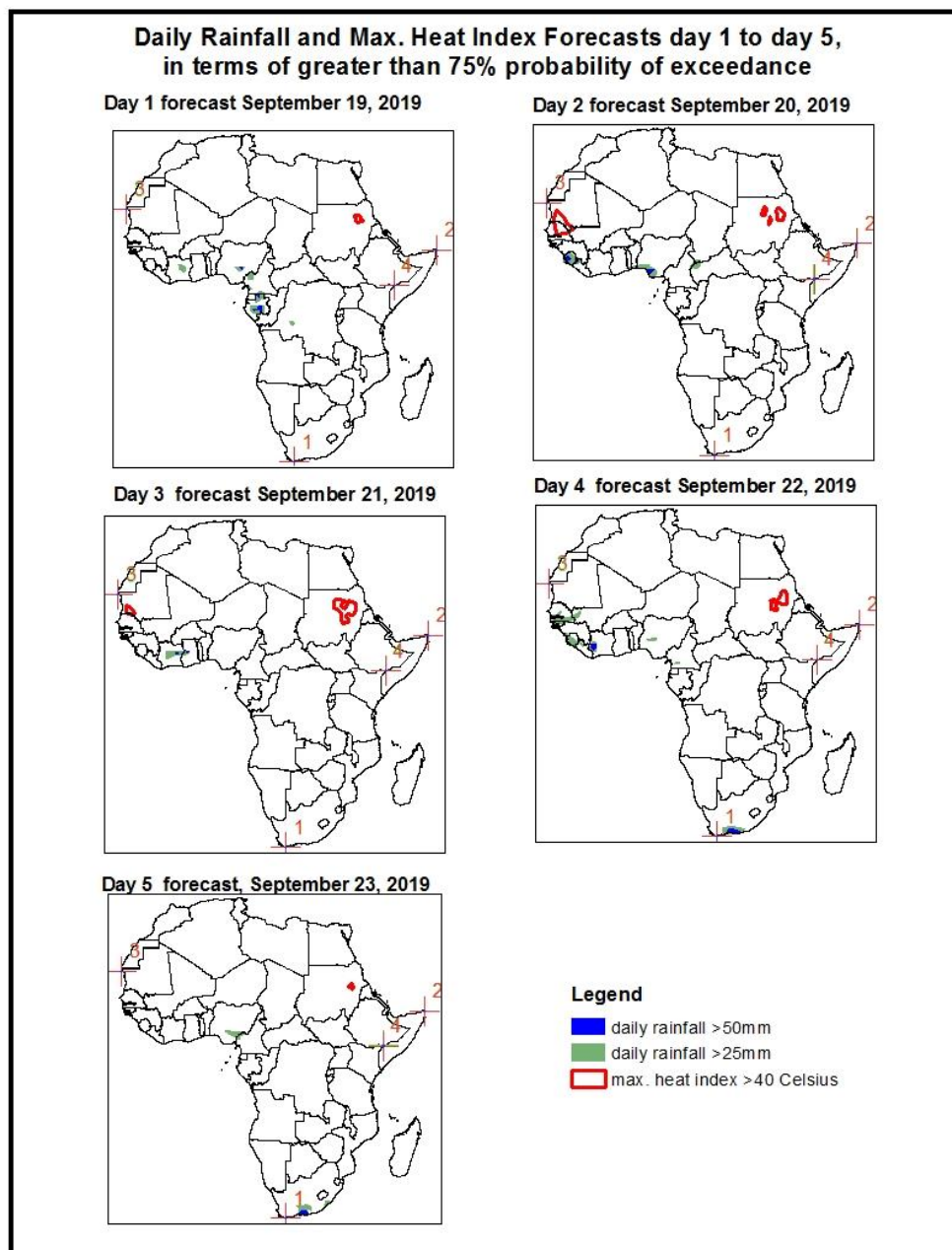


NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

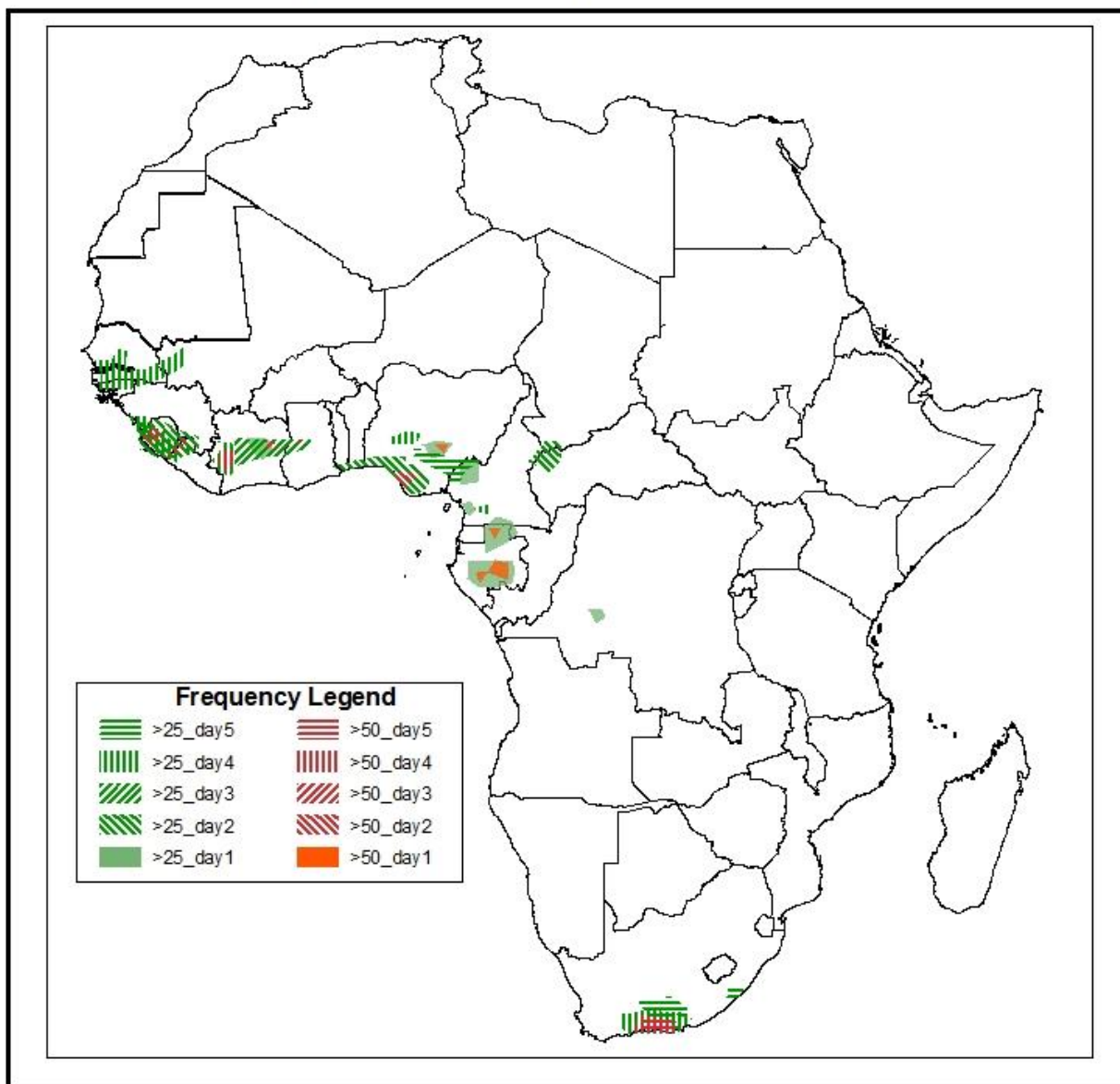
1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on September 18, 2019)

1.1. Daily Rainfall and Maximum Heat Index Forecasts (valid: 19 – 23 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 19 - September 23, 2019

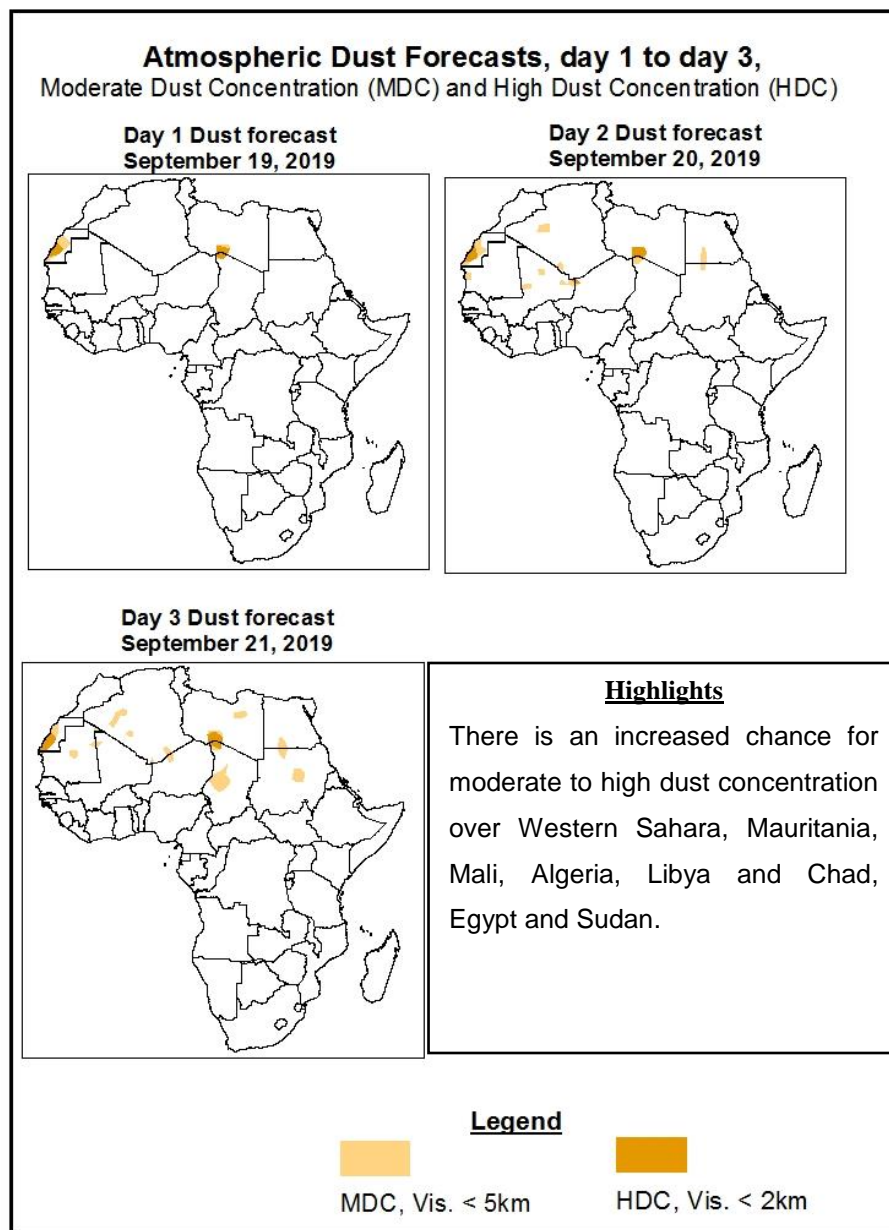


Highlights

- 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 Senegal, Sierra Leone, Cote d'Ivoire, Ghana, South Togo and Benin, Nigeria, Cameroon, Northwestern CAR, Equatorial Guinea, Gabon, DRC and South Africa. There is an increased chance for daily rainfall to exceed 50mm over Southern Sierra Leone, Cote d'Ivoire, Nigeria, Equatorial Guinea, Gabon and South Africa.
- There is an increased chance for daily maximum heat index to exceed 40°C over, Eastern Mauritania, North of Senegal and Sudan.

1.2. Atmospheric Dust Concentration Forecasts (valid: 19 Sept – 21 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: 19 September – 23 September 2019

The Azores High Pressure system over the Northeast Atlantic is expected to strengthen, with its central pressure value increasing from 1020hPa to 1024hPa during the forecast period.

The St. Helena High Pressure system over Southeast Atlantic Ocean is expected to strengthen with its central pressure value increasing from 1031hPa to 1034hPa during the forecast period.

The Mascarene High Pressure system over Southwest Indian Ocean is expected to weaken while shifting eastward, with its central pressure value decreases from 1032hPa to 1030hPa during the forecast period.

Thermal low across the Sahel region is expected to deepen with its central pressure value decreasing from 1009hPa to 1007hPa 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, lower level wind convergences are expected over the Sahel region, influencing isolated to scattered precipitation over these areas. Meridional wind convergence is expected to remain active in the Lake Victoria region during the forecast period.

At 700-hPa, a broad area of anticyclonic circulation is expect to remain over North Africa, and 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 some portions of western Africa 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 Senegal, Sierra Leone, Cote d'Ivoire, Ghana, South Togo and Benin, Nigeria, Cameroon, Northwestern CAR, Equatorial Guinea, Gabon, DRC and South Africa. There is an increased chance for daily rainfall to exceed 50mm over Southern Sierra Leone, Cote d'Ivoire, Nigeria, Equatorial Guinea, Gabon and South Africa. There is an increased chance for daily maximum heat index to exceed 40oC over, Eastern Mauritania, North of Senegal and Sudan.

2.0. Previous and Current Day Weather over Africa

2.1. Weather assessment for the previous day (Sept 17, 2019)

Daily rainfall amount exceeded 25mm over Guinea, Mali, Ghana, Togo, Benin, Nigeria, Cameroon, CAR, RC, Northwestern DRC and Sudan.

2.2. Weather assessment for the current day (Sept 18, 2019)

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

