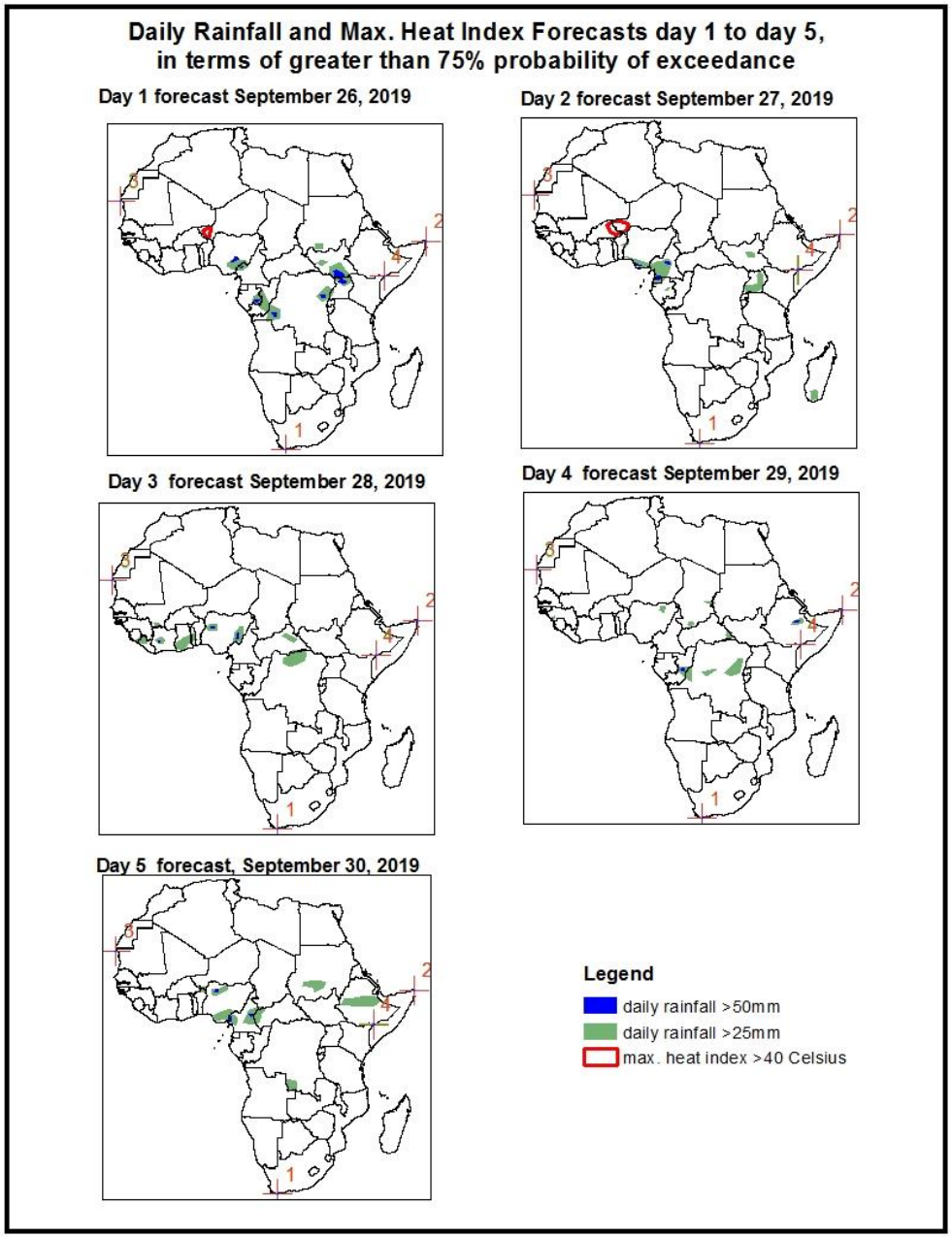
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

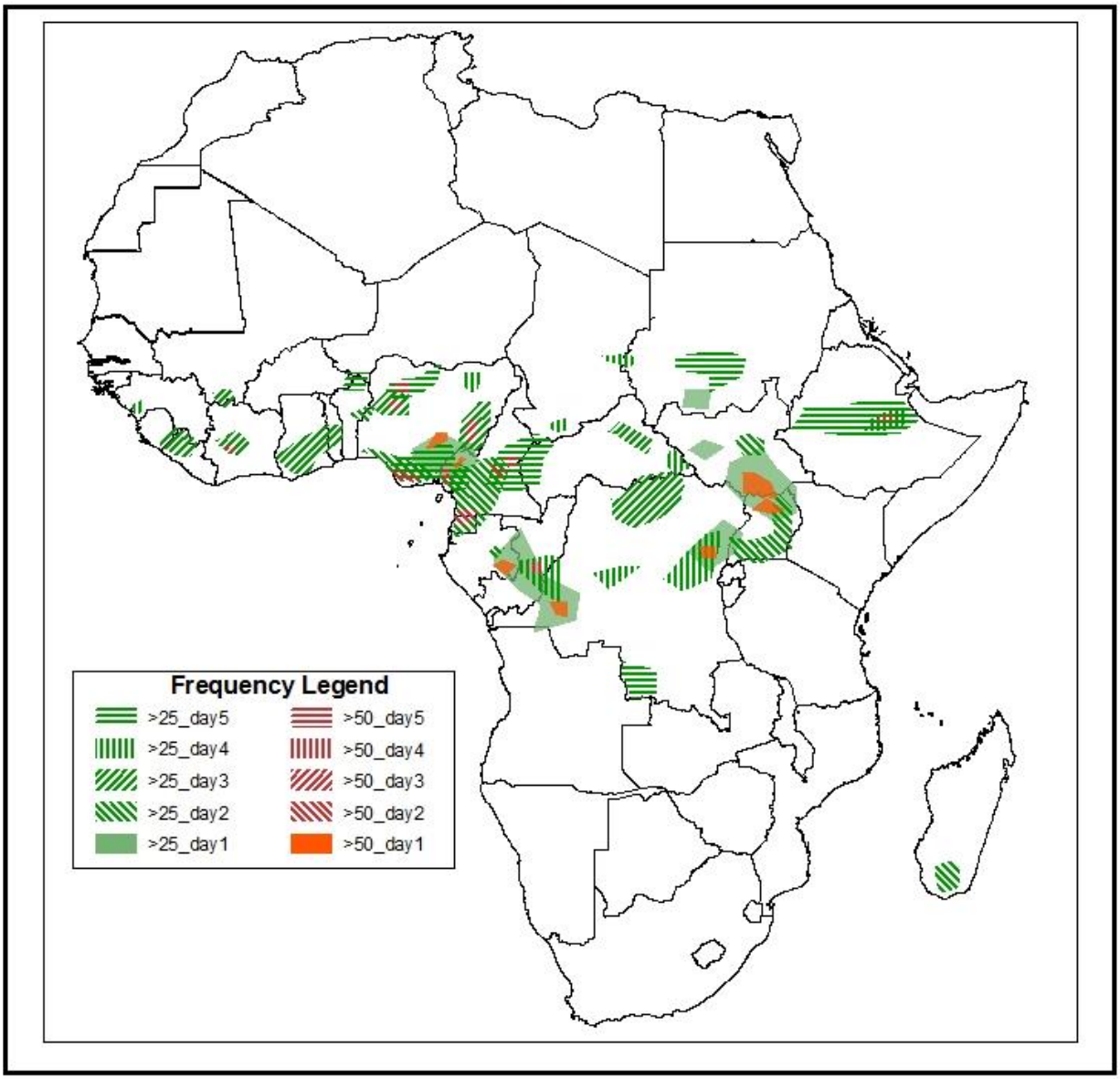
1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on September 25, 2019)

1.1. Daily Rainfall and Maximum Heat Index Forecasts (valid: 26 – 30 September, 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
September 26 - September 30, 2019

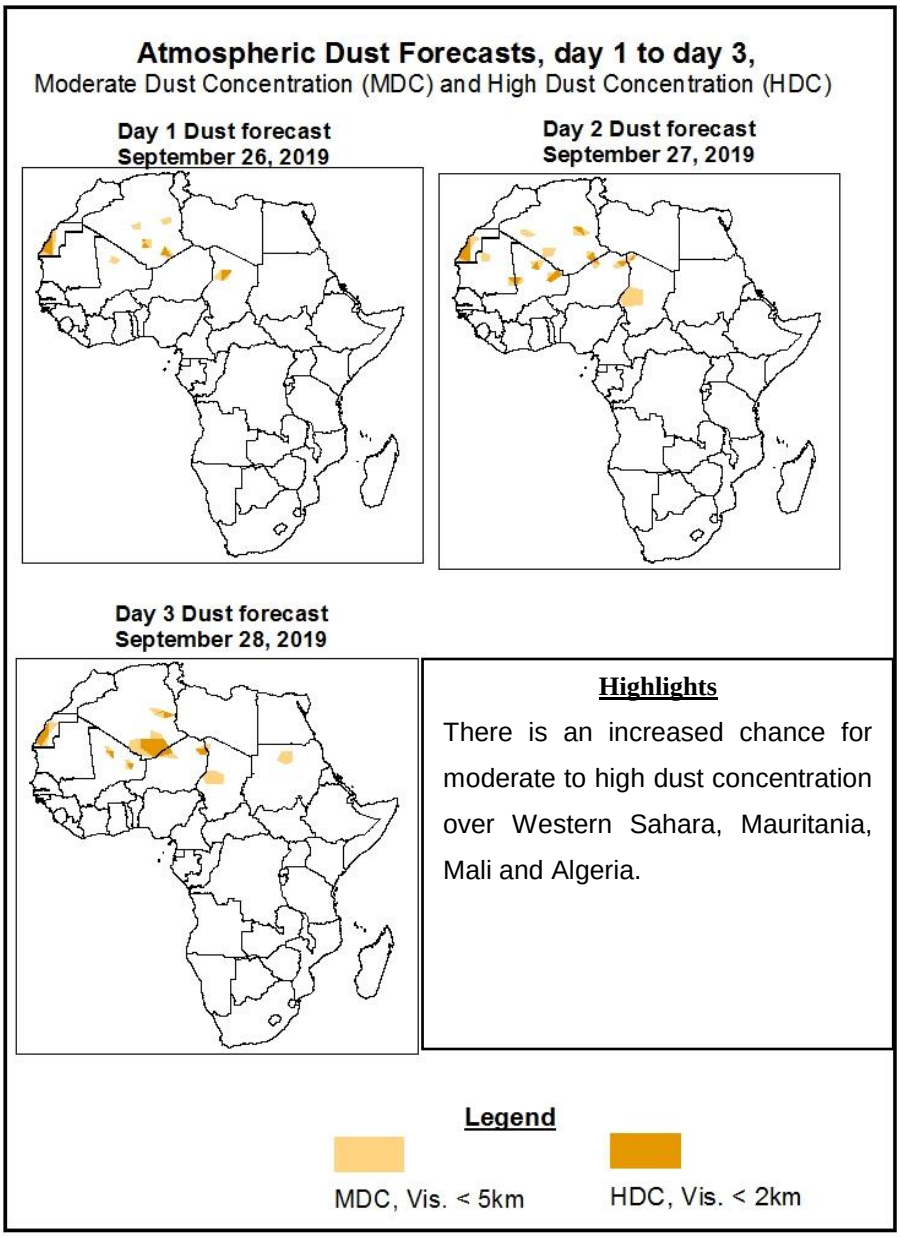


Highlights

- The monsoon flow from the Atlantic Ocean with its associated lower-level convergence, and westward propagating meso-scale convective systems are expected to enhance rainfall over portions of West and Central Africa. Seasonal wind convergences are expected to enhance rainfall in the Lake Victoria region, and parts of Ethiopia
- At least 25mm for two or more days is likely over portions of Southeastern Guinea, Liberia, Southern Mali, Portions of Cote D'Ivoire, Southern Ghana, Southern Togo, Nigeria, Cameroon, CAR, DRC, Central of Republic of Congo, Eastern Gabon, South Sudan, Uganda, Ethiopia, and Southern
- There is an increased chance for daily rainfall to exceed 50mm over Central of Cote D'Ivoire, Nigeria, Cameroon, Gabon, Republic of Congo, DRC, south Sudan and Uganda.
- There is an increased chance for daily maximum heat index to exceed 40^{o}C over Southeastern Niger, and Eastern Burkina Faso.

1.2. Atmospheric Dust Concentration Forecasts *(valid: 26 Sept – 28 Sept 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: 26 September – 30 September 2019*

The Azores High Pressure system over the Northeast Atlantic is expected to weaken, with its central pressure value decreasing from 1026hPa to 1021hPa during the forecast period.

The St. Helena High Pressure system over Southeast Atlantic Ocean is expected to weaken while shifting eastward with its central pressure value decreasing from 1031hPa to 1029hPa during 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 1035hPa to 1026hPa 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 1010hPa to 1007hPa 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 during the forecast period. Otherwise, dry northeasterly flow from North Africa is expected to prevail across 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, and mainly easterly wind pattern is expected to be maintained, converging over Nigeria, southern Chad, eastern Sudan and Cote d'Ivoire.

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

The monsoon flow from the Atlantic Ocean with its associated lower-level convergence, and westward propagating meso-scale convective systems are expected to enhance rainfall over portions of West and Central Africa and portions of the Greater Horn of Africa. At least 25mm for two or more days is likely over portions of Southeastern Guinea, Liberia, Southern Mali, Portions of Cote D'Ivoire, Southern Ghana, Southern Togo, Nigeria, Cameroon, CAR, DRC, Central of Republic of Congo, Eastern Gabon, South Sudan, Uganda, Ethiopia, and Southern Sudan. There is an increased chance for daily rainfall to exceed 50mm over Central of Cote D'Ivoire, Nigeria, Cameroon, Gabon, Republic of Congo, DRC, south Sudan and Uganda. There is an increased chance for daily maximum heat index to exceed 40^{o}C over Southeastern Niger, and Eastern Burkina Faso.

2.0. Previous and Current Day Weather over Africa

2.1. Weather assessment for the previous day (Sept 24, 2019)

Daily rainfall amount exceeded 25mm over, Northern Guinea, Eastern CAR, Southern Nigeria, Republic of Congo and DRC and exceeded 50mm over Nigeria.

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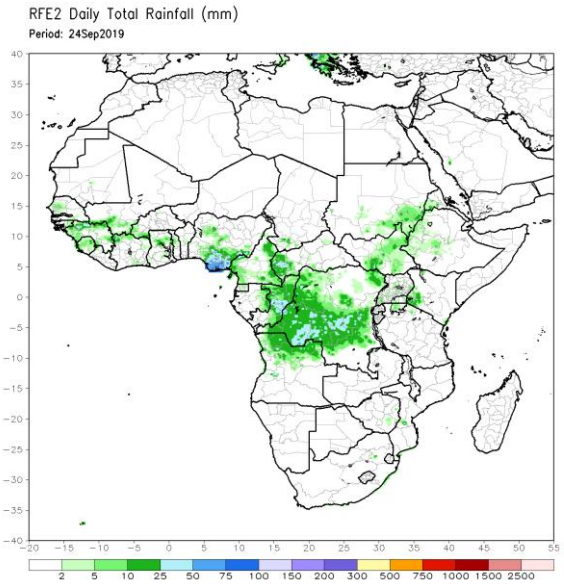
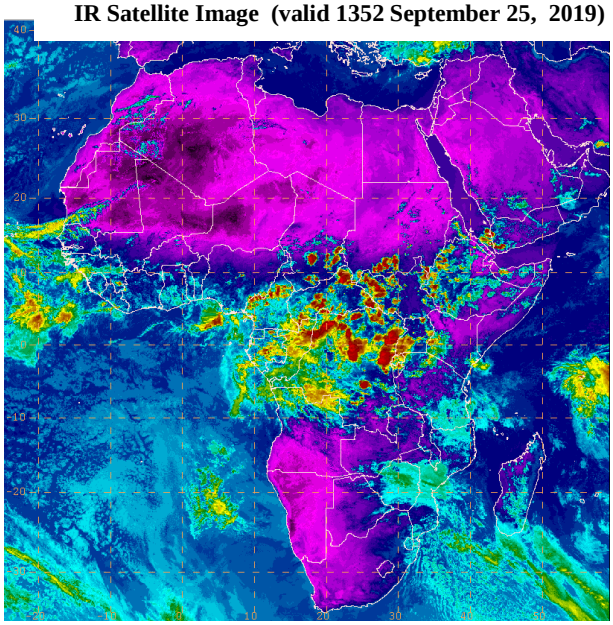
2.2. Weather assessment for the current day (Sept 25, 2019)

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 September 25, 2019)



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