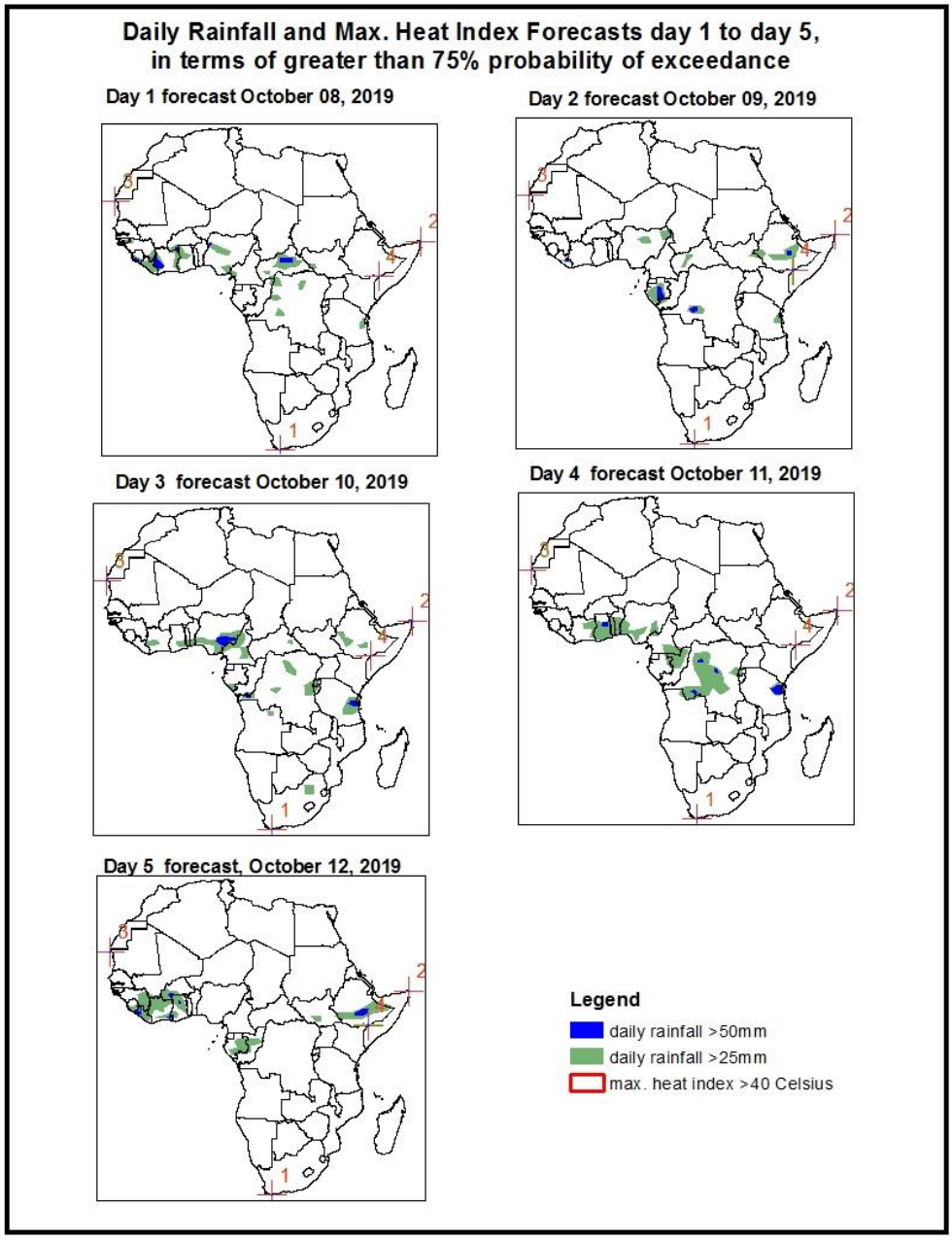
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

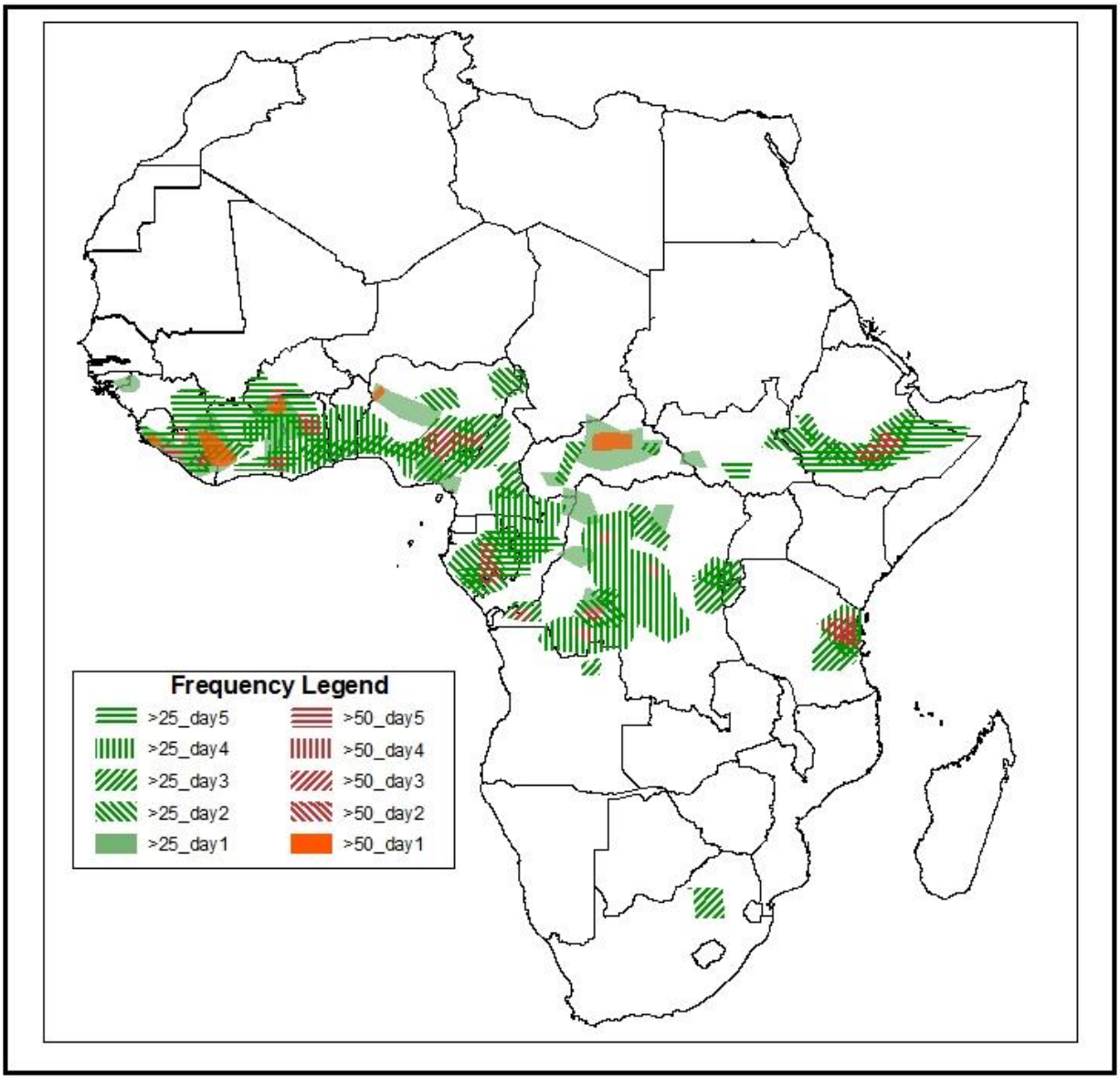
1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on October 07, 2019)

1.1. Daily Rainfall and Maximum Heat Index Forecasts *(valid: 08 October – 12 October, 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 08 - October 12, 2019

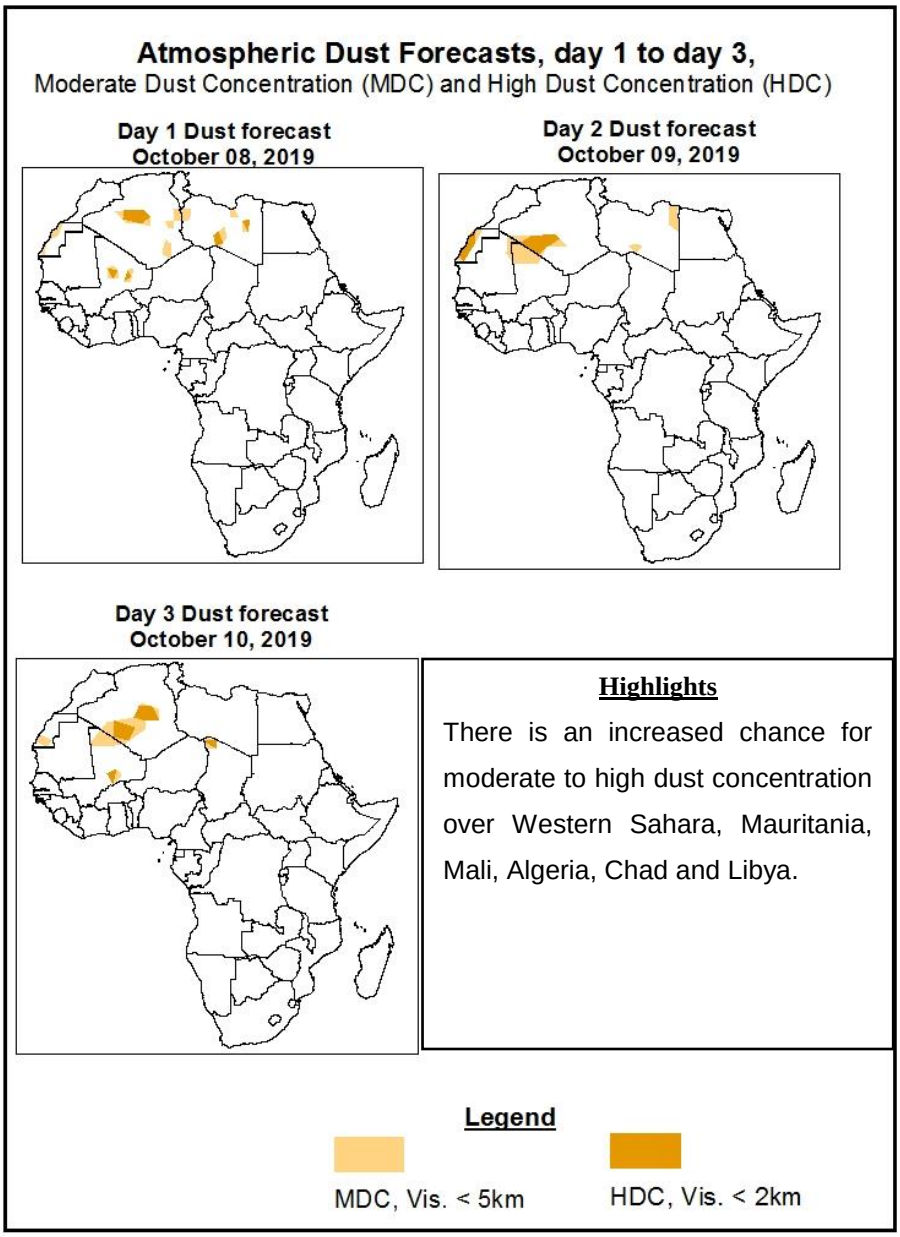


Highlights

- The monsoon flow from the Atlantic Ocean with its associated lower-level convergence is expected to enhance rainfall over portions of West and Central Africa. Onshore flow from the Indian Ocean with its associated lower-level convergence is also expected to enhance rainfall across eastern Africa.
- At least 25mm for two or more days is likely over portions of Southern Sierra-Leone, Liberia, Eastern Guinea, Cote D'Ivoire, Ghana, Togo, Benin, Southwestern Burkina Faso, Nigeria, Cameroon, CAR, DRC, Republic of Congo, Gabon, Rwanda, Burundi, Eastern Tanzania, Eastern South Sudan, Ethiopia and Northern South Africa.
- There is an increased chance for daily rainfall to exceed 50mm over southern Liberia, southern Sierra-Leone, eastern Cote D'Ivoire, Ghana, southern Burkina Faso, Nigeria, CAR, Gabon, DRC, Tanzania and Ethiopia.

1.2. Atmospheric Dust Concentration Forecasts *(valid: 08 Oct – 10 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: 08 October –12 October 2019*

The Azores High Pressure system over the Northeast Atlantic is expected to weaken, with its central pressure value decreasing from 1032hPa to 1020hPa during the forecast period.

The St. Helena High Pressure system over Southeast Atlantic Ocean expected to strengthen, with its central pressure value increasing from 1025hPa to 1030hPa in the first half part of the forecast period and then decreasing from 1030hPa to 1025hPa during the second part of the forecast period.

The Mascarene High Pressure system over Southwest Indian Ocean is expected to weaken while shifting eastward, with its central pressure value decreases from 1032hPa to 1029hPa during the forecast period.

Thermal low across the Sahel region is expected to slightly deepen with its central pressure value decreasing while shifting westward from 1006hPa to 1005hPa during the forecast period.

At 925-hPa level, strong dry northerly flow is expected to prevail across Northwest Africa. In other hand, moist southwesterly flow from the Atlantic Ocean is expected to prevail across the Gulf of Guinea and the Sahel regions, and the neighboring areas of Central Africa

At 850-hPa, meridional wind convergence is expected to remain active in the Lake Victoria region and neighboring areas and the neighboring areas of Central Africa during the forecast period. Otherwise, dry northeasterly flow from North Africa is expected to prevail across southwestern Sahel region that will be reducing precipitations in this area.

At 700-hPa, a broad area of anticyclonic circulation is expect to remain while shifting westward over North Africa. Quite significant divergence over central and Great Horn of Africa underscores the depth of the convergent wind system over. The convergence is likely to favor deep convection over these areas.

At 500-hpa, wind speed associated with easterly flow is expected to exceed 30kts across the Northern Africa, Sahel and West Africa region during the forecast period.

The monsoon flow from the Atlantic Ocean with its associated lower-level convergence is expected to enhance rainfall over portions of West and Central Africa. Onshore flow from the Indian Ocean with its associated lower-level convergence is also expected to enhance rainfall across eastern Africa. At least 25mm for two or more days is likely over portions of Southern Sierra-Leone, Liberia, Eastern Guinea, Cote D'Ivoire, Ghana, Togo, Benin, Southwestern Burkina Faso, Nigeria, Cameroon, CAR, DRC, Republic of Congo, Gabon, Rwanda, Burundi, Eastern Tanzania, Eastern South Sudan, Ethiopia and Northern South Africa. There is an increased chance for daily rainfall to exceed 50mm over southern Liberia, southern Sierra-Leone, eastern Cote D'Ivoire, Ghana, southern Burkina Faso, Nigeria, CAR, Gabon, DRC, Tanzania and Ethiopia.

2.0. Previous and Current Day Weather over Africa

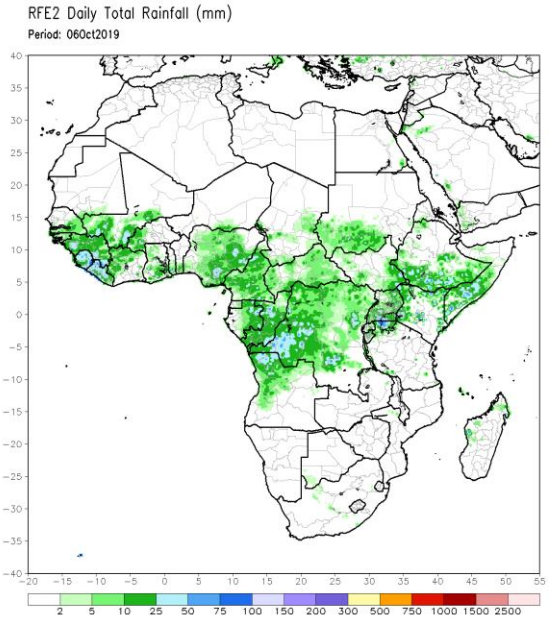
2.1. Weather assessment for the previous day (Oct 06, 2019)

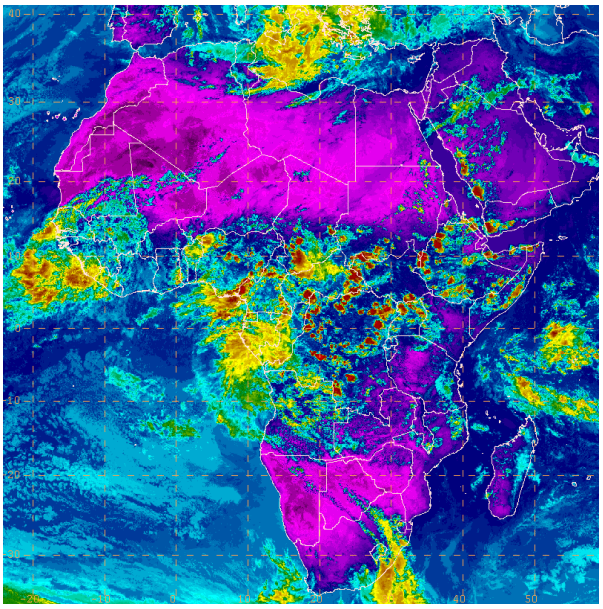
Daily rainfall amount exceeded 25mm over Southern Mali, Guinea, Liberia, Sierra-Leone, Nigeria, Cameroon, Gabon, Republic of Congo, DRC, Angola, Uganda, Rwanda, Ethiopia and exceeded 50mm over Sierra-Leone, Liberia, Uganda and Rwanda.

2.2. Weather assessment for the current day (Oct 07, 2019)

Deep convective clouds are observed over far West Africa region, Central Africa countries and local areas in the Greater Horn of Africa.

IR Satellite Image (valid 1352 October 07, 2019)





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