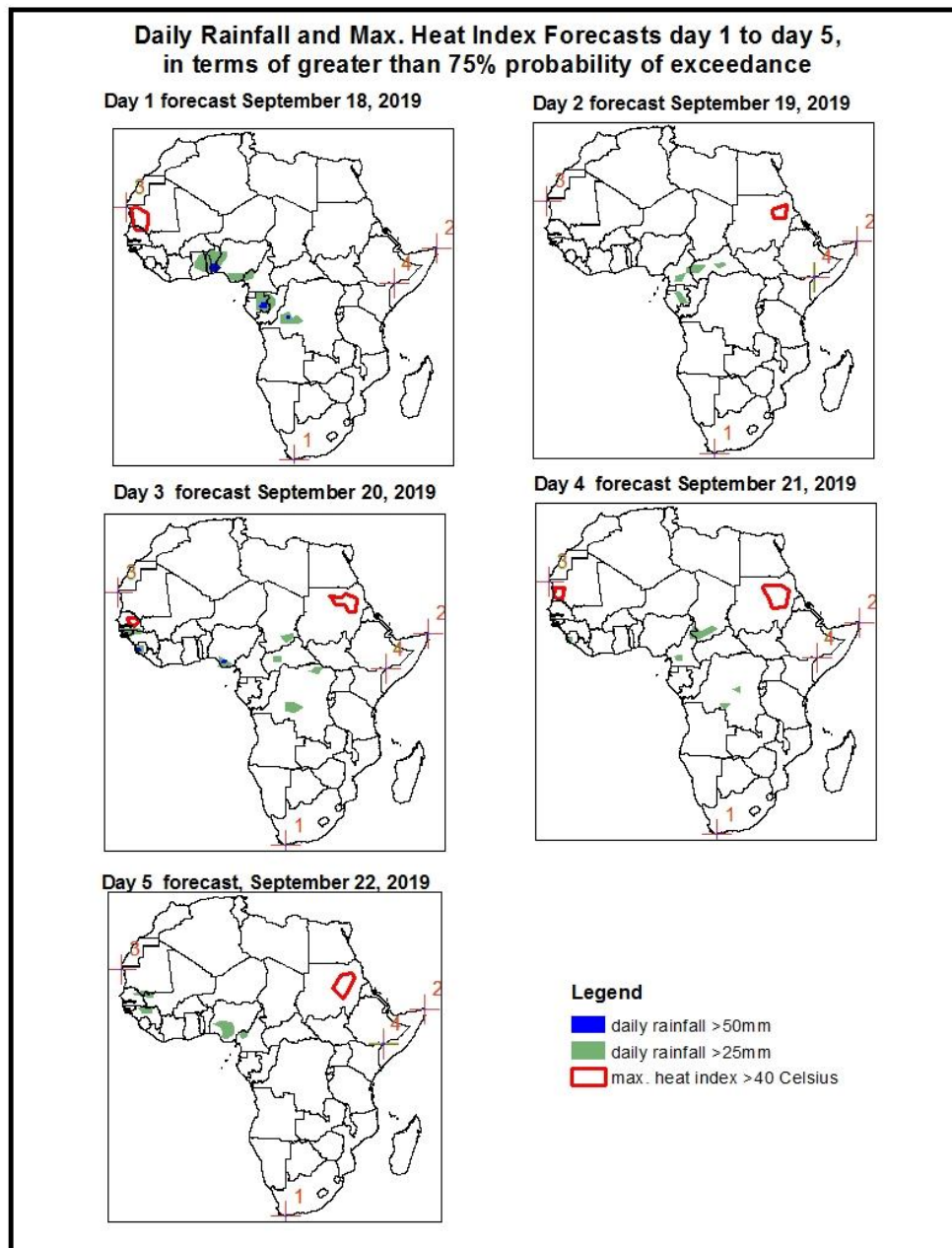


NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

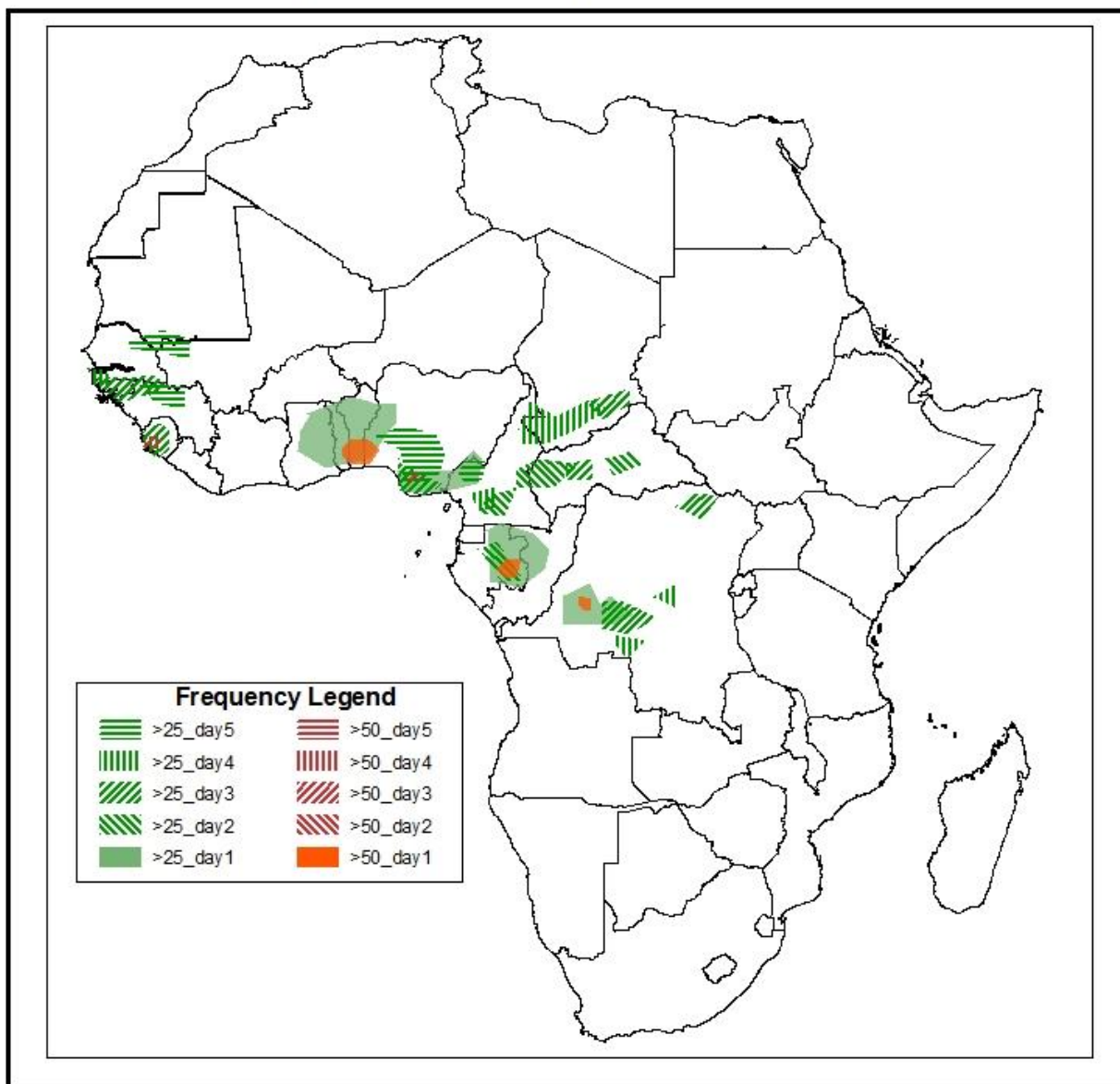
1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on September 17, 2019)

1.1. Daily Rainfall and Maximum Heat Index Forecasts (valid: 18 – 22 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 18 - September 22, 2019

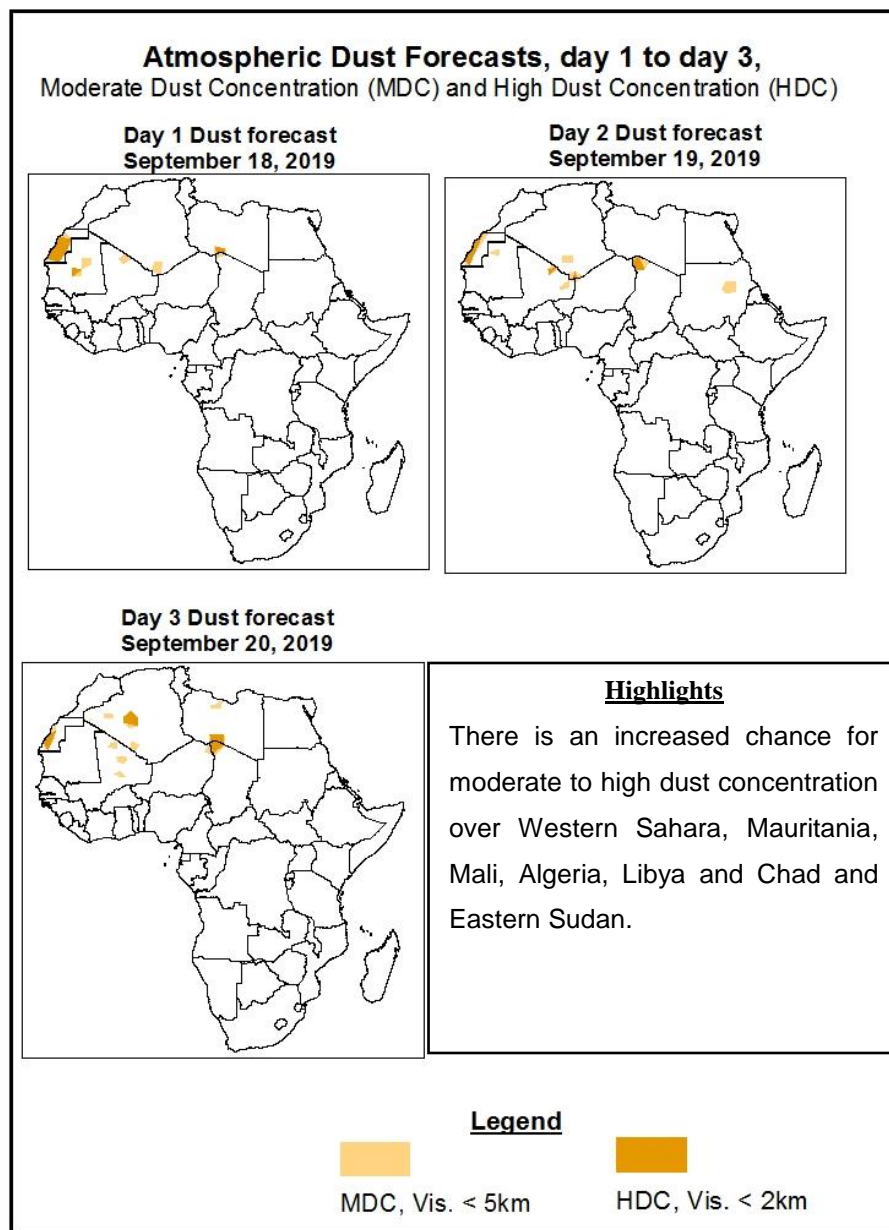


Highlights

- 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 portions of Western Africa and Central Africa countries.
- At least 25mm for two or more days is likely over portions of Northwestern Guinea, Southwestern Mali, Sierra Leone, Guinea Bissau, Gambia, Western Ghana, Togo, Benin, Southern Nigeria, Some portions of Cameroon, Southern Chad, Some portions of CAR, Northeastern Gabon, Western Republic of Congo and DRC. There is an increased chance for daily rainfall to exceed 50mm over Southern Togo, Southern Benin, portions of Nigeria, Eastern Gabon and Eastern DRC.
- There is an increased chance for daily maximum heat index to exceed 40°C over, Eastern Mauritania, Central of Senegal and Eastern Ethiopia.

1.2. Atmospheric Dust Concentration Forecasts (valid: 18 Sept – 20 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: 18 September – 22 September 2019

The Azores High Pressure system over the Northeast Atlantic is expected to strengthen and shifting eastward, with its central pressure value increasing from 1028hPa to 1030hPa during the forecast period.

The St. Helena High Pressure system over Southeast Atlantic Ocean is expected to slightly weaken with its central pressure value decreasing from 1032hPa to 1030hPa during the forecast period.

The Mascarene High Pressure system over Southwest Indian Ocean is expected to strengthen while shifting eastward, with its central pressure value increasing from 1028hPa to 1033hPa during the forecast period.

Thermal low across the Sahel region is expected to maintain an average central pressure value of 1009hPa during the forecast period.

At 925-hPa level, strong dry northerly to northeasterly flow is expected to prevail across Northwest Africa. In contrast, moist southwesterly flow from the Atlantic Ocean is expected to prevail across the Gulf of Guinea and the Sahel regions, and the neighboring areas of Central Africa.

At 850-hPa, 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.

At 700-hPa, mainly easterly wind pattern is expected to be maintained, converging over Nigeria, southern Cameroon, northern Ghana, Togo and Cote d'Ivoire. This is likely to keep convective precipitation over these areas.

At 500-hPa, wind speed associated with easterly flow is expected to exceed 30kts across the Northern Africa, some portions of western Africa and southern south Africa region during the forecast period.

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 portions of Western Africa and Central Africa countries. At least 25mm for two or more days is likely over portions of Northwestern Guinea, Southwestern Mali, Sierra Leone, Guinea Bissau, Gambia, Western Ghana, Togo, Benin, Southern Nigeria, Some portions of Cameroon, Southern Chad, Some portions of CAR, Northeastern Gabon, Western Republic of Congo and DRC. There is an increased chance for daily rainfall to exceed 50mm over Southern Togo, Southern Benin, portions of Nigeria, Eastern Gabon and Eastern DRC. There is an increased chance for daily maximum heat index to exceed 40°C over, Eastern Mauritania, Central of Senegal and Eastern Ethiopia.

2.0. Previous and Current Day Weather over Africa

2.1. *Weather assessment for the previous day* (Sept 16, 2019)

Daily rainfall amount exceeded 25mm over Western Senegal, Southwestern Mali, Southern Sierra Leone, portions of Nigeria, Southern Chad, portions of Cameroon, Northern CAR, northeastern DRC, Eastern Ethiopia and exceeded 50mm over Eastern Ethiopia, Cameroon, Chad.

2.2. *Weather assessment for the current day* (Sept 17, 2019)

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

