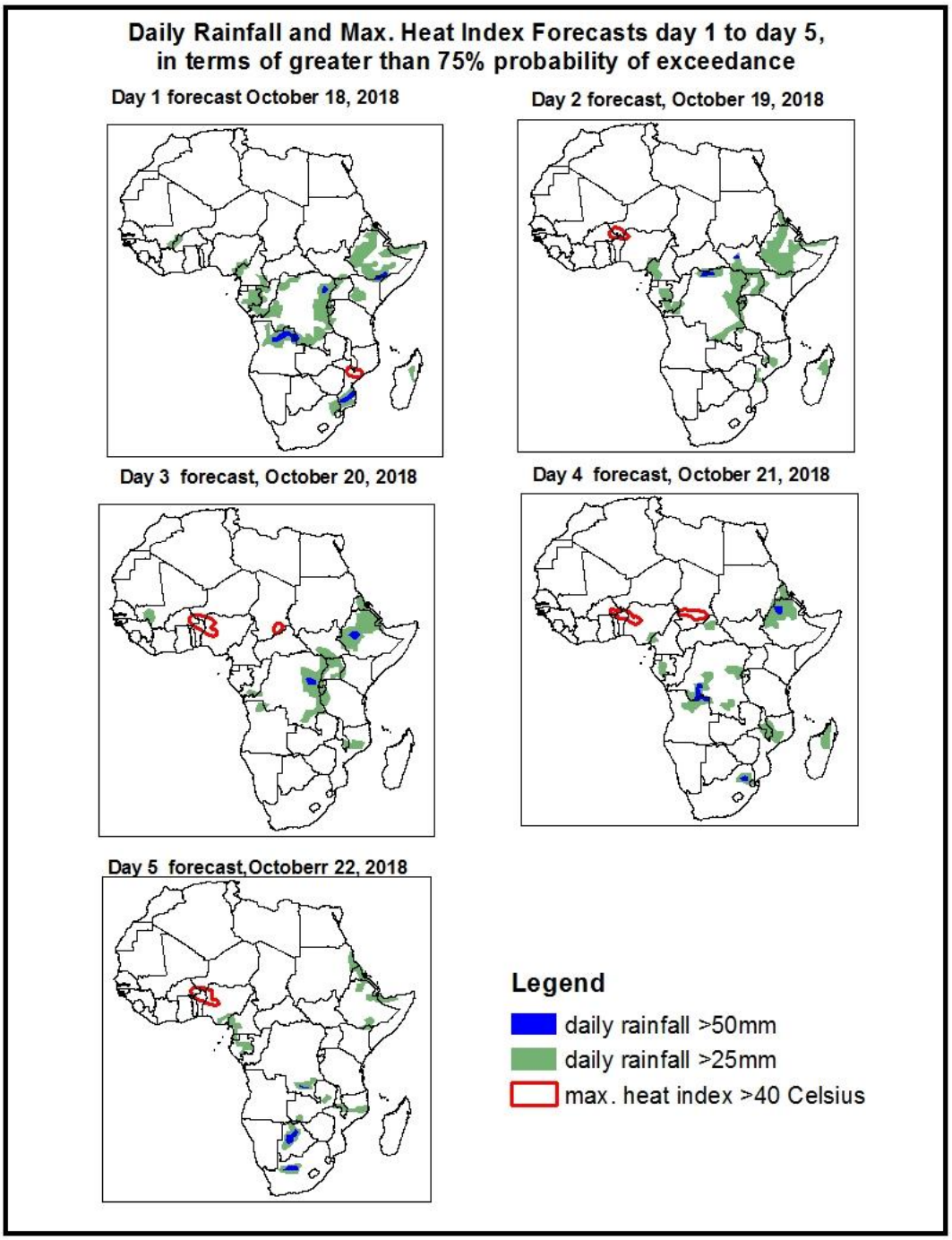
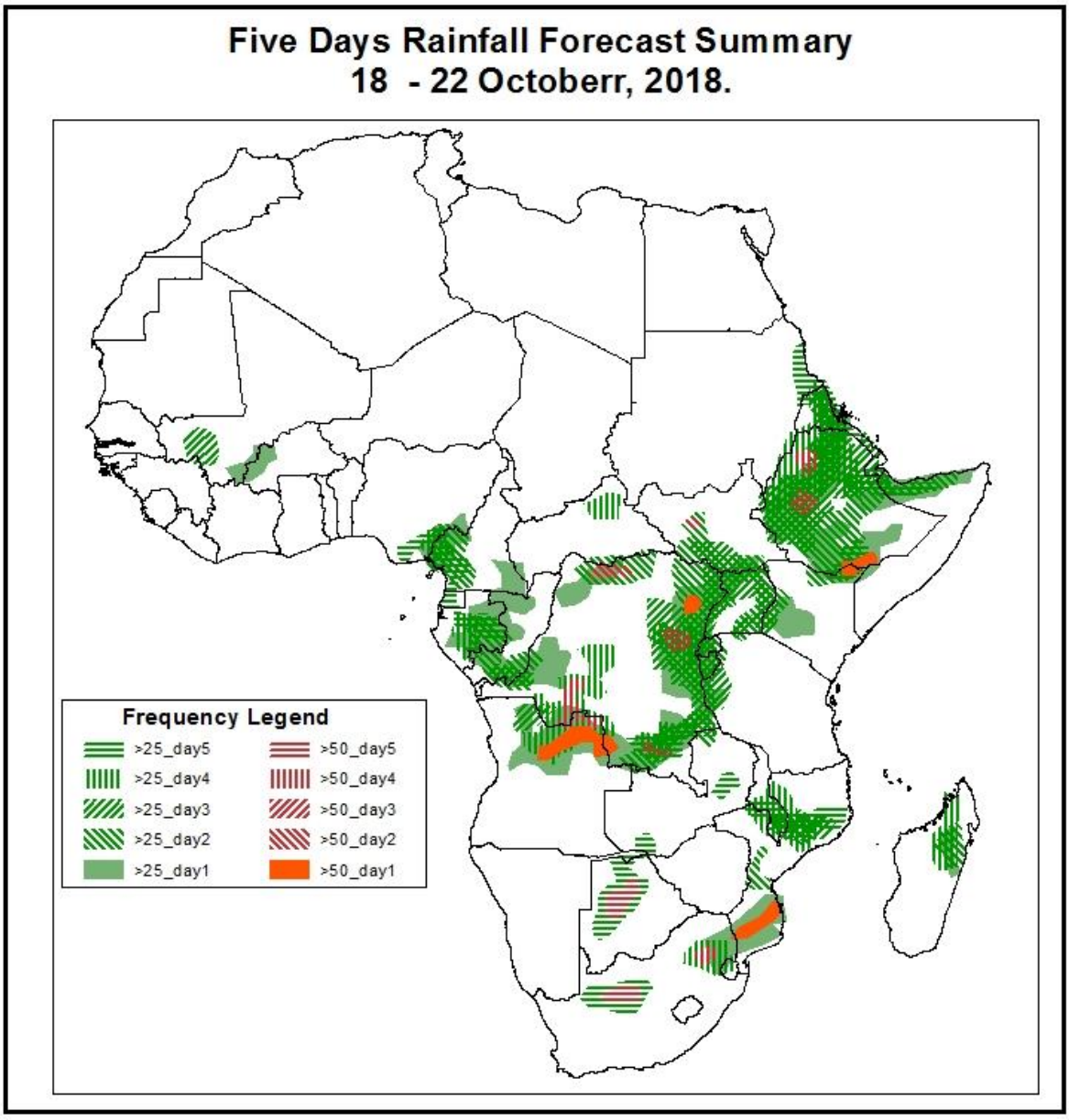
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on *October 17*, 2018)

1.1. Daily Rainfall and Maximum Heat Index Forecasts (valid: Oct 18, –Oct 22, 2018)

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



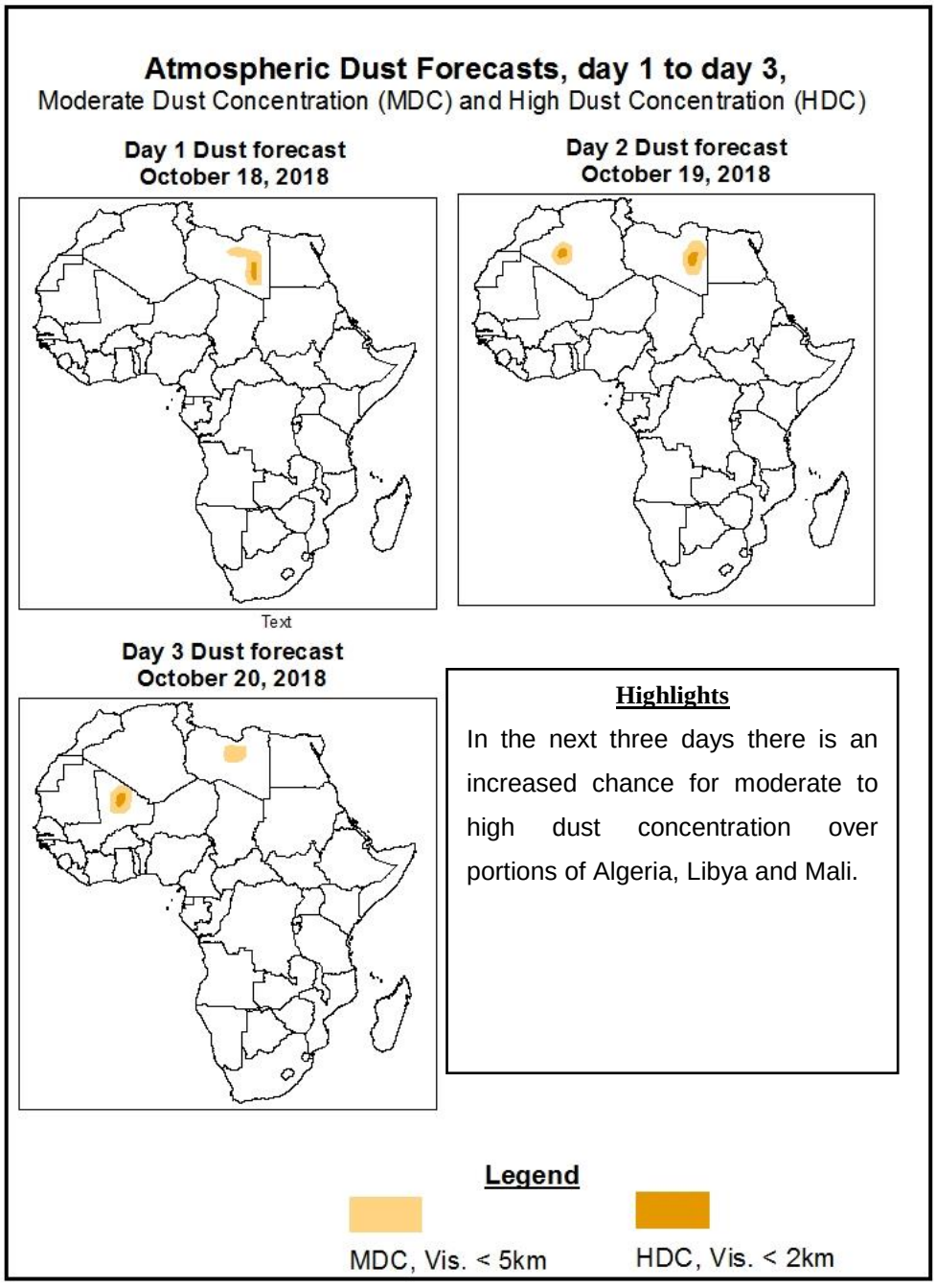


Highlights

- In the next five days, localized lower-level wind convergences active Congo air boundary, cross equatorial flow associated converges Greater Horn of Africa and the frontal system across southern Africa is expected to enhance rainfall. There is an increased chance for 2 or more days of moderate to heavy rainfall over parts of Central African, the Greater Horn of Africa countries and southern Africa.
- There is an increased chance for temperature heat index values to exceed 40^0C over local areas of Niger, Burkina Faso, Benin Nigeria Chad and Mozambique.

1.2. Atmospheric Dust Concentration Forecasts *(valid: Oct 18 – October 22, 2018)*

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: October 18 – October 22, 2018*

The Azores High Pressure system over the North Atlantic Ocean is expected to strengthen through 120hrs. Its central pressure value is expected to increase from 1030hPa to 1045hPa.

The St. Helena High Pressure system over the Southeast Atlantic Ocean is moving towards the southern sub-continent. Its central pressure value is expected to increase from 1023hPa to 1037hPa within 72hrs. Developing St Helena over the southwest of the Atlantic Ocean progressing eastwards with the central pressure value from 1024hPa to 1023hPa through the120hrs.

The Mascarene High Pressure system over the Southwest Indian Ocean is expected to weaken gradually, while progressing southeast. Its central pressure value is expected to decrease from 1030hPa to 1028hPa through the forecast period.

A low system over southern Africa is expected to maintain its position through the 72hrs later start moving northwest towards the end of the forecast period.

At 925hPa, dry strong northeasterly to easterly flow is expected to prevail over portions of northern Africa, the neighboring areas of the Sahel region. Moist southwesterly to westerly monsoon flow from the Atlantic Ocean is expected to continue weakening reducing rainfall activities along the Gulf of Guinea region. A broad area of cross equatorial flow from the Indian Ocean is expected to prevail across the Greater Horn of Africa. Moist and unstable northeasterly is expected to prevail over some parts of southeast and southern Africa.

At 850hPa, localized lower-level wind Convergence across portions of the Gulf of Guinea region. Lower-level wind convergence associated with the Congo air boundary (CAB) and lower level wind convergence associated with the southern costal low is expected to remain active during the forecast period.

In the next five days, localized lower-level wind convergences active Congo air boundary, cross equatorial flow associated converges Greater Horn of Africa and the frontal system across southern Africa is expected to enhance rainfall. There is an increased chance for 2 or more days of moderate to heavy rainfall over parts of Central African, the Greater Horn of Africa countries and southern Africa.There is an increased chance for temperature heat index values to exceed 40^0C over local areas of Niger, Burkina Faso, Benin Nigeria Chad and Mozambique.

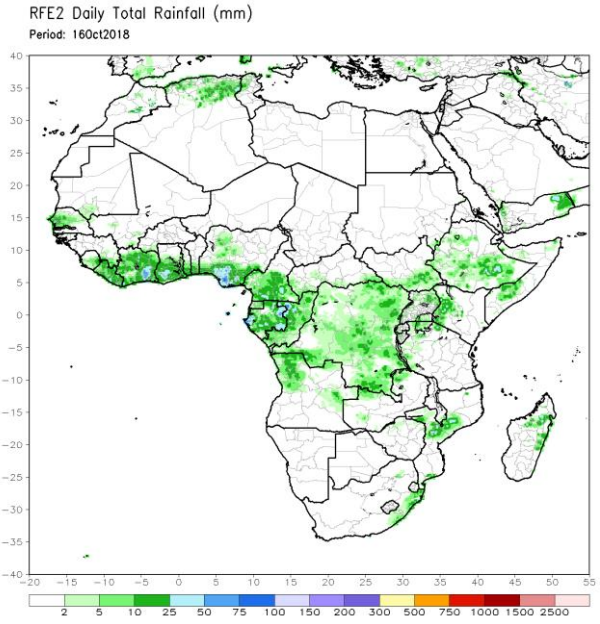
2.0. Previous and Current Day Weather over Africa

2.1. Weather assessment for the previous day (October 16, 2018)

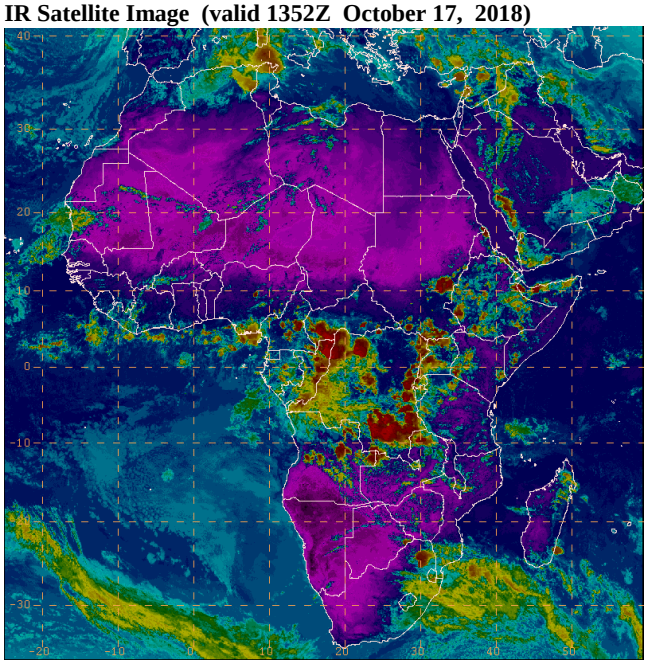
Daily rainfall of above 25mm was observed over parts of Cote d'Ivoire, Ghana, Nigeria, Cameroon Gabon and parts of Ethiopia.

2.2. Weather assessment for the current day (*October 17*, 2018)

Intense convective clouds are observed over most parts of Central African countries and parts of South Africa.



IR Satellite Image (valid 1352Z October 17, 2018)



Authors: Bathsheba Musonda((Zambia Meteorological Department —ZMD / CPC-African Desk;*beshishi.c.musonda@noaa.gov*