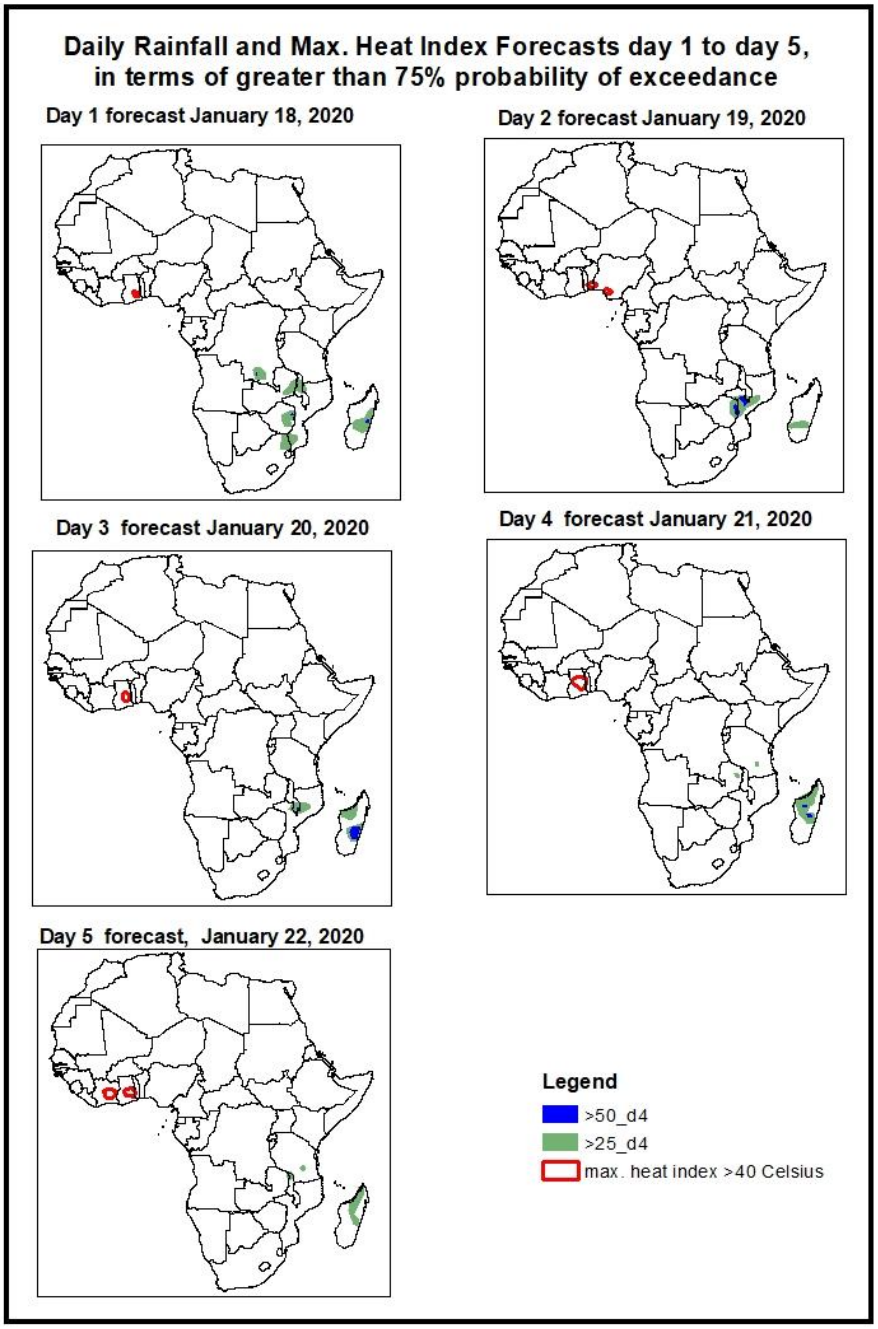
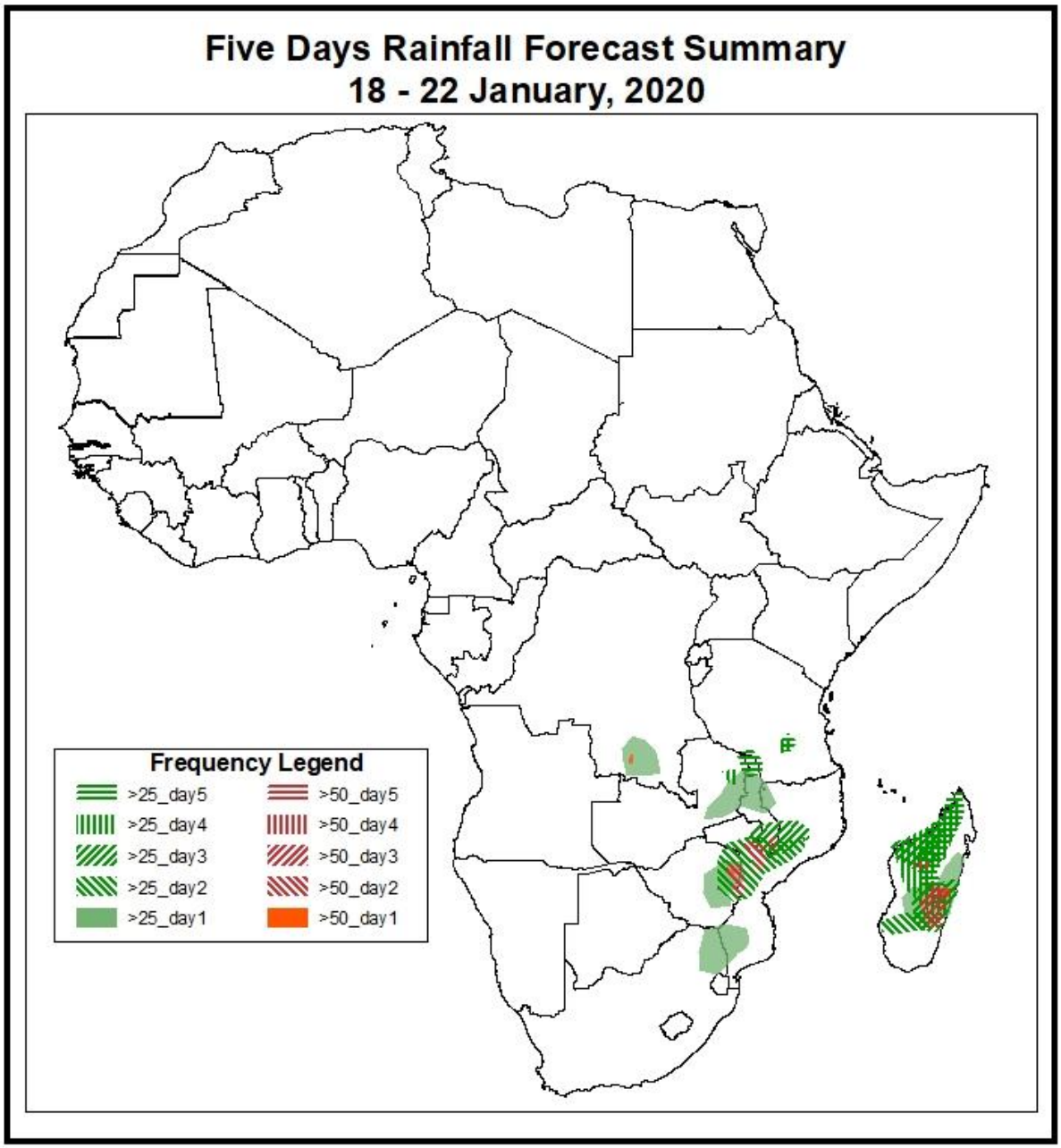
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on January 17, 2020)

1.1. Daily Rainfall and Maximum Heat Index Forecasts (valid: 18 Jan – 22 Jan, 2020)

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



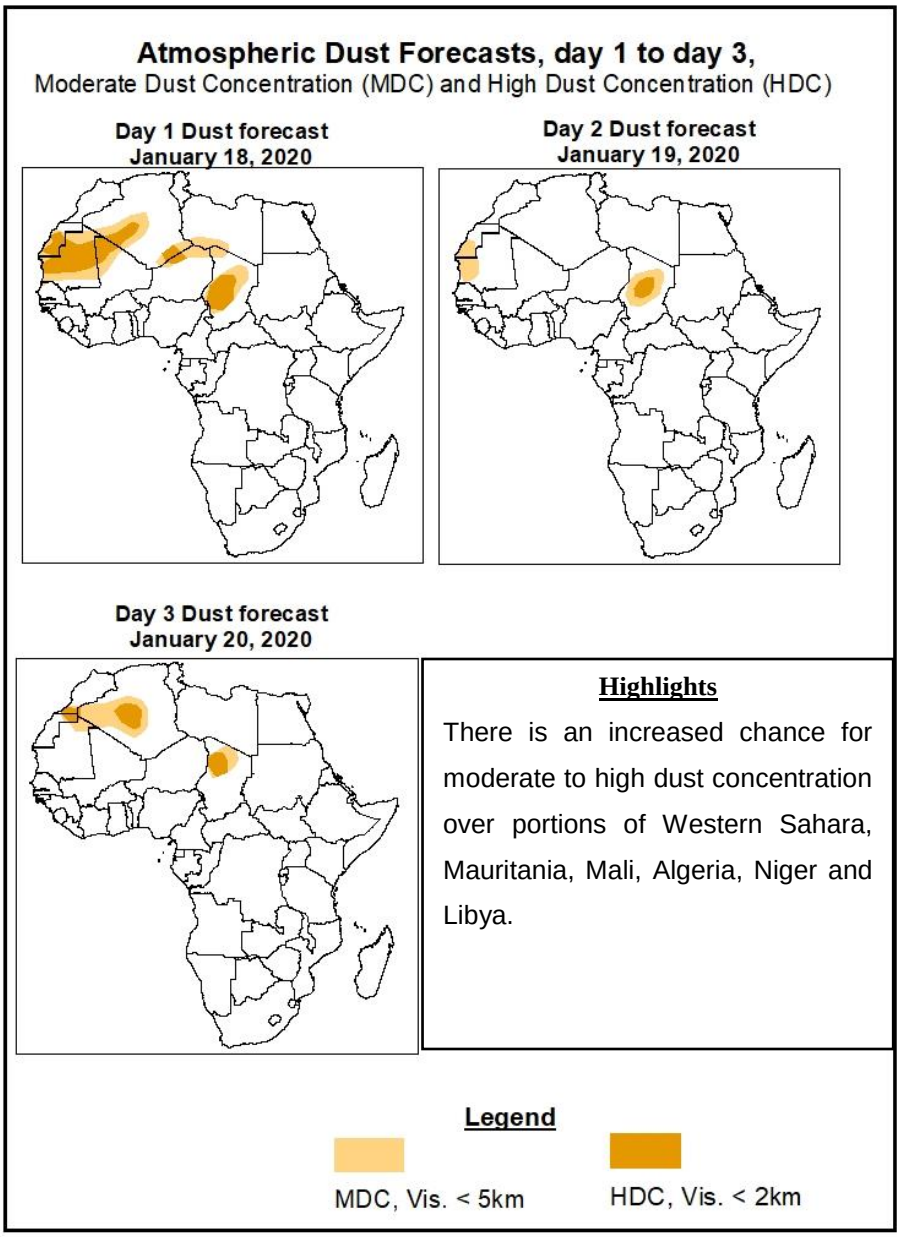


Highlights

- Strong lower-level wind convergences and eastward propagating cyclonic circulation is expected to enhance rainfall across southeastern Africa.
- At least 25mm for two or more days is likely over portions of Malawi, eastern Zimbabwe, central Mozambique and Madagascar.
- There is an increased likelihood for daily rainfall to exceed 50mm over local areas in Zimbabwe, Mozambique and Madagascar.
- There is an increased chance for daily maximum heat index to exceed 40^{o}C over local areas in Cote d'Ivoire, Ghana Nigeria.

1.2. Atmospheric Dust Concentration Forecasts *(valid: 18 Jan – 20 Jan 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: 18 January – 22 January 2020*

The Azores High Pressure system over the Northeast Atlantic Ocean is expected to intensify, with its central pressure value increasing from 1038hPa to 1043hPa during the forecast period.

The St. Helena High Pressure system over the Southeast Atlantic Ocean is expected to weaken gradually with its central pressure value decreasing from 1036hPa to 1026hPa during the forecast period.

The Mascarene High Pressure system over Southwest of Indian Ocean is expected to weaken, while shifting eastwards with its central pressure value decreasing from 1026hPa to 1022hPaduring the rest of the forecast period.

An area of low pressure system over Mozambique is expected to shift eastwards into Madagascar during the forecast period.

The Arabian Ridge is expected to remain strong, stretching as far as Ethiopia, and is expected to maintain dry weather over northeastern Africa.

At 925-hPa level, a broad area of strong dry northerly to northeasterly flow is expected to prevail across the Sahel region and northern Africa. Zonal wind convergences are expected to remain active in the equatorial Africa region.

At 850-hPa level, lower level wind convergences are expected remain active in the Lake Victoria region. Lower-level cyclonic circulation associated with the Angola low is expected to remain active across eastern Angola and the neighboring areas. A lower-level cyclonic circulation over Mozambique is expected to shift eastwards into Madagascar during the forecast period.

Strong lower-level wind convergences and eastward propagating cyclonic circulation is expected to enhance rainfall across southeastern Africa. At least 25mm for two or more days is likely over portions of Malawi, eastern Zimbabwe, central Mozambique and Madagascar.

There is an increased likelihood for daily rainfall to exceed 50mm over local areas in Zimbabwe, Mozambique and Madagascar. There is an increased chance for daily maximum heat index to exceed 40^{o}C over local areas in Cote d'Ivoire, Ghana Nigeria.

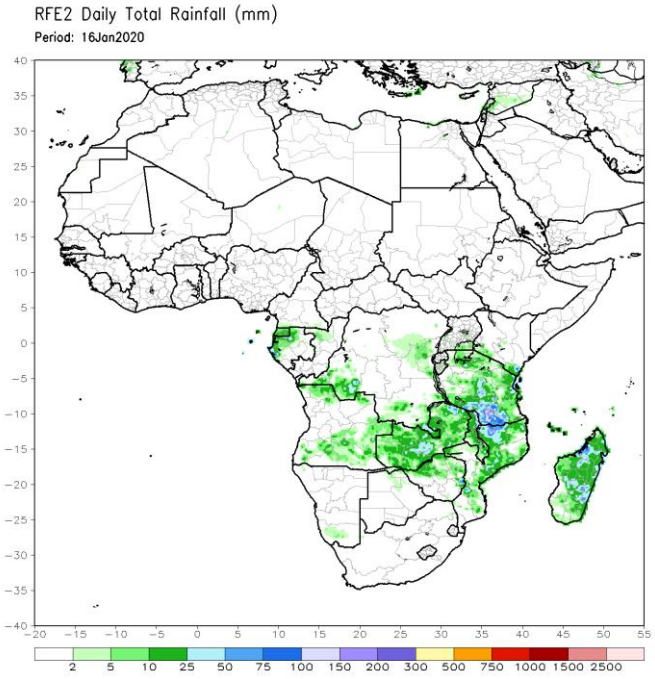
2.0. Previous and Current Day Weather over Africa

2.1. Weather assessment for the previous day (*January 16, 2020*)

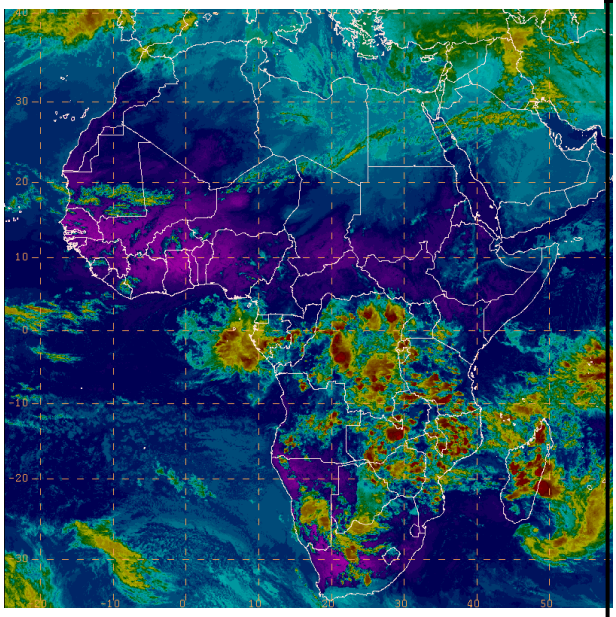
Daily rainfall amount exceeded 25mm over parts of central Zambia, southern Tanzania, northern Mozambique, and portions of Madagascar. Daily rainfall totals exceeded 50mm over local areas in southern Tanzania, northern Mozambique and Madagascar.

2.2. Weather assessment for the current day (*January 17, 2020*)

Deep convective clouds are observed over many places in Central and Southern Africa.



IR Satellite Image (valid 1552 January 17, 2020)



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