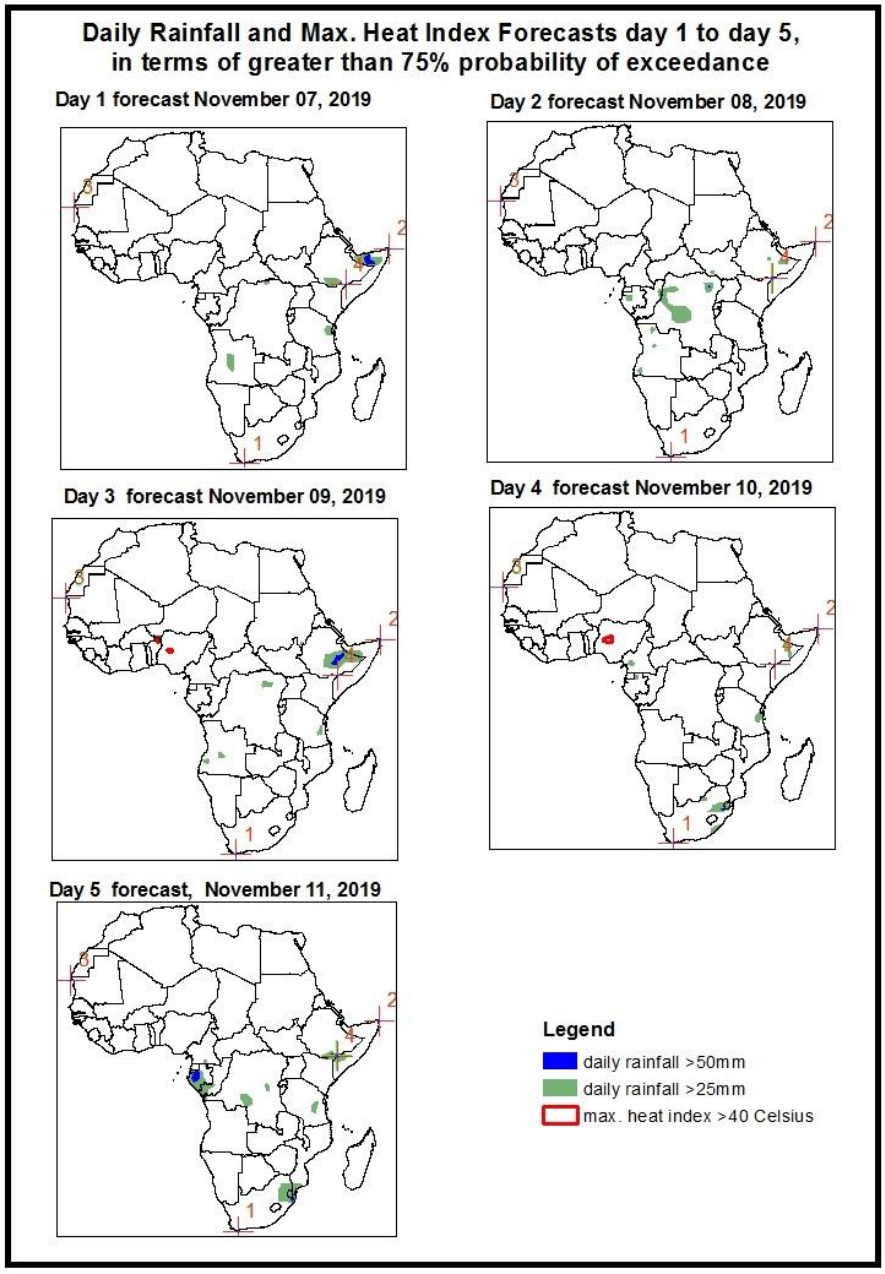
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

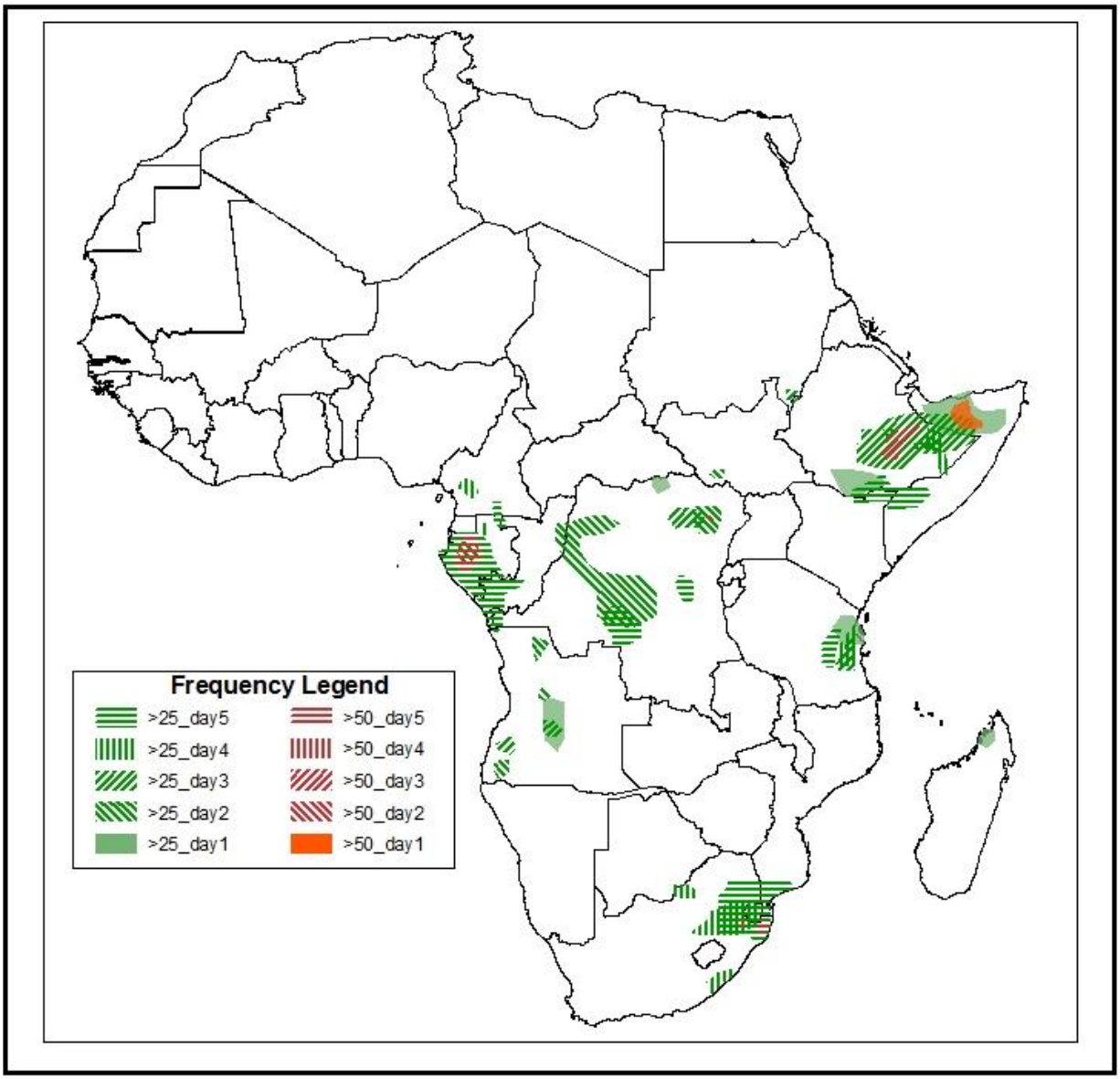
1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on November 06, 2019)

1.1. Daily Rainfall and Maximum Heat Index Forecasts *(valid: 07 November – 11 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
November 07 - November 11, 2019

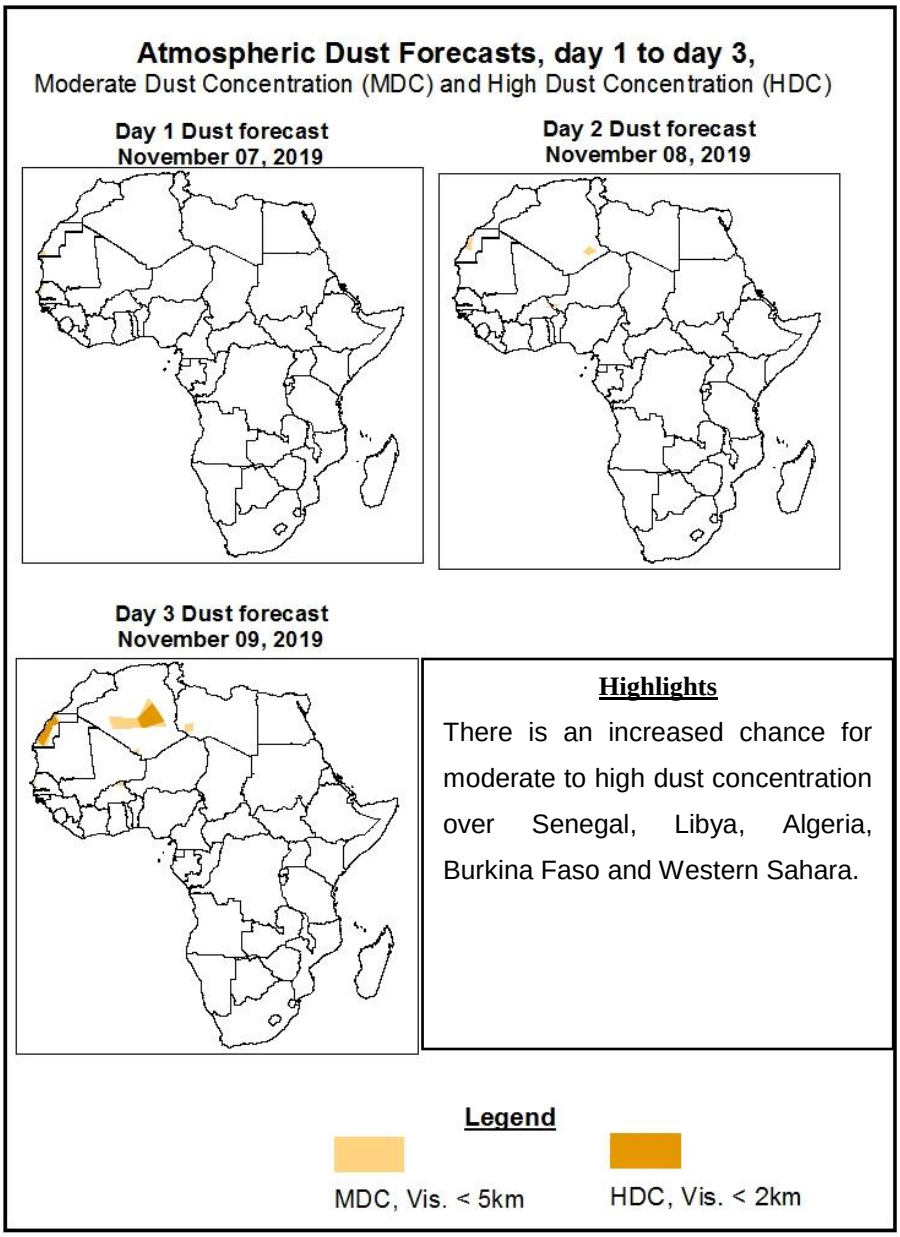


Highlights

- Westerly flow from the Atlantic Ocean with its associated lower-level convergence is expected to enhance rainfall over the western portions of equatorial Africa. Onshore flow from the Indian Ocean with its associated lower-level convergence is expected to enhance rainfall across southeastern Ethiopia and western Somalia.
- At least 25mm for two or more days is likely over portions of Cameroon, Gabon, Republic of Congo, DRC, Angola, Kenya, South Sudan, Sudan, Ethiopia, Somalia, Tanzania, Mozambique, Swaziland (Eswatini) and South Africa.
- There is an increased likelihood for daily rainfall to exceed 50mm over local areas in Ethiopia, Gabon, DRC and South Africa.
- There is an increased chance for daily maximum heat index to exceed 40^{o}C over Nigeria and Benin.

1.2. Atmospheric Dust Concentration Forecasts *(valid: 07 Nov – 09 Nov 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: 07 November –11 November 2019*

The Azores High Pressure system over the Northeast Atlantic is expected to weaken with its central pressure value decreasing from 1033hPa to 1028hPa for the first two days of the forecast period and then it will intensify from 1028hPa to 1034hPa during the rest of the forecast period.

The St. Helena High Pressure system over Southeast Atlantic Ocean is expected to intensify while shifting eastwards with its central pressure value increasing from 1027hPa to 1032hPa for the first three days of the forecast period and then it will weaken from 1032hPa to 1027hPa during the rest of the forecast period.

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The Mascarene High Pressure system over Southwest Indian Ocean is generally expected to strengthen while shifting eastwards with its central pressure value increasing from 1024hPa to 1028hPa for the first three days of the forecast period and then its central pressure value will decrease to 1026hPa during the remainder of the forecast period.

Thermal low across the Sahel region is expected to deepen with its central pressure value decreasing from 1011hPa to 1006hPa while shifting westward during the forecast period.

At 925-hPa level, moist southwesterly flow from the Atlantic Ocean is expected to prevail across the Gulf of Guinea, southern Sahel regions and 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 Great Horn of Africa and parts of Central Africa while the northeasterly flow is expected to prevail across parts of southern Africa.

At 850-hPa level, strong dry northerly flow is expected remain active and prevail across southern Sahel countries. On the other hand, meridional and seasonal wind convergence is expected to remain active in the Lake Victoria region, Congo Basin and the neighboring areas of Central Africa, southern Cameroon, Gabon, Angola, southern Chad, CAR and Sudan during the forecast period. Converging winds over Somalia, Kenya, Tanzania, Uganda, Ethiopia, South Sudan, Mozambique, Malawi, Zambia, Namibia, Botswana and

South Africa; these are likely to maintain the occasional enhanced to moderate precipitation over these areas.

Westerly flow from the Atlantic Ocean with its associated lower-level convergence is expected to enhance rainfall over the western portions of equatorial Africa. Onshore flow from the Indian Ocean with its associated lower-level convergence is expected to enhance rainfall across southeastern Ethiopia and western Somalia. At least 25mm for two or more days is likely over portions of Cameroon, Gabon, Republic of Congo, DRC, Angola, Kenya, South Sudan, Sudan, Ethiopia, Somalia, Tanzania, Mozambique, Swaziland (Eswatini) and South Africa. There is an increased likelihood for daily rainfall to exceed 50mm over local areas in Ethiopia, Gabon, DRC and South Africa. There is an increased chance for daily maximum heat index to exceed 40oC over Nigeria and Benin.

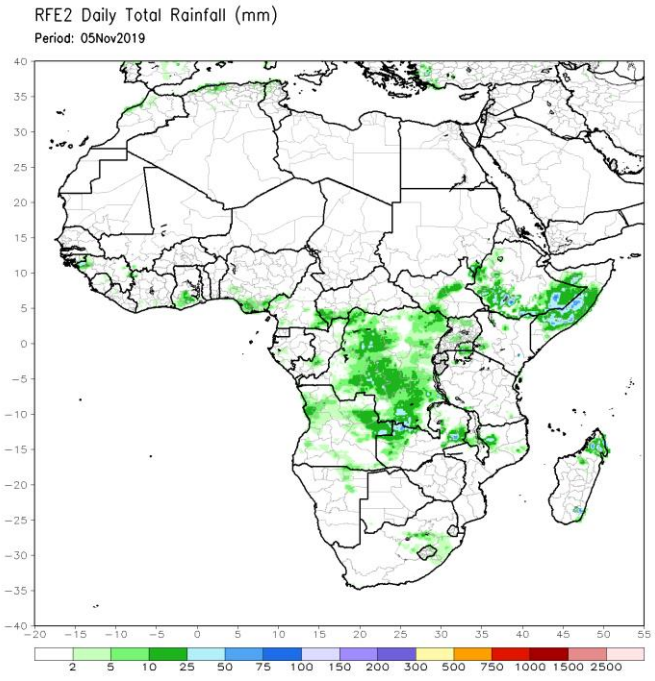
2.0. Previous and Current Day Weather over Africa

2.1. Weather assessment for the previous day (Nov 05, 2019)

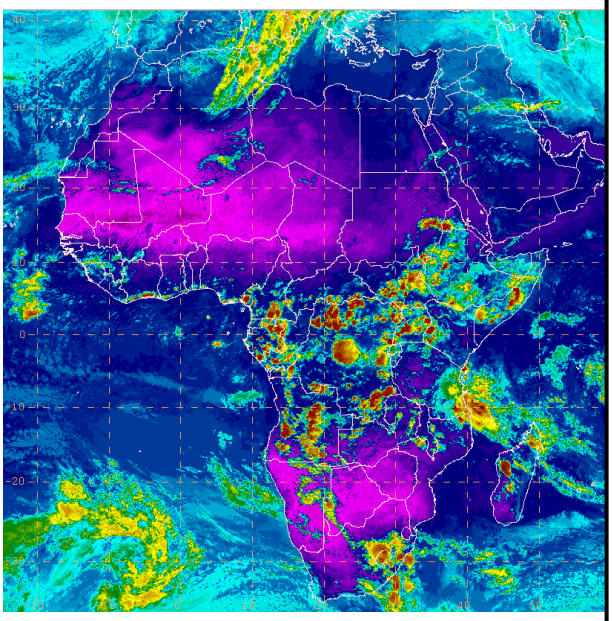
Daily rainfall amount exceeded 25mm over Guinea, Ghana, Tunisia, DRC, Angola, Uganda, Kenya, Tanzania, Ethiopia, Somalia, South Sudan, Sudan, Mozambique, Zambia and Madagascar; and exceeded 50mm over Tunisia, DRC, Zambia, Kenya, Ethiopia, Somalia and Madagascar.

2.2. Weather assessment for the current day (Nov 06, 2019)

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



IR Satellite Image (valid 1452 November 06, 2019)



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