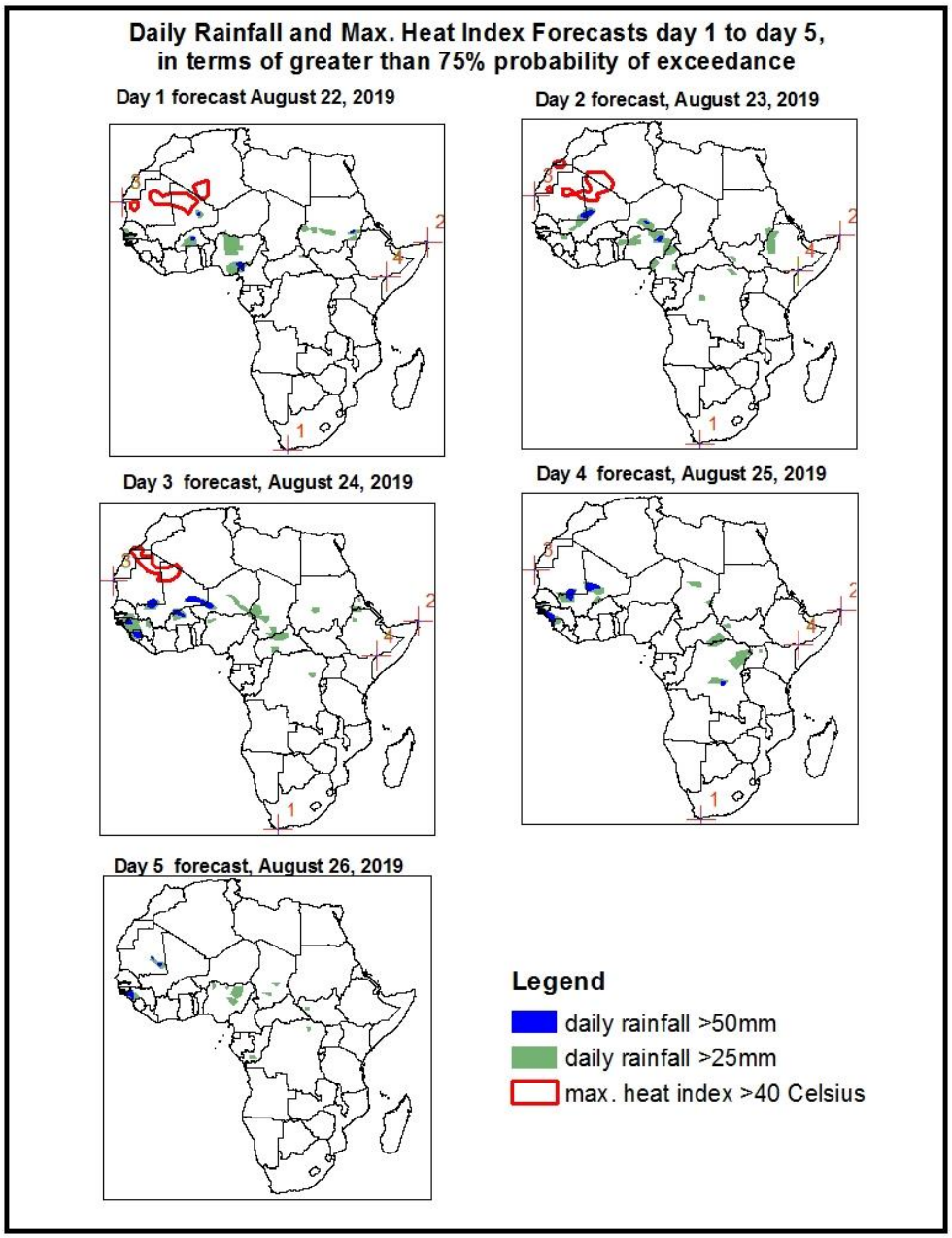
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

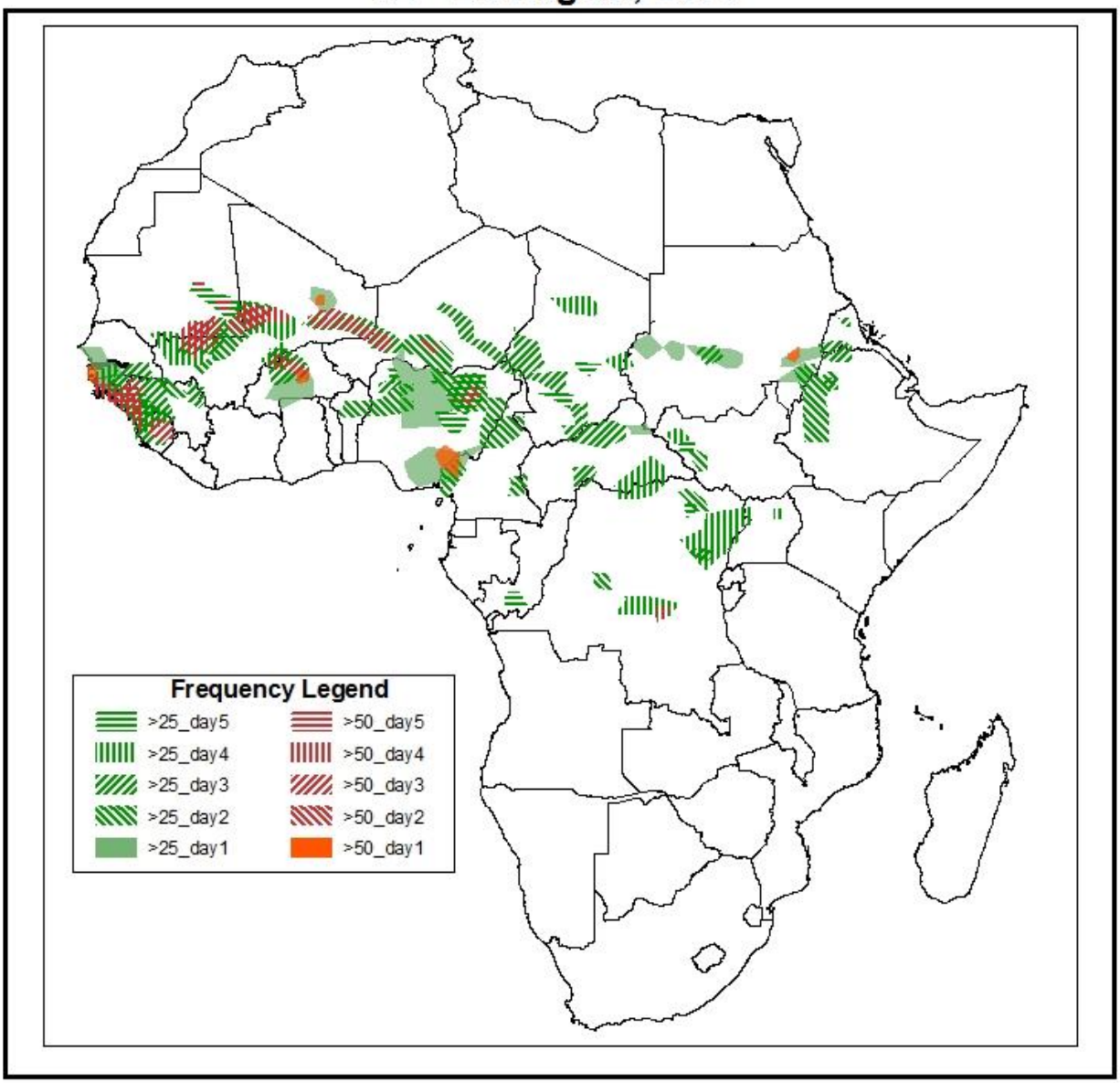
1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on August 21, 2019)

1.1. Daily Rainfall and Maximum Heat Index Forecasts (valid: 22 – 26 August, 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
22 - 26 August, 2019

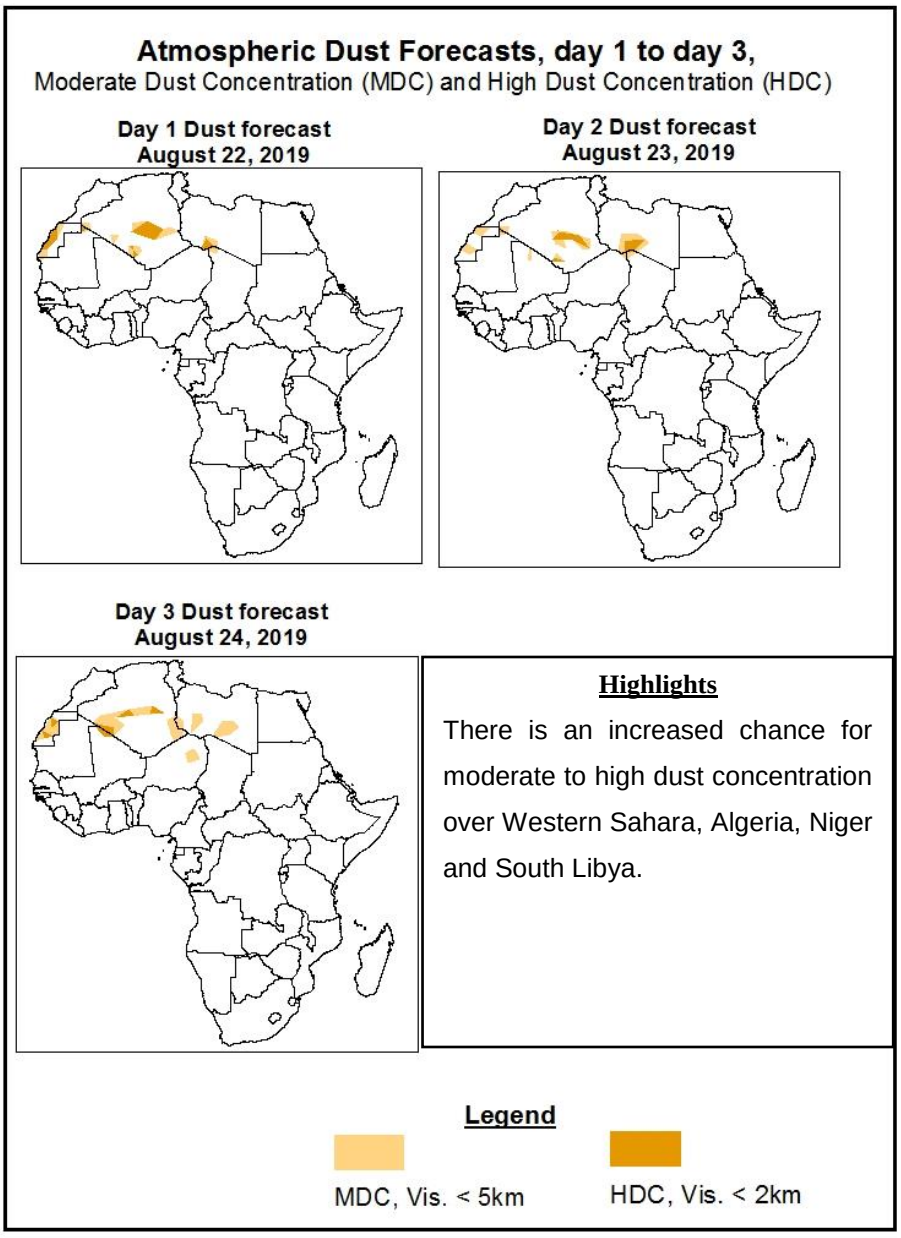


Highlights

- 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 and 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 the Sahel region and the Greater Horn of Africa, and Central Africa countries. There is an increased chance for daily rainfall to exceed 50mm over portions of Guinea, Northwest of Mali, North of Burkina Faso, Southwest of Niger, Southeast of Nigeria, and South of Sudan.
- There is an increased chance for daily maximum heat index to exceed 40^{o}C over portions of Northwest Africa, Algeria, Mali and Mauritania.

1.2. Atmospheric Dust Concentration Forecasts *(valid: 22 – 24 August 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: 22 – 26 August 2019*

During the first half period the Azores High Pressure system over the Northeast Atlantic is expected to weaken with its central pressure value increasing from 1022hPa to 1025hPa. During the second half of the period, is expected to keep intensifying reaching 1026hPa.

The St. Helena High Pressure system over Southeast Atlantic Ocean is expected to strengthen with its central pressure value increasing from 1023hPa to 1041hPa during the forecast period.

The Mascarene High Pressure system over Southwest Indian Ocean is expected to remain the average with its central pressure value 1030hPa during the forecast period.

Thermal low across the western Sahel region is expected to fill up with its central pressure value of increasing from 1005hPa 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 to remain active over portions of the Sahel Central Africa and Lake Victoria regions. A broad area of cyclonic circulation over the far western West Africa is expected to shift to the west during the forecast period.

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

At 500-hpa, wind speed associated with easterly flow is not expected to exceed 30kts in the Sahel region during the forecast period.

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At least 25mm for two or more days is likely over portions of the Sahel region and the Greater Horn of Africa, and Central Africa countries. There is an increased chance for daily rainfall to exceed 50mm over portions of Guinea, Northwest of Mali, North of Burkina Faso, Southwest of Niger, Southeast of Nigeria, and South of Sudan. There is an increased chance for daily maximum heat index to exceed 40^{o}C over portions of Northwest Africa, Algeria, Mali and Mauritania.

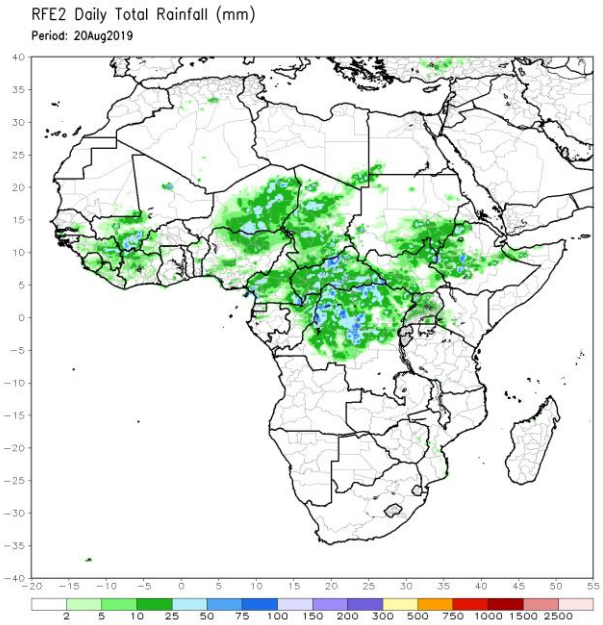
2.0. Previous and Current Day Weather over Africa

2.1. Weather assessment for the previous day (August 20, 2019)

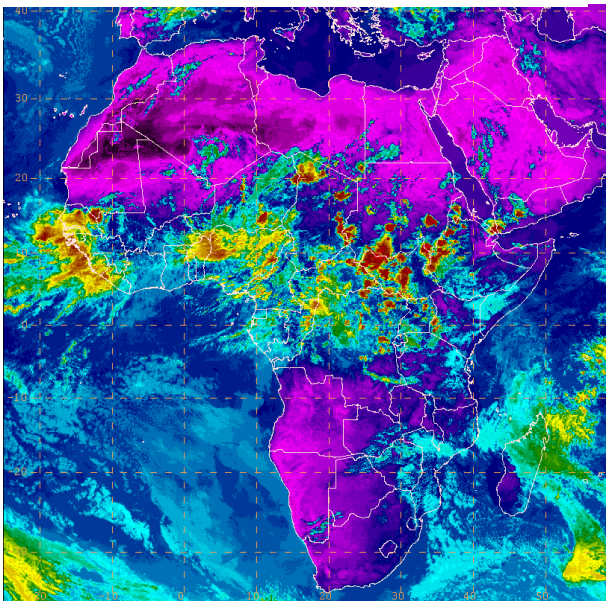
Daily rainfall amount exceeded 25mm over Niger, South of Mali, North of Nigeria, Central Africa, Sudan, Ethiopia and North of RDC exceeded 50mm over South of Mali, South of Cameroon, North of Central Africa and North and Center of RDC.

2.2. Weather assessment for the current day (*August 21,* 2019)

Deep convective clouds are observed over portions of the Sahel, Central Africa and the Greater Horn of Africa regions.



IR Satellite Image (valid 1352 August 21, 2019)



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