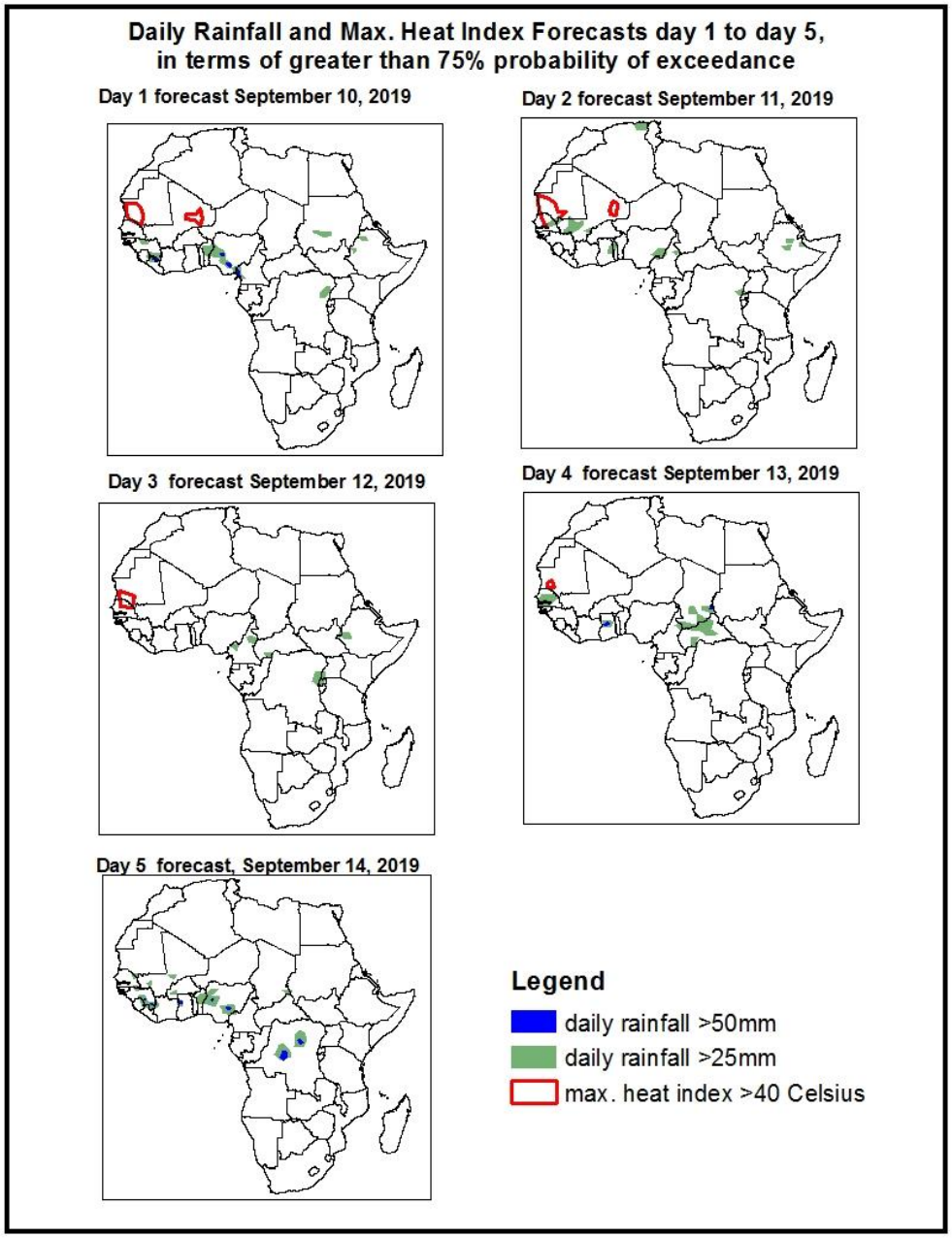
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

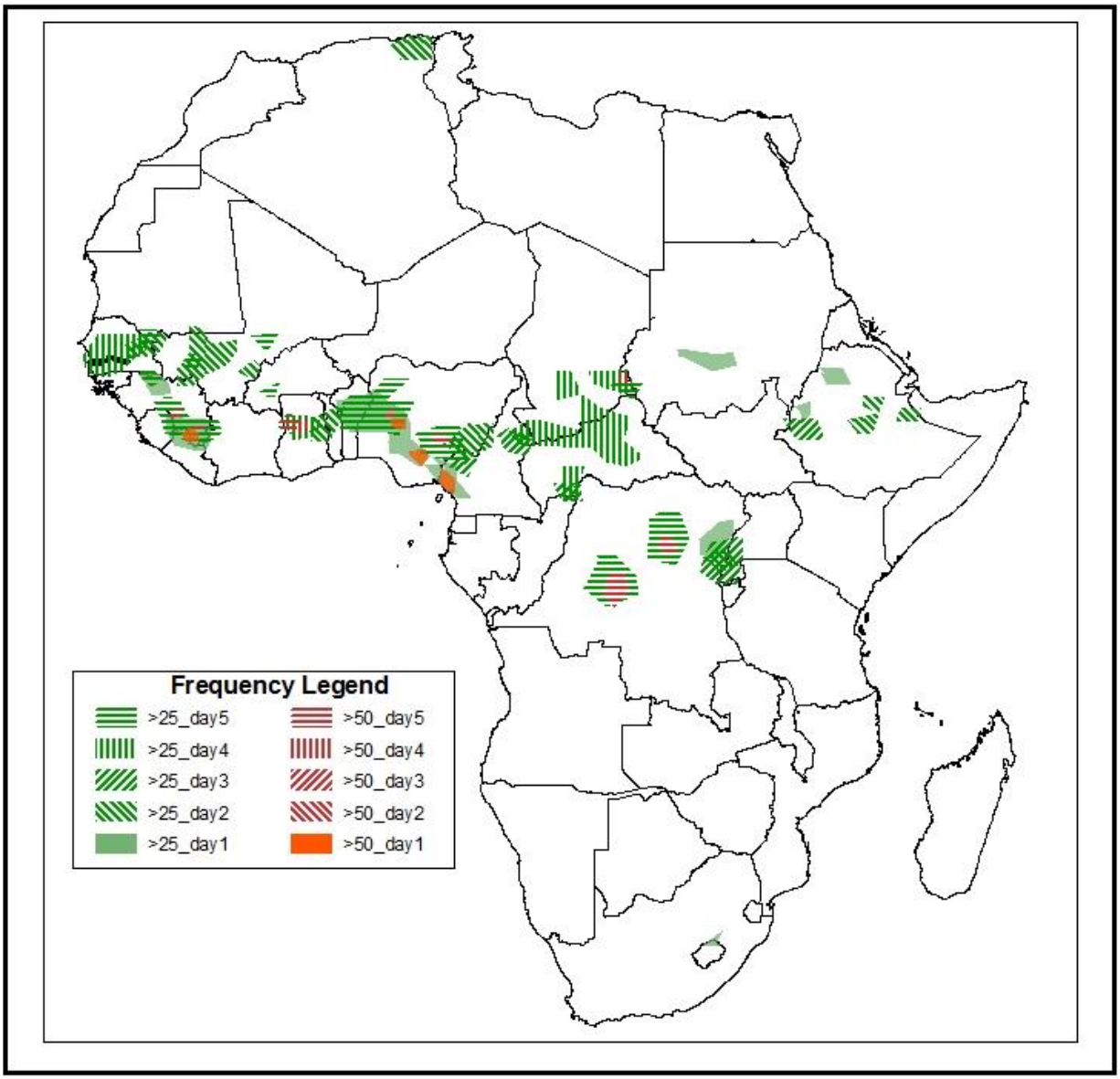
1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on September 09, 2019)

1.1. Daily Rainfall and Maximum Heat Index Forecasts (valid: 10 – 14 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 10 - September 14, 2019

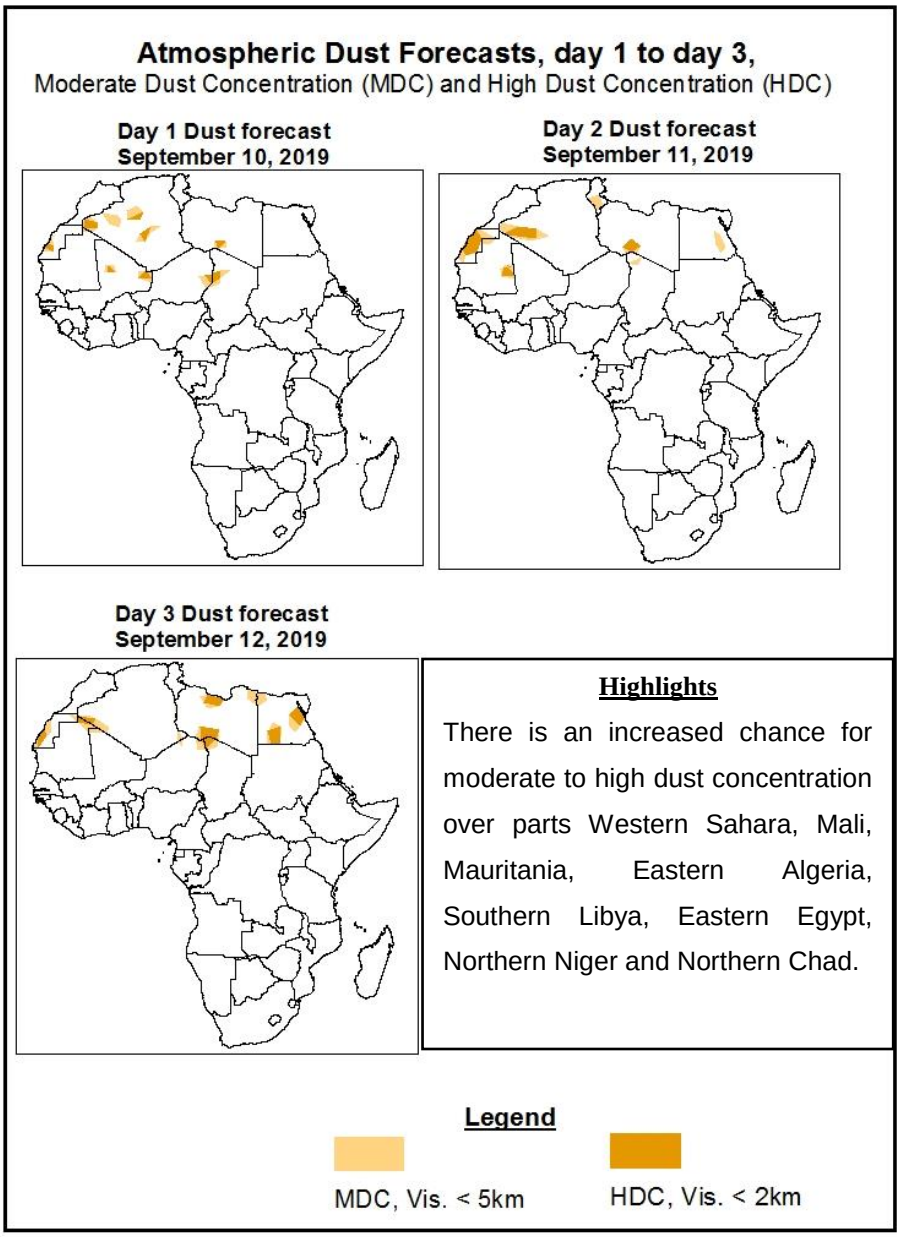


Highlights

- 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 Western Africa, portions of the Sahel, Central Africa countries.
- Lower-level wind convergences are expected to enhance rainfall across portions of the Greater Horn of Africa.
- At least 25mm for two or more days is likely over portions of West, Central Africa and portions of the Greater Horn of Africa. There is an increased chance for daily rainfall to exceed 50mm over southern Guinea, northern Liberia, central of Ghana, central of Nigeria, southeaster Cameroon and central of DRC.
- There is an increased chance for daily maximum heat index to exceed 40^{o}C over northern Senegal, southwestern Mauritania and northeastern Mali.

1.2. Atmospheric Dust Concentration Forecasts *(valid: 10 Sept – 14 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: 10 September – 14 September 2019*

The Azores High Pressure system over the Northeast Atlantic is expected to strengthen with its central pressure value increasing from 1030hPa to 1035hPa during the forecast period.

The St. Helena High Pressure system over Southeast Atlantic Ocean is expected to weaken with its central pressure value decreasing from 1032hPa to 1021hPa during the forecast period.

The Mascarene High Pressure system over Southwest Indian Ocean is expected to weaken with its central pressure value decreasing from 1033hPa to 1028hPa during the forecast period.

Thermal low across the Sahel region is expected to deepen with its central pressure value decreasing from 1011 to 1007hPa during of forecast period.

At 925-hPa level, Northeasterly winds is expected to prevail across Northwest Africa, and moist southwesterly flow from the Atlantic Ocean is expected to prevail across the Gulf of Guinea and covering much of West Africa and the Sahel regions, the neighboring areas of Central Africa.

At 850-hPa, lower-level wind convergences are expected to remain over much of the Sahel region. Meridional wind convergence is expected to remain active in the Lake Victoria region during the forecast period.

At 700-hPa, a broad area of anticyclonic flow is expected to prevail and intensify across much of Northwest, central Africa region and West Africa during the forecast period.

At 500-hpa, wind speed associated with easterly flow is expected to exceed 30kts across the northern Africa, over many parts southwestern Sahel, and central 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 Western Africa, portions of the Sahel, Central Africa countries. Lower-level wind convergences are expected to enhance rainfall across portions of the Greater Horn of Africa. At least 25mm for two or more days is likely over portions of West, Central Africa and portions of the Greater Horn of Africa. There is an increased chance for daily rainfall to exceed 50mm over southern Guinea, northern Liberia, central of Ghana, central of Nigeria, southeaster Cameroon and central of DRC. There is an increased chance for daily maximum heat index to exceed 40oC over northern Senegal, southwestern Mauritania and northeastern Mali.

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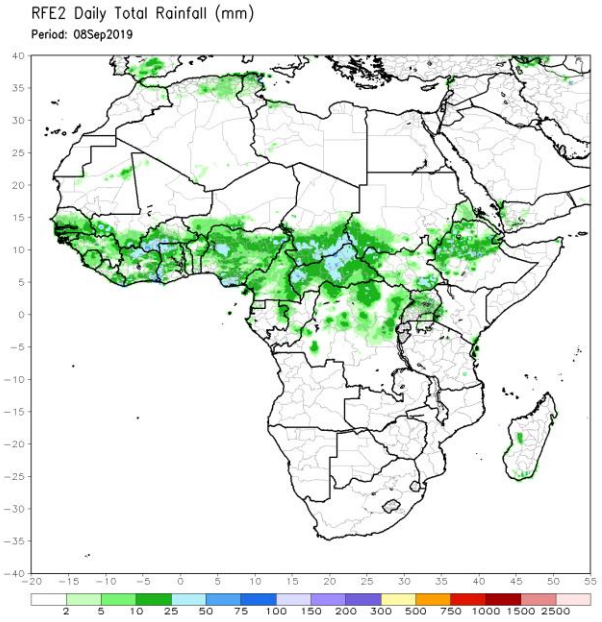
2.0. Previous and Current Day Weather over Africa

2.1. Weather assessment for the previous day (Sept 08, 2019)

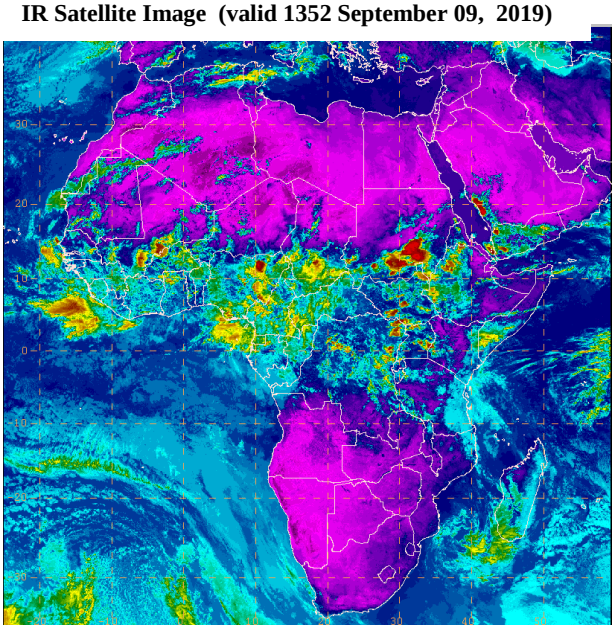
Daily rainfall amount exceeded 25mm over Northern Cote D'Ivoire, Southwestern Burkina Faso, Northern Ghana, Liberia, Nigeria, CAR, Southern Chad, Southern Sudan, Southern South Sudan and Eastern Ethiopia and exceeded 50mm over portions Northern CAR, Southern Burkina Faso and Southern Cote D'Ivoire.

2.2. Weather assessment for the current day (Sept 09, 2019)

Deep convective clouds are observed over Western and Central Africa countries and local areas in the Greater Horn of Africa.



IR Satellite Image (valid 1352 September 09, 2019)



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