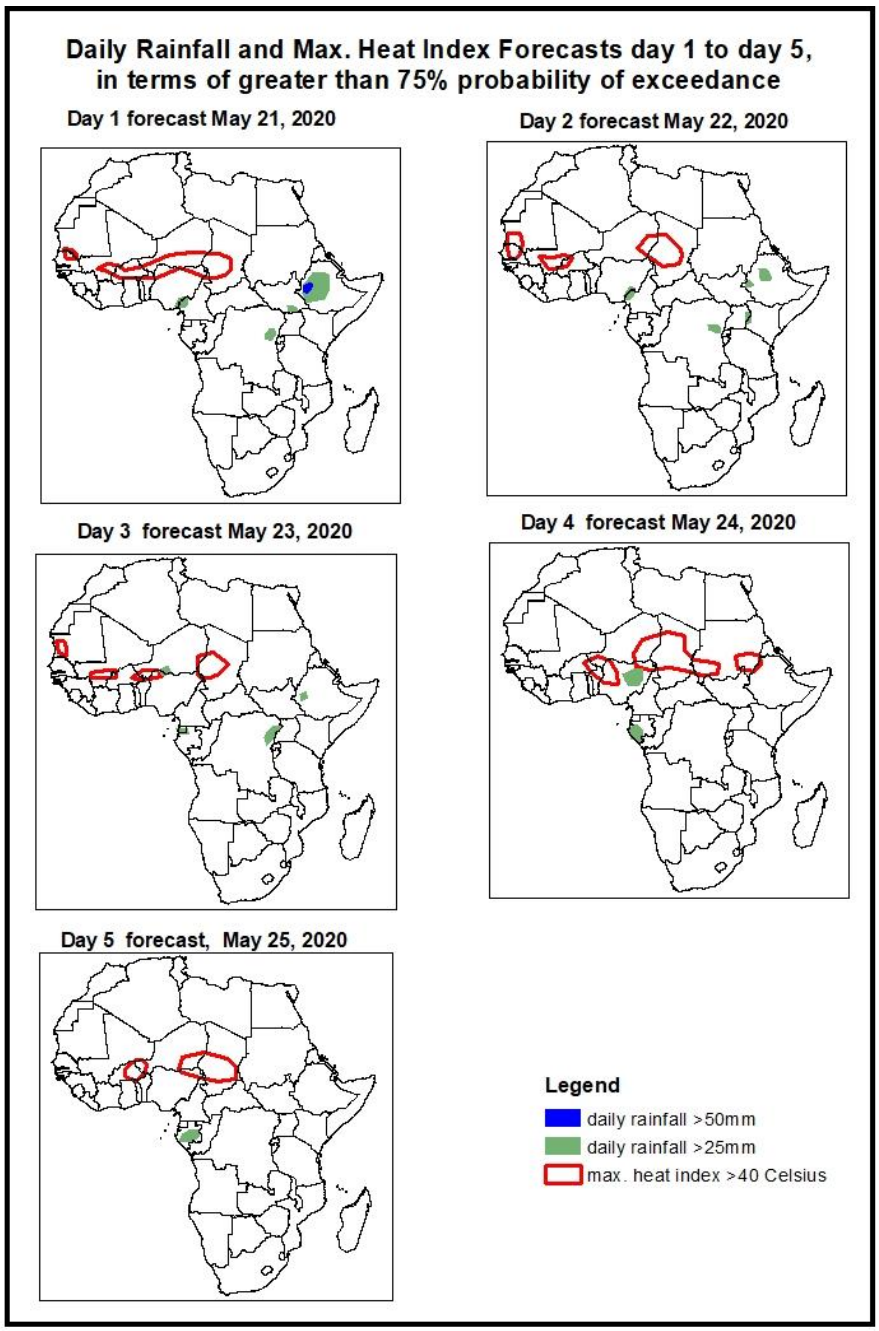
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

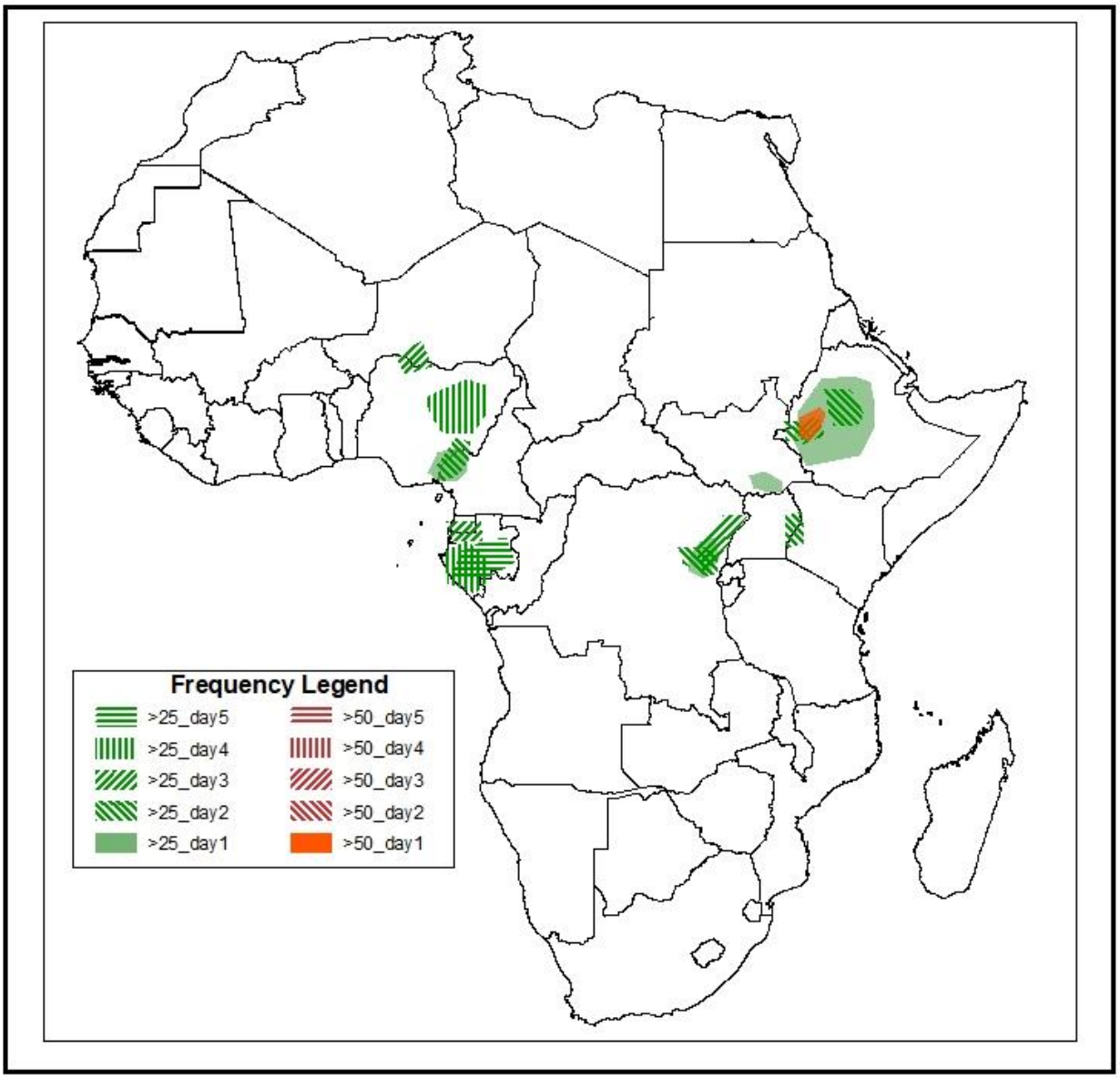
1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on May 20, 2020)

1.1. Daily Rainfall and Maximum Heat Index Forecasts (valid: 21 – 25 May, 2020)

The forecasts are expressed in terms of high probability of precipitation (POP), valid 06Z to 06Z, and exceedance probability of maximum heat index (>40°C), based on the NCEP/GFS and the NCEP Global Ensemble Forecasts System (GEFS) and expert assessment.



Five Days Rainfall Forecast Summary
21 - 25 May, 2020

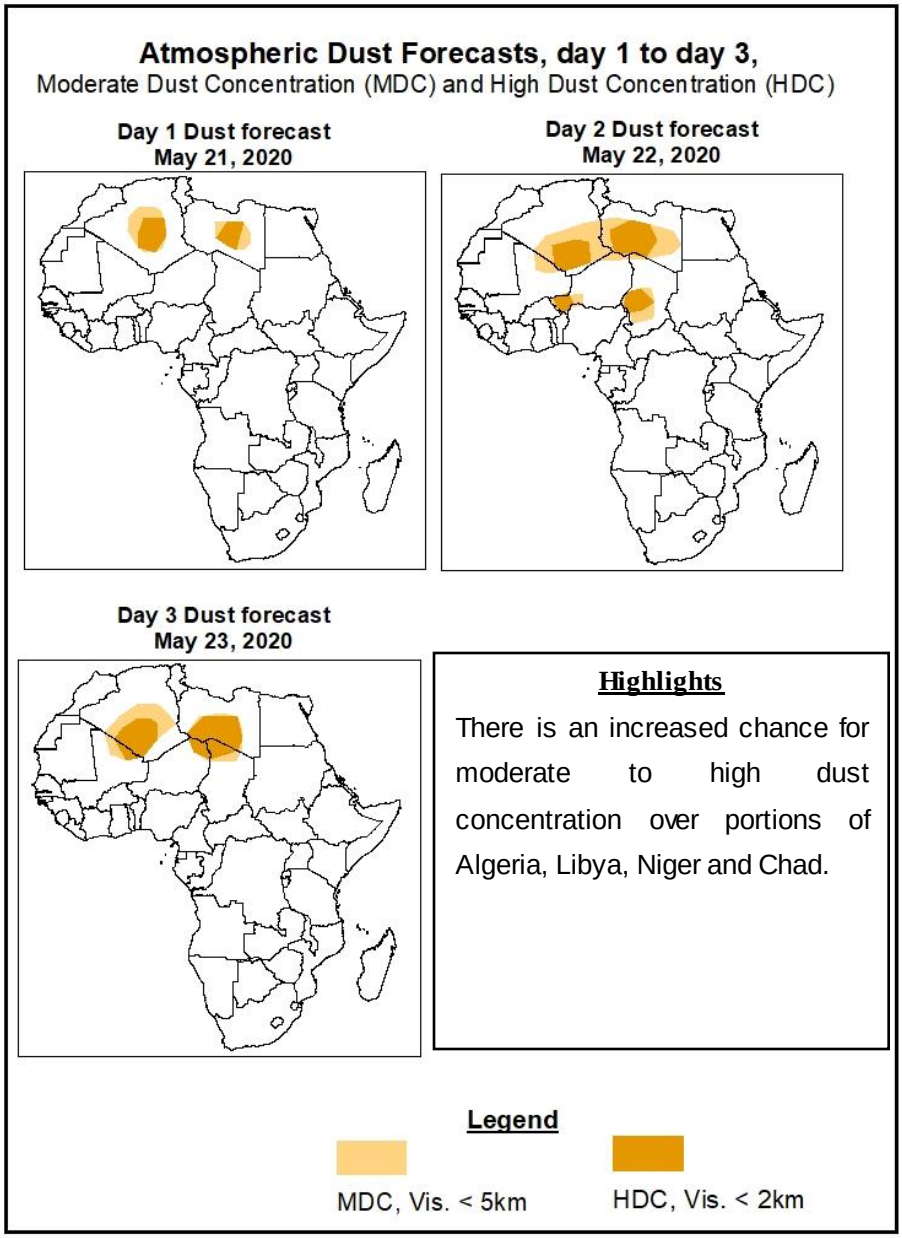


Highlights

- Lower-level wind convergences are expected to enhance rainfall across eastern Gulf of Guinea region and eastern Africa.
- At least 25mm for two or more days is likely over parts of Cameroon, Gabon, eastern DRC, and western Ethiopia.
- There is an increased chance for daily rainfall amount to exceed 50mm over local areas in Ethiopia.
- There is an increased chance for daily maximum heat index to exceed 40^{o}C over many places in the Sahel region, and parts of Sudan.

1.2. Atmospheric Dust Concentration Forecasts (valid: 21 - 23 May, 2020)

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: 21 - 25 May 2020*

The Azores High Pressure system over Northeast Atlantic and neighboring areas is expected to intensify. Its central pressure value is expected to increase from 1023hPa to 1032hPa during the forecast period.

The St. Helena High Pressure system over the South Atlantic Ocean is expected to intensify. Its central pressure value is expected to increase from 1022hPa to 1031hPa during the forecast period.

The Mascarene High Pressure system over the Southwest Indian Ocean is expected to weaken, with its central pressure value increasing from 1043hPa to 1031hPa during the forecast period.

Heat lows over western and central Sahel are expected to maintain an average central pressure value of 1006hPa during the forecast period.

At 925-hPa level, an area of strong dry northerly to northeasterly flow is expected to enhance atmospheric dust concentration over local areas in the Sahel region and North Africa. A monsoon flow from the Atlantic Ocean is expected to prevail across much of the Gulf of Guinea region. Zonal wind convergences are expected to remain active near 12^{o}N in the Sahel region.

At 850-hPa level, a zonal wind convergence is expected to remain active near 10^{o}N across much of the Sahel region. A cyclonic circulation is over southern Algeria is expected to propagate towards northeastern Mali during the forecast period. Cross-equatorial flow is expected to prevail across portions of the Greater Horn of Africa during the forecast period.

At 700-hPa a cyclonic trough is expected to propagate eastwards across central eastern Mediterranean Sea and the neighboring areas of Africa. A cyclonic circulation over southern Algeria is expected to shift southwestward into northern Mali. Northeasterly flow is expected to prevail across much of the Gulf of Guinea region during the forecast period.

Lower-level wind convergences are expected to enhance rainfall over eastern Gulf of Guinea region and eastern Africa. At least 25mm for two or more days is likely over parts of Cameroon, Gabon, eastern DRC, and western Ethiopia. There is an increased chance for daily rainfall amount to exceed 50mm over local areas in Ethiopia. There is an increased chance for daily maximum heat index to exceed 40^{o}C over many places in the Sahel region, and parts of Sudan.

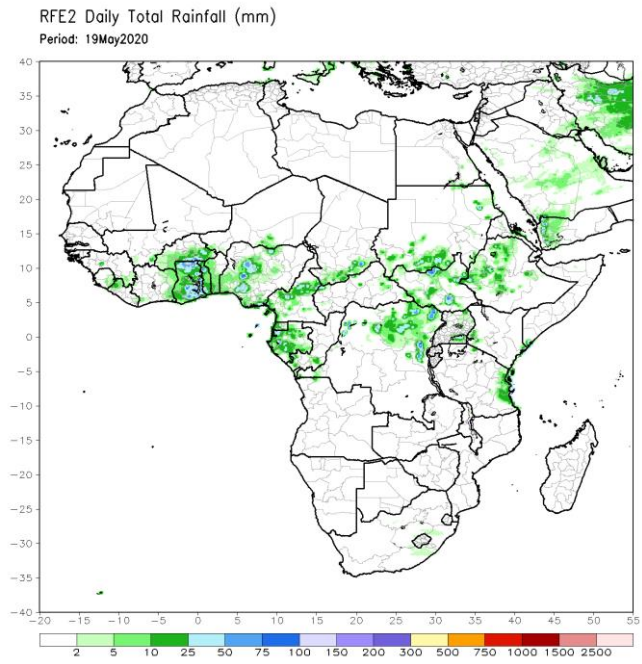
2.0. Previous and Current Day Weather over Africa

2.1. Weather assessment for the previous day (*May 19, 2020*)

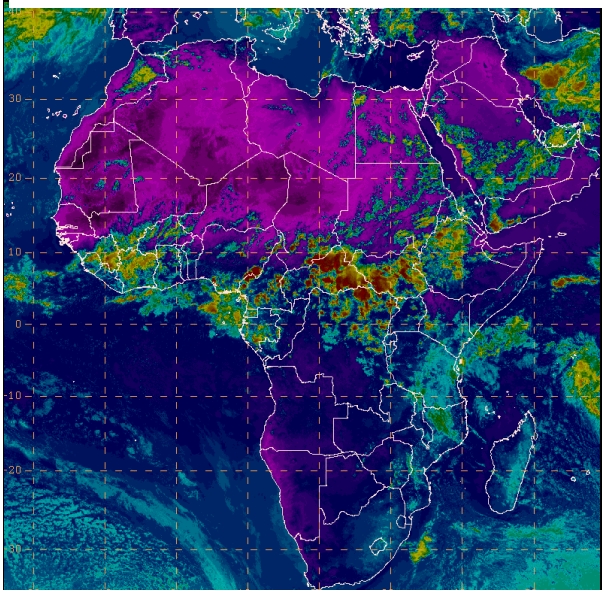
Daily rainfall amount exceeded 25 mm over many parts of Ghana and Togo, parts of Nigeria, DRC, southern Sudan and local areas in South Sudan.

2.2. Weather assessment for the current day (*May 20, 2020*)

Convective clouds are observed over local areas in the eastern Gulf of Guinea region, CAR, South Sudan and Ethiopia.



IR Satellite Image (valid 1430 May 20, 2020)



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