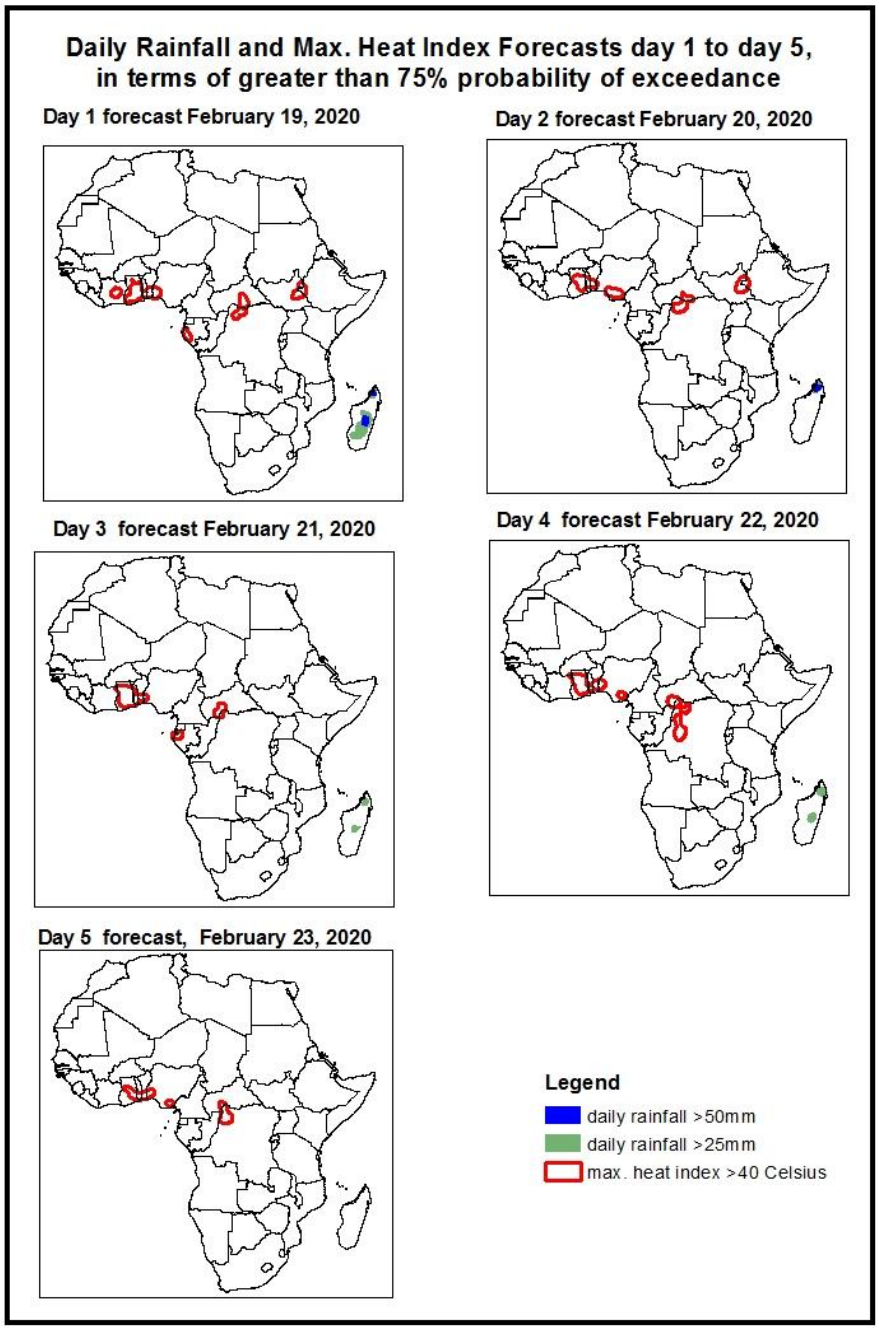
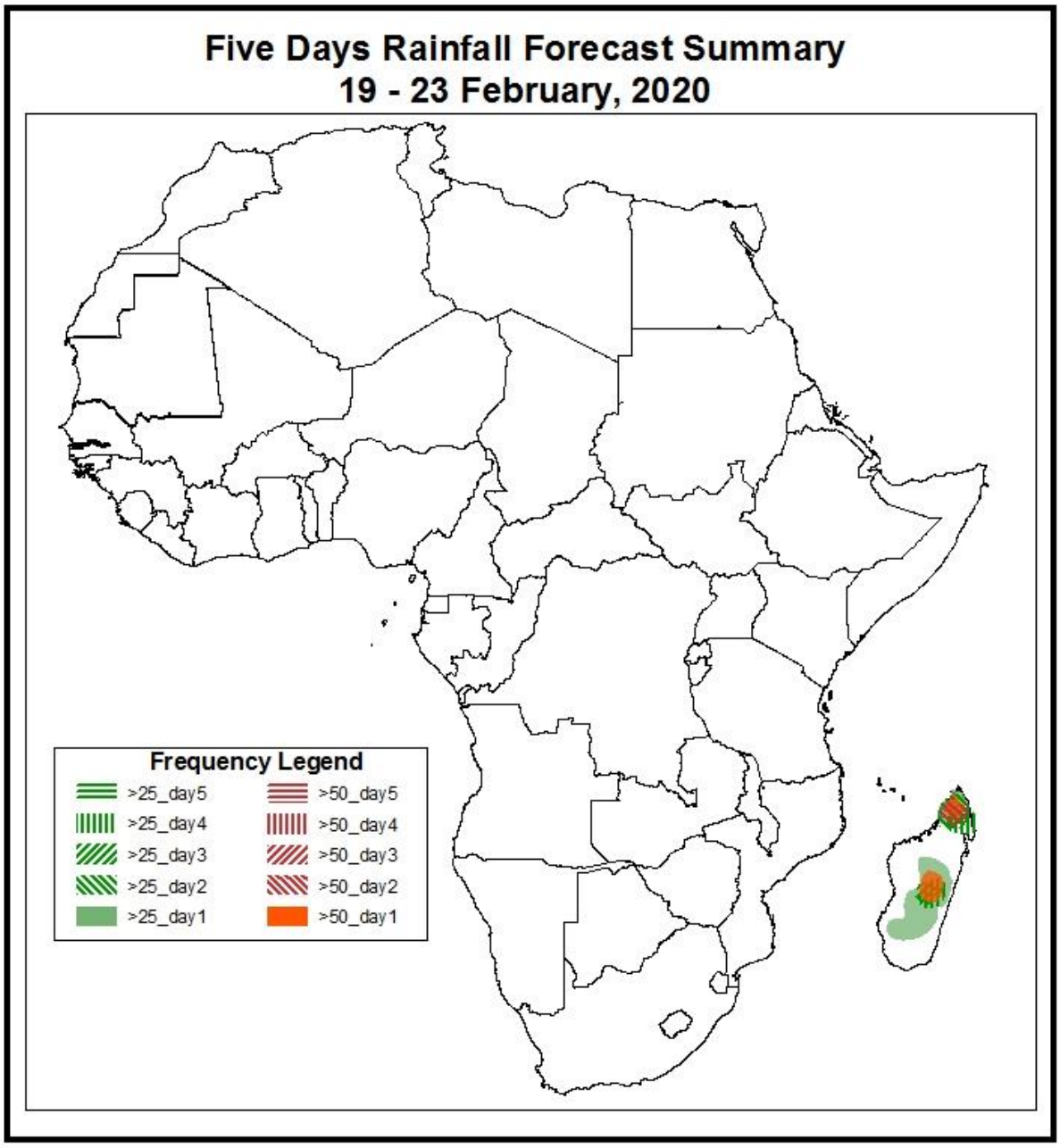
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on February 18, 2020)

1.1. Daily Rainfall and Maximum Heat Index Forecasts (valid: 19 – 23 Feb, 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^{o}C), based on the NCEP/GFS and the NCEP Global Ensemble Forecasts System (GEFS) and expert assessment.



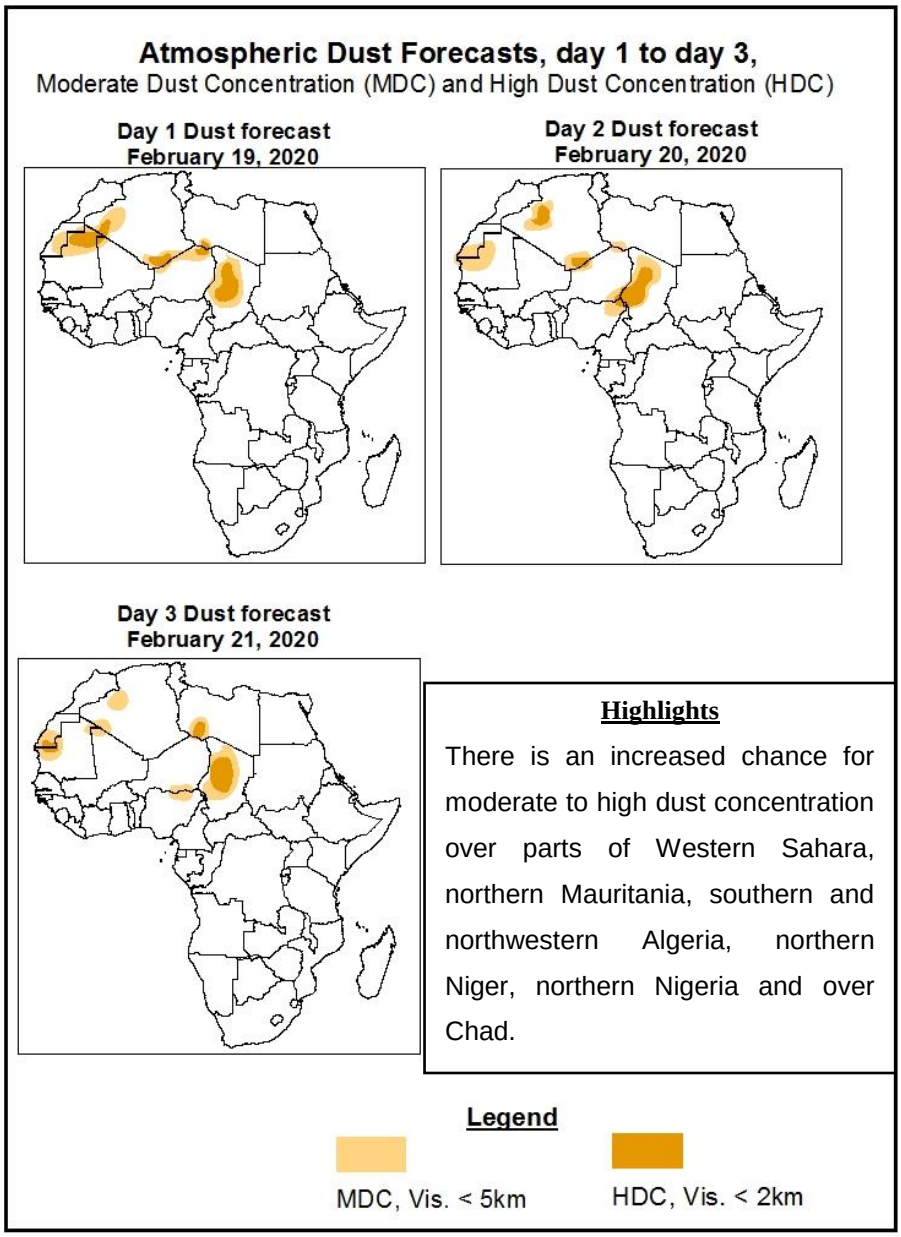


Highlights

- Cyclonic through across Madagascar is expected to enhance rainfall over the northern and center of Madagascar.
- At least 25mm for two or more days is likely over the northern and center of Madagascar, with an increased chance for rainfall to exceed 50mm over these areas.
- There is an increased chance for daily maximum heat index to exceed 40^{o}C over local areas in the Gulf of Guinea region, northern DRC, southern CAR and eastern South Sudan.

1.2. Atmospheric Dust Concentration Forecasts *(valid: 19 – 21 Feb, 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: 19 – 23 February 2020*

The Azores High Pressure system over Northeast Atlantic and neighboring areas is expected to weaken while moving eastwards with its central pressure value decreasing from 1039hPa to 1031hPa during the forecast period.

The St. Helena High Pressure system over the South Atlantic Ocean is expected to weaken with his central pressure value decreasing from 1027hPa to 1022hPa during the forecast period.

The Mascarene High Pressure system over Southwest of Indian Ocean is expected to intensify while moving eastwards with his central pressure value increasing from 1027hPa to 1035hPa 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 the Sahel and Sahara region. Zonal wind convergences cyclonic through are expected to remain active along 5^{o}N and in some parts of central and southern Africa.

At 850-hPa level, lower level-wind convergences are expected to remain active over central Africa, and the neighboring areas of Southern Africa. A cyclonic circulation is expected to move westwards across Madagascar and Zimbabwe's coast.

At 700-hPa level, a cyclonic circulation is expected to move westwards across Madagascar and Zimbabwe's coast. Mid-level-wind convergences are expected to remain active over Southern Africa and portions of south Central Africa. A trough associated with mid-latitude frontal system is expected to propagate eastward across the eastern Mediterranean region, and is likely to cause increased cloudiness over parts of the Greater Horn of Africa during the forecast period.

Cyclonic through across Madagascar is expected to enhance rainfall over the northern and center of Madagascar. At least 25mm for two or more days is likely over the northern and center of Madagascar, with an increased chance for rainfall to exceed 50mm over these

areas. There is an increased chance for daily maximum heat index to exceed 40^{o}C over local areas in the Gulf of Guinea region, northern DRC, southern CAR and eastern South Sudan.

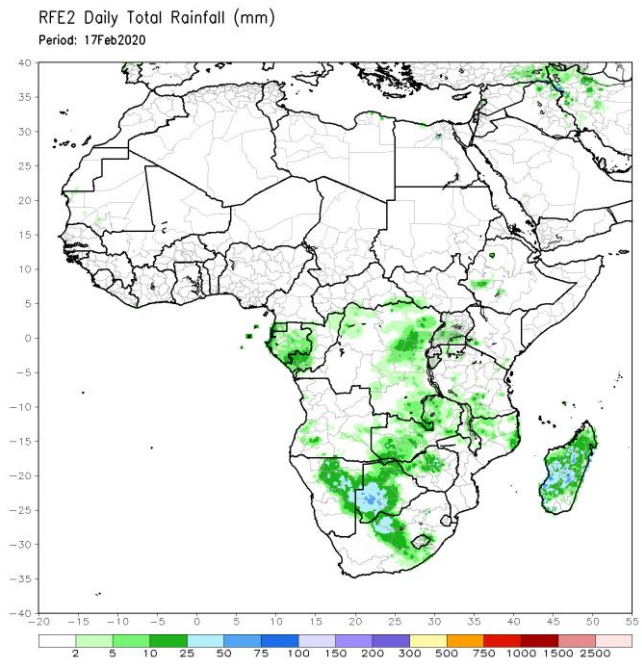
2.0. Previous and Current Day Weather over Africa

2.1. Weather assessment for the previous day (*February 17, 2020*)

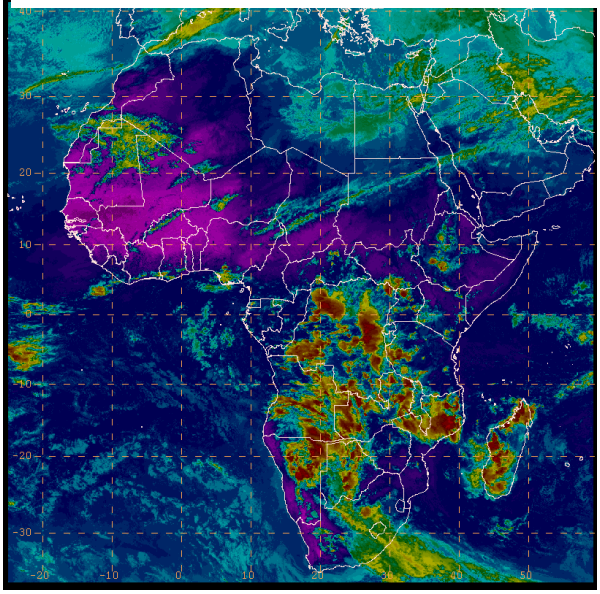
Daily rainfall amount exceeded 25 mm over local areas in Botswana, South Africa and Madagascar, with rainfall amount in excess of 50 mm observed over local areas in south Botswana, northern South Africa and Madagascar.

2.2. Weather assessment for the current day (*February 18, 2020*)

Convective clouds are observed across Southern and Central Africa.



IR Satellite Image (valid 1530 February 18, 2020)



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