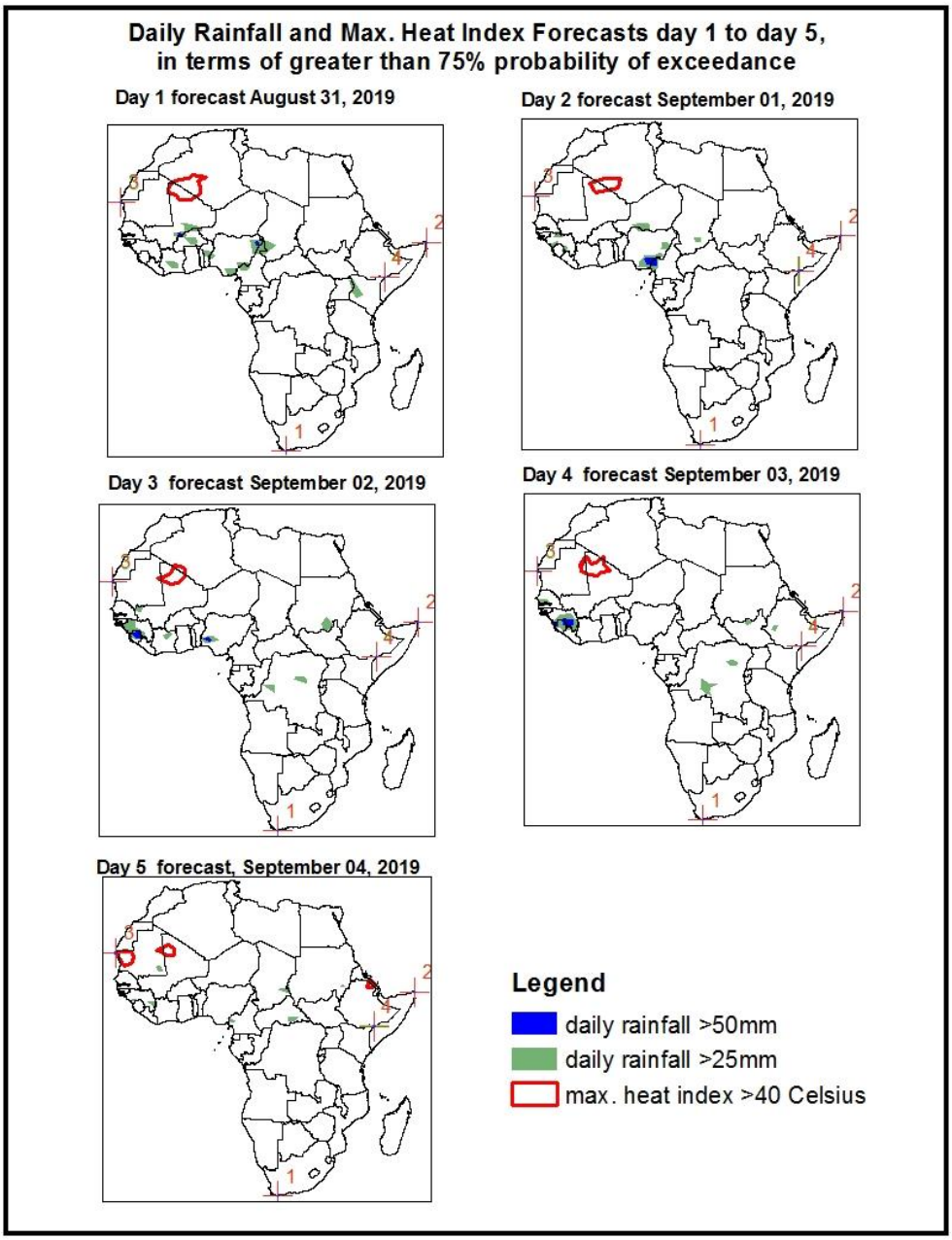
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

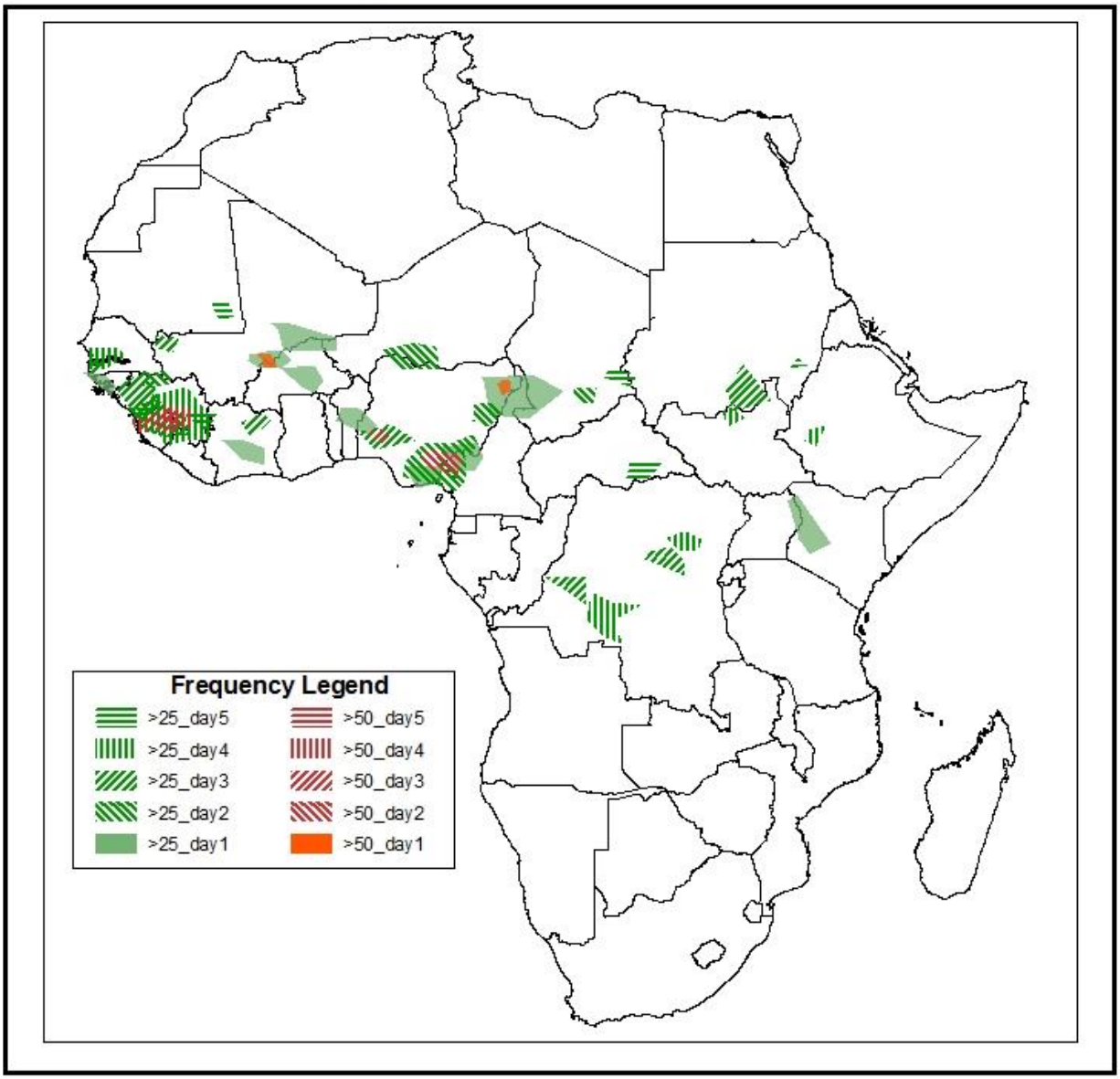
1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on August 30, 2019)

1.1. Daily Rainfall and Maximum Heat Index Forecasts (valid: 31 – 04 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^{o}C), based on the NCEP/GFS and the NCEP Global Ensemble Forecasts System (GEFS) and expert assessment.



Five Days Rainfall Forecast Summary
31 August - 04 September, 2019

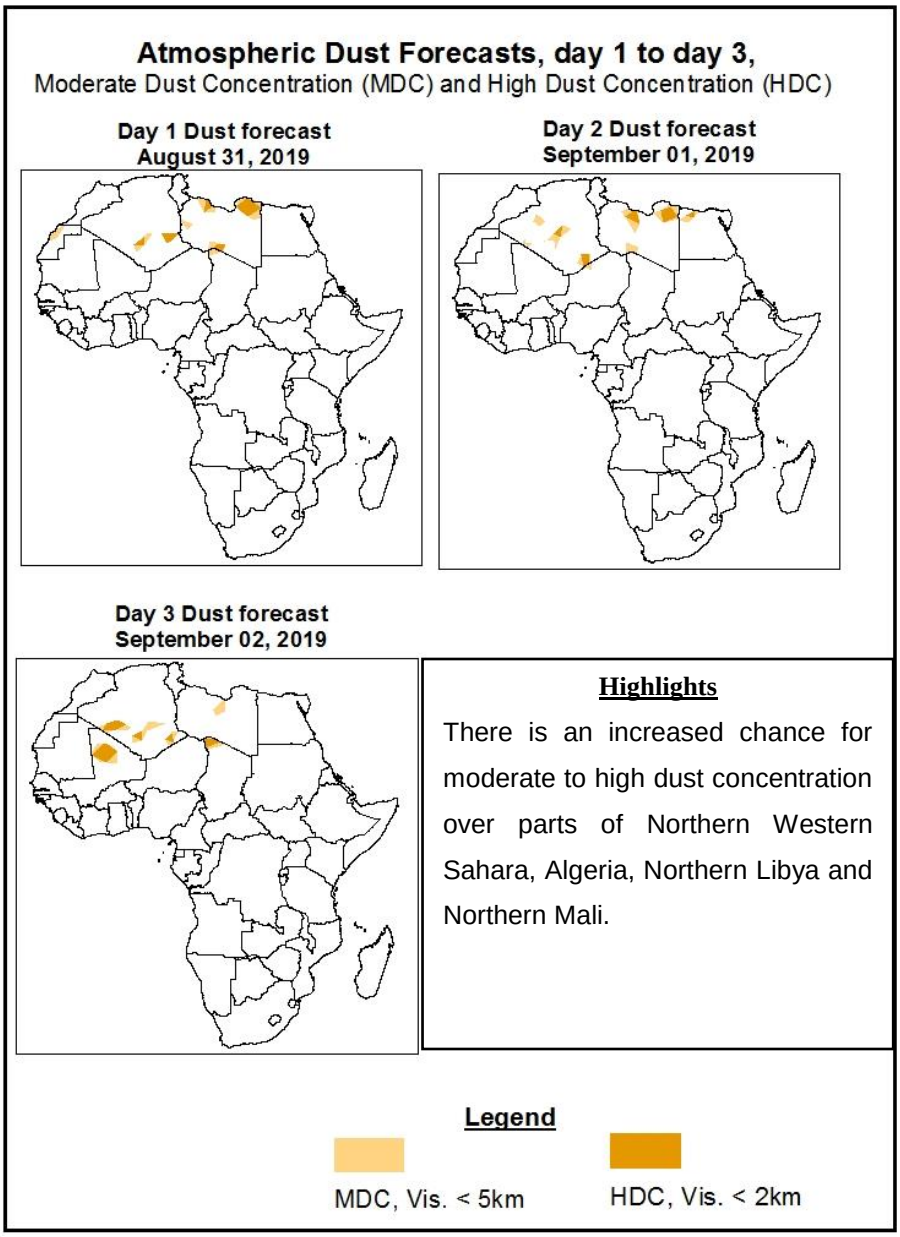


Highlights

- 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 West Africa, some central Africa countries and Sahel region. There is an increased chance for daily rainfall to exceed 50mm over southwestern Guinea, northern Sierra Leone, northern Burkina Faso, southern and northeastern Nigeria.
- There is an increased chance for daily maximum heat index to exceed 40^{o}C over Western Sahara, Algeria, Mali and Mauritania.

1.2. Atmospheric Dust Concentration Forecasts (valid: 31 Aug – 02 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: 31 August – 04 September 2019*

The Azores High Pressure system over the Northeast Atlantic is expected to strengthen and while little shifting to the North, with its central pressure value increasing from 1024hPa to 1037hPa

The St. Helena High Pressure system over Southeast Atlantic Ocean is expected to weaken with its central pressure value decreasing from 1033hPa to 1029hPa during the forecast period.

The Mascarene High Pressure system over Southwest Indian Ocean is expected to maintain an average central pressure value of 1025hPa during the forecast period.

Thermal low across the far western Sahel region is expected to deepen with its central pressure value decreasing from 1011 to 1008hPa during of forecast period, while shifting to the East. The thermal low over Chad is also expected to deepen slightly with its central pressure decreasing from 1009hPa to 1007 hPa, while across Niger during the forecast period.

At 925-hPa level, 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, and the neighboring areas of Central Africa.

At 850-hPa, a broad area of cyclonic trough is expected to weaken and move westward to prevail across West Africa during the forecast period.

At 700-hPa, a broad area of anticyclonic flow is expected to prevail and intensify across much of Northwest and West Africa during the forecast period.

At 500-hpa, wind speed associated with easterly flow is expected to exceed 30kts across southern Sahel, North Africa and other countries of austral 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 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 West Africa, some central Africa countries and Sahel region. There is an increased chance for daily rainfall to exceed 50mm over southwestern Guinea, northern Sierra Leone, northern Burkina Faso, southern and northeastern Nigeria. There is an increased chance for daily maximum heat index to exceed 40^{o}C over Western Sahara, Algeria, Mali and Mauritania.

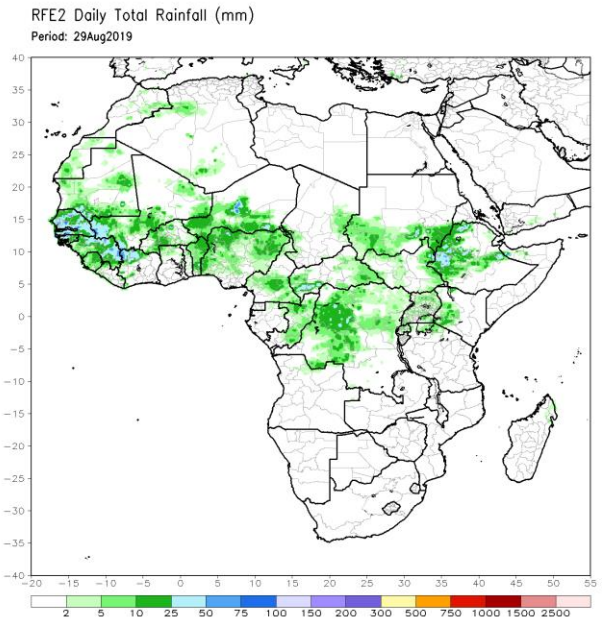
2.0. Previous and Current Day Weather over Africa

2.1. Weather assessment for the previous day (August 29, 2019)

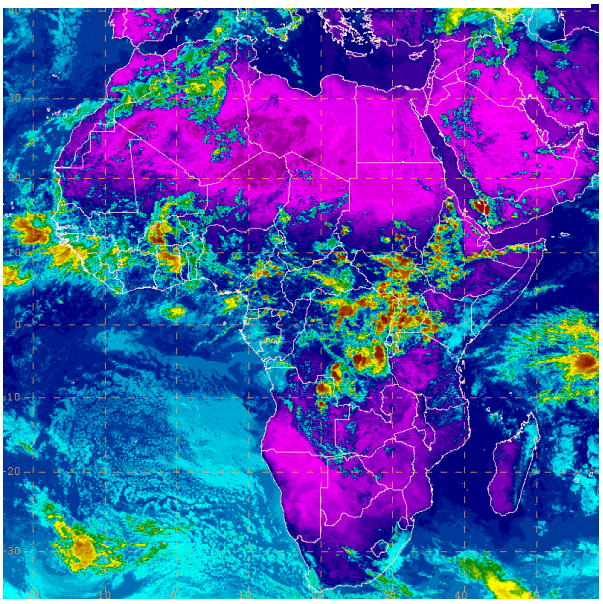
Daily rainfall amount exceeded 25mm over northern and northeastern Guinea, Northern Cote D'Ivoire, southwestern Mali, Eastern Senegal, southern Mauritania, central of Niger, southwestern Central Africa Republic and eastern Ethiopia and exceeded 50mm over eastern Guinea, Northwestern Cote D'Ivoire and central of Niger.

2.2. Weather assessment for the current day (*August 30,* 2019)

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



IR Satellite Image (valid 1352 August 30, 2019)



Author: Ahmadou Diallo (CPC-African Desk/ Guinea Meteorological Service /DNM)