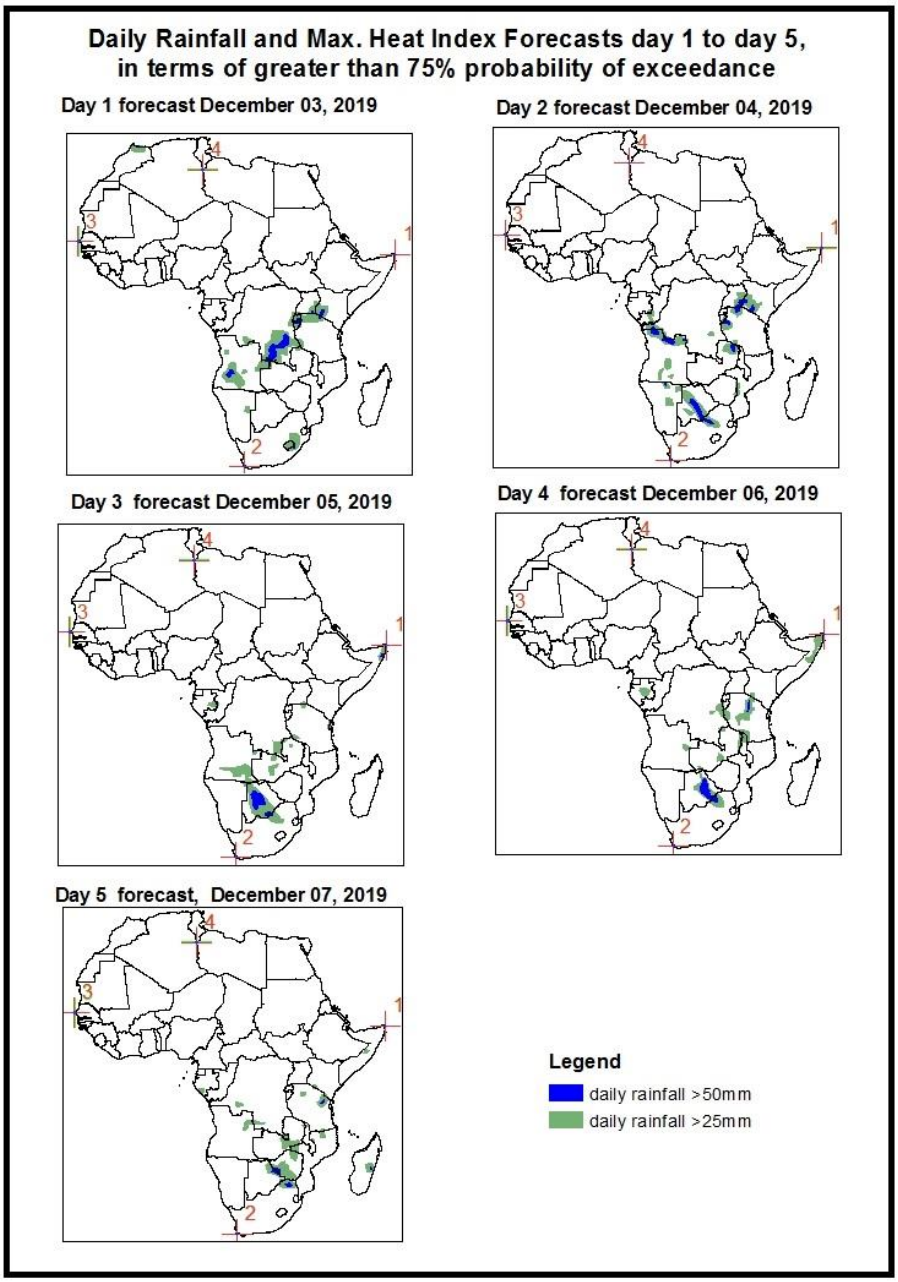
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

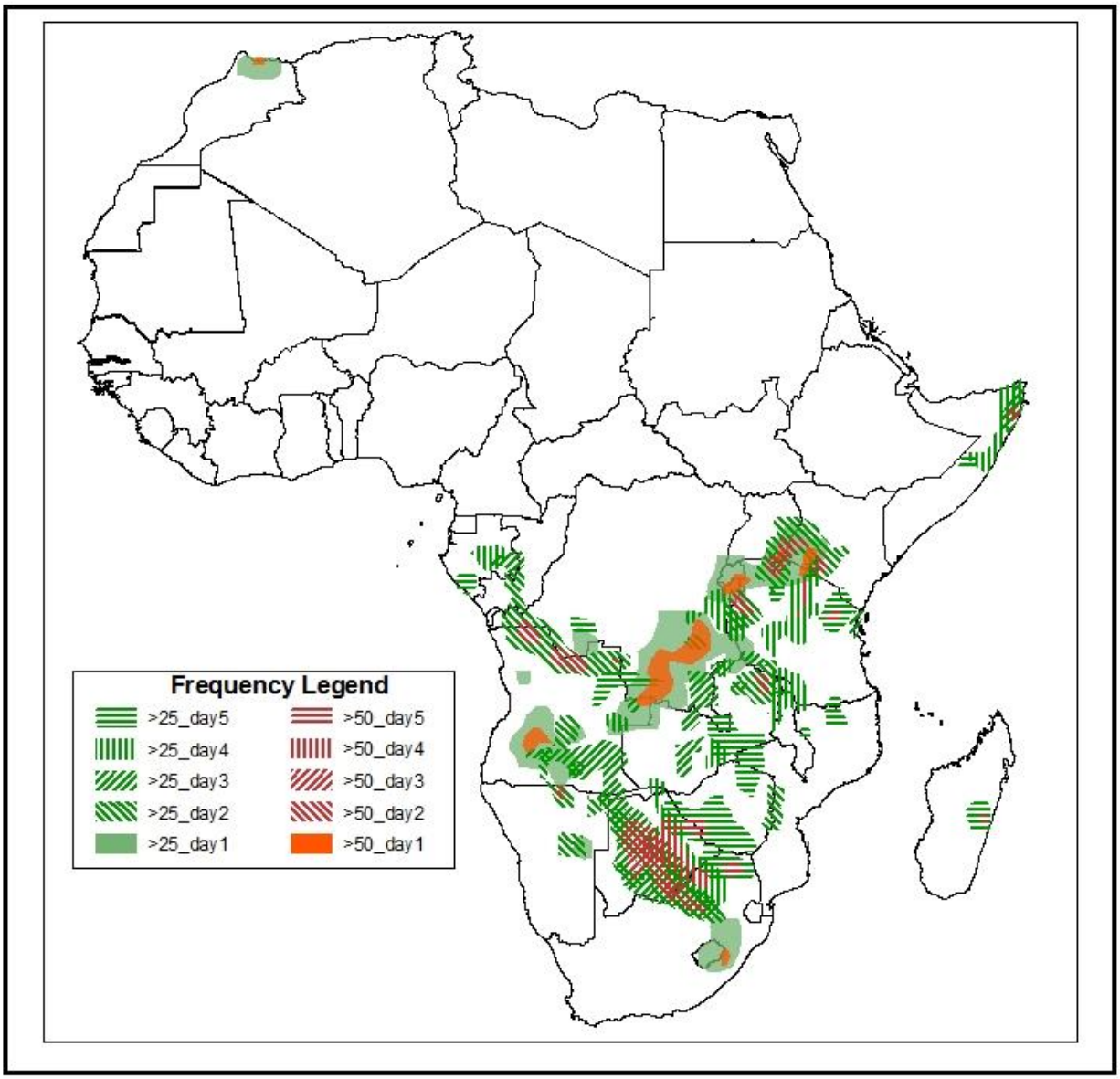
1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on December 02, 2019)

1.1. Daily Rainfall and Maximum Heat Index Forecasts *(valid: 03 December – 07 December, 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
December 03 - December 07, 2019

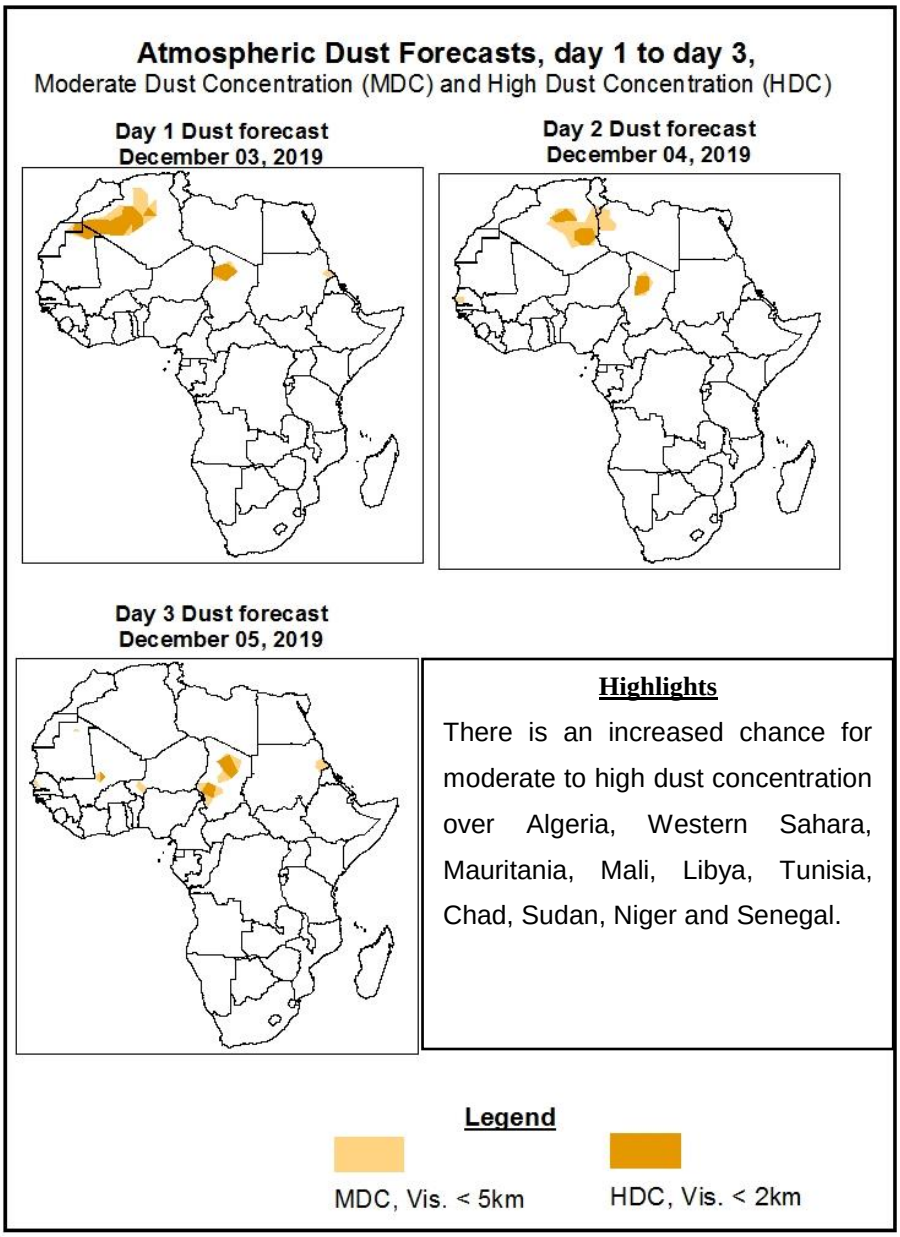


Highlights

- Strong lower-level convergence in the Lake Victoria region and onshore flow from the Indian Ocean with its associated lower-level convergence is expected to enhance rainfall over Central and eastern Africa. Lower-level wind convergences are also expected to enhance rainfall over portions of Southern Africa.
- At least 25mm for two or more days is likely over portions of Gabon, Republic of Congo, DRC, Angola, Namibia, Botswana, South Africa, Zimbabwe, Mozambique, Madagascar, Malawi, Zambia, Tanzania, Rwanda, Burundi, Uganda, Kenya and Somalia.
- There is an increased likelihood for daily rainfall to exceed 50mm over local areas in Morocco, DRC, Angola, Namibia, Botswana, South Africa, Lesotho, Zimbabwe, Zambia, Madagascar, Rwanda, Burundi, Tanzania, Uganda, Kenya and Somalia.

1.2. Atmospheric Dust Concentration Forecasts (valid: 03 Dec – 05 Dec 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: 03 December – 07 December 2019*

The Azores High Pressure system over the Northeast Atlantic is generally expected to weaken while shifting eastwards with its central pressure value decreasing from 1034hPa to 1029hPa during the forecast period.

The St. Helena High Pressure system over the Southeast Atlantic Ocean is expected to intensify while shifting eastwards with its central pressure value increasing from 1022hPa to 1031during the first two days of the forecast period and then it is expected to weaken from 1031hPa to 1020hPa during the remainder of 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 1022hPa to 1016hPa during the forecast period.

The relatively strong Arabian Ridge from the strong Siberian High Pressure system is expected to remain active during the forecast period and hence, it will have a significant impact on the weather across most parts of northeastern Africa and Great Horn of Africa.

At 925-hPa level, moist southwesterly flow from the Atlantic Ocean with its low-level convergence is expected to prevail across the Gulf of Guinea, southern Sahel regions and most neighboring areas of Central Africa. On the other hand, there is a likely development of two tropical disturbances (one near the tip of Somalia and the other slightly above the tip of Madagascar) and these will greatly deprive Greater Horn of Africa with less moisture convergence. Otherwise, the combination of southeasterly, easterly and northeasterly flow from the Indian Ocean with their low-level convergences is expected to prevail across the Greater Horn of Africa, parts of Central Africa and most 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 across the Lake Victoria region, Congo Basin and the neighboring areas of Central Africa, Cameroon, Gabon, Equatorial Guinea, Angola, CAR, South Sudan and Sudan during the forecast period. Converging winds over Kenya, Tanzania, Uganda,

Burundi, Rwanda, Ethiopia, South Sudan, Mozambique, Malawi, Zimbabwe, Zambia, Namibia, Botswana, Lesotho, South Africa and Madagascar; these are likely to maintain the occasional enhanced to moderate precipitation over these areas.

Strong lower-level convergence in the Lake Victoria region and onshore flow from the Indian Ocean with its associated lower-level convergence is expected to enhance rainfall over Central and eastern Africa. Lower-level wind convergences are also expected to enhance rainfall over portions of Southern Africa. At least 25mm for two or more days is likely over portions of Gabon, Republic of Congo, DRC, Angola, Namibia, Botswana, South Africa, Zimbabwe, Mozambique, Madagascar, Malawi, Zambia, Tanzania, Rwanda, Burundi, Uganda, Kenya and Somalia. There is an increased likelihood for daily rainfall to exceed 50mm over local areas in Morocco, DRC, Angola, Namibia, Botswana, South Africa, Lesotho, Zimbabwe, Zambia, Madagascar, Rwanda, Burundi, Tanzania, Uganda, Kenya and Somalia.

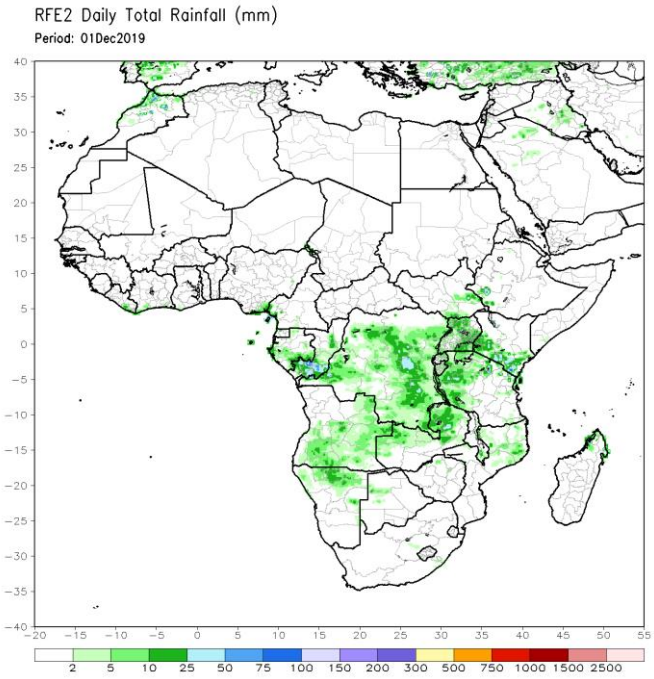
2.0. Previous and Current Day Weather over Africa

2.1. Weather assessment for the previous day (Dec 01, 2019)

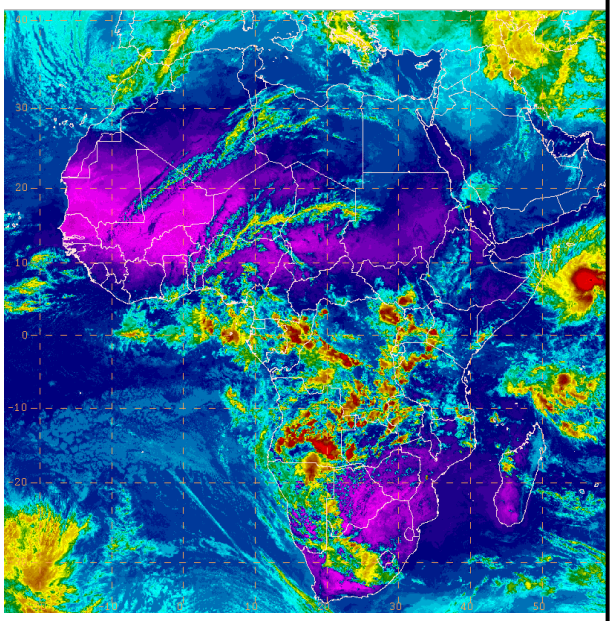
Daily rainfall amount exceeded 25mm over Morocco, Republic of Congo, DRC, Uganda, South Sudan, Ethiopia, Kenya, Tanzania, Malawi, Zambia and Madagascar; and exceeded 50mm over Madagascar, Tanzania, Kenya, Ethiopia, DRC, Republic of Congo and Morocco.

2.2. Weather assessment for the current day (Dec 02, 2019)

Deep convective clouds are observed over many places in the equatorial western Africa, Central Africa, the Greater Horn of Africa and a few portions in southeastern Africa. There is a likely development of two tropical disturbances (one near the tip of Somalia and the other above the tip of Madagascar).



IR Satellite Image (valid 1452 November 26, 2019)



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