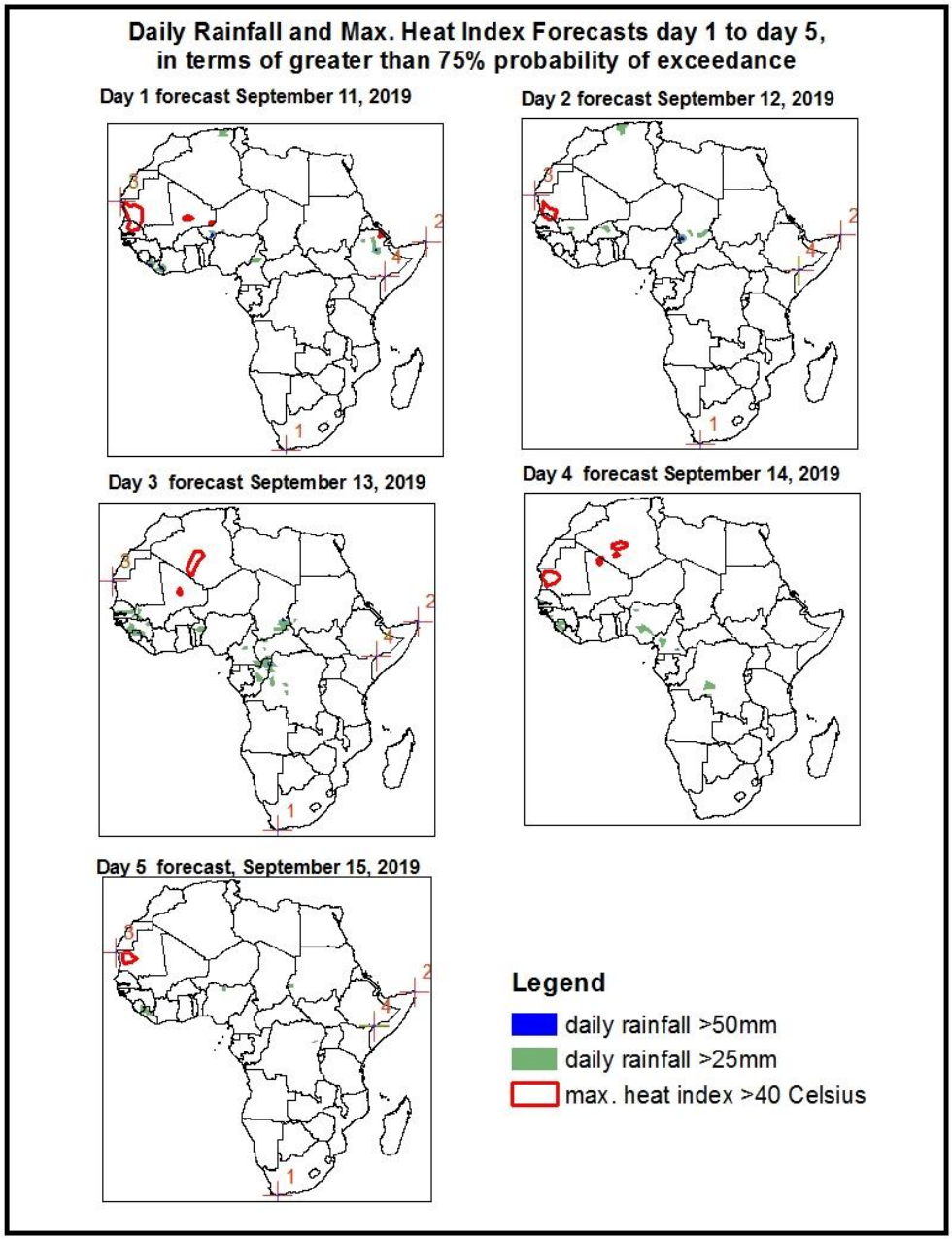
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

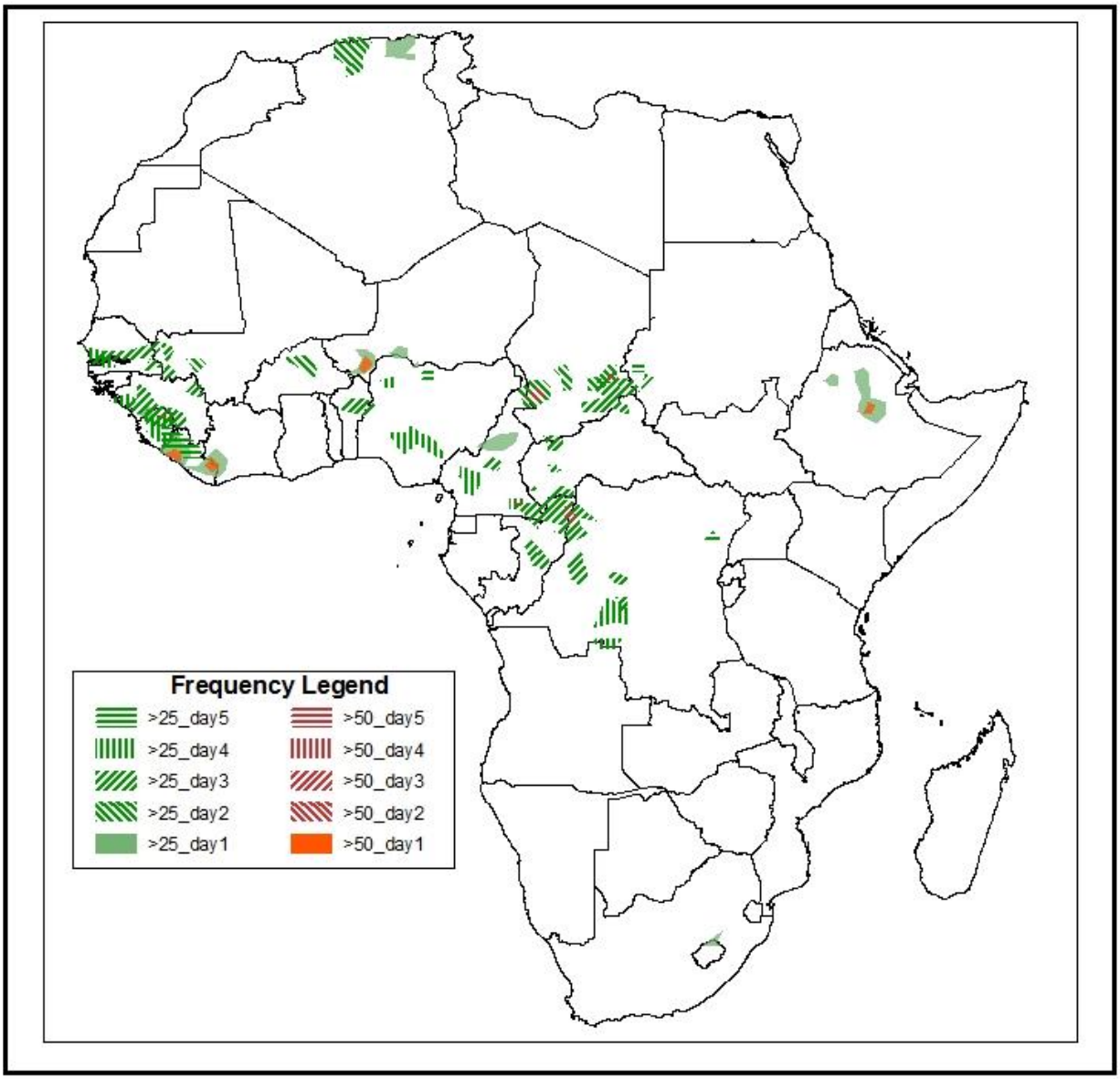
1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on September 10, 2019)

1.1. Daily Rainfall and Maximum Heat Index Forecasts (valid: 11 – 15 September, 2019)

The forecasts are expressed in terms of high probability of precipitation (POP), valid 06Z to 06Z, and exceedance probability of maximum heat index (>40°C), based on the NCEP/GFS and the NCEP Global Ensemble Forecasts System (GEFS) and expert assessment.



Five Days Rainfall Forecast Summary
September 11 - September 15, 2019

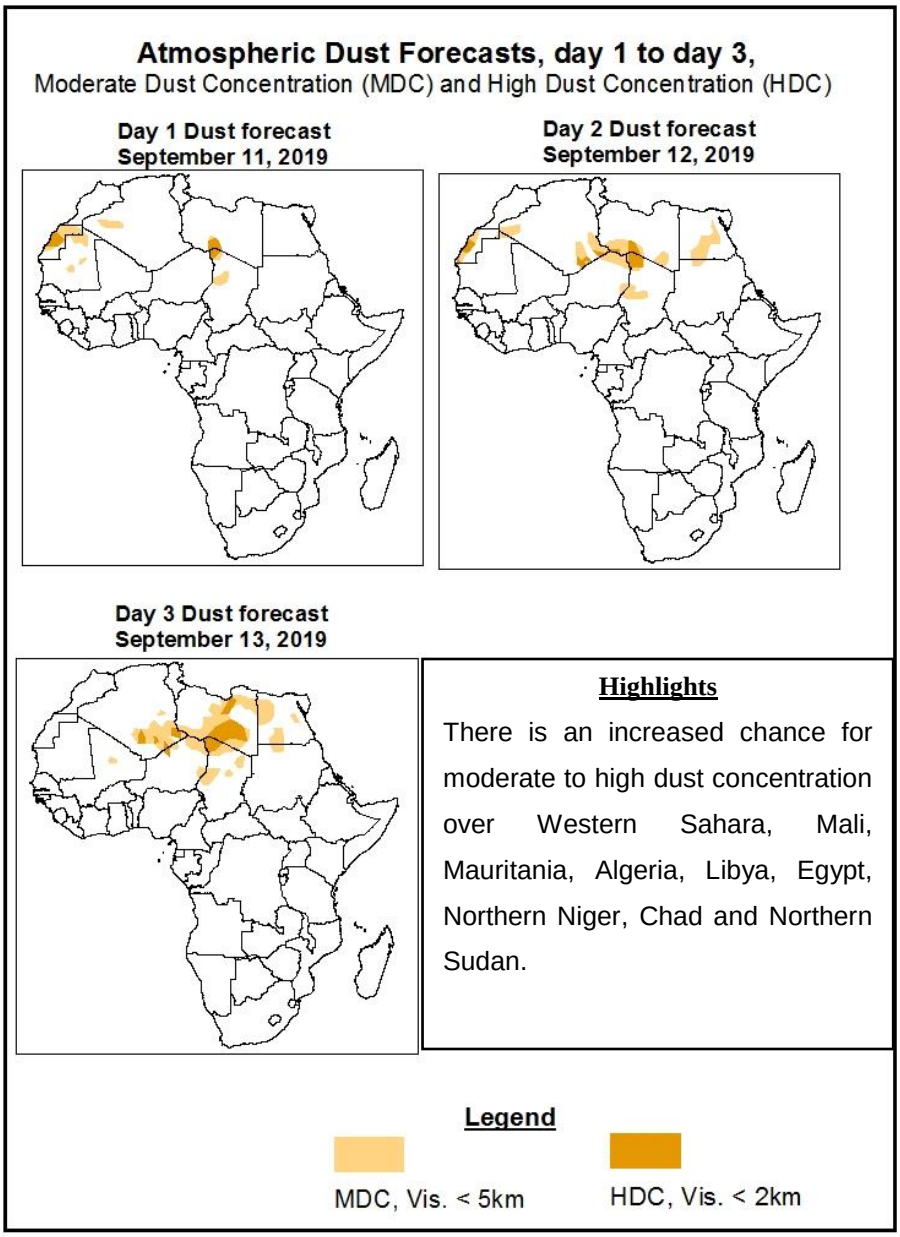


Highlights

- The monsoon flow from the Atlantic Ocean with its associated lower-level convergence, and westward propagating meso-scale convective systems are expected to enhance rainfall over Western Africa, portions of the Sahel, Central Africa countries.
- Lower-level wind convergences are expected to enhance rainfall across portions of the Greater Horn of Africa.
- At least 25mm for two or more days is likely over portions of Algeria, West and Central Africa. There is an increased chance for daily rainfall to exceed 50mm over southern Liberia, Niger, Chad, Ethiopia and RC.
- There is an increased chance for daily maximum heat index to exceed 40^{o}C over northern Senegal, southwestern Mauritania, Algeria and Mali.

1.2. Atmospheric Dust Concentration Forecasts *(valid: 11 Sept – 13 Sept 2019)*

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: 11 September – 15 September 2019*

The Azores High Pressure system over the Northeast Atlantic is expected to strengthen with its central pressure value increasing from 1029hPa to 1034hPa and shift northward during the forecast period.

The St. Helena High Pressure system over Southeast Atlantic Ocean is expected to weaken with its central pressure value decreasing from 1028hPa to 1019hPa and shift eastward during the forecast period.

The Mascarene High Pressure system over Southwest Indian Ocean is expected to strengthen with its central pressure value increasing from 1025hPa to 1028hPa during the forecast period.

Thermal low across the Sahel region is expected to fill up with its central pressure value increasing from 1007 to 1010hPa during of forecast period.

At 925-hPa level, Northeasterly winds is expected to prevail across Northwest Africa, and moist southwesterly flow from the Atlantic Ocean is expected to prevail across the Gulf of Guinea and covering much of West Africa and the Sahel regions, the neighboring areas of Central Africa.

At 850-hPa, lower-level cyclonic trough is expected to prevail across the Gulf of Guinea region.

At 700-hPa, a broad area of anticyclonic flow is expected to prevail across much of Northwest Africa, while a cyclonic trough is expected to prevail across the Gulf of Guinea region.

At 500-hpa, wind speed associated with easterly flow is expected to exceed 30kts across the Northern and West Africa, central Africa region and Great Horn during the forecast period.

At 150-hPa, a strong wind (>70kts) associated with tropical easterly jet (TEJ) is expected to prevail across the far eastern East Africa during the forecast period

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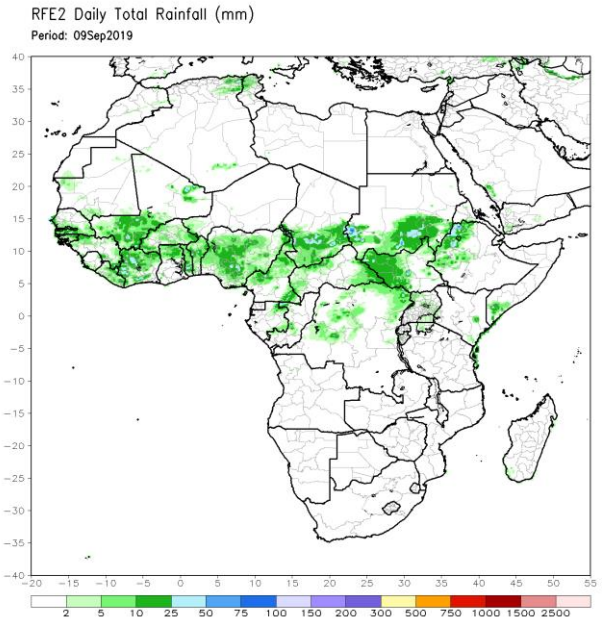
2.0. Previous and Current Day Weather over Africa

2.1. Weather assessment for the previous day (Sept 09, 2019)

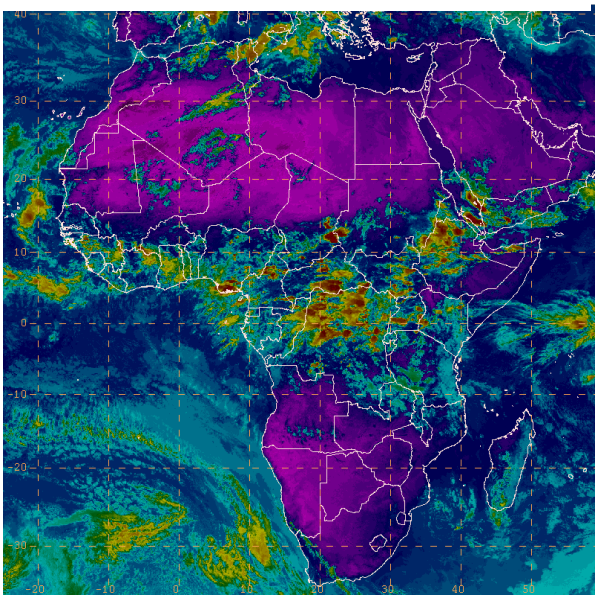
Daily rainfall amount exceeded 25mm over portion of Mali, Cote D'Ivoire, Southern Chad, Southern Sudan, and Northwestern Ethiopia and exceeded 50mm over portions of Southwestern Sudan.

2.2. Weather assessment for the current day (Sept 10, 2019)

Deep convective clouds are observed over Western and Central Africa countries and local areas in the Greater Horn of Africa.



IR Satellite Image (valid 1452 September 10, 2019)



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