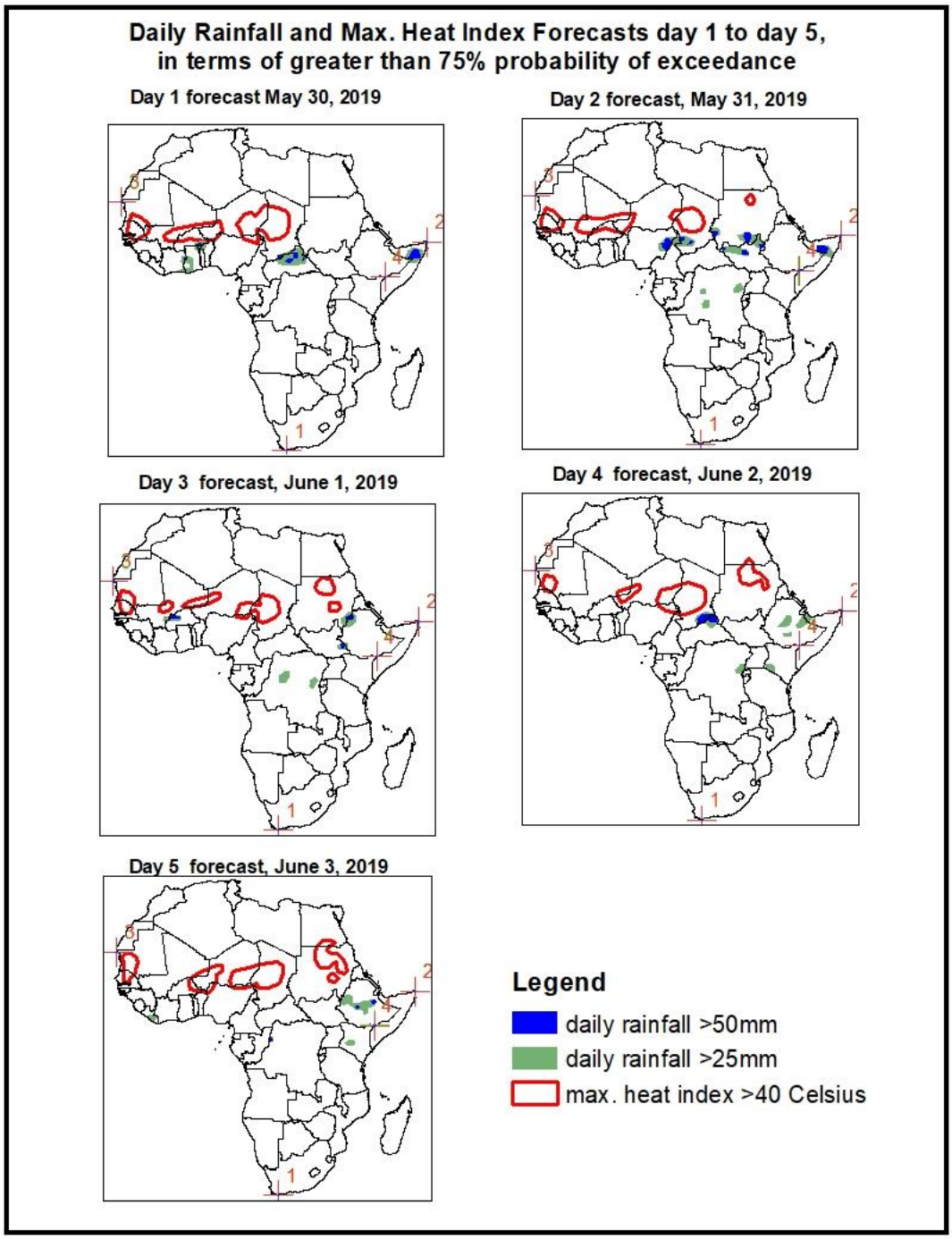
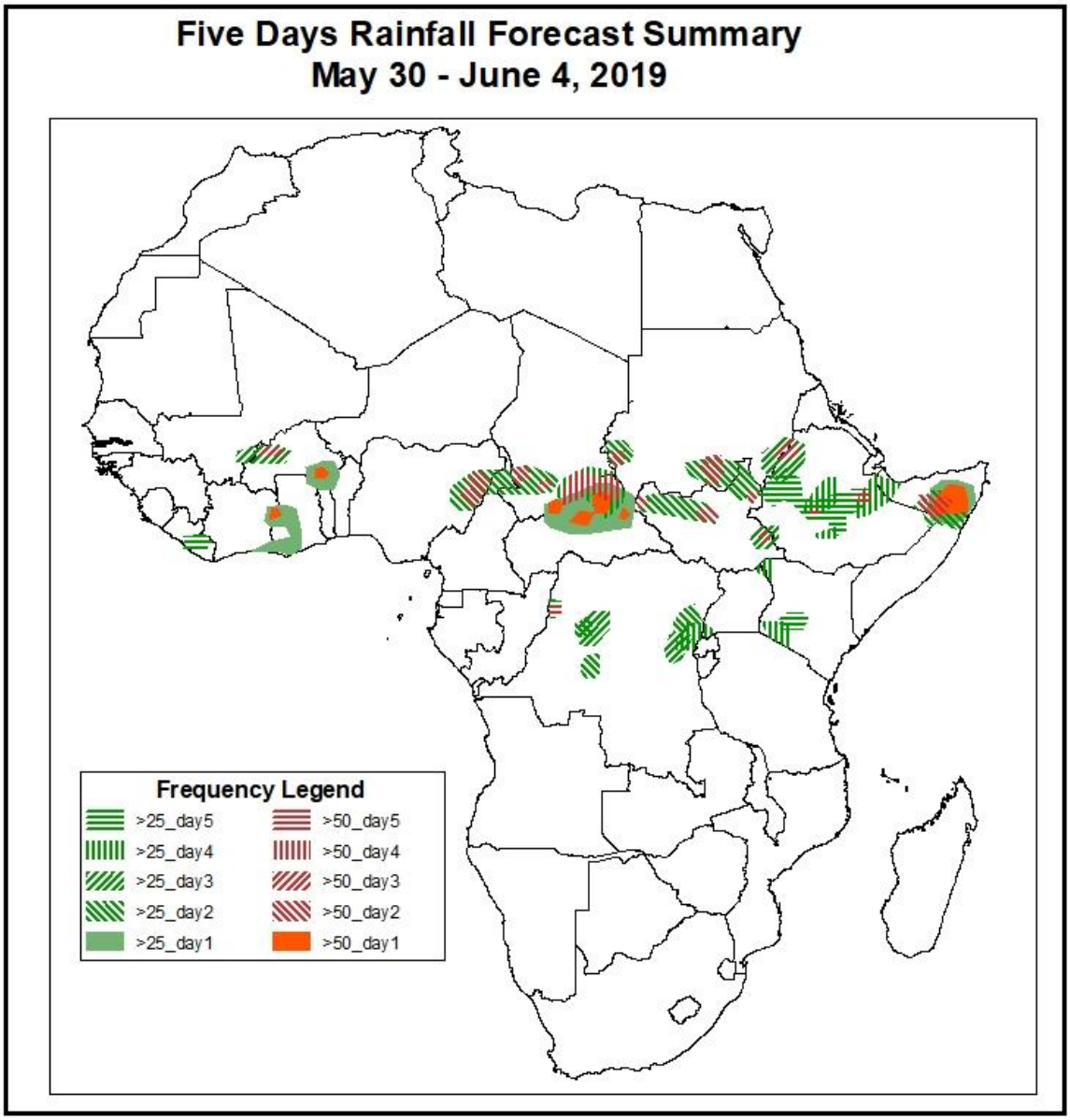
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on *May 29*, 2019)

1.1. Daily Rainfall and Maximum Heat Index Forecasts (valid: May 30 – June 4, 2019)

The forecasts are expressed in terms of high probability of precipitation (POP), valid 06Z to 06Z, and exceedance probability of maximum heat index (>40ºC), based on the NCEP/GFS and the NCEP Global Ensemble Forecasts System (GEFS) and expert assessment.



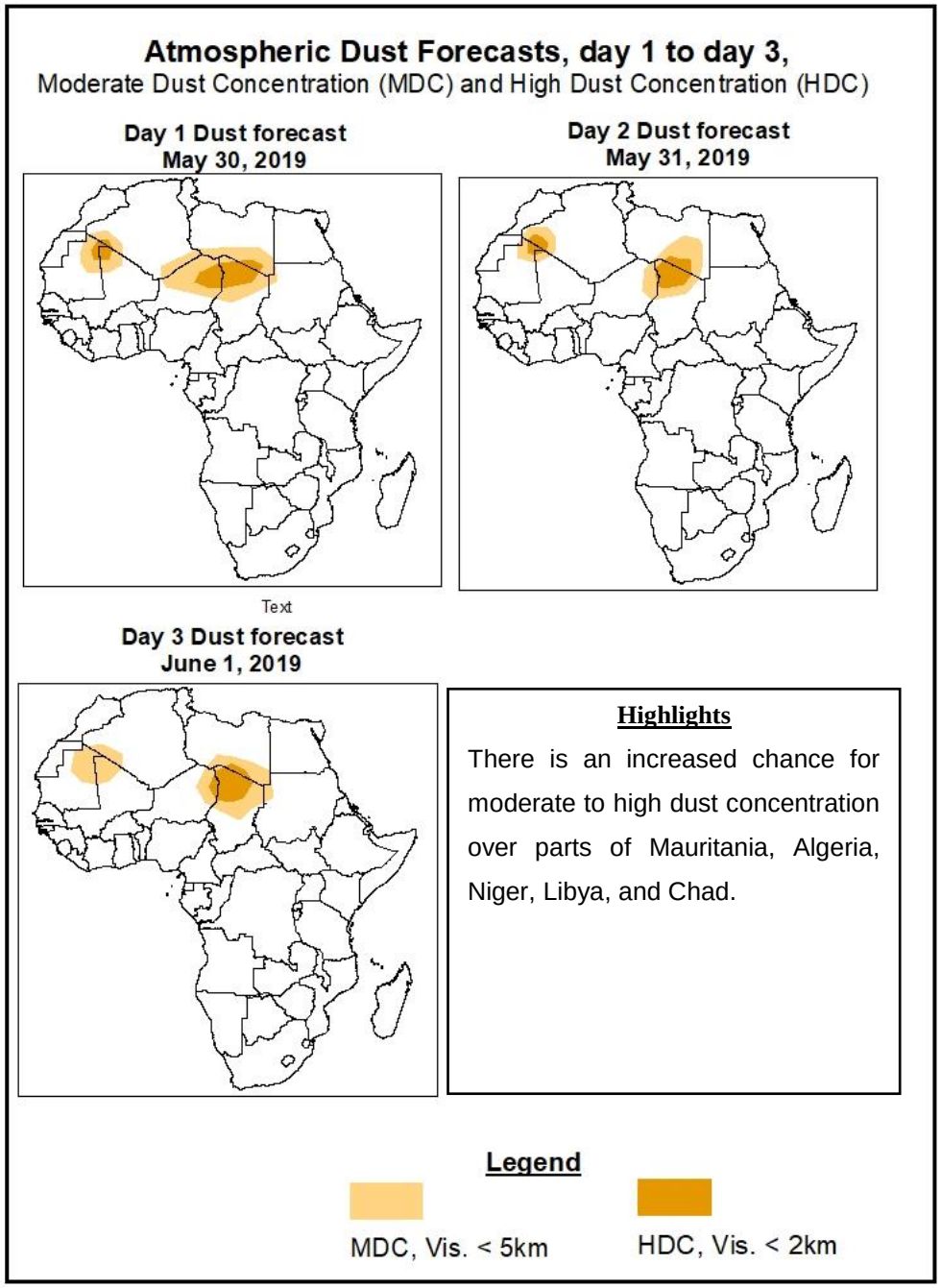


Highlights

- The monsoon flow from the Atlantic Ocean with its associated lower-level convergence is expected to enhance rainfall over parts of the Gulf of Guinea region. Strong lower-level converging winds are also expected to enhance rainfall across central and eastern Sahel.
- Westward propagating cyclonic circulation across the Greater Horn of Africa is expected to enhance rainfall in the region.
- At least 25mm for two or more days is likely over some areas in the Gulf of Guinea and central Africa. There is an increased chance for daily rainfall to exceed 50mm over local areas in Burkina Faso, Ghana, northeastern Nigeria, Chad, CAR, Sudan and South Sudan, Ethiopia and northern Somalia.
- There is an increased chance for daily maximum heat index to exceed 40^{o}C over portions of the Sahel region and Sudan.

1.2. Atmospheric Dust Concentration Forecasts *(valid: May 25 – 27 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: May 30 – June 4, 2019*

During the forecast period, the Azores High Pressure system over the North of Atlantic is expected to mainly maintain a central pressure of between 1027-1029hPa and stay just northwest of West Africa.

During the forecast period, the St. Helena High Pressure system over Southeast Atlantic Ocean is expected to intensify, with its central pressure value increasing from 1022hPa to 1026hPa.

During the forecast period, the Mascarene High Pressure system over Southwest Indian Ocean is expected to be intensify from 1029hPa to 1037hPa.

At 925hPa level, strong dry northeasterly flow is expected to prevail across North Africa and the Sahel region. In contrast, moist southeasterly flow the Indian Ocean is expected to prevail across the Gulf of Guinea region, and the neighboring areas of Central Africa.

At 850hPa, converging winds over coastal areas of East Africa (Tanzania and Kenya) are likely to maintain moderate to occasionally enhanced precipitation over these areas. Lower-level wind convergences are expected to remain active across central and eastern Sahel, and the Lake Victoria region.

At 700hPa, mainly northeasterly to easterly wind pattern is expected to be maintained, across central Africa, Gulf of Guinea and parts of east Africa as well as Great Horn of Africa. A cyclonic circulation off the cost of Horn of Africa, is expected to propagate westwards into Somalia and Ethiopia during the forecast period.

The monsoon flow with its associated lower-level convergence is expected to enhance rainfall over parts of the Gulf of Guinea region. Strong lower-level converging winds are also expected to enhance rainfall across central and eastern Sahel. Westward propagating cyclonic circulation across the Greater Horn of Africa is expected to enhance rainfall in the region. At least 25mm for two or more days is likely over some areas in the Gulf of Guinea and central Africa. There is an increased chance for daily rainfall to exceed 50mm over local areas in Burkina Faso, Ghana, northeastern Nigeria, Chad, CAR, Sudan and South Sudan,

Ethiopia and northern Somalia. There is an increased chance for daily maximum heat index to exceed 40ºC over portions of the Sahel region and Sudan.

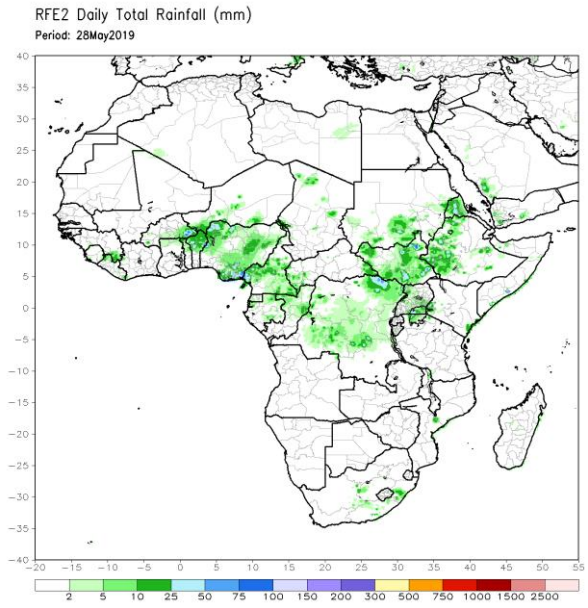
2.0. Previous and Current Day Weather over Africa

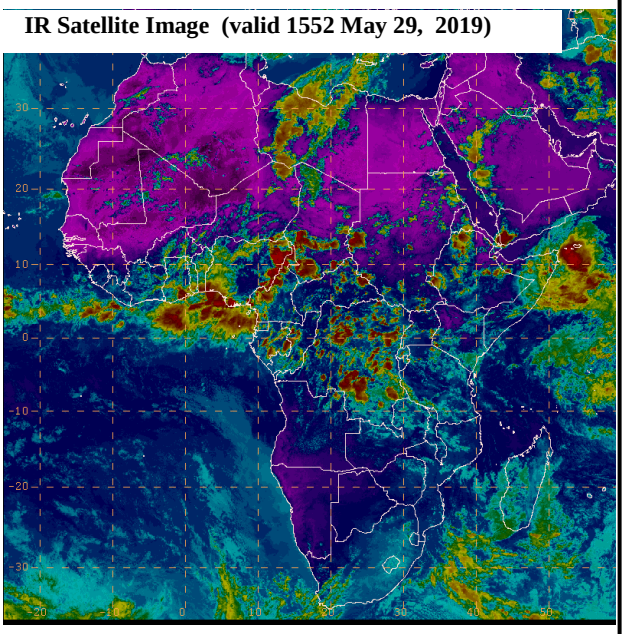
2.1. Weather assessment for the previous day (May 28, 2019)

Light to moderate rainfall was observed across eastern Gulf of Guinea, and portions of central and the Greater Horn of Africa.

2.2. Weather assessment for the current day (*May 29,* 2019)

Deep convective clouds are observed across eastern Gulf of Guinea, and local areas in central and eastern Africa. An area of deep convection is also observed off the cost of the Greater Horn of Africa.





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