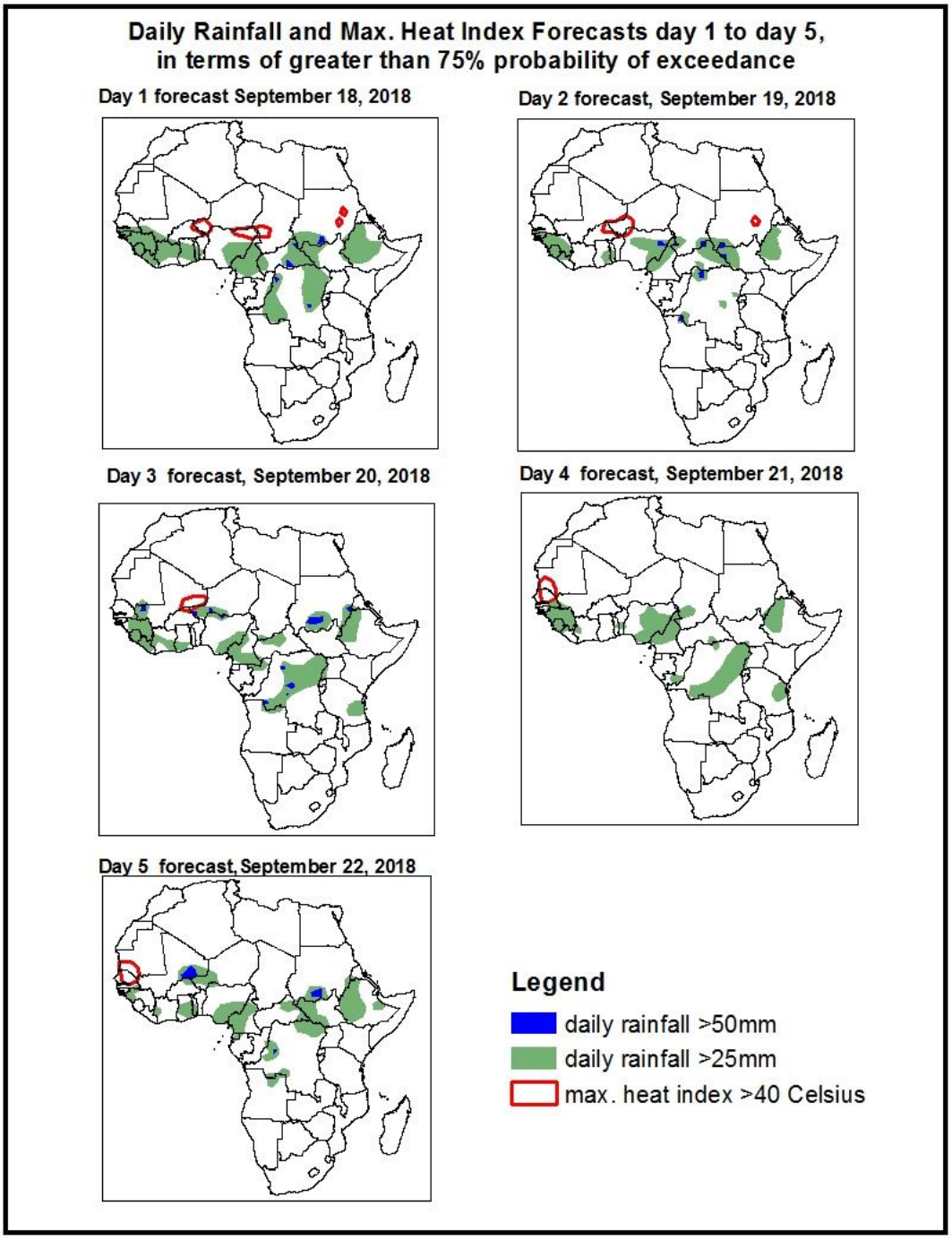
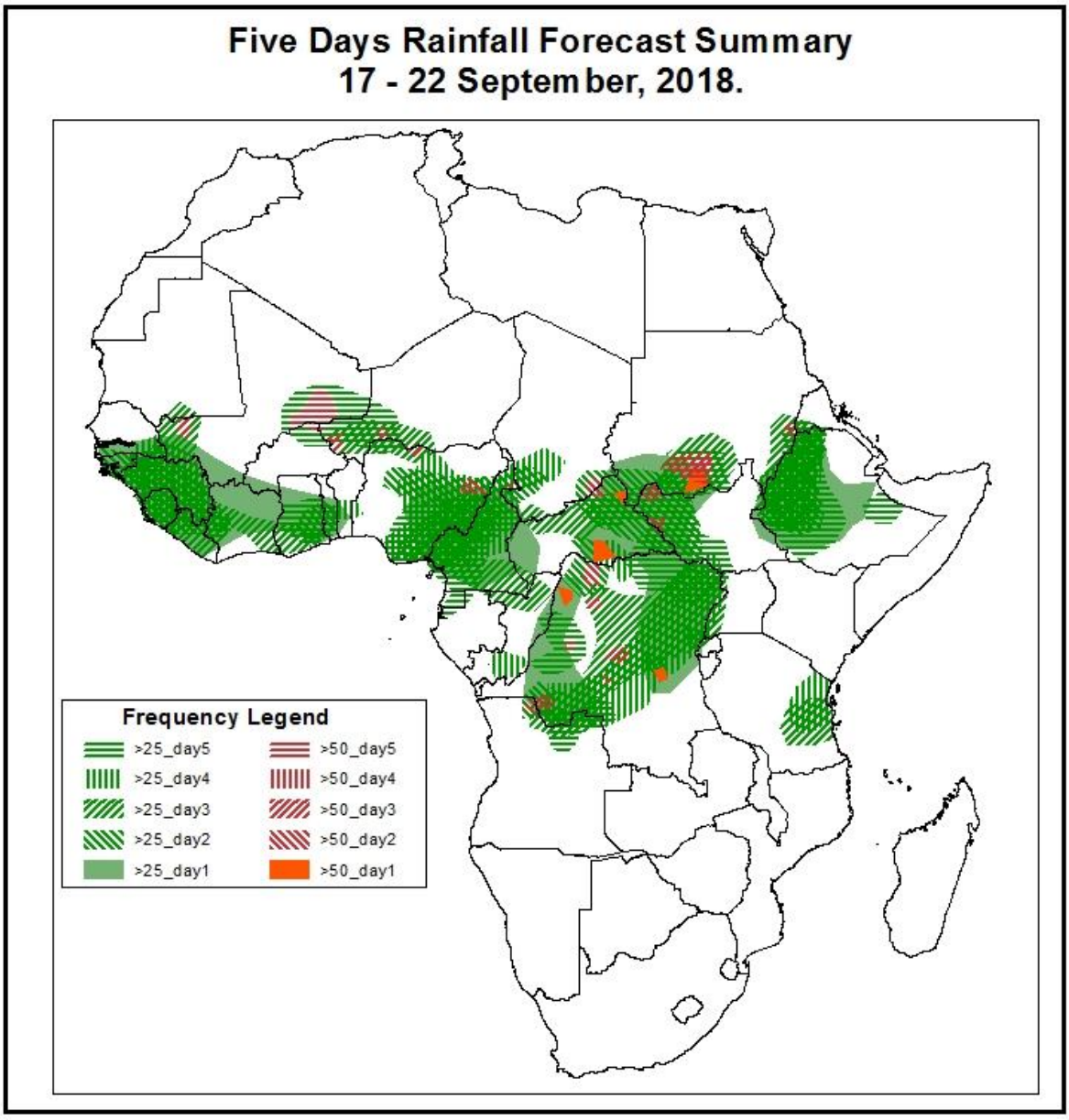
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on *September 17*, 2018)

1.1. Daily Rainfall and Maximum Heat Index Forecasts (valid: Sep 18, – Sept 22, 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.



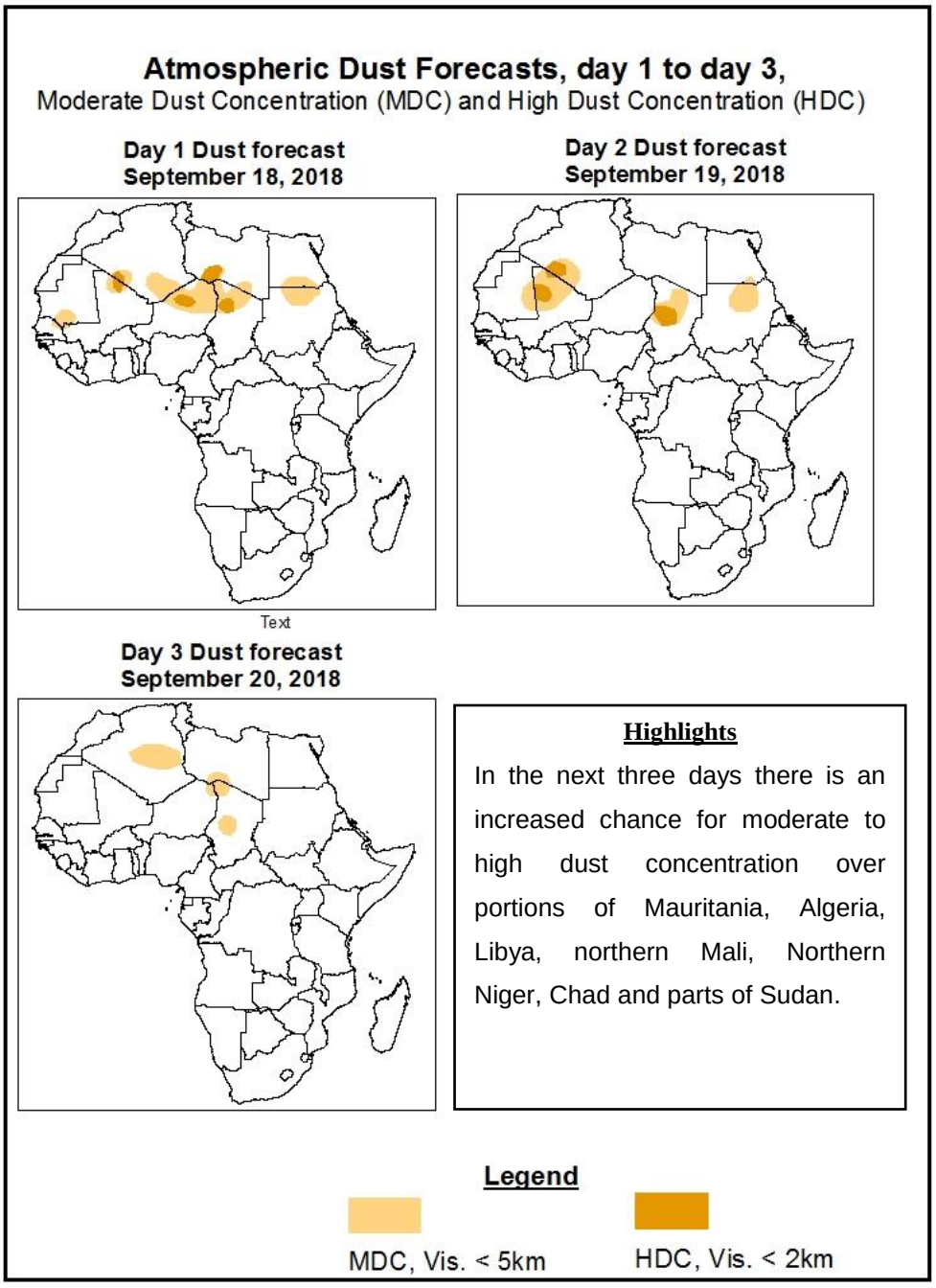


Highlights

- In the next five days, lower-level cyclonic systems across the Gulf of Guinea countries and active lower-level wind convergences over parts of the Sahel region, lower-level wind convergences in the Congo Basin, Sudan, South Sudan and Ethiopia 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, DRC, parts of Sudan, South Sudan, and Ethiopia.
- There is an increased chance for temperature heat index values to exceed 41^0C over local areas in Mauritania, Senegal, Mali, Burkina Faso, Niger, Nigeria, and Sudan.

1.2. Atmospheric Dust Concentration Forecasts *(valid: September 18 – September 20, 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: September 18 – September 22, 2018*

The Azores High Pressure system over the North Atlantic Ocean is expected to an average central pressure value of 1022hPa during the forecast period.

The St. Helena High Pressure system over the Southeast Atlantic Ocean is expected to weaken gradually during the forecast period. The central pressure value is expected to decrease from 1040hPa to 1035hPa through 120 hours.

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The Mascarene High Pressure system over the Southwest Indian Ocean is expected to weaken gradually. Its central value is expected to decrease from 1032hPa to 1026hPa during the forecast period.

A thermal low across Mali and Mauritania is expected to deepen slightly. Its central pressure value is expected to decrease from 1008hPa to 1005hPa during the forecast period. A thermal low across Chad is expected to maintain an average central pressure value of 1008hPa during the forecast period.

At 925hPa, dry strong northeasterly to easterly flow is expected to prevail over Western Sahara, Mauritania, northern Mali, parts of Algeria, Chad, Libya, northern Niger, and portions of Egypt and Sudan . 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.

At 850hPa, a cyclonic trough is expected to prevail across the Gulf of Guinea countries during the forecast period. Lower-level wind Convergence across portions of the Sahel region, Sudan and Ethiopia and meridional wind convergence in the Congo Basin are expected to remain active during the forecast period.

At 700-hPa, an area of strong easterly flow across the Gulf of Guinea countries is expected to leave the West Africa coast through 96 hours.

In the next five days, lower-level cyclonic systems across the Gulf of Guinea countries and active lower-level wind convergences over parts of the Sahel region, lower-level wind

convergences in the Congo Basin, Sudan, South Sudan and Ethiopia 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, DRC, parts of Sudan, South Sudan, and Ethiopia. There is an increased chance for temperature heat index values to exceed 41^0C over local areas in Mauritania, Senegal, Mali, Burkina Faso, Niger, Nigeria, and Sudan.

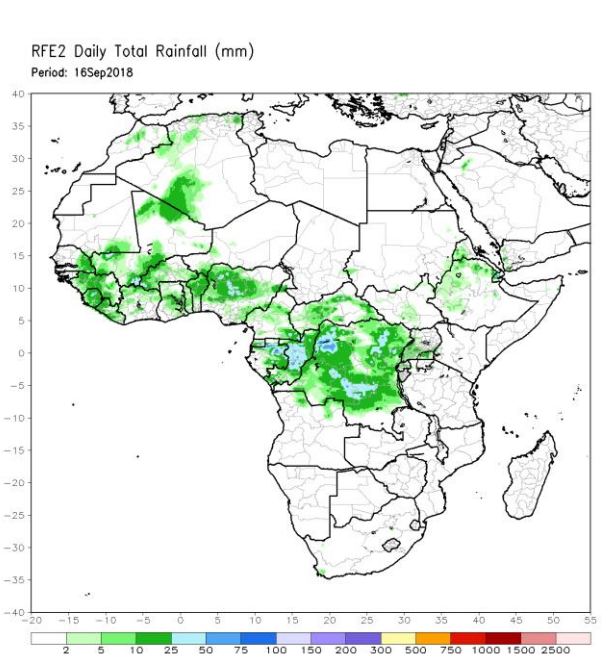
2.0. Previous and Current Day Weather over Africa

2.1. Weather assessment for the previous day (September 16, 2018)

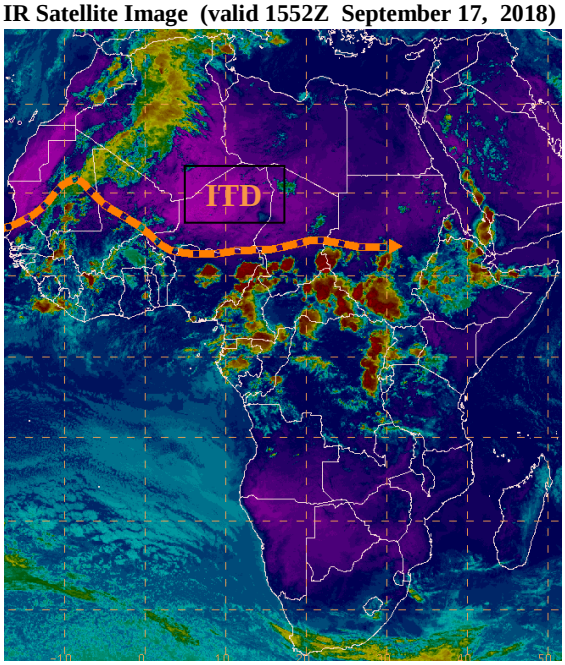
Moderate to locally heavy rainfall was observed over parts of Algeria, Mali, Senegal, Guinea, Sierra Leone, Burkina Faso, Benin, Nigeria, Cameroon, CAR, Equatorial Guinea, Gabon, Congo, DRC and Ethiopia.

2.2. Weather assessment for the current day (*September 17*, 2018)

Intense convective clouds are observed over parts of Morocco, Tunisia, Algeria, Mauritania, Mali, Guinea, Liberia, Cote d'Ivoire, Ghana, Nigeria, Cameroon, Chad, Equatorial Guinea, Gabon, Congo, CAR, DRC, Uganda, South Sudan, Sudan, Ethiopia and Eritrea.



IR Satellite Image (valid 1552Z September 17, 2018)



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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