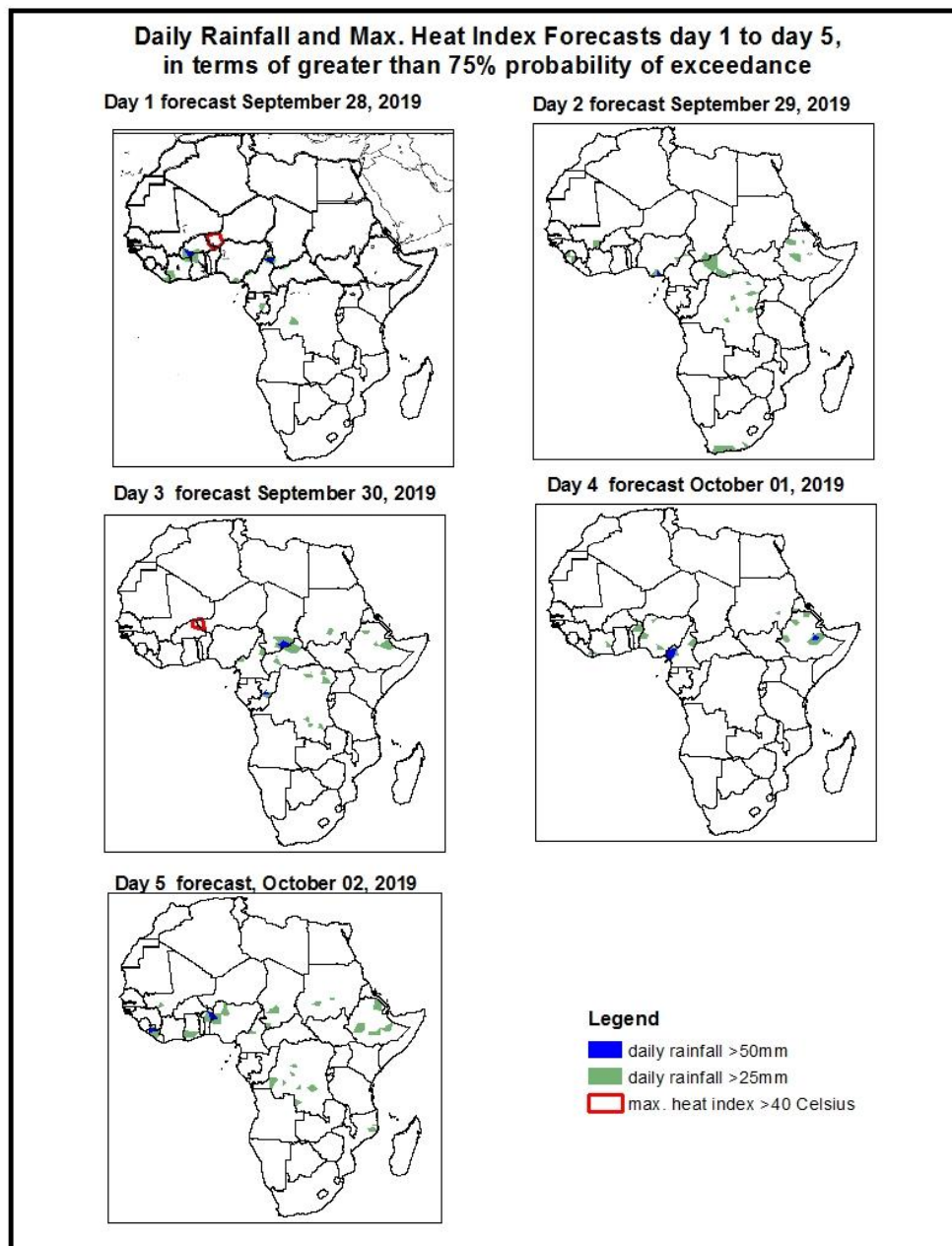


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

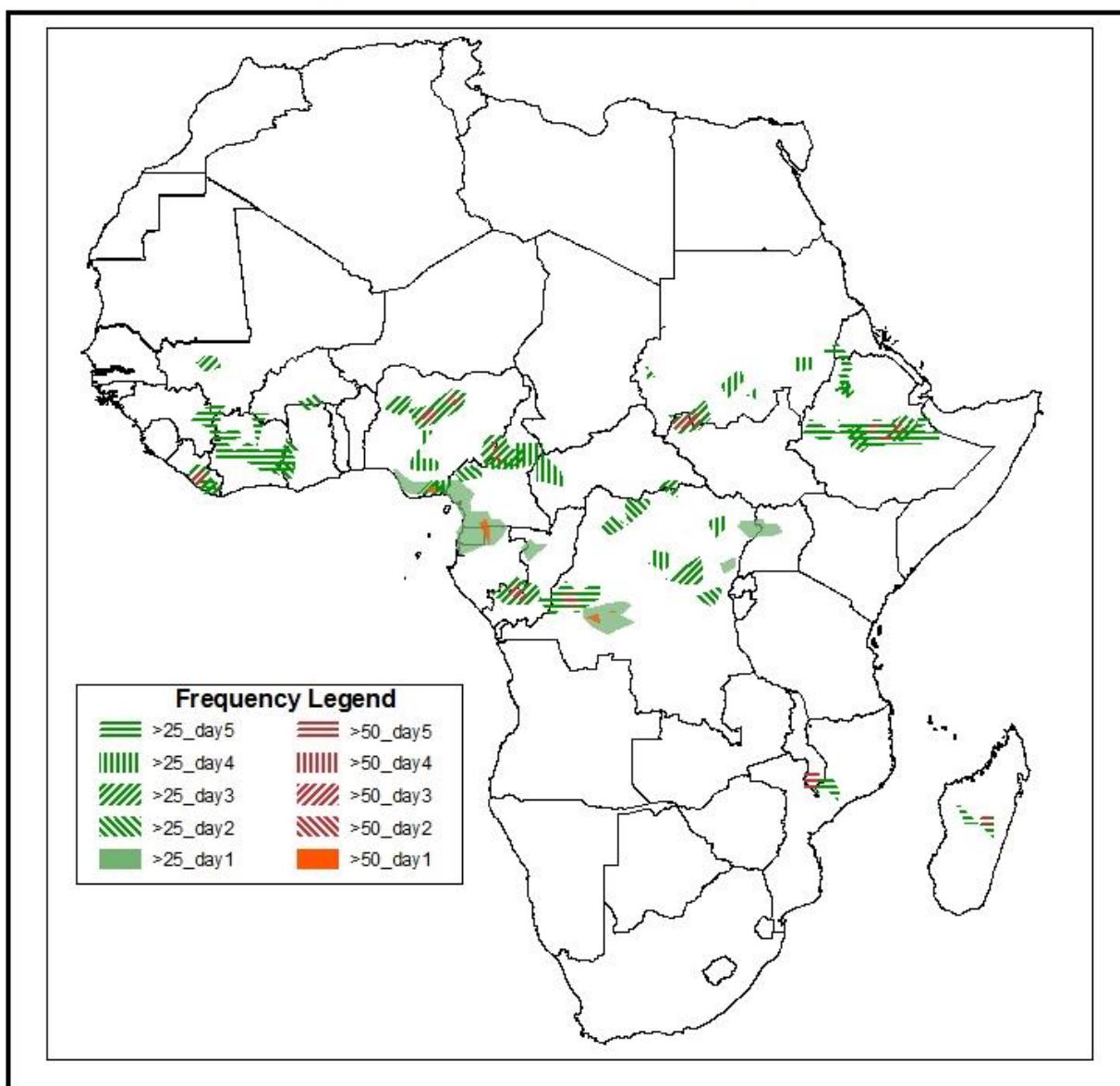
## 1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on September 27, 2019)

### 1.1. Daily Rainfall and Maximum Heat Index Forecasts (valid: 28 September – 02 October, 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 27 - October 01, 2019

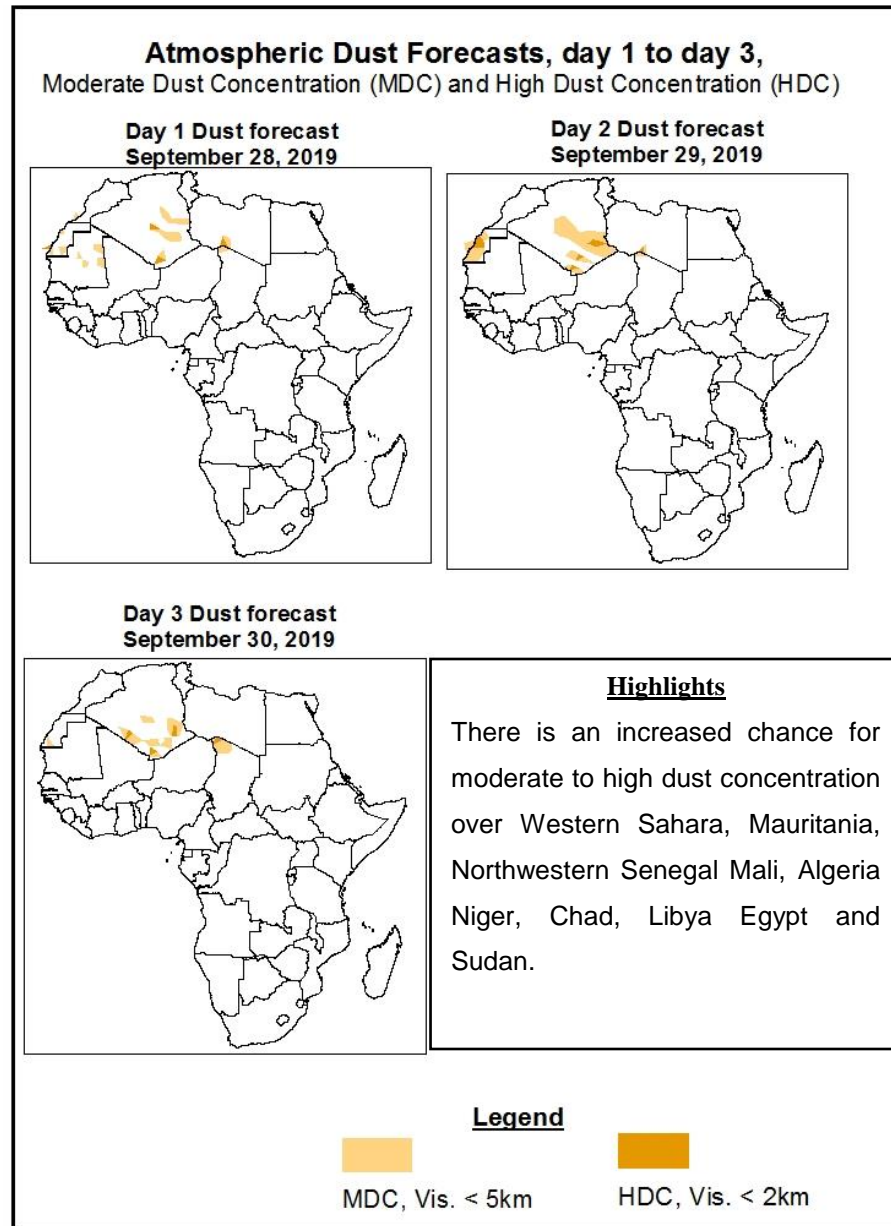


### Highlights

- 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 West and Central Africa. Seasonal wind convergences are expected to enhance rainfall in the Lake Victoria region, and parts of Ethiopia
- At least 25mm for two or more days is likely over portions of Eastern Liberia, Southern Mali, Cote D'Ivoire, , Nigeria, Cameroon, CAR, DRC, RC, Gabon, Sudan, Uganda, Ethiopia and Madagascar.
- There is an increased chance for daily rainfall to exceed 50mm over, southern Nigeria, southern Sudan Gabon, DRC, Republic of Congo and Uganda
- There is an increased chance for daily maximum heat index to exceed 40°C over Niger.

## 1.2. Atmospheric Dust Concentration Forecasts (valid: 28 Sept – 30 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: 28 September –02 October 2019**

The Azores High Pressure system over the Northeast Atlantic is expected to weaken, with its central pressure value decreasing from 1023hPa to 1018hPa in the first half part of the forecast period and then increasing from 1018hPa to 1022hPa during the second part of the forecast period.

The St. Helena High Pressure system over Southeast Atlantic Ocean is expected to weaken while shifting eastward with its central pressure value decreasing from 1032hPa to 1024hPa 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 increases from 1026hPa to 1033hPa during the forecast period.

Thermal low across the Sahel region is expected to deepen with its central pressure value decreasing while shifting westward from 1009hPa to 1005hPa during the forecast period.

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

At 850-hPa, meridional wind convergence is expected to remain active in the Lake Victoria region and neighboring areas during the forecast period. Otherwise, dry northeasterly flow from North Africa is expected to prevail across Sahel region that will be reducing precipitations in this area.

At 700-hPa, a broad area of anticyclonic circulation is expect to remain while shifting westward over North Africa. Quite significant convergence over central and Great Horn of Africa underscores the depth of the convergent wind system over.

At 500-hpa, wind speed associated with easterly flow is expected to exceed 30kts across the Northern Africa, Sahel 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 West and Central Africa. Seasonal wind convergences are expected to enhance rainfall in the Lake Victoria region, and parts of Ethiopia. At least 25mm for two or more days is likely over portions of Eastern Liberia, Southern Mali, Cote D'Ivoire, , Nigeria, Cameroon, CAR, DRC, RC, Gabon, Sudan, Uganda, Ethiopia and Madagascar. There is an increased chance for daily rainfall to exceed 50mm over, southern Nigeria, southern Sudan Gabon, DRC, Republic of Congo and Uganda. There is an increased chance for daily maximum heat index to exceed 40oC over Niger.

## 2.0. Previous and Current Day Weather over Africa

### 2.1. *Weather assessment for the previous day* (Sept 25, 2019)

Daily rainfall amount exceeded 25mm over Eastern Mali, Nigeria, DRC, Uganda Sudan, South Sudan and Ethiopia and exceeded 50mm over, Sudan, South Sudan and Ethiopia.

### 2.2. *Weather assessment for the current day* (Sept 26, 2019)

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

