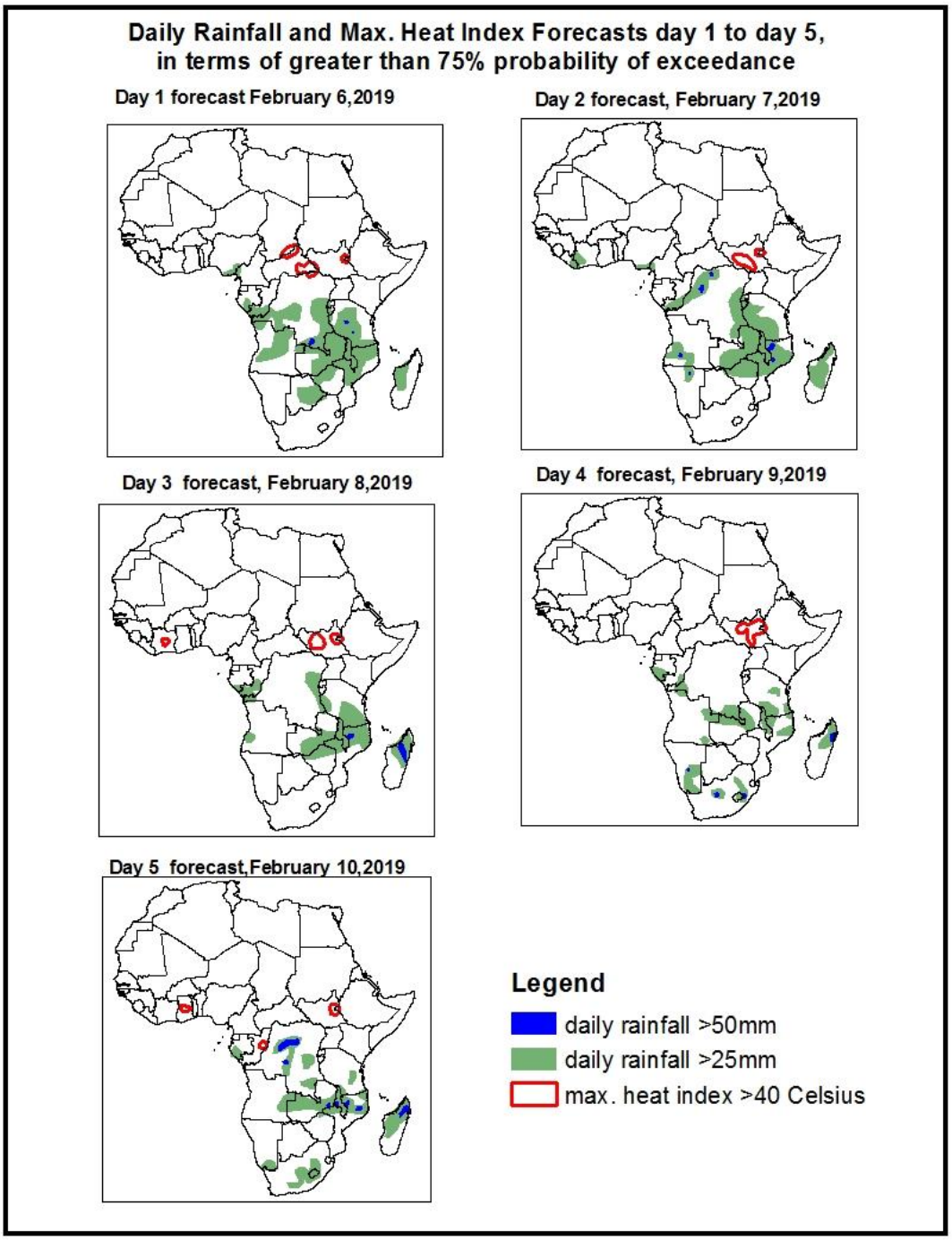
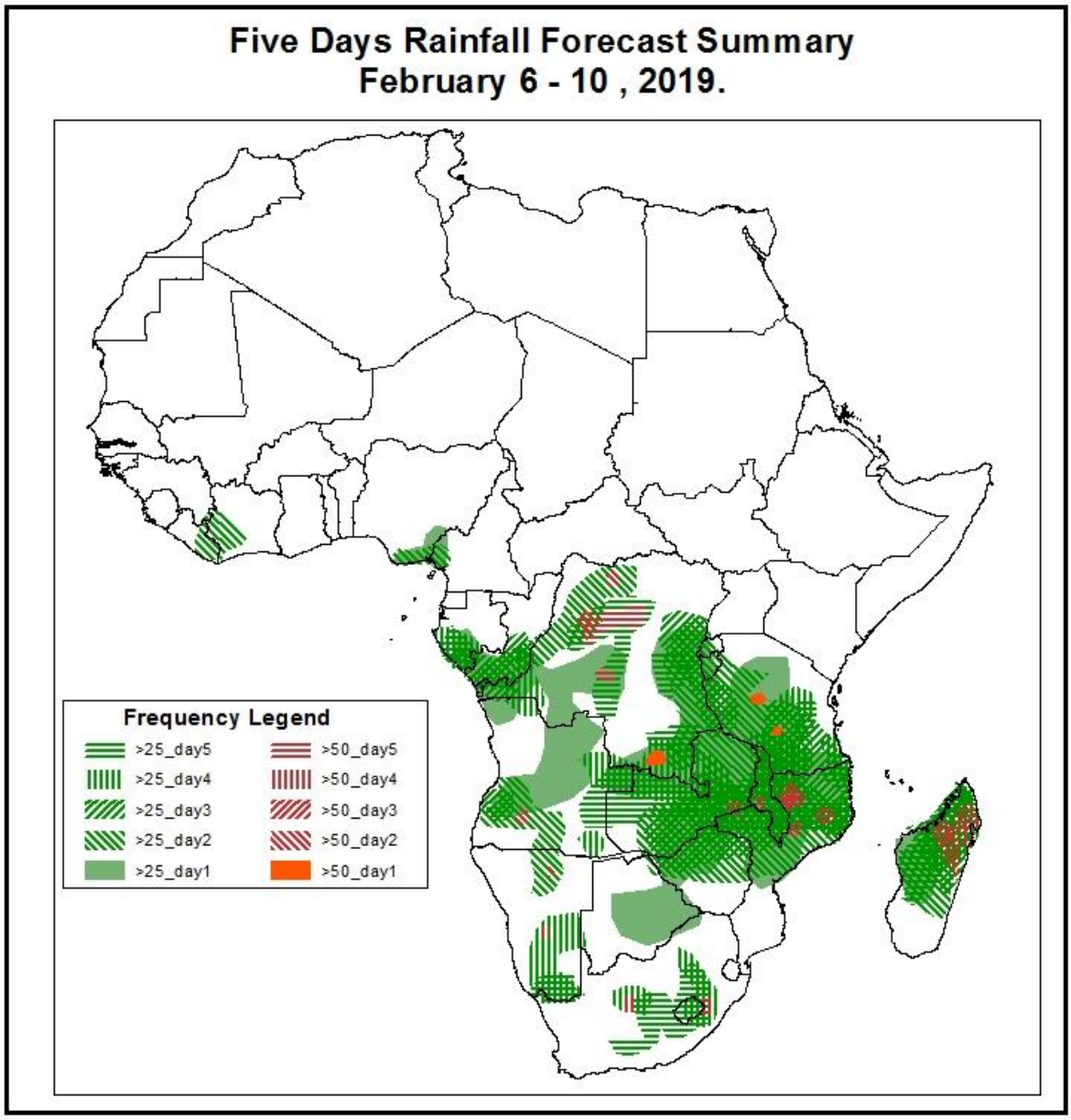
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on *February 5*, 2019)

1.1. Daily Rainfall and Maximum Heat Index Forecasts (valid: 6 - 10 February, 2019)

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.



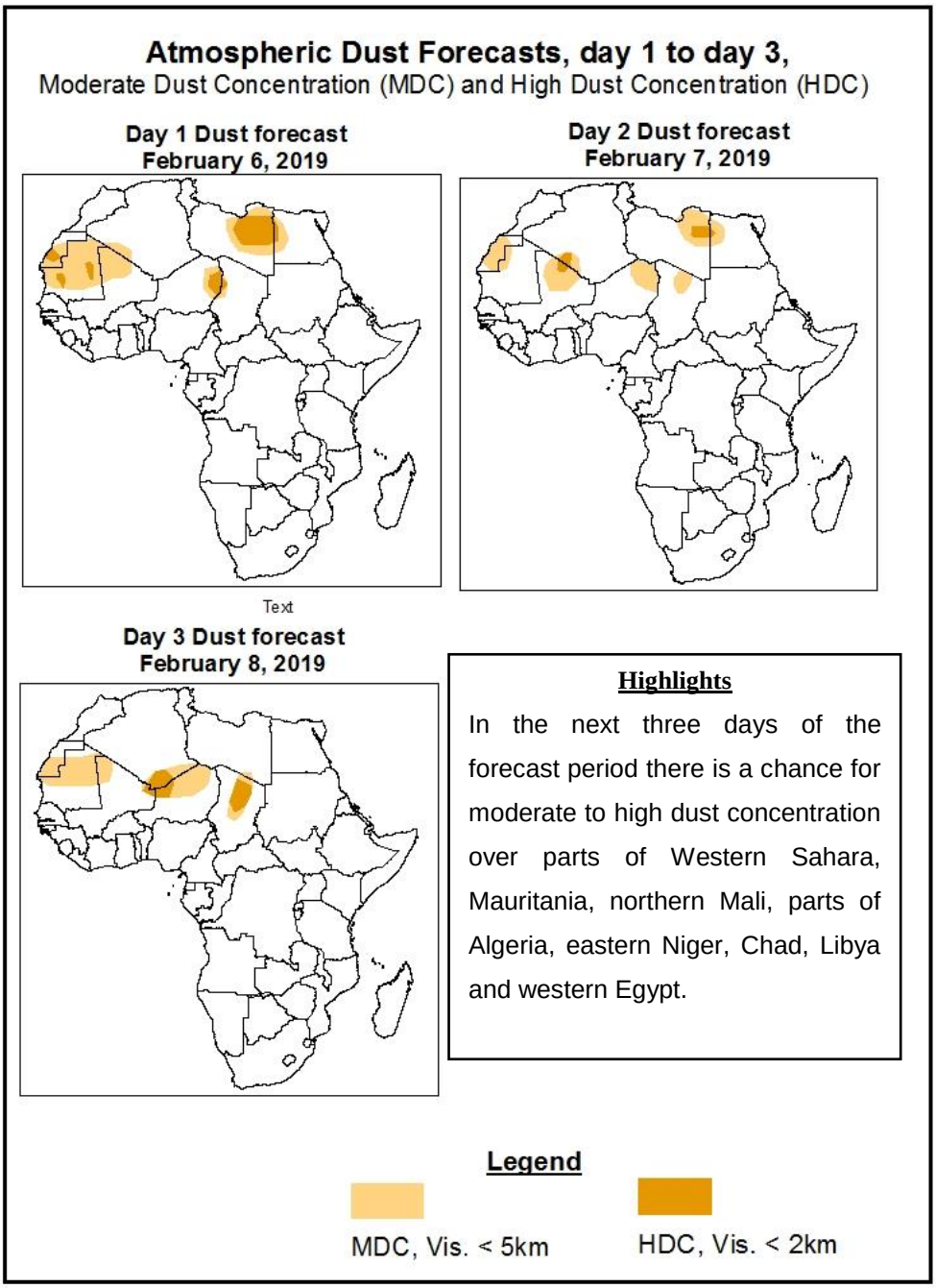


Highlights

- In the next five days, lower-level wind convergence across parts of equatorial Africa and the northern portions of Southern Africa, local wind convergence in South Africa and Madagascar are expected to enhance rainfall in the areas. Hence, there is an increased chance for 2 or more days of moderate to heavy rainfall across parts of western equatorial Africa, eastern and southern DRC, Tanzania, Zambia, Malawi, northern Mozambique, parts of South Africa and Madagascar.
- There is a high likelihood for temperature heat index values to exceed 40^0C over local areas in Cote d'Ivoire and Ghana, parts of CAR, eastern South Sudan, and southwestern Ethiopia.

1.2. Atmospheric Dust Concentration Forecasts *(valid: 6 – 8 February, 2019)*

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: 6 - 10 February, 2019*

The Azores High Pressure system over the North of Atlantic Ocean is expected to progress eastwards while its central pressure value weakening from 1032hpa to 1025hPa during the forecast period.

The St. Helena High Pressure system over Southwest Atlantic Ocean is expected to weaken as it progresses eastward with its central pressure value expected to decrease from 1027hPa to 10222hPa during the forecast period.

The Mascarene High Pressure system over Southwest Indian Ocean is expected to weaken as it progresses eastwards with its central pressure value is expected to increase from 1027hPa to 1022hPa.

At 925hPa, a broad area of dry and strong northerly to northeasterly wind is expected to prevail across Northwest and North Africa, and portions of the Sahel region, leading increased atmospheric dust concentration in the areas.

At 850hPa, a broad area of wind convergence is expected to prevail across the northern portions of Southern Africa and the neighboring areas of central Africa. Eastward propagating frontal system is also expected to enhance rainfall across parts of South Africa.

In the next five days, lower-level wind convergence across parts of equatorial Africa and the northern portions of Southern Africa, local wind convergence in South Africa and Madagascar are expected to enhance rainfall in the areas. Hence, there is an increased chance for 2 or more days of moderate to heavy rainfall across parts of western equatorial Africa, eastern and southern DRC, Tanzania, Zambia, Malawi, northern Mozambique, parts of South Africa and Madagascar. There is a high likelihood for temperature heat index values to exceed 40^0C over local areas in Cote d'Ivoire and Ghana, parts of CAR, eastern South Sudan, and southwestern Ethiopia.

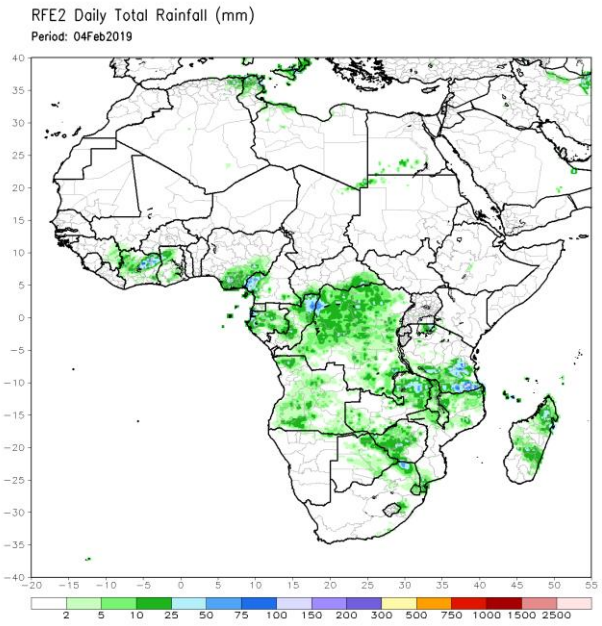
2.0. Previous and Current Day Weather over Africa

2.1. Weather assessment for the previous day (February 4, 2019)

Daily rainfall totals exceeded 25mm over parts of Cote d'Ivoire, Cameroon, Congo, eastern Zambia and southern Tanzania.

2.2. Weather assessment for the current day (*February 5,* 2019)

Intense convective clouds are observed over many places in central and the northern portions of Southern Africa countries, and parts of Madagascar.



IR Satellite Image (valid 1752 February 5, 2019)