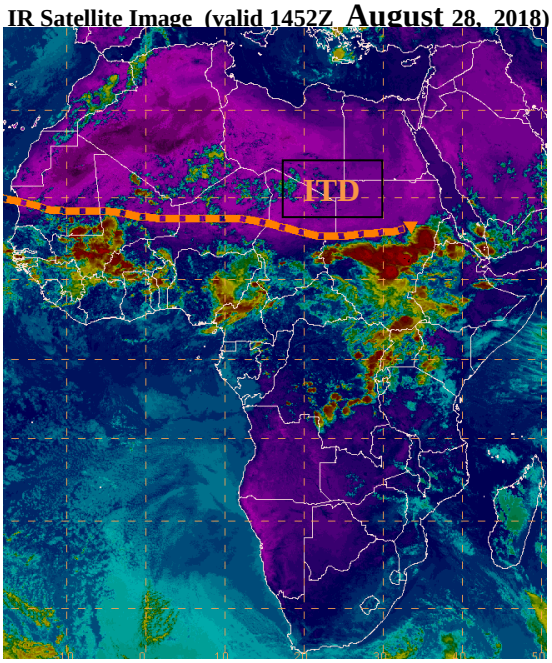
2.1. Weather assessment for the previous day (August 27, 2018)

Moderate to locally heavy rainfall was observed over parts of Algeria, Mauritania, Senegal, Mali, Gambia, Guinea Bissau, Guinea, Sierra Leone, Niger, Nigeria Chad, Cameroon, CAR, Uganda, South Sudan, Eritrea and Ethiopia.

2.2. Weather assessment for the current day (*August 28*, 2018)

Intense convective clouds are observed over parts of Mauritania, Senegal, Mali, Burkina Faso, Ghana, Togo, Benin, 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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