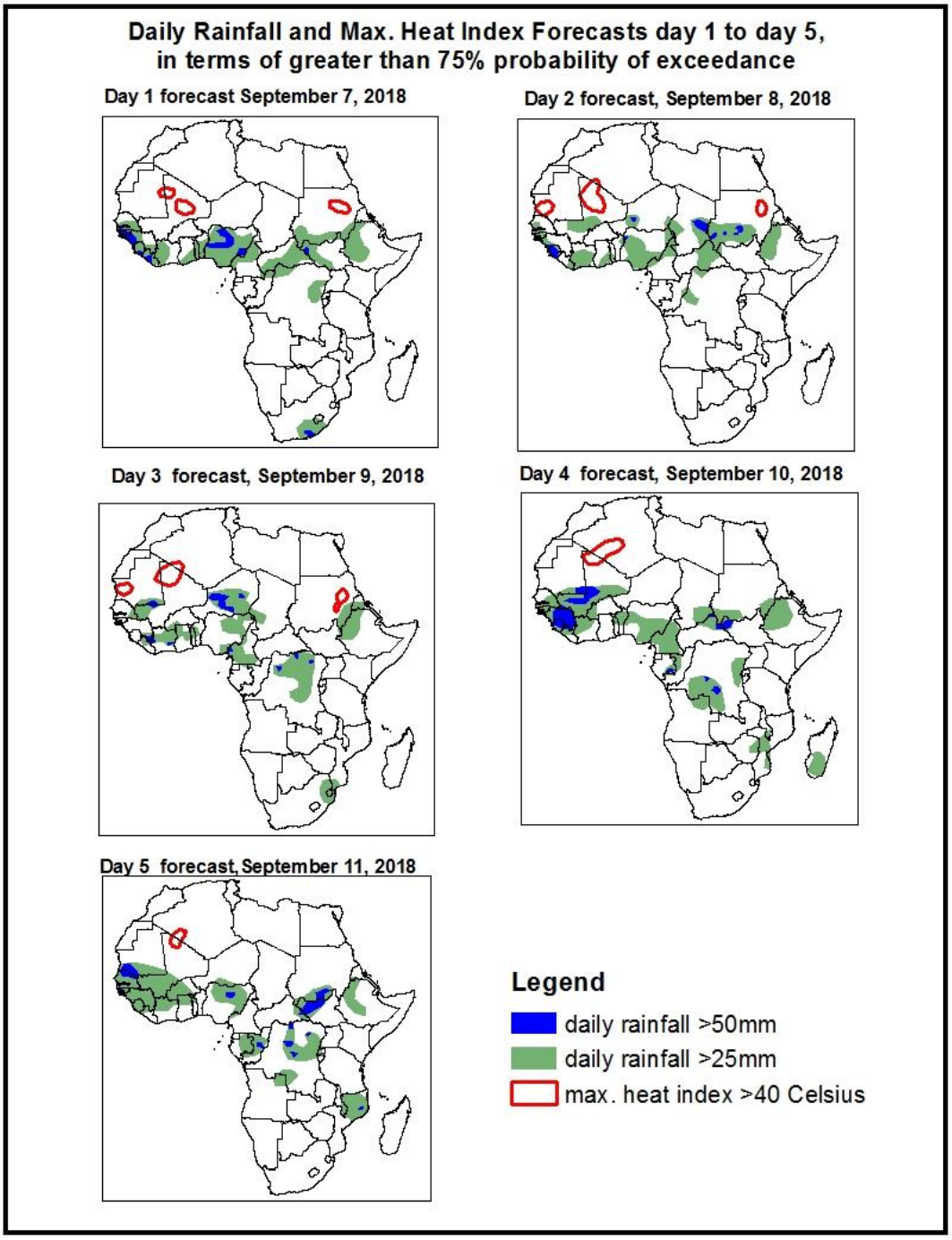
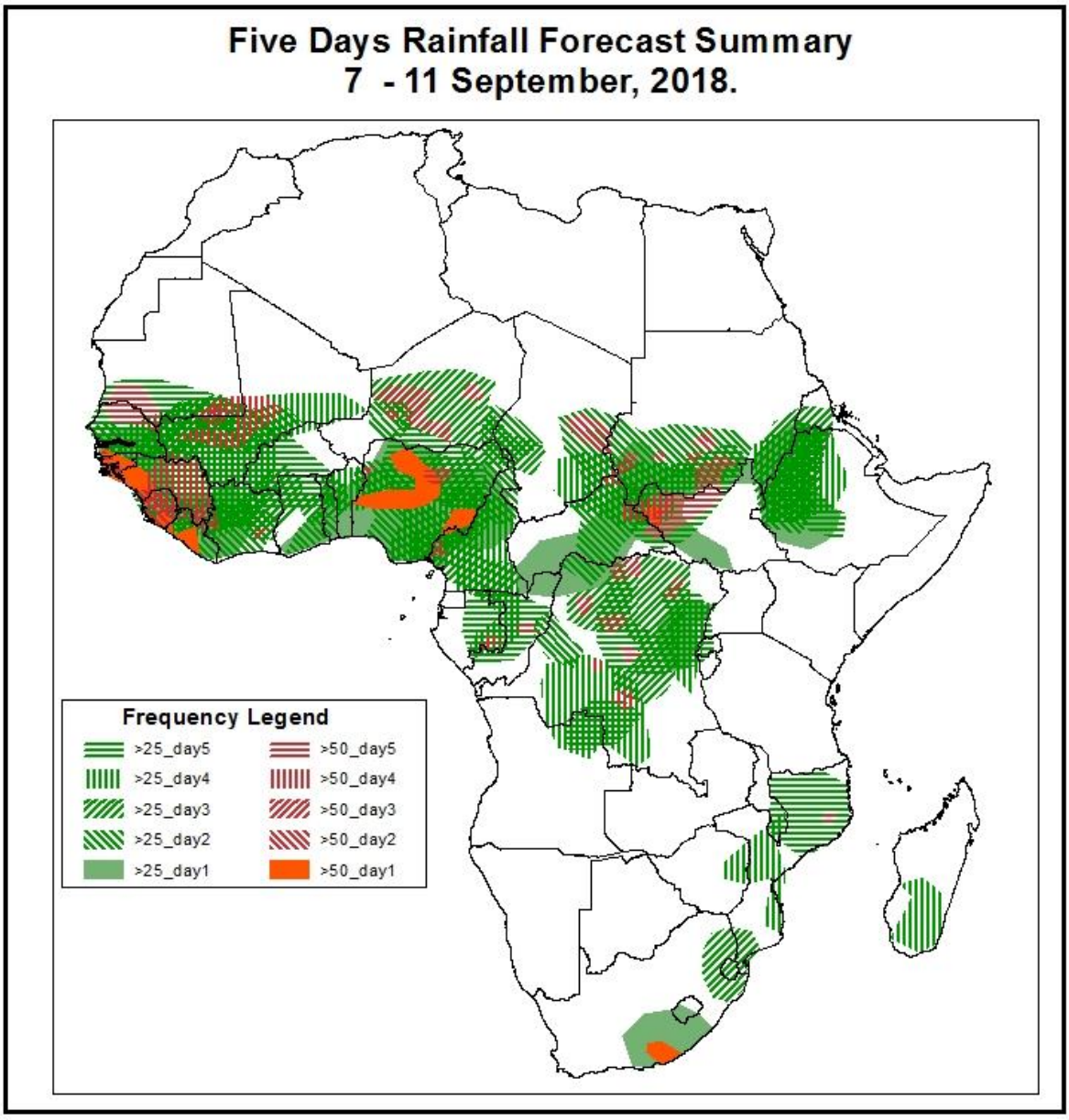
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on *September 6*, 2018)

1.1. Daily Rainfall and Maximum Heat Index Forecasts (valid: Sep 7, – Sept 11, 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.



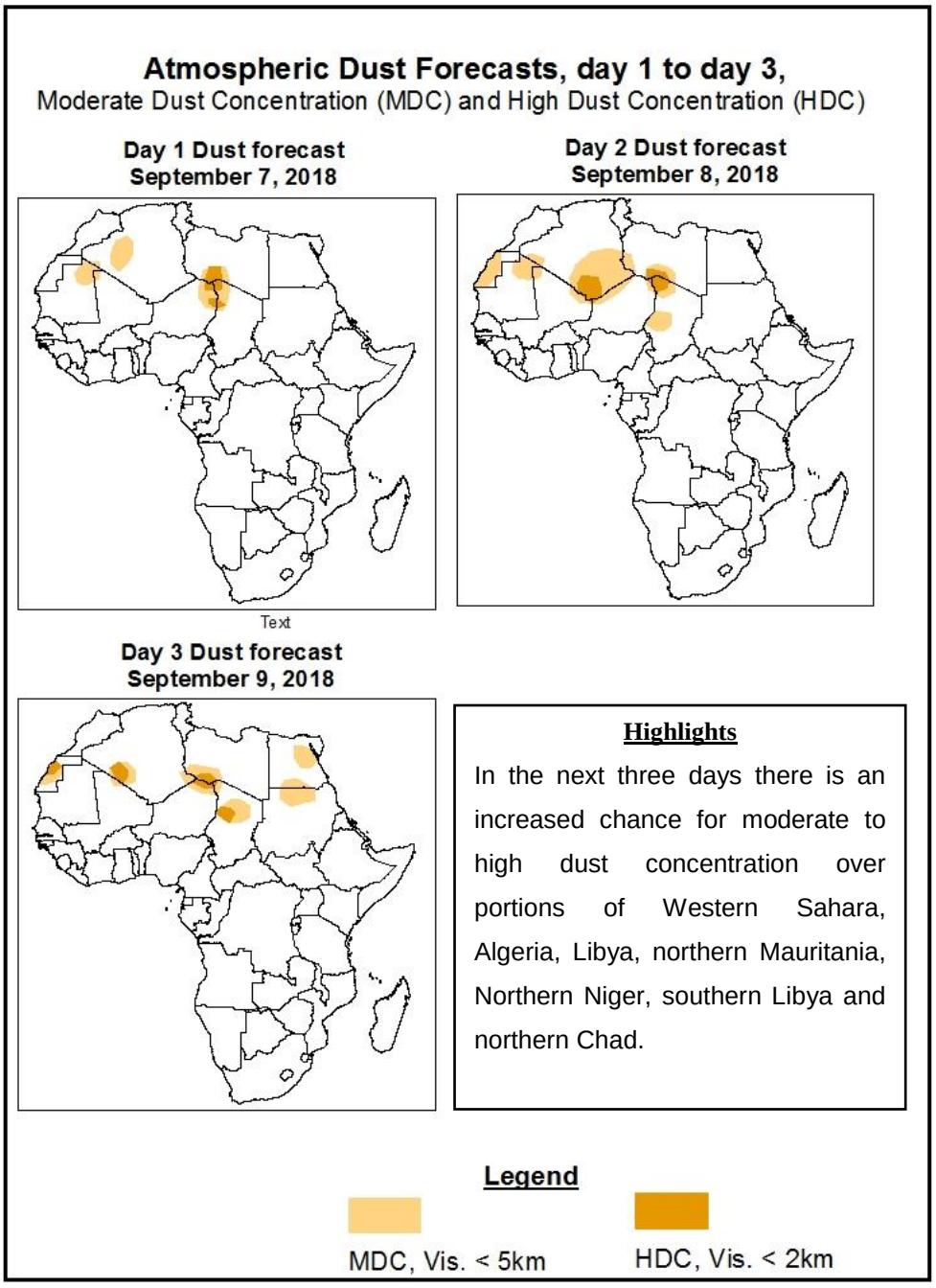


Highlights

- In the next five days, westward propagating lower-level cyclonic systems across West and Central Africa, active lower-level wind convergences in the Congo Basin and the Greater Horn of Africa, and frontal systems across Southern Africa are expected to enhance rainfall.
- There is an increased chance for 2 or more days of moderate to heavy rainfall over many places in West Africa, and portions of Central and the Greater Horn of Africa.
- There is an increased chance for temperature heat index values to exceed 41^0C over parts of Mauritania and Mali, southern Algeria and local areas in northeastern Sudan.

1.2. Atmospheric Dust Concentration Forecasts *(valid: September 7 – September 11, 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 7 – September 11, 2018*

The Azores High Pressure system over the North Atlantic Ocean is expected to intensify, with its central pressure value increasing from about 1023hPa to 1028hPa during the forecast period.

The St. Helena High Pressure system over the Southeast Atlantic Ocean is expected to weaken during the forecast period. The central pressure value is expected to decrease from 1035hPa to 1028hPa during the forecast period.

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The Mascarene High Pressure system over the Southwest Indian Ocean is expected to maintain an average central pressure value of 1036hPa, while slightly shifting to the east during the forecast period.

Thermal low over northwestern Mali is expected to shift over to southern Mauritania while it is filling up. Its central pressure value is expected to increase from about 1004hPa to 1006hPa through 120 hours. A thermal low across Chad and Niger is expected to maintain an average central pressure value of 1009hPa during the forecast period.

At 925hPa, dry strong northeasterly to easterly flow is expected to prevail over Western Sahara, northern Mali, parts of Algeria, Chad, Libya, 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 and the neighboring areas of the Sahel region.

At 850hPa, a cyclonic circulation over the far western West Africa is expected to shift westwards, leaving the West Africa Coast through 48 hours, while another cyclonic circulation is expected to deepen across the far western West Africa towards end of the forecast period. Lower-level wind Convergence in Sudan and Ethiopia and meridional wind convergence near the Lake Victoria region are expected to remain active during the forecast period.

At 700-hPa, a cyclonic trough over eastern Guinea is expected to propagate westward leaving the West Africa coast through 48 hours. Another cyclonic trough over Nigeria is

expected to propagate westwards over to the far western West Africa during the forecast period.

In the next five days, westward propagating lower-level cyclonic systems across West and Central Africa, active lower-level wind convergences in the Congo Basin and the Greater Horn of Africa, and frontal systems across Southern Africa are expected to enhance rainfall. There is an increased chance for 2 or more days of moderate to heavy rainfall over many places in West Africa, and portions of Central and the Greater Horn of Africa. There is an increased chance for temperature heat index values to exceed 41^0C over parts of Mauritania and Mali, southern Algeria and local areas in northeastern Sudan.

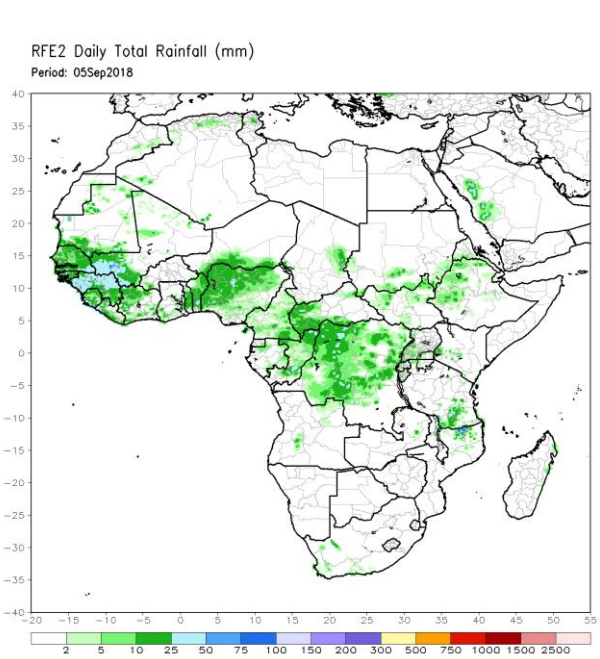
2.0. Previous and Current Day Weather over Africa

2.1. Weather assessment for the previous day (September 5, 2018)

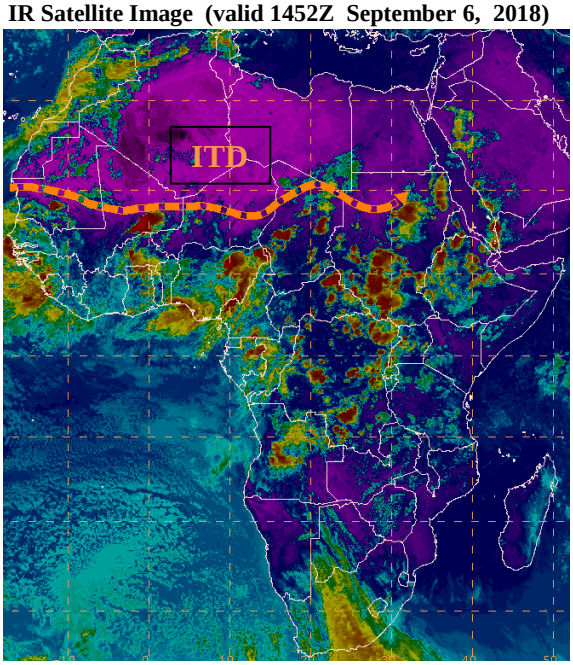
Moderate to locally heavy rainfall was observed over parts of Mauritania, Senegal, Gambia, Mali, Guinea Bissau, Guinea, Sierra Leone, Liberia, Cote d'Ivoire, Ghana, Benin, Nigeria, Chad, CAR, Congo, DRC, Tanzania and Mozambique.

2.2. Weather assessment for the current day (*September 6*, 2018)

Intense convective clouds are observed over parts of Mauritania, Mali, Guinea, Burkina Faso, Ghana, Benin, Nigeria, Cameroon, Chad, CAR, Gabon, Congo, DRC, Angola, Uganda, Sudan, South Sudan, Eritrea and Ethiopia.



IR Satellite Image (valid 1452Z September 6, 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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