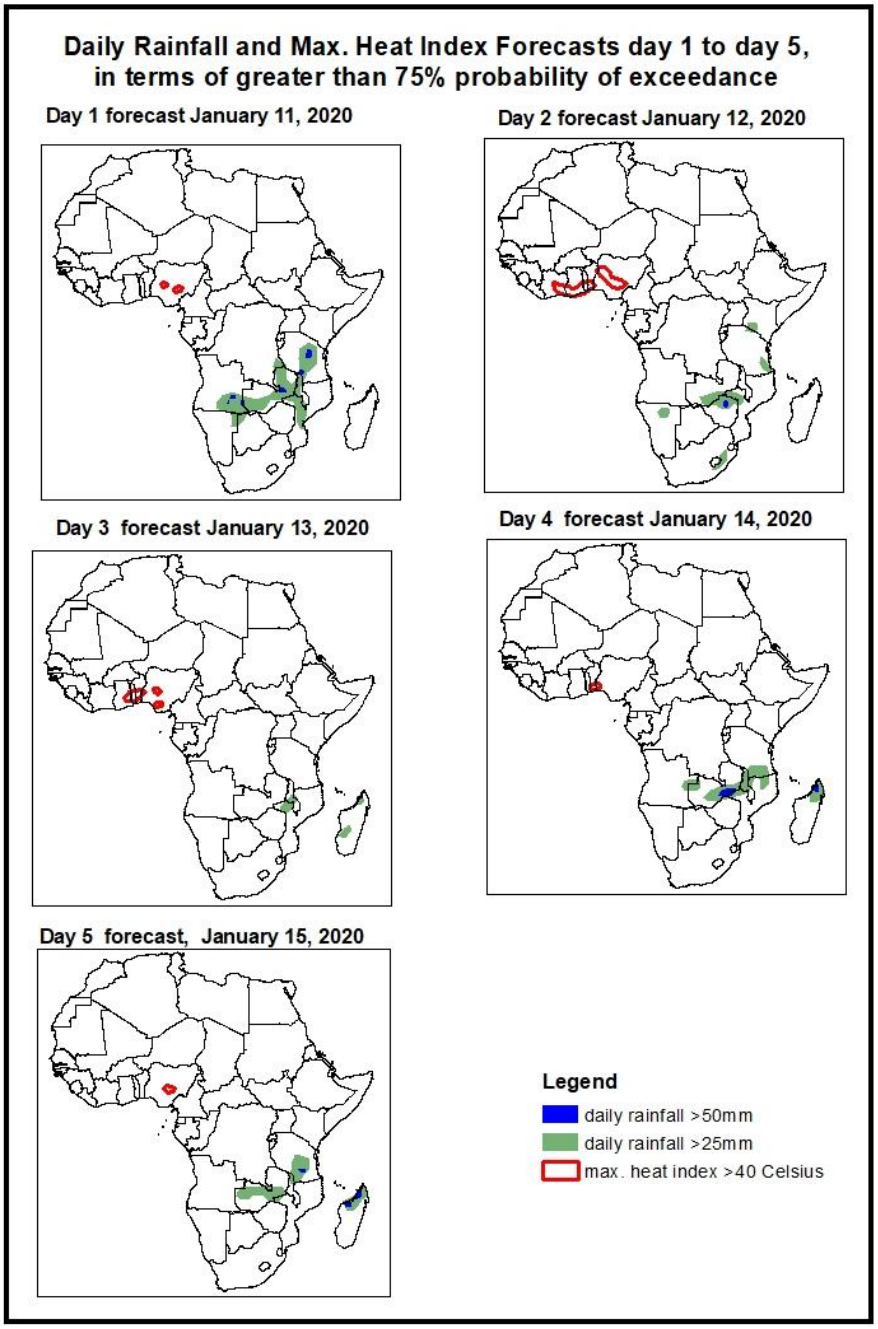
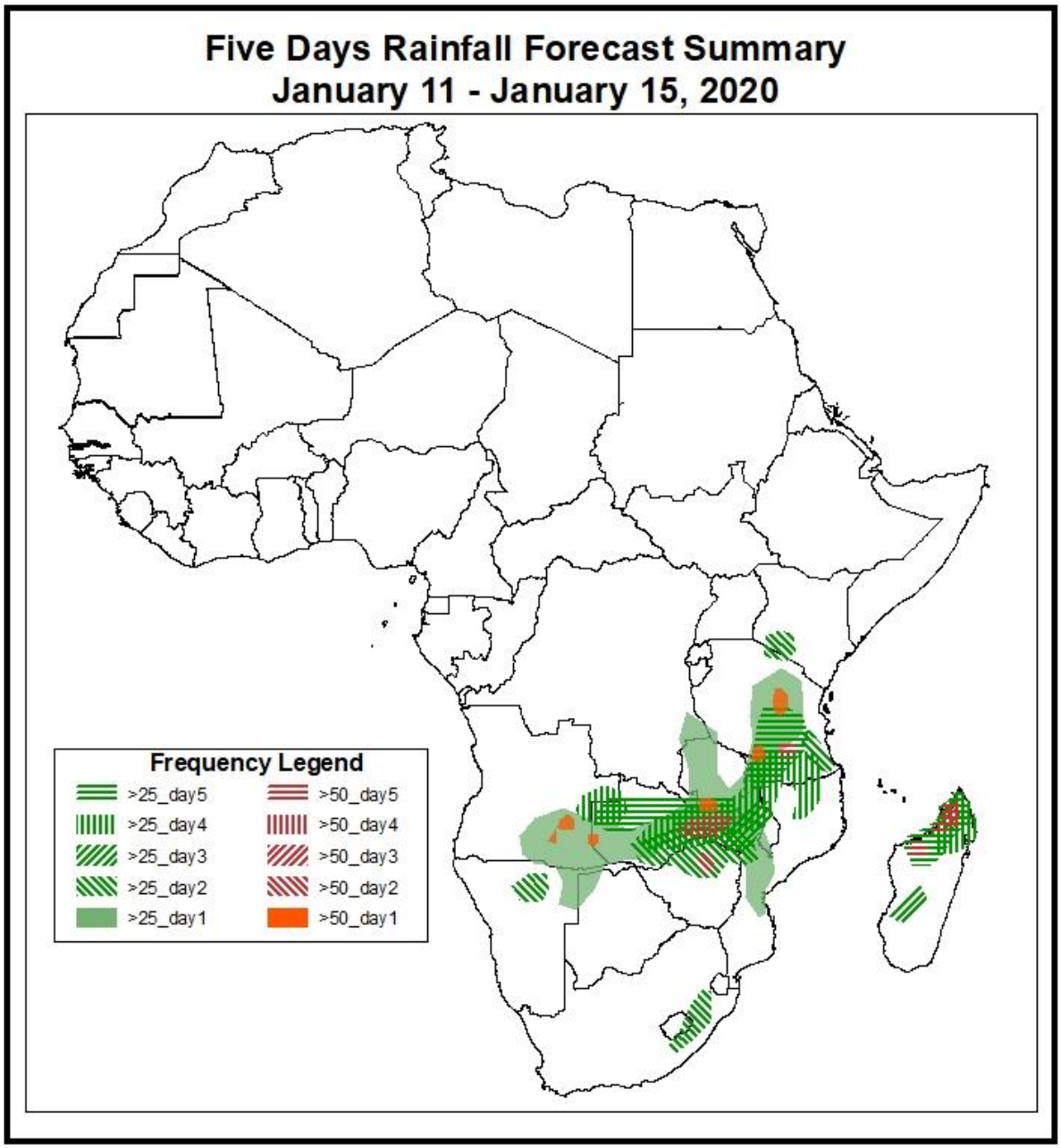
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on January 10, 2020)

1.1. Daily Rainfall and Maximum Heat Index Forecasts (valid: 11 Jan – 15 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.



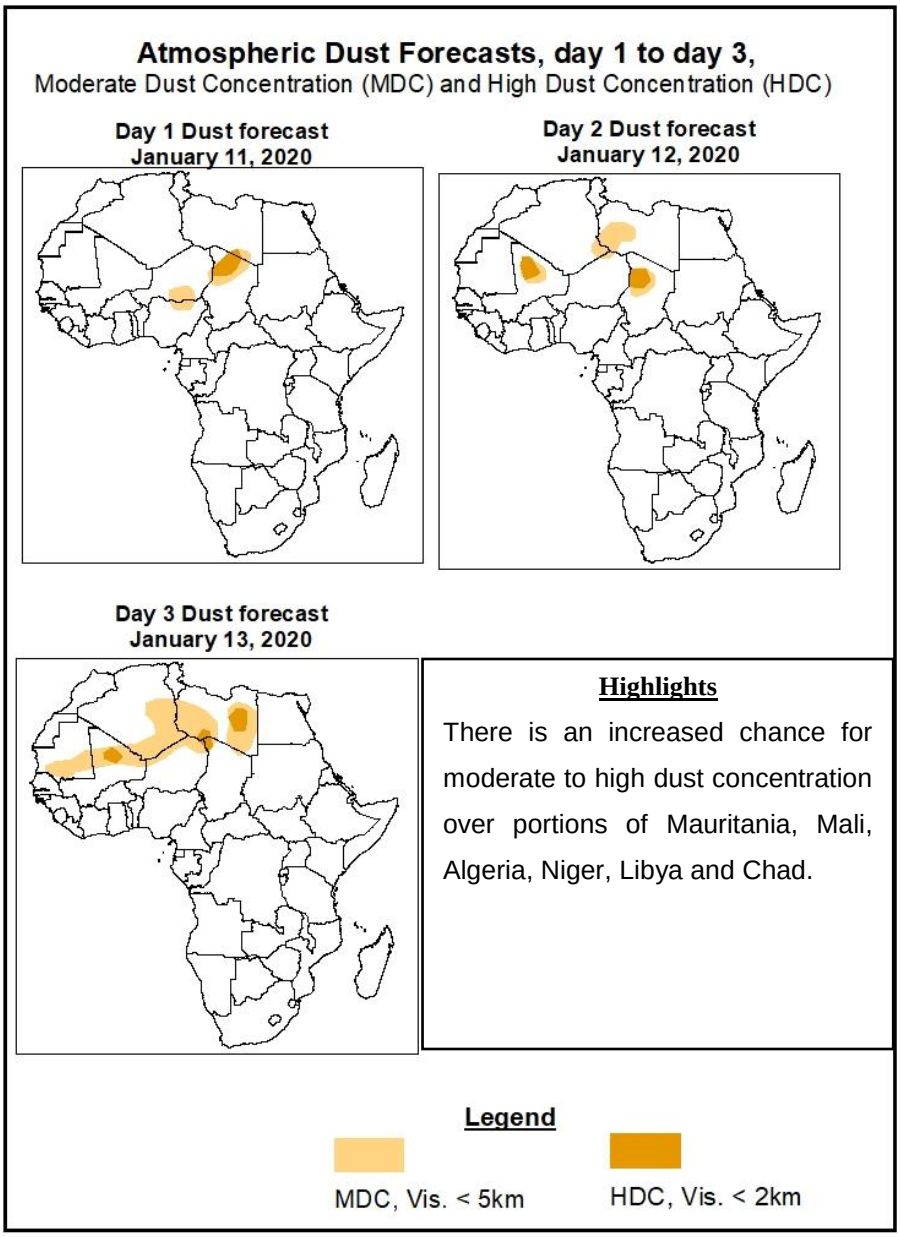


Highlights

- Strong lower-level wind convergences are expected to enhance rainfall over the northern portions of Southern Africa, Tanzania and northern Madagascar.
- At least 25mm for two or more days is likely over portions of Angola, parts of Tanzania, Zambia and northern Madagascar.
- There is an increased likelihood for daily rainfall to exceed 50mm over local areas in Angola, Zambia, Zimbabwe, Tanzania and northern Madagascar.
- There is an increased chance for daily maximum heat index to exceed 40^{o}C over local areas in Cote d'Ivoire, Ghana, Togo, Benin and Nigeria.

1.2. Atmospheric Dust Concentration Forecasts *(valid: 11 Jan – 13 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: 11 January – 15 January 2020*

The Azores High Pressure system over the Northeast Atlantic Ocean is expected to weaken while shifting eastwards, with its central pressure value decreasing from 1034hPa to 1026hPa during the forecast period.

The St. Helena High Pressure system over the Southeast Atlantic Ocean is to build up gradually with its central pressure value increasing from 1021hPa to 1027hPa during the forecast period.

The Mascarene High Pressure system over Southwest of Indian Ocean is expected to intensify slightly while shifting eastwards with its central pressure value increasing from 1027hPa to 1029hPaduring the rest of the forecast period.

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

At 925-hPa level, strong dry and dusty northerly to northeasterly flow is expected to prevail across northern Sahel region and norther parts of Africa. Lower-level 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 equatorial Africa and the Lake Victoria regions. Lower-level cyclonic circulation associated with the Angola low is expected to remain active across eastern Angola and the neighboring areas. A cyclonic circulation is expected to deepen across northern Madagascar towards end of the forecast period.

Strong lower-level wind convergences are expected to enhance rainfall over the northern portions of Southern Africa, Tanzania and northern Madagascar. At least 25mm for two or more days is likely over portions of Angola, parts of Tanzania, Zambia and northern Madagascar. There is an increased likelihood for daily rainfall to exceed 50mm over local areas in Angola, Zambia, Zimbabwe, Tanzania and northern Madagascar. There is an

increased chance for daily maximum heat index to exceed 40^{o}C over local areas in Cote d’Ivoire, Ghana, Togo, Benin and Nigeria.

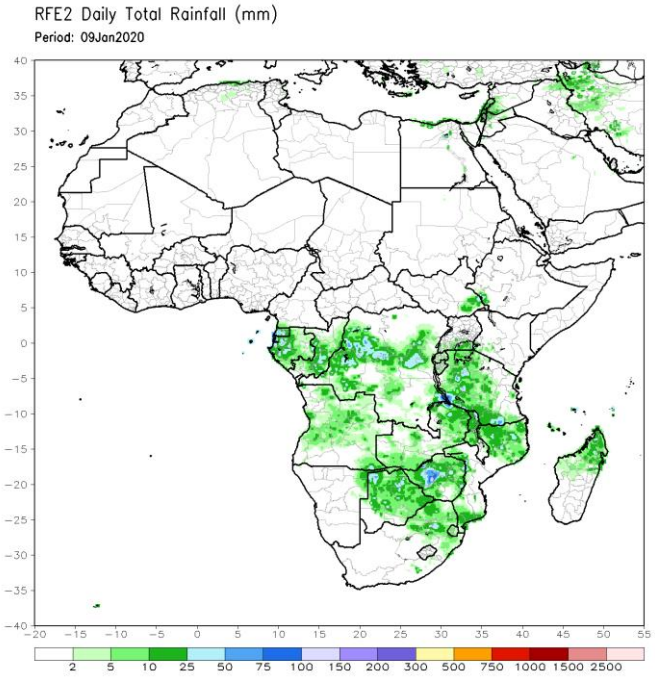
2.0. Previous and Current Day Weather over Africa

2.1. Weather assessment for the previous day (*January 09, 2020*)

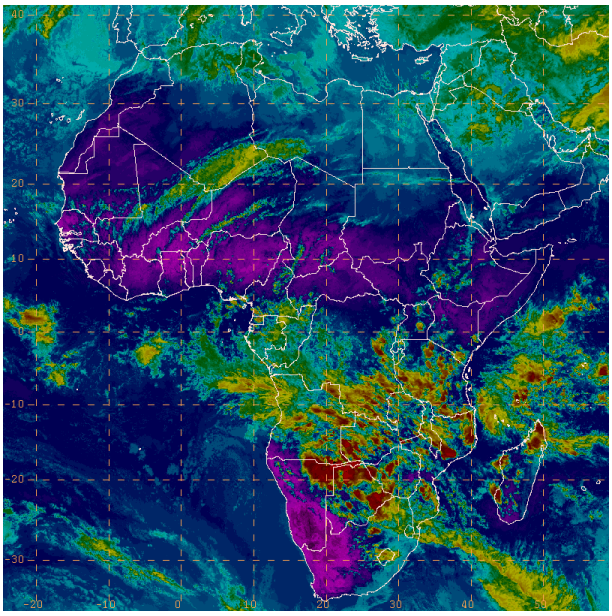
Daily rainfall amount exceeded 25mm over parts of Equatorial Guinea, Gabon, DRC, Botswana, Zimbabwe, Zambia and Tanzania. Daily rainfall totals exceeded 50mm over local areas in Zimbabwe.

2.2. Weather assessment for the current day (*January 10, 2020*)

Deep convective clouds are observed over many places in Southern Africa, including Tanzania.



IR Satellite Image (valid 1452 January 10, 2020)



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