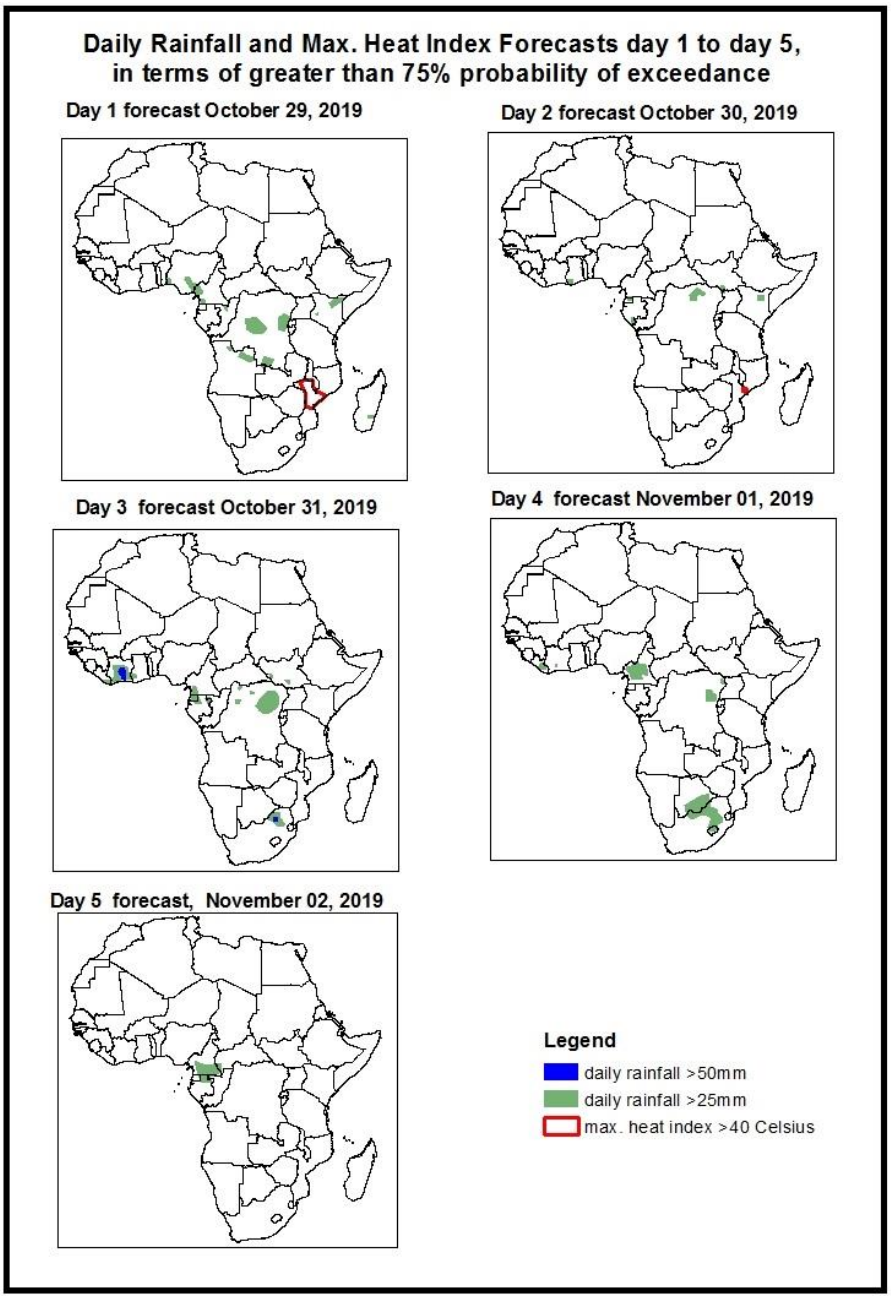
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

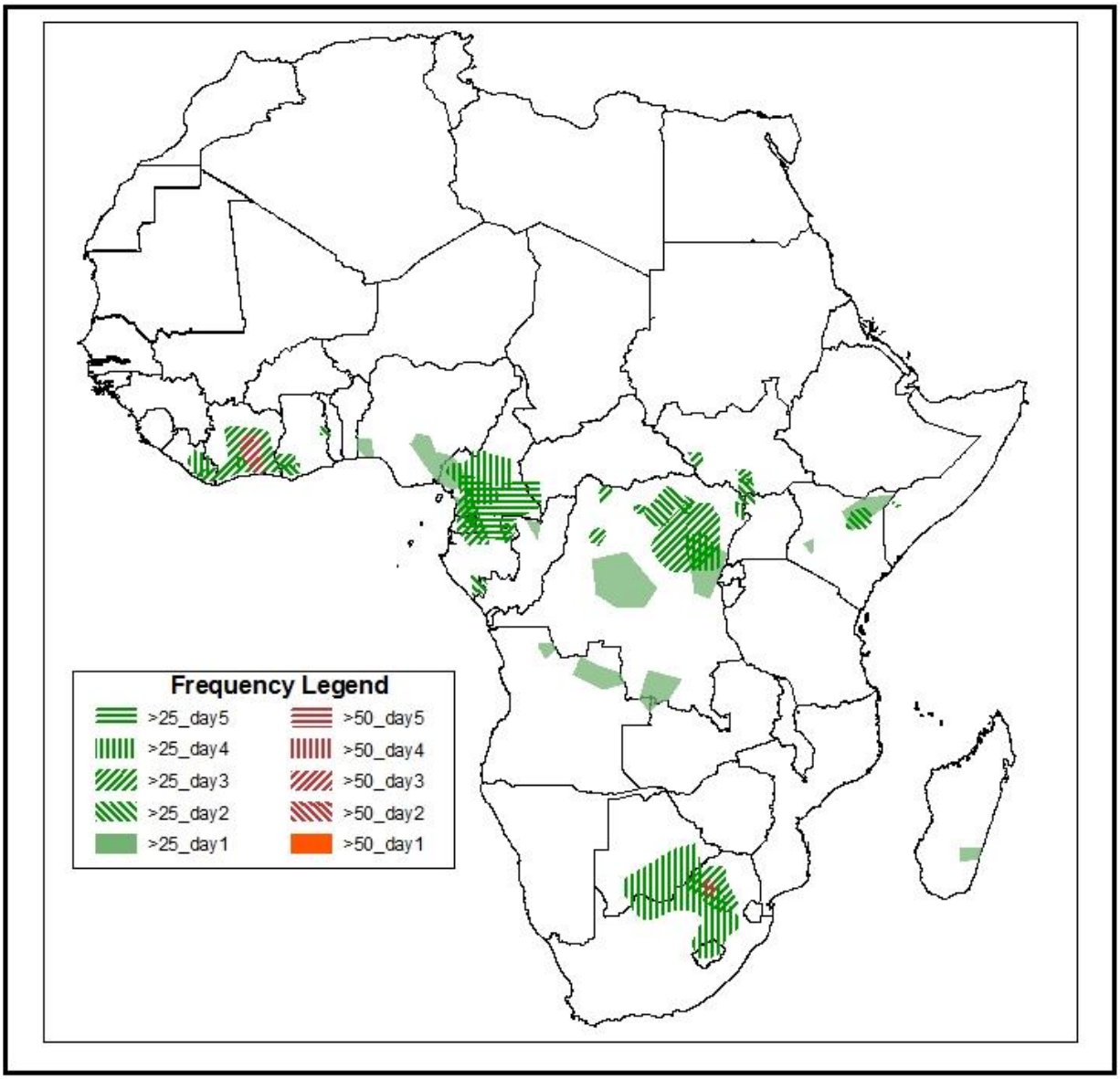
1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on October 28, 2019)

1.1. Daily Rainfall and Maximum Heat Index Forecasts *(valid: 29 October – 02 November, 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^{o}C), based on the NCEP/GFS and the NCEP Global Ensemble Forecasts System (GEFS) and expert assessment.



Five Days Rainfall Forecast Summary
October 29 - November 02, 2019

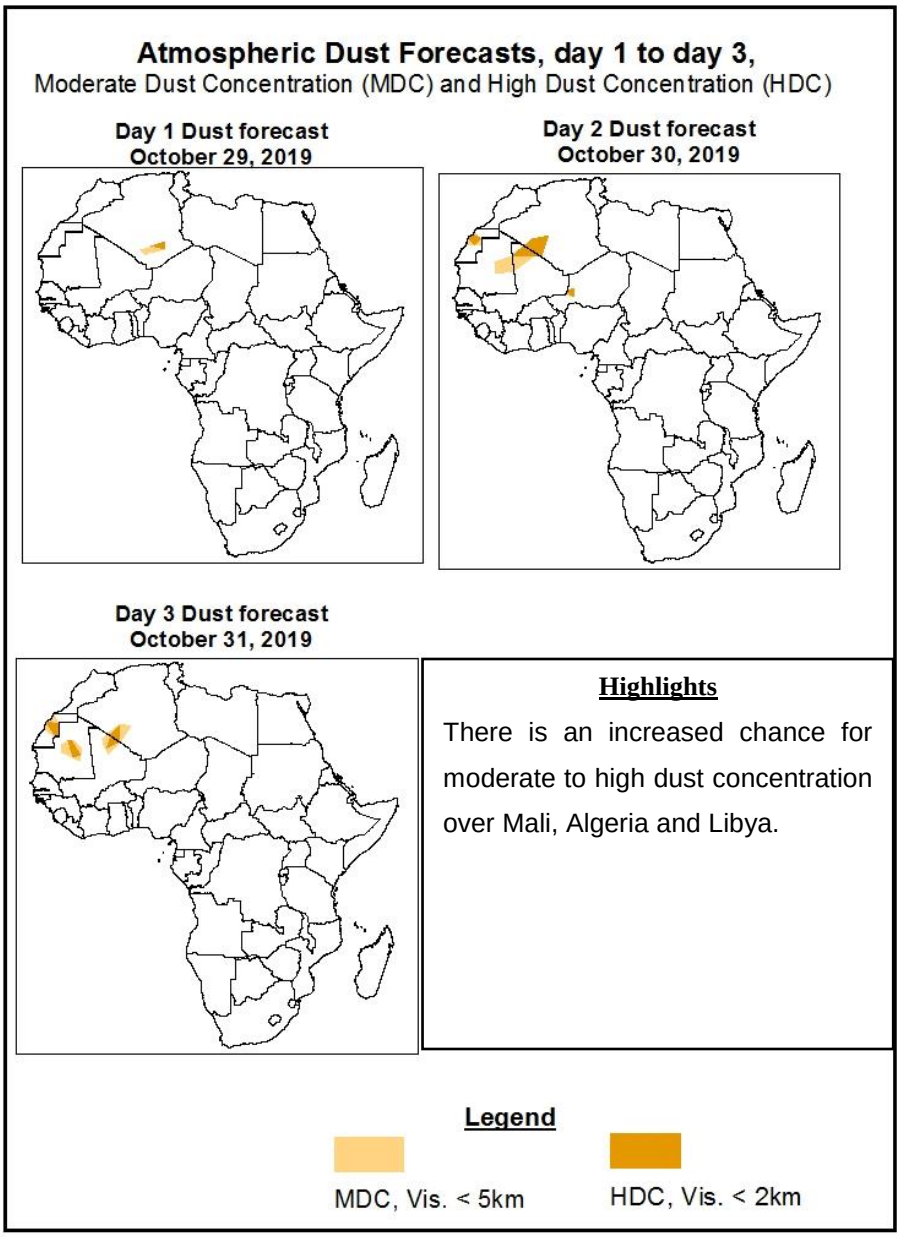


Highlights

- The monsoon flow from the Atlantic Ocean with its associated lower-level convergence is expected to enhance rainfall over portions of the Gulf of Guinea and Central Africa. Lower-level wind convergence is also expected to enhance rainfall in the Lake Victoria region and parts of Southern Africa.
- At least 25mm for two or more days is likely over portions of Liberia, Cote D'Ivoire, Ghana, Cameroon, DRC, CAR, Gabon, northeastern Uganda, northeastern Kenya, southern South Sudan, Botswana, Lesotho and northern South Africa.
- There is an increased chance for daily rainfall to exceed 50mm over local areas in Cote d'Ivoire and South Africa
- There is an increased chance for daily maximum heat index to exceed 40^{o}C over Malawi and Mozambique.

1.2. Atmospheric Dust Concentration Forecasts *(valid: 29 Oct – 31 Oct 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: 29 October –02 November 2019*

The Azores High Pressure system over the Northeast Atlantic is diffuse and is expected to weaken with its central pressure value decreasing from 1035hPa to 1029hPa during the forecast period.

The St. Helena High Pressure system over Southeast Atlantic Ocean expected to weaken while shifting eastward with its central pressure value decreasing from 1029hPa to 1021hPa during the forecast period.

The Mascarene High Pressure system over Southwest Indian Ocean is expected to intensify for the first day of the forecast period with its central pressure value increasing from 1026hPa to 1032hPa, and then will remain constant with slight variation in its central pressure value between 1032hPa and 1028hPa for the rest of the days of the forecast period

At 925-hPa level, moist southwesterly flow from the Atlantic Ocean is expected to prevail across the Gulf of Guinea and the southern Sahel regions, the neighboring areas of Central Africa. On the other hand, easterly flow from the Indian Ocean with its low-level convergence is expected to prevail across the equatorial eastern part of Great Horn of Africa while the northeasterly flow is expected to prevail across southern Africa.

At 850-hPa level, strong dry northerly flow is expected remain active and prevail across southern Sahel. Otherwise, meridional wind convergence is expected to remain active in the Lake Victoria region, Congo Basin and the neighboring areas of Central Africa, Nigeria, southern Cameroon, Angola, southern Chad and CAR during the forecast period. Converging winds over Great Horn of Africa are likely to maintain occasional enhanced to moderate precipitation over these areas.

The monsoon flow from the Atlantic Ocean with its associated lower-level convergence is expected to enhance rainfall over portions of the Gulf of Guinea and Central Africa. Lower-level wind convergence is also expected to enhance rainfall in the Lake Victoria region and parts of Southern Africa. At least 25mm for two or more days is likely over portions of Liberia, Cote D'Ivoire, Ghana, Cameroon, DRC, CAR, Gabon, northeastern Uganda, northeastern

Kenya, southern South Sudan, Botswana, Lesotho and northern South Africa. There is an increased chance for daily rainfall to exceed 50mm over local areas in Cote d'Ivoire and South Africa. There is an increased chance for daily maximum heat index to exceed 40^{o}C over Malawi and Mozambique.

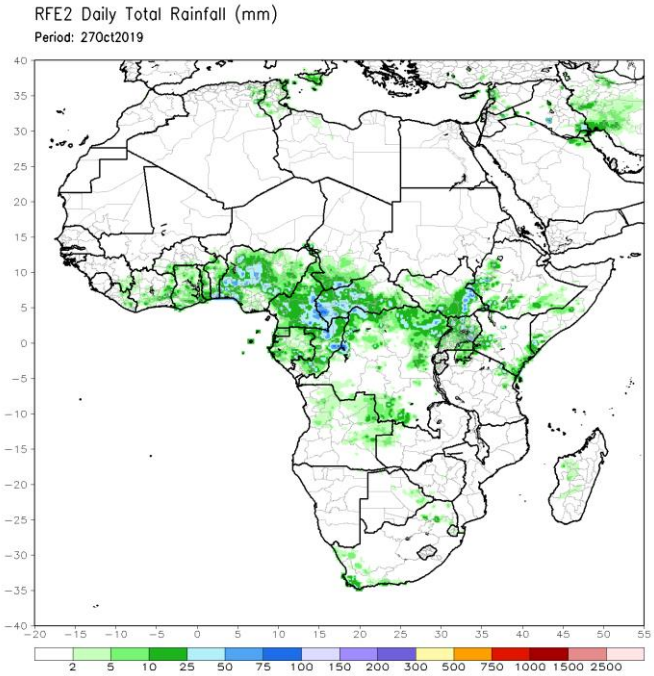
2.0. Previous and Current Day Weather over Africa

2.1. Weather assessment for the previous day (Oct 27, 2019)

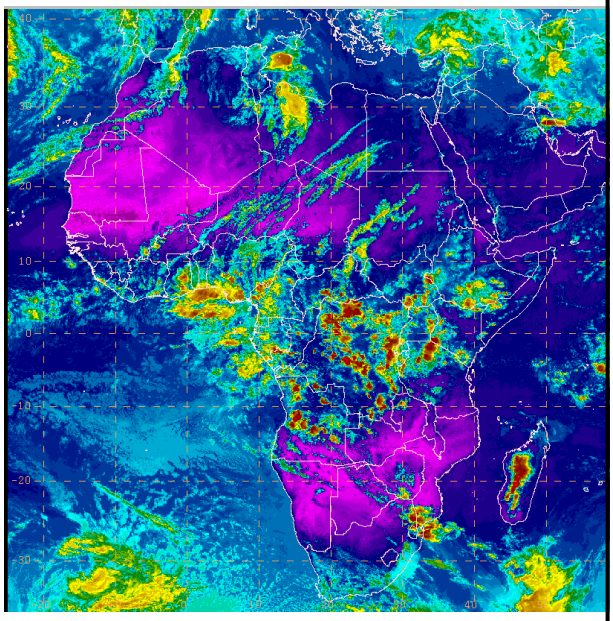
Daily rainfall amount exceeded 25mm over Benin, Nigeria, Cameroon, Republic of Congo, DRC, CAR, Chad, Tanzania, South Sudan, Somalia, Kenya and Uganda; and exceeded 50mm over Cameroon, CAR, DRC, Republic of Congo, Uganda, South Sudan and Ethiopia.

2.2. Weather assessment for the current day (Oct 28, 2019)

Deep convective clouds are observed over many places in Central Africa, and portions of western, eastern and southern Africa.



IR Satellite Image (valid 1452 October 28, 2019)



Author: DIALLO Ahmadou Al/MUSA Ssemujju (CPC-African Desk/Guinea & Uganda Meteorological Service)