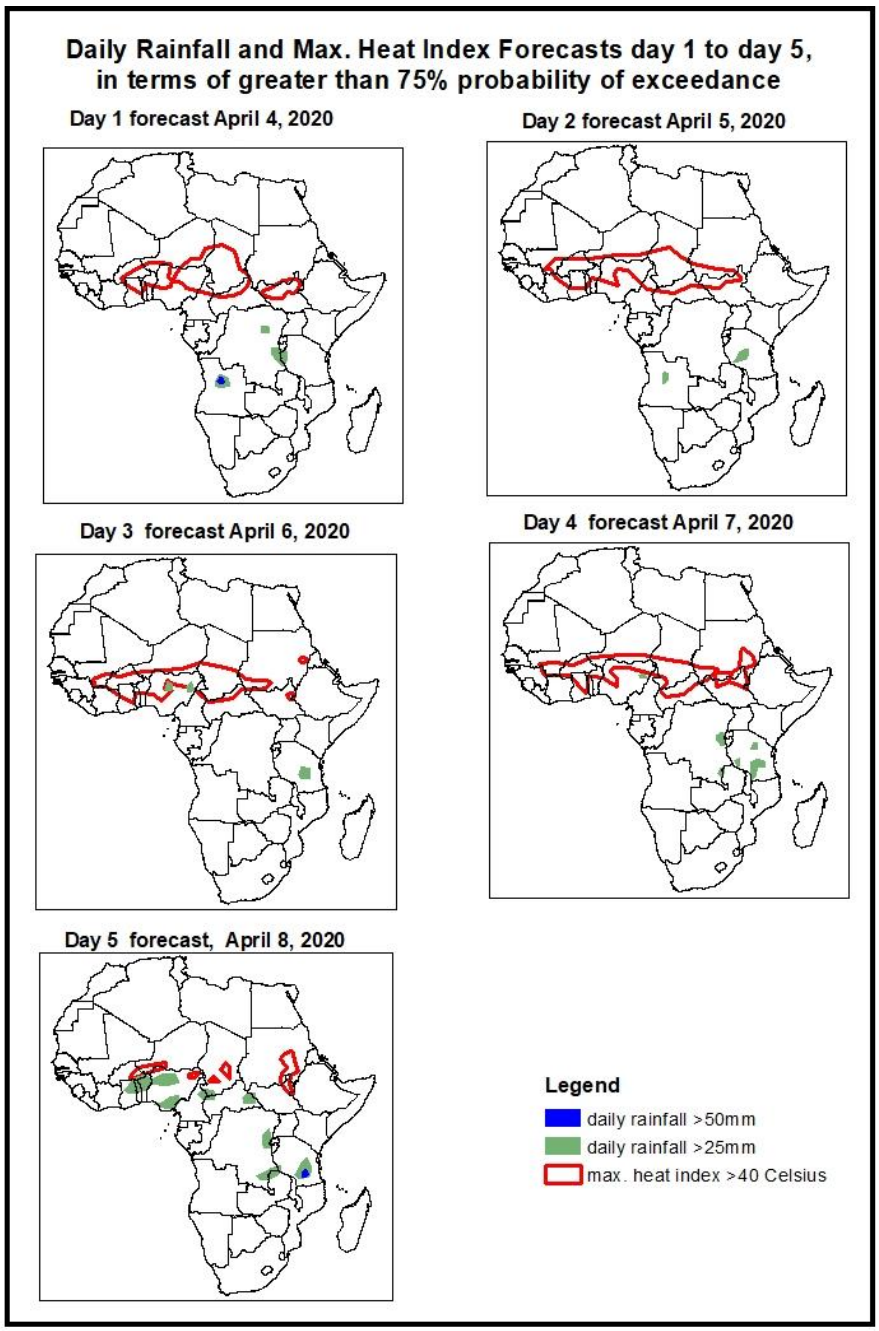
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

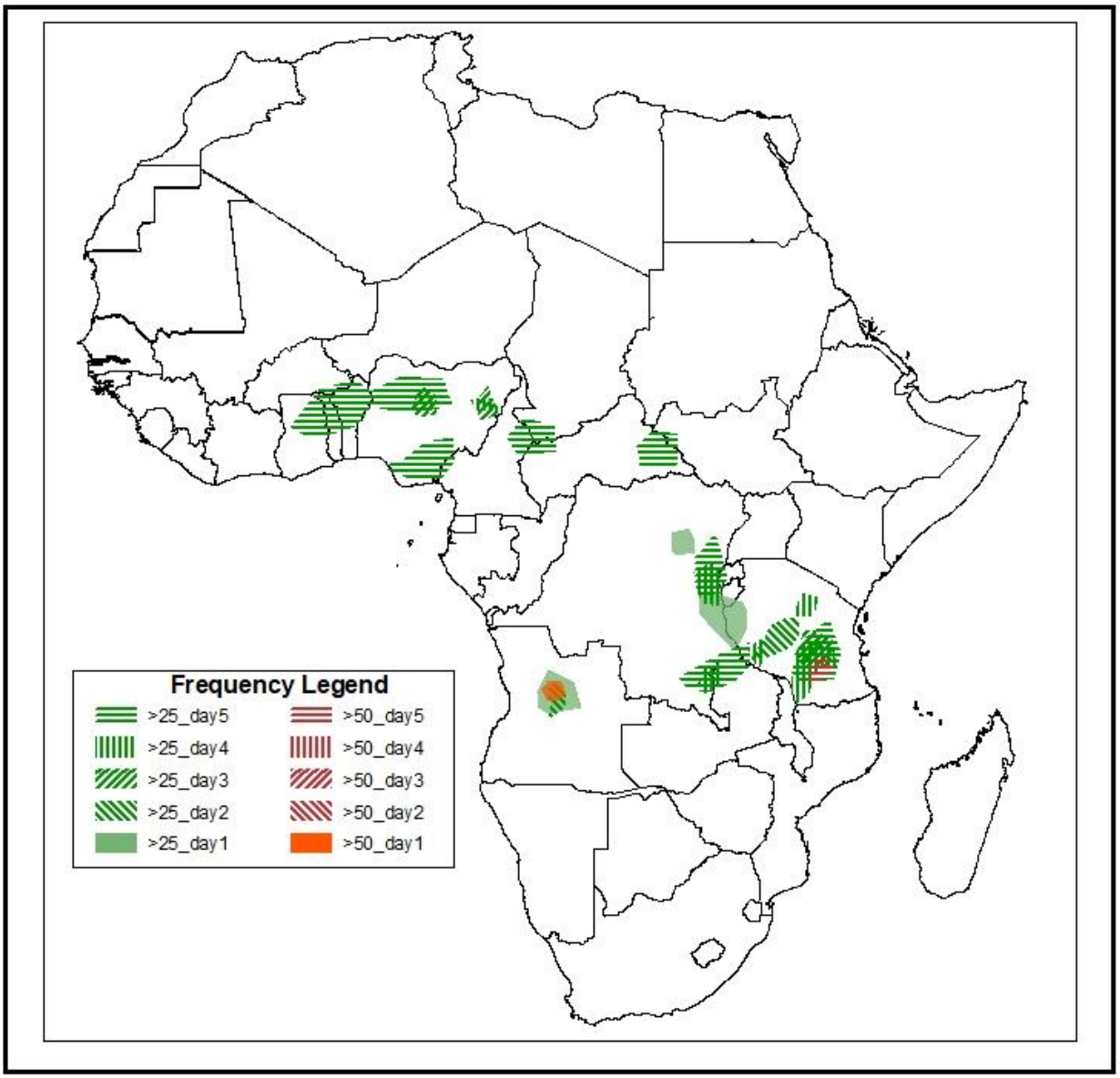
1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on April 3, 2020)

1.1. Daily Rainfall and Maximum Heat Index Forecasts (valid: 4 – 8 April, 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
4 - 8 April, 2020

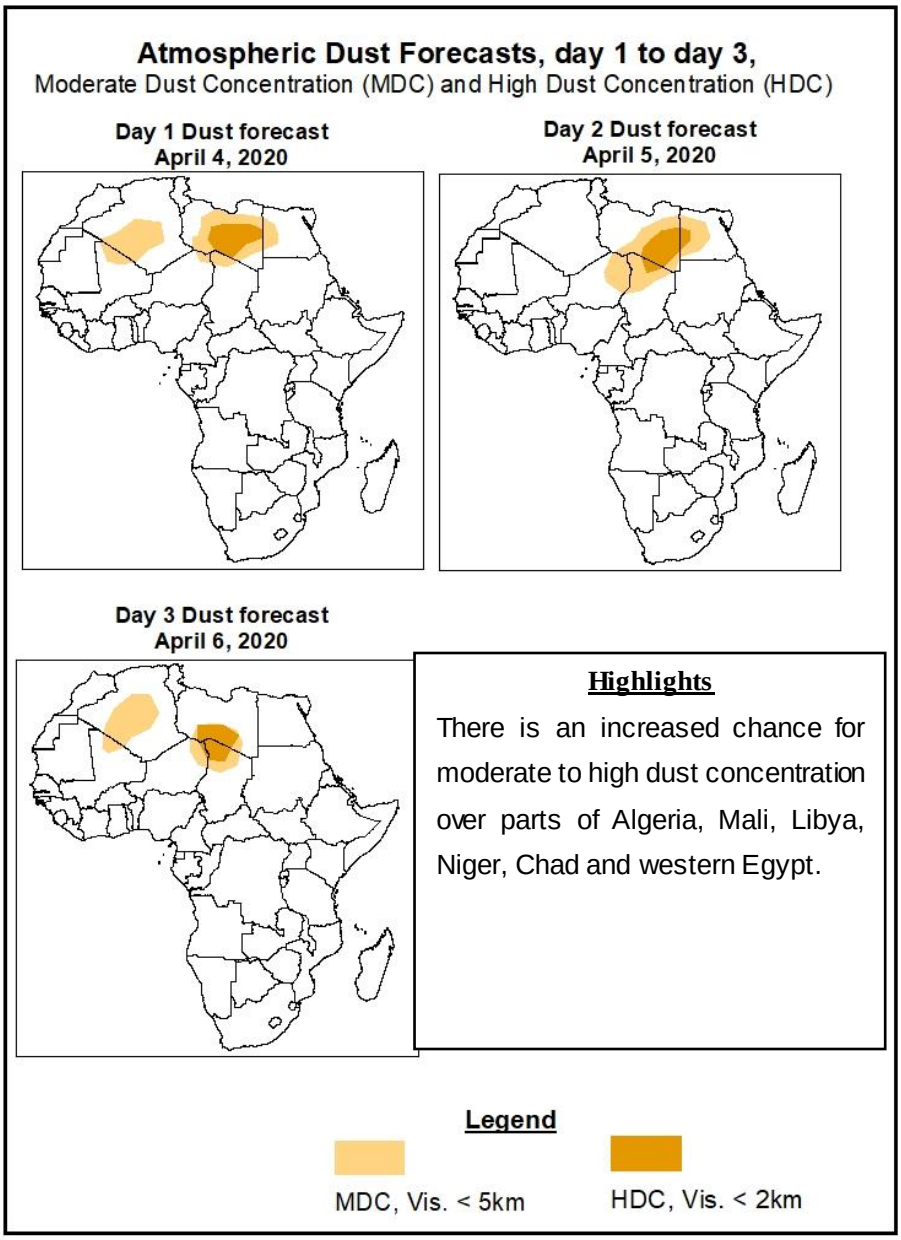


Highlights

- Localized lower-level wind convergences are expected to enhance rainfall over portions of eastern Gulf of Guinea and Central Africa areas, and the northern portions of Southern Africa.
- At least 25mm for two or more days is likely over local areas in Nigeria, Angola, DRC and Tanzania.
- There is an increased chance for daily rainfall amount to exceed 50mm over local areas in Angola and Tanzania.
- There is an increased chance for daily maximum heat index to exceed 40^{o}C across many places in the Sahel region, and local areas in eastern Sudan, South Sudan and southwestern Ethiopia.

1.2. Atmospheric Dust Concentration Forecasts (valid: 4 – 6 April, 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: 4 – 8 April 2020*

The Azores High Pressure system over Northeast Atlantic and neighboring areas is expected to weaken with its central pressure value decreasing from 1054hPa to 1035hPa during the forecast period.

The St. Helena High Pressure system over the South Atlantic Ocean is expected to intensify with its central pressure value increasing from 1024hPa to 1028hPa during the forecast period.

The Mascarene High Pressure system over the Southwest Indian Ocean is expected to intensify with its central pressure value increasing from 1024hPa to 1034-hPa 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 portions of the Sahel region and North Africa. Zonal wind convergences are expected to remain active near 10^{o}N in West and Central Africa.

At 850-hPa level, a deep cyclonic circulation over eastern Mediterranean Sea and the neighboring areas of Northeast Africa is expected deepen, while shifting eastwards during the forecast period. Zonal wind convergences are expected to remain active near 5^{o}N. Local wind convergences are also expected to remain active in parts of East and Southeast Africa.

At 700-hPa level, a broad anticyclonc ridge is expected to prevail across West Africa and the neighboring areas of the Sahel region during the forecast period. A trough associated with a mid-latitude frontal system is expected to deepen while shifting eastwards across the Mediterranean Sea and the neighboring areas of North Africa.

Localized lower-level wind convergences are expected to enhance rainfall over portions of eastern Gulf of Guinea and Central Africa areas, and the northern portions of Southern Africa. At least 25mm for two or more days is likely over local areas in Nigeria, Angola, DRC and Tanzania. There is an increased chance for daily rainfall amount to exceed 50mm over local areas in Angola and Tanzania. There is an increased chance for daily maximum heat

index to exceed 40^{o}C across many places in the Sahel region, and local areas in eastern Sudan, South Sudan and southwestern Ethiopia.

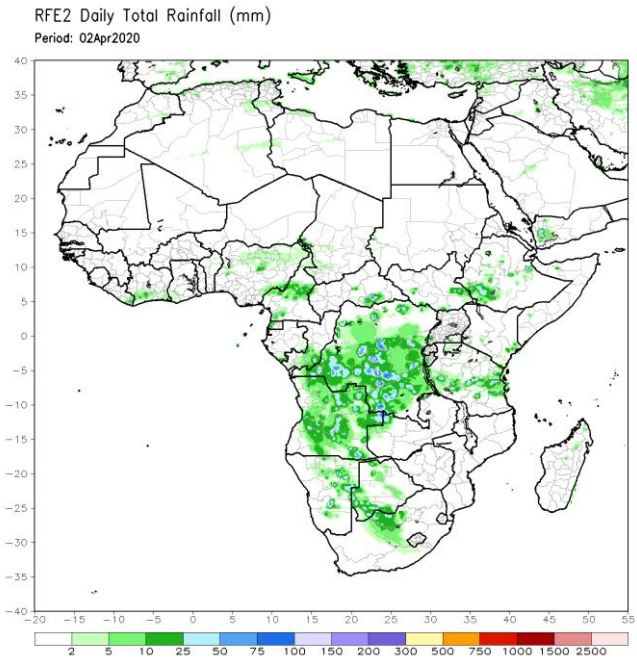
2.0. Previous and Current Day Weather over Africa

2.1. Weather assessment for the previous day (*April 2, 2020*)

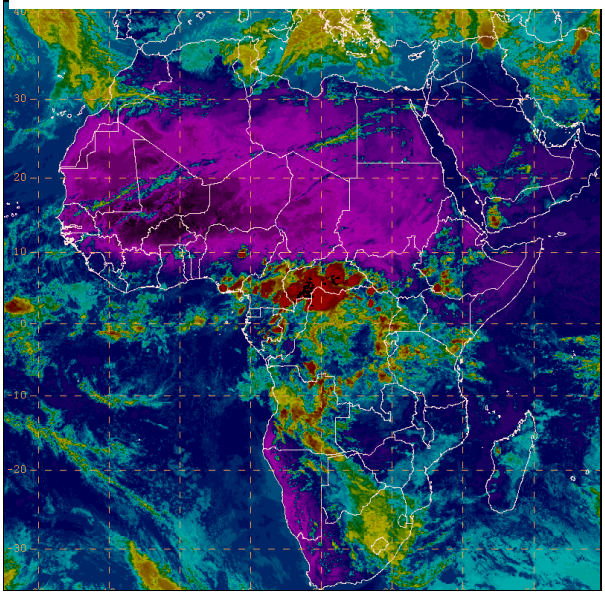
Daily rainfall amount exceeded 25 mm over portions of DRC and Angola, and local areas in Namibia, Botswana, Ethiopia and Tanzania.

2.2. Weather assessment for the current day (*April 3, 2020*)

Deep convective clouds are observed over the northern portions of Central Africa.



IR Satellite Image (valid 1430 April 3, 2020)



Author: NDIAYE Papa NGor. (CPC-African Desk/Senegalese Meteorological Service - ANACIM)