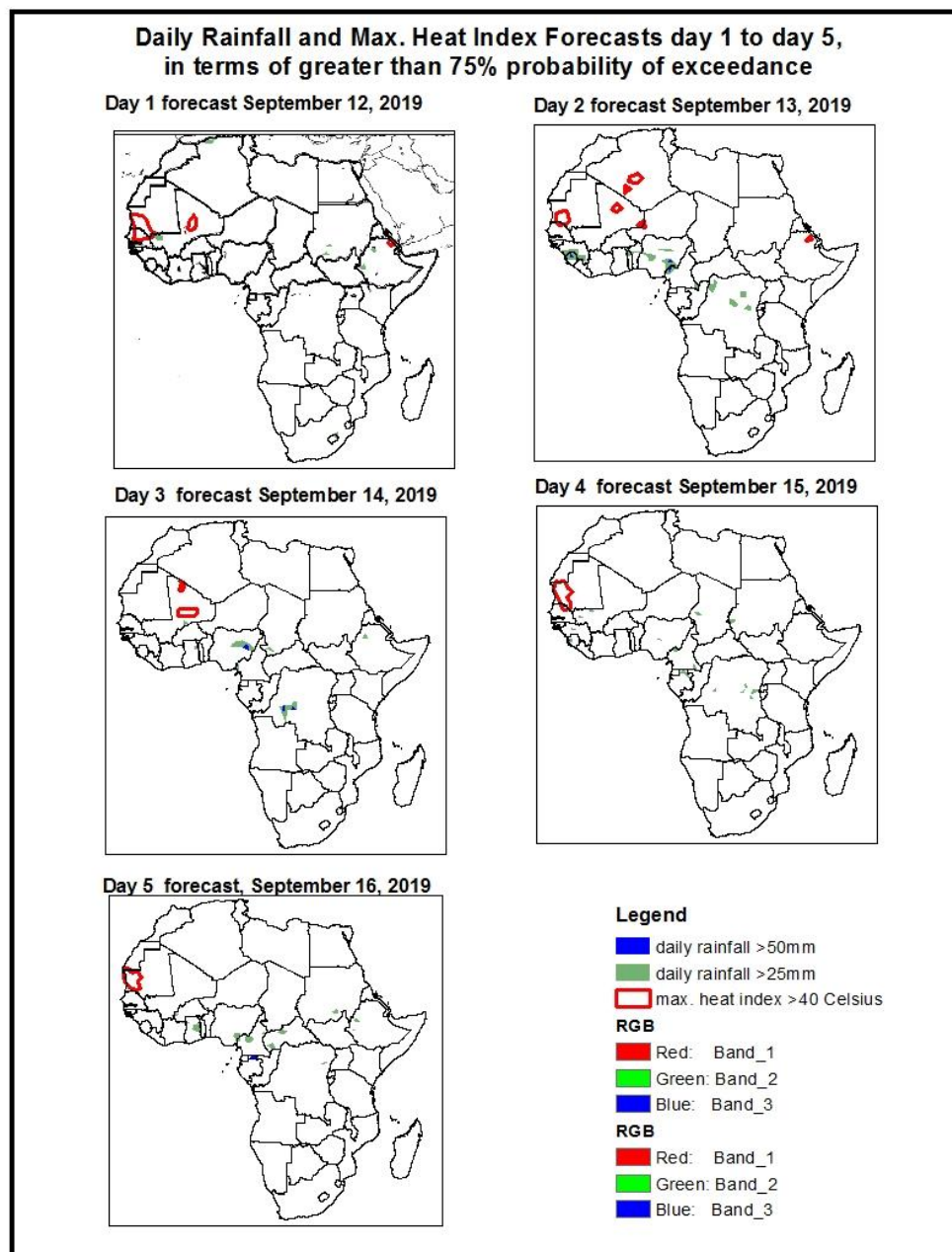


NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

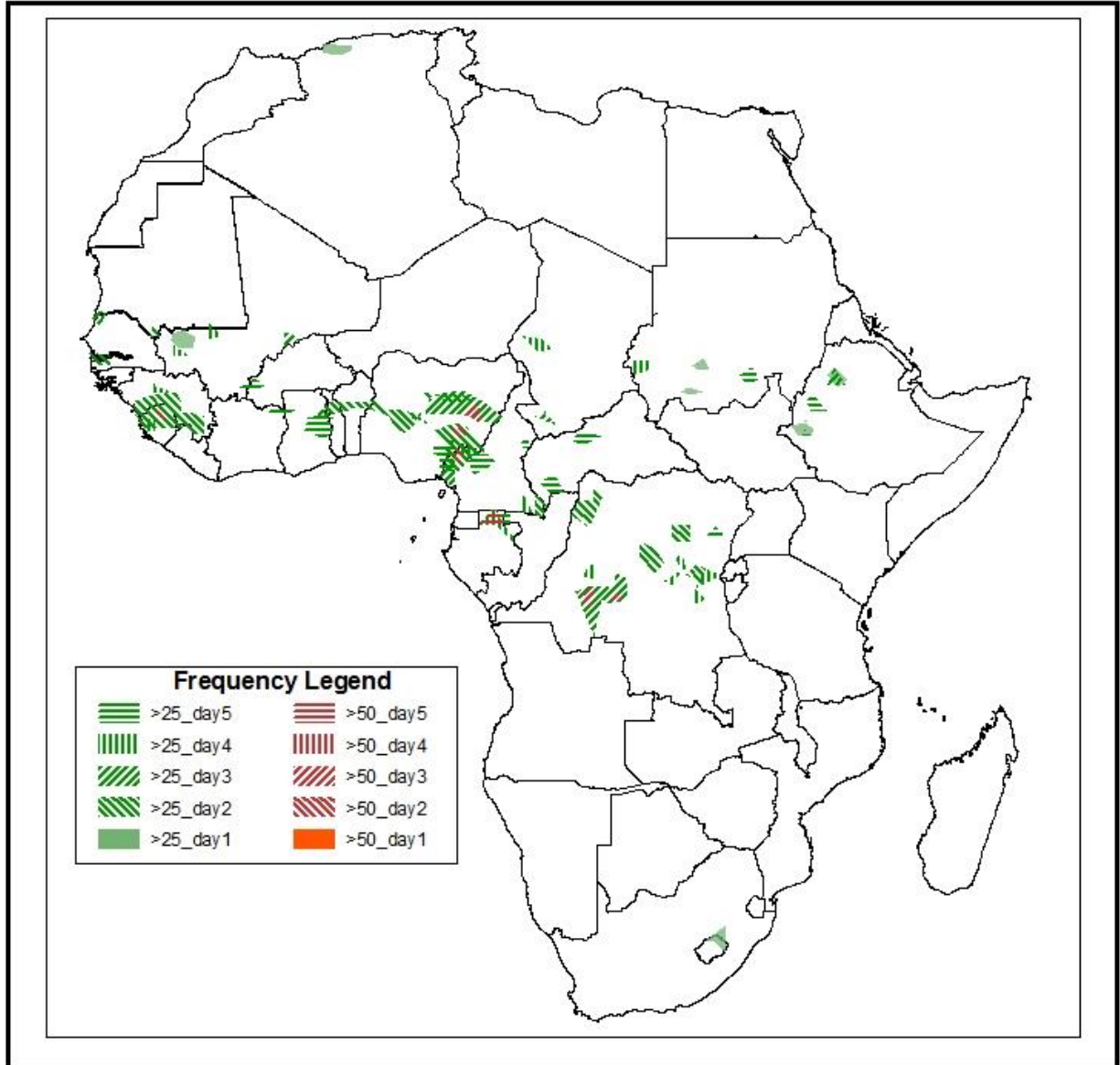
1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on September 11, 2019)

1.1. Daily Rainfall and Maximum Heat Index Forecasts (valid: 12 – 16 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 ($>40^{\circ}\text{C}$), based on the NCEP/GFS and the NCEP Global Ensemble Forecasts System (GEFS) and expert assessment.



Five Days Rainfall Forecast Summary September 12 - September 15, 2019

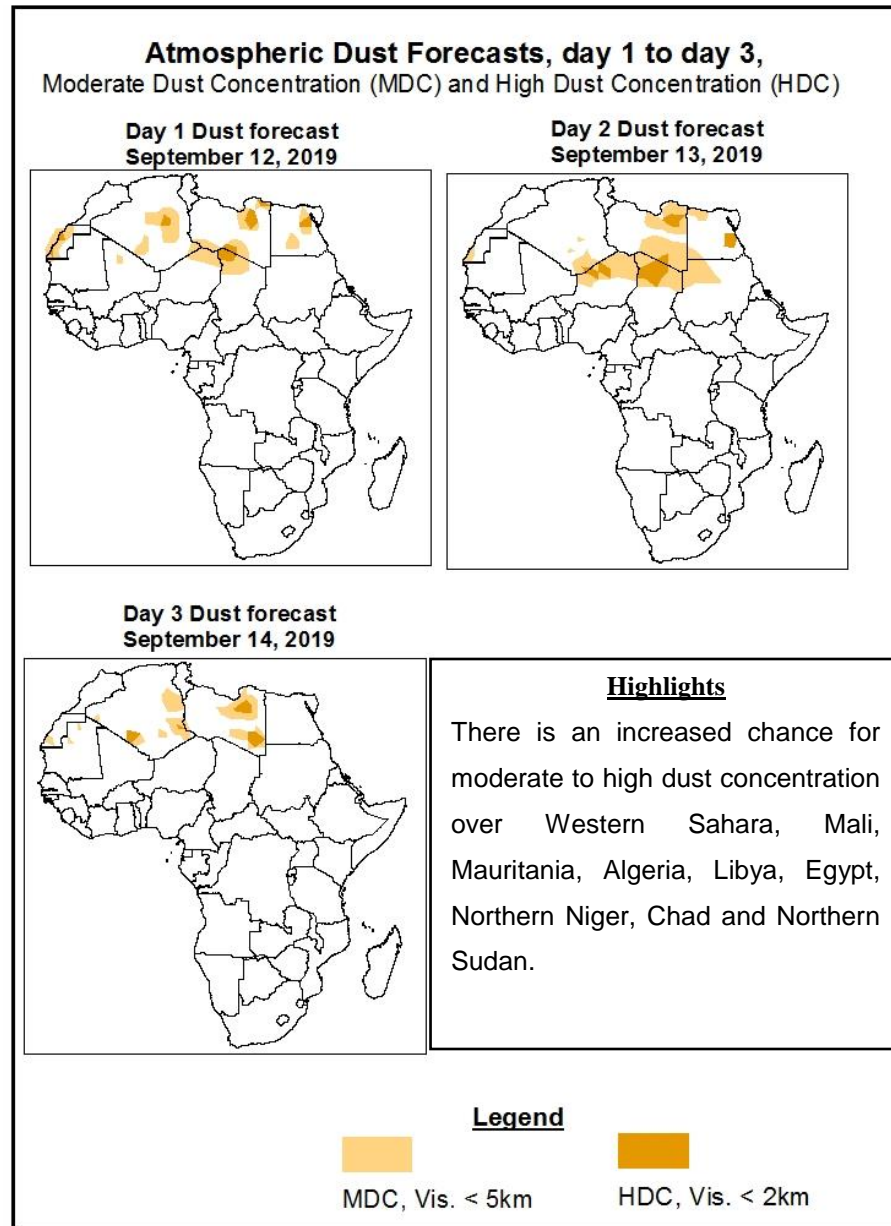


Highlights

- 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 Northern Algeria, West and Central Africa. There is an increased chance for daily rainfall to exceed 50mm over Western Guinea, Central Nigeria, , and DRC.
- There is an increased chance for daily maximum heat index to exceed 40°C over Northern Senegal, Mauritania, Algeria and Mali.

1.2. Atmospheric Dust Concentration Forecasts (valid: 12 Sept – 14 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: 12 September – 16 September 2019

The Azores High Pressure system over the Northeast Atlantic is expected to strengthen in t and shift northward during the half forecast period with its central pressure value increasing from 1029hPa to 1036hPa, and weaken in the other half forecast period with its central pressure value decreasing from 1036hPa to 1025hPa.

The St. Helena High Pressure system over Southeast Atlantic Ocean is expected to weaken with its central pressure value decreasing from 1025hPa to 1019hPa during the forecast period.

The Mascarene High Pressure system over Southwest Indian Ocean is expected to strengthen with its central pressure value increasing from 1027hPa to 1033hPa during the forecast period.

Thermal low across the Sahel region is expected to remains towards the end of the forecast period, with its central pressure value average around 1008hPa.

At 925-hPa level, Northeasterly winds is expected to strengthen across Northwest Africa, and Monsoon southwesterly winds are expect to maintain their influence in the area, of Gulf of Guinea and covering much of West Africa and the Sahel regions, the neighboring areas of Central Africa, characterized by isolated moderate to enhanced precipitation.

At 850-hPa, lower-level cyclonic trough is expected to prevail across the Gulf of Guinea region and Monsoon winds are expected to continue converging along the Gulf of Guinea as well as over parts of West Africa, Central Africa, and neighboring countries, influencing isolated to scattered precipitation over these areas. Converging winds are likely to be maintained over the Eastern Africa. Meanwhile, the low, currently situated in the Mediterranean Ocean, just North of Libya, is expected to continue to fill in.

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 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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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 Northern Algeria, West and Central Africa. There is an increased chance for daily rainfall to exceed 50mm over Western Guinea, Central Nigeria, and DRC. There is an increased chance for daily maximum heat index to exceed 40°C over Northern Senegal, Mauritania, Algeria and Mali.

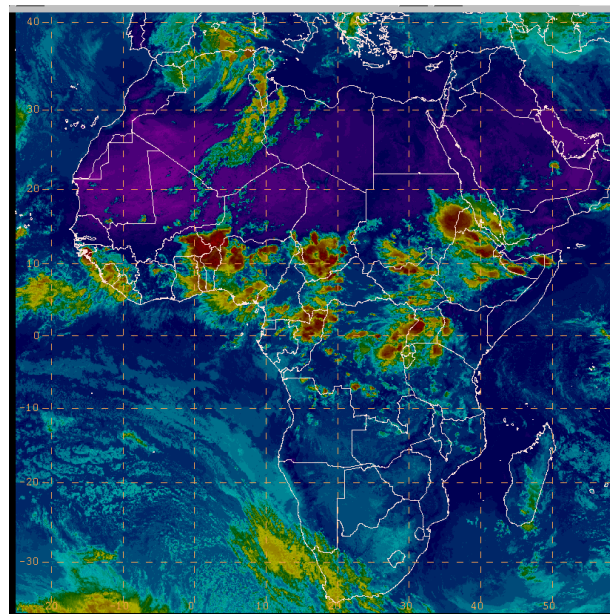
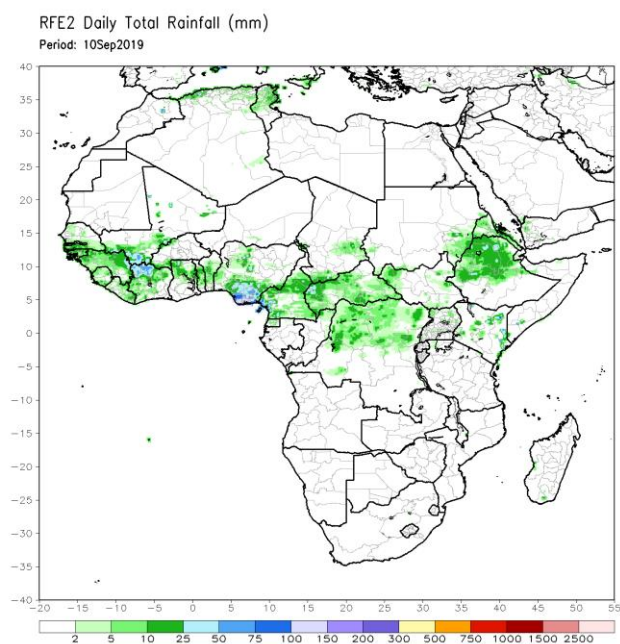
2.0. Previous and Current Day Weather over Africa

2.1. *Weather assessment for the previous day* (Sept 10, 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 11, 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 11, 2019)

Author: Eufemia Brito (CPC-African Desk/ Cabo Verde Meteorological Service /INMG)