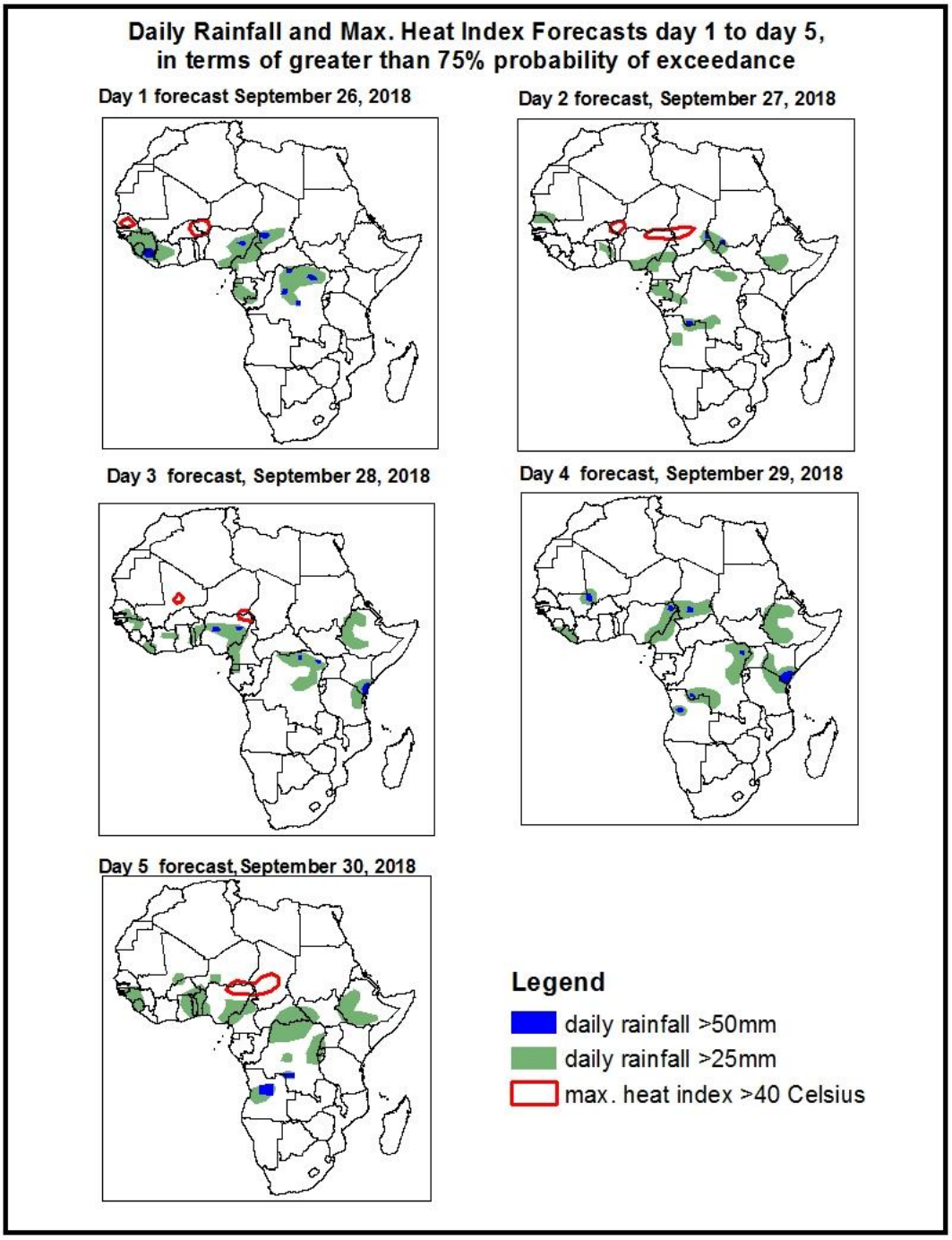
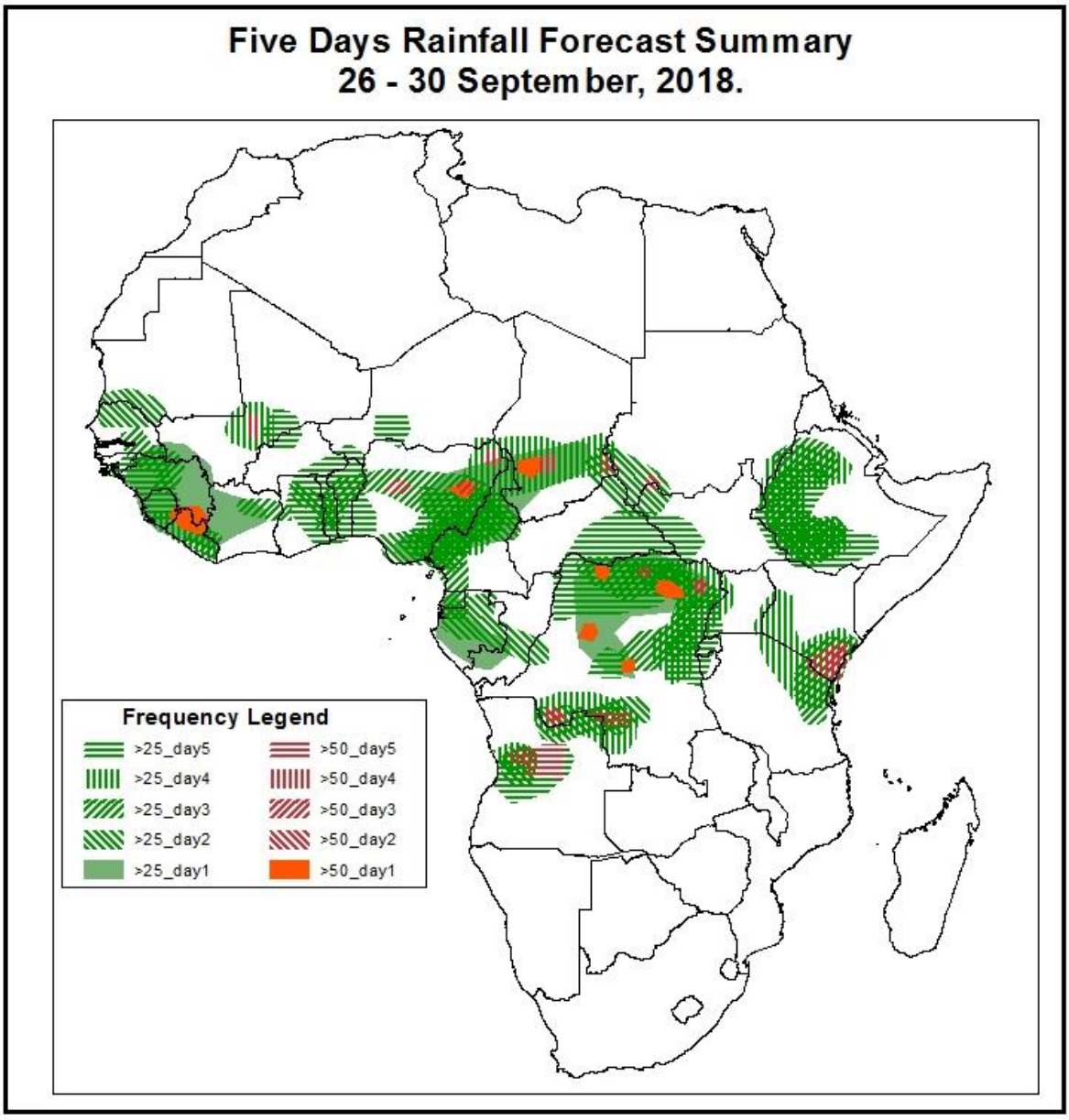
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on *September 25*, 2018)

1.1. Daily Rainfall and Maximum Heat Index Forecasts (valid: Sep 26, – Sept309, 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.



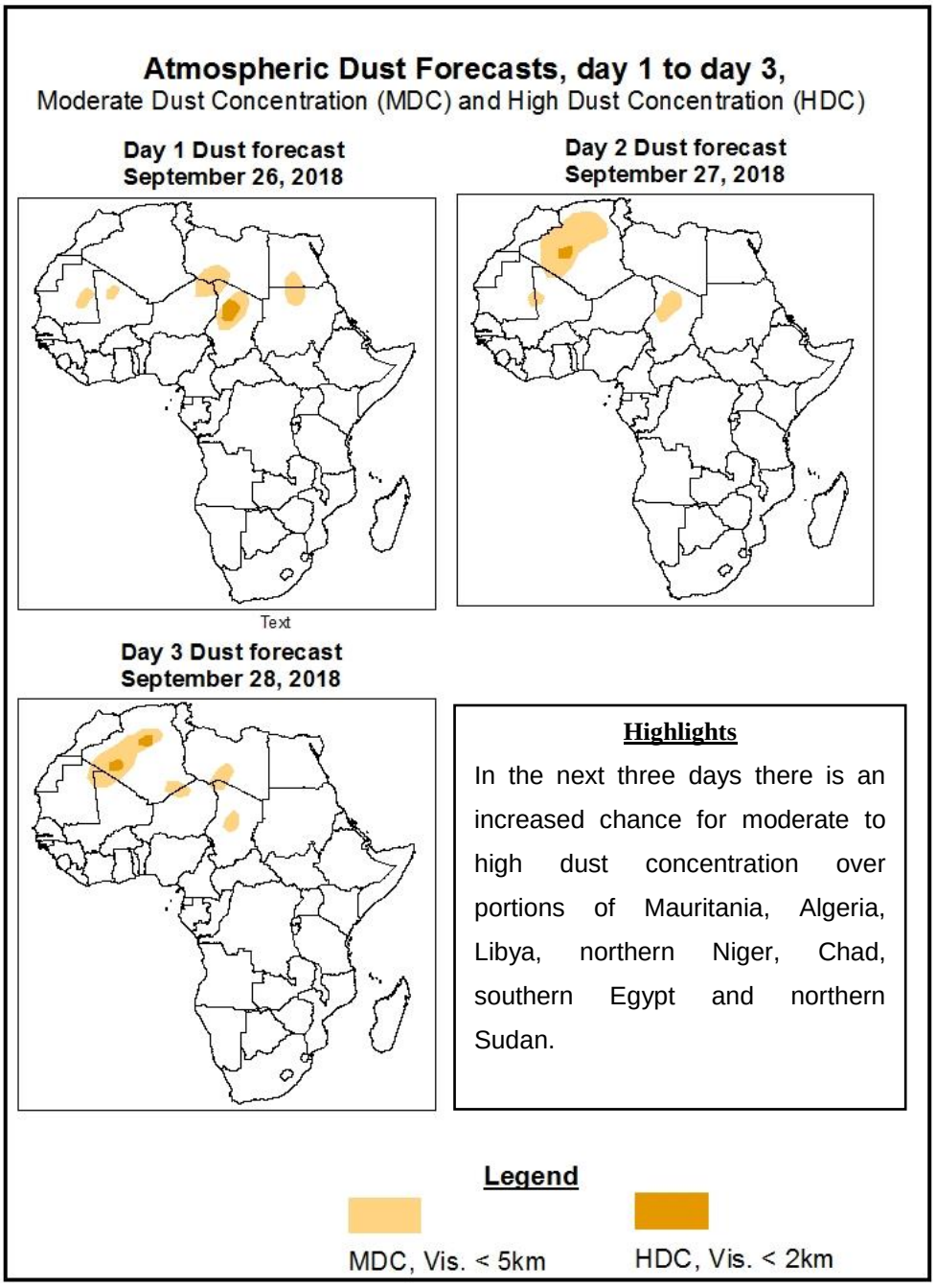


Highlights

- In the next five days, tropical/extratropical interaction across northwestern Africa, lower-level cyclonic systems across the Gulf of Guinea region and localized lower-level wind convergences over Sahel region, active lower-level wind convergences in the Congo Basin, Sudan, and Ethiopia, and active East African Monsoon are expected to enhance rainfall.
- There is an increased chance for 2 or more days of moderate to heavy rainfall over portions of the Gulf of Guinea countries and the neighboring areas of the Sahel region, DRC, Angola, Ethiopia, and southeastern Kenya and northeastern Tanzania..
- There is an increased chance for temperature heat index values to exceed 41^0C over local areas in Senegal, Burkina Faso, Niger, Nigeria and Chad.

1.2. Atmospheric Dust Concentration Forecasts *(valid: September 26 – September 28, 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 26 – September 30, 2018*

The Azores High Pressure system over the North Atlantic Ocean is expected to weaken. Its central pressure value is expected to decrease from 1036hPa to 1032hPa during the forecast period.

The St. Helena High Pressure system over the Southeast Atlantic Ocean is expected to intensify gradually. Its central pressure value is expected to increase from 1024hPa to 1038hPa through 120 hours.

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The Mascarene High Pressure system over the Southwest Indian Ocean is expected to intensify gradually. Its central pressure value is expected to increase from 1027hPa to 1034hPa.

Thermal lows over northern Mali and Chad are expected to maintain average central pressure values of 1007hPa and 1009hPa, respectively.

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 the Gulf of Guinea countries. Active East African monsoon flow from the Indian Ocean, with its associated lower-level convergence across equatorial eastern Africa is expected to prevail during the forecast period.

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

At 700-hPa, an area of strong easterly flow is expected to prevail across many places in the Gulf of Guinea countries during the first half of the forecast period.

In the next five days, tropical/extratropical interaction across northwestern Africa, lower-level cyclonic systems across the Gulf of Guinea region and localized lower-level wind convergences over Sahel region, active lower-level wind convergences in the Congo Basin, Sudan, and Ethiopia, and active East African Monsoon are expected to enhance rainfall. There is an increased chance for 2 or more days of moderate to heavy rainfall over portions of the Gulf of Guinea countries and the neighboring areas of the Sahel region, DRC, Angola, Ethiopia, and southeastern Kenya and northeastern Tanzania. There is an increased chance for temperature heat index values to exceed 41^0C over local areas in Senegal, Burkina Faso, Niger, Nigeria and Chad.

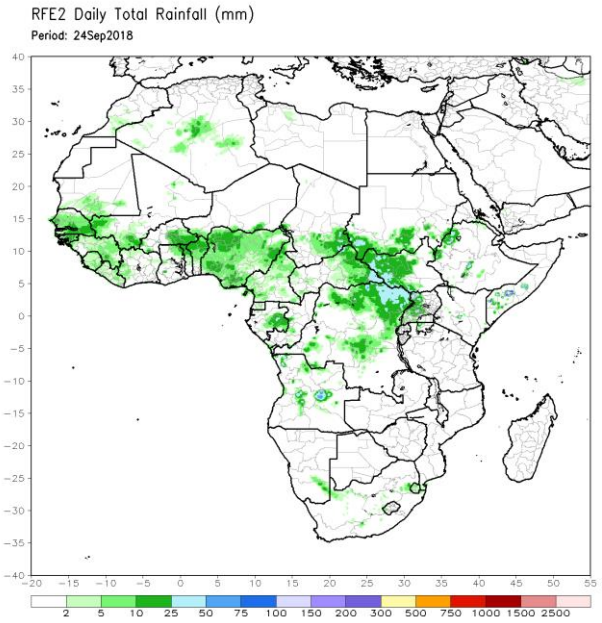
2.0. Previous and Current Day Weather over Africa

2.1. Weather assessment for the previous day (September 24, 2018)

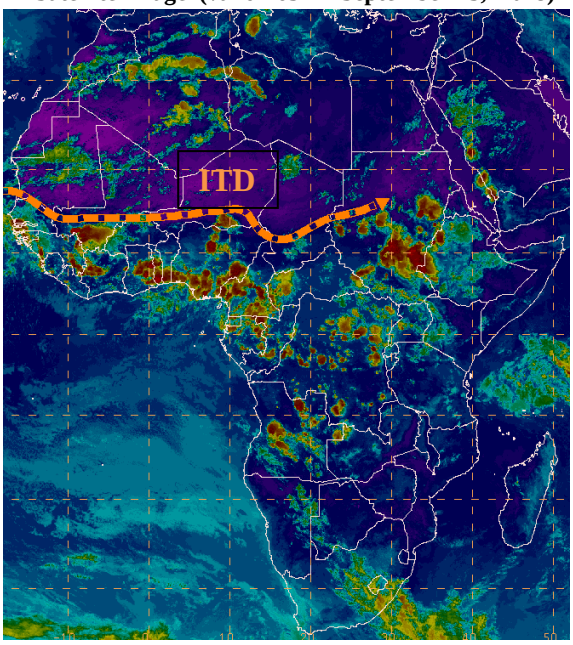
Moderate to locally heavy rainfall was observed over parts of Nigeria, Chad, Gabon, Angola, DRC, CAR, Uganda, Kenya, Tanzania, Somalia, South Sudan, Sudan and Ethiopia.

2.2. Weather assessment for the current day (*September 25*, 2018)

Intense convective clouds are observed over parts of Senegal, Gambia, Guinea Bissau, Mali, Guinea, Cote d'Ivoire, Ghana, Togo, Benin, Niger, Nigeria, Cameroon, Gabon, Congo, Angola, DRC, CAR, Uganda, South Sudan, Sudan and Ethiopia.



IR Satellite Image (valid 1652Z September 25, 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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