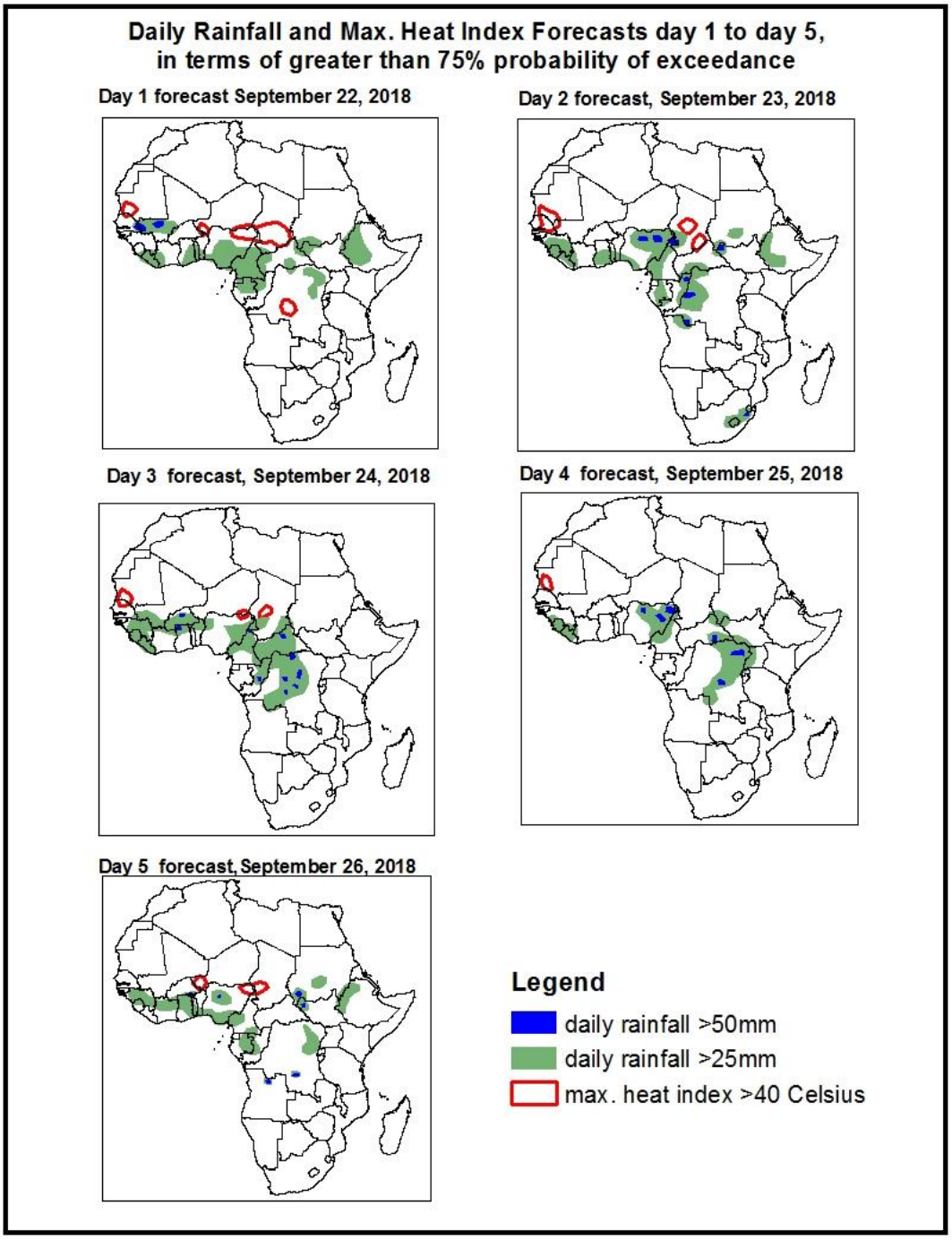
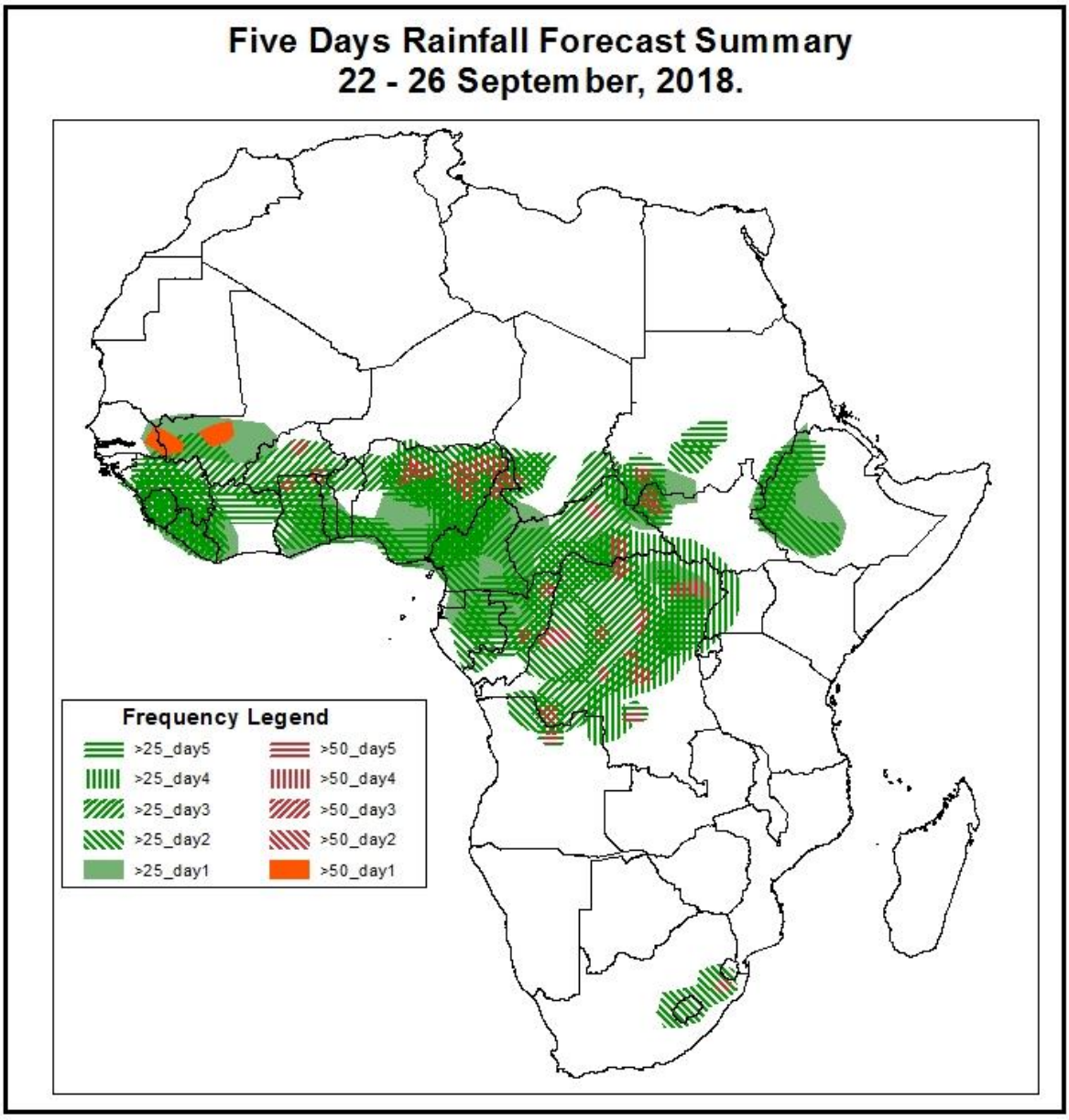
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on *September 21*, 2018)

1.1. Daily Rainfall and Maximum Heat Index Forecasts (valid: Sep 22, – Sept 26, 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.



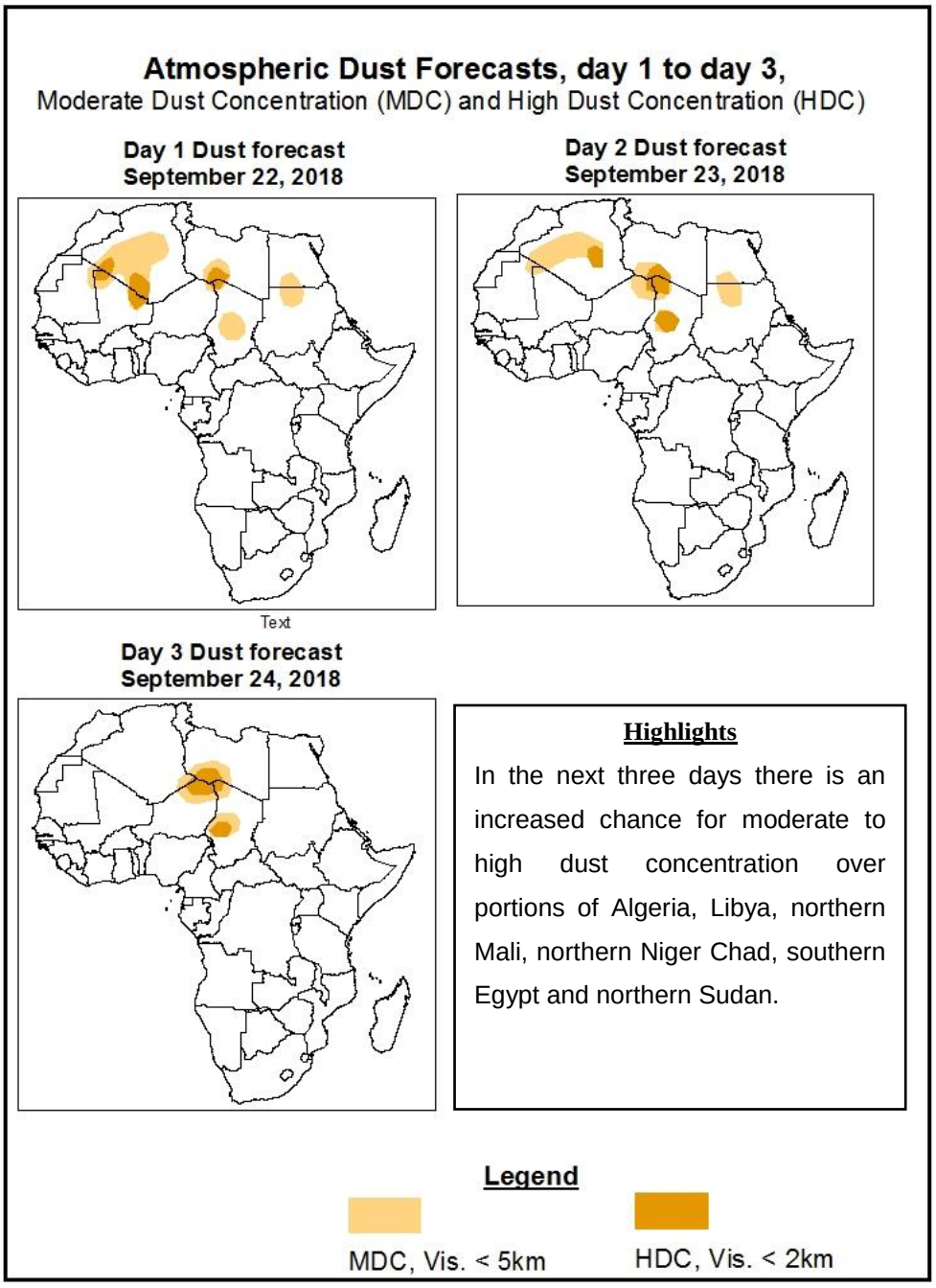


Highlights

- In the next five days, lower-level cyclonic systems across the Gulf of Guinea countries and localized lower-level wind convergences over Sahel region, active lower-level wind convergences in the Congo Basin, Sudan, and Ethiopia are expected to enhance rainfall.
- There is an increased chance for 2 or more days of moderate to heavy rainfall over many places in the Gulf of Guinea countries and the neighboring areas of the Sahel region, DRC, parts of Sudan and South Sudan, and western Ethiopia.
- There is an increased chance for temperature heat index values to exceed 41^0C over local areas in Senegal, Mauritania, Niger, Nigeria, Chad and DRC.

1.2. Atmospheric Dust Concentration Forecasts *(valid: September 22 – September 24, 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 22 – September 26, 2018*

The Azores High Pressure system over the North Atlantic Ocean is expected to intensify significantly. Its central pressure value is expected to increase from 1022hPa to 1036hPa during the forecast period.

The St. Helena High Pressure system over the Southeast Atlantic Ocean is expected to weaken significantly. Its central pressure value is expected to decrease from 1031hPa to 1022hPa 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 1026hPa to 1032hPa.

Thermal lows over northern Mali and Chad are expected to maintain average central pressure values of 1007hPa and 1008hPa, 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 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 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 forecast period.

In the next five days, tropical/extratropical interaction across northwestern Africa, lower-level cyclonic systems across the Gulf of Guinea countries and localized lower-level wind convergences over Sahel region, active lower-level wind convergences in the Congo Basin,

Sudan, and Ethiopia are expected to enhance rainfall. There is an increased chance for 2 or more days of moderate to heavy rainfall over southern Mauritania, portions of the Gulf of Guinea countries and the neighboring areas of the Sahel region, DRC, parts of Sudan and South Sudan, and western Ethiopia. There is an increased chance for temperature heat index values to exceed 410C over local areas in Senegal, Mauritania, Mali, Niger, Nigeria, Chad and DRC.

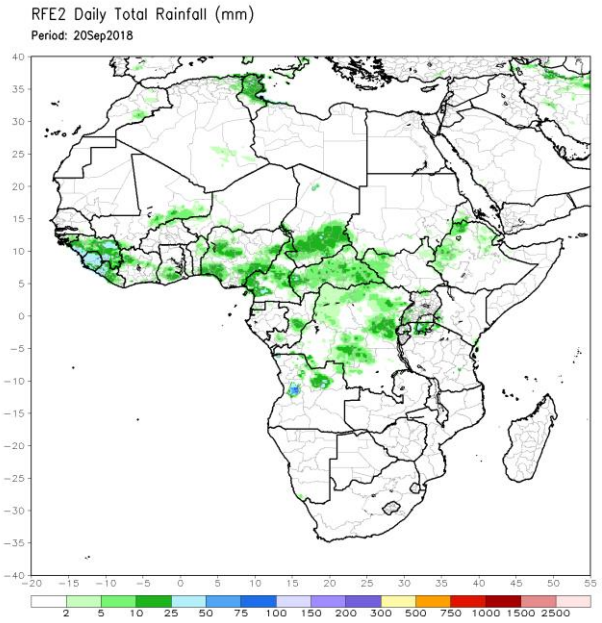
2.0. Previous and Current Day Weather over Africa

2.1. Weather assessment for the previous day (September 20, 2018)

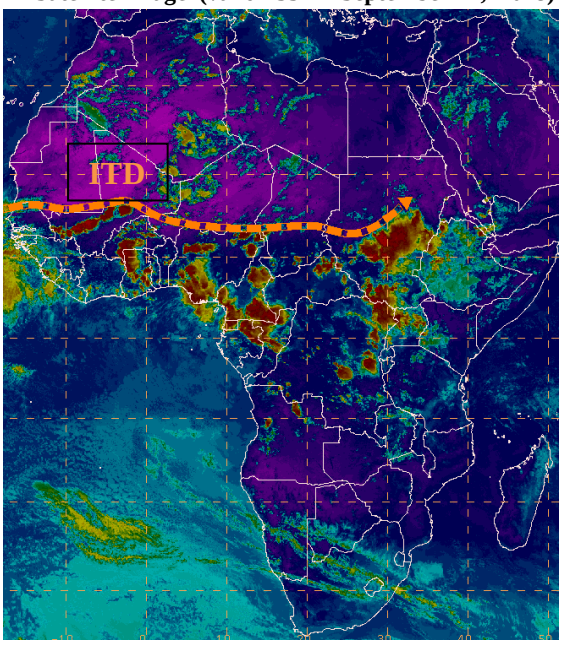
Moderate to locally heavy rainfall was observed over parts of Tunisia, Guinea, Sierra Leone, Liberia, Nigeria, Cameron, Chad, CAR, Tanzania and Angola.

2.2. Weather assessment for the current day (*September 21*, 2018)

Intense convective clouds are observed over parts of Mali, Sierra Leone, Mali, serial Leone Nigeria, Cameroon, Equatorial Guinea, Congo, CAR, Uganda, South Sudan, Sudan and Angola.



IR Satellite Image (valid 1552Z September 21, 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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