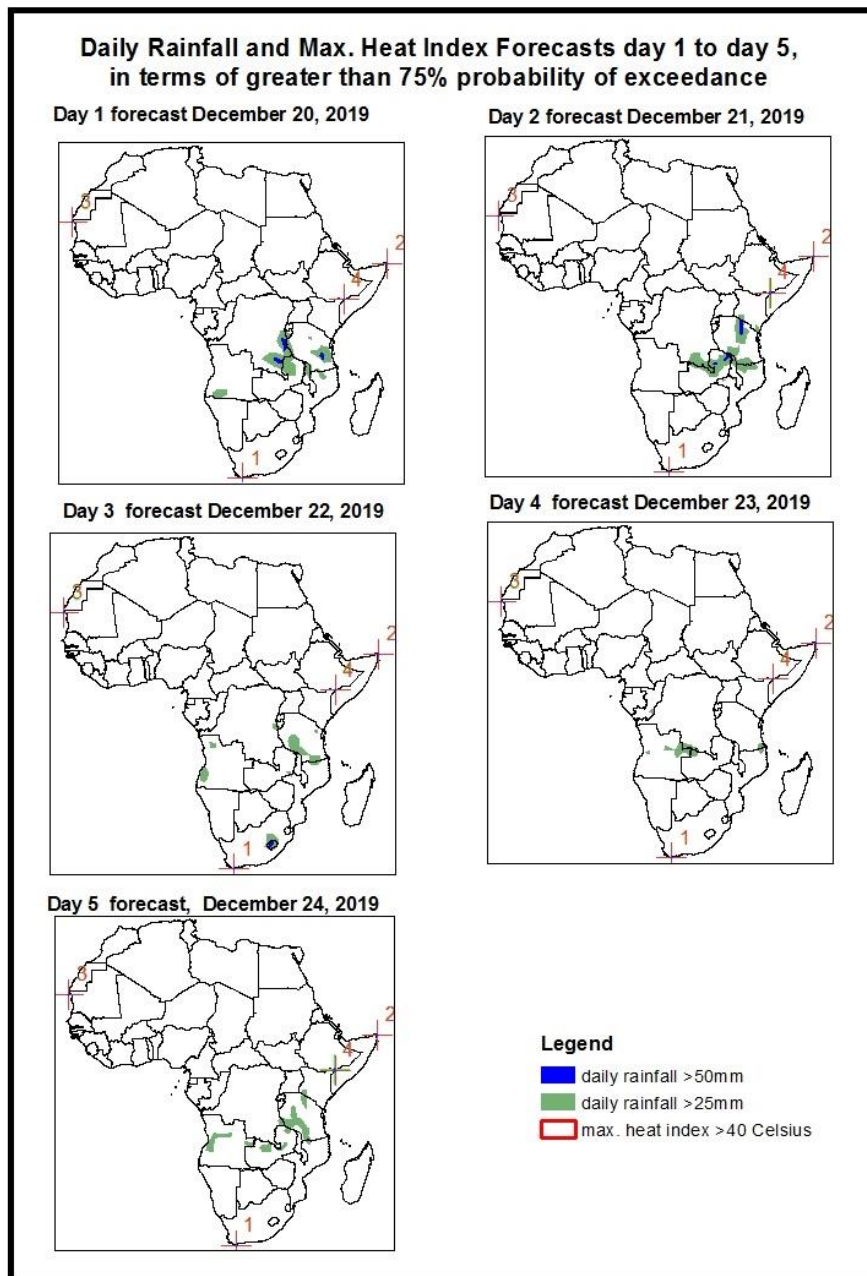


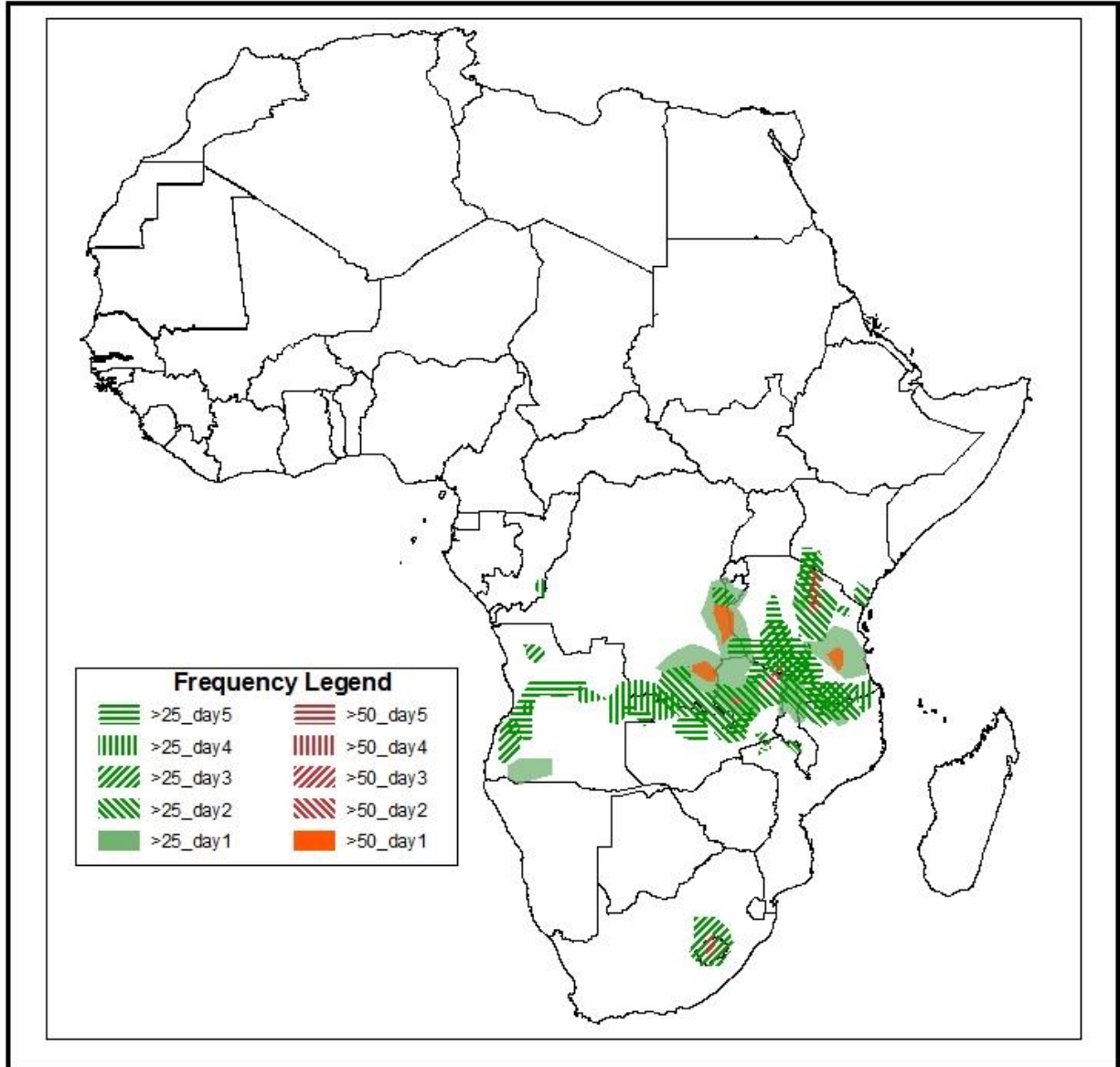
**1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on December 19, 2019)**

**1.1. Daily Rainfall and Maximum Heat Index Forecasts (valid: 20 December – 24 December, 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°C), based on the NCEP/GFS and the NCEP Global Ensemble Forecasts System (GEFS) and expert assessment.



## Five Days Rainfall Forecast Summary December 20 - December 24, 2019

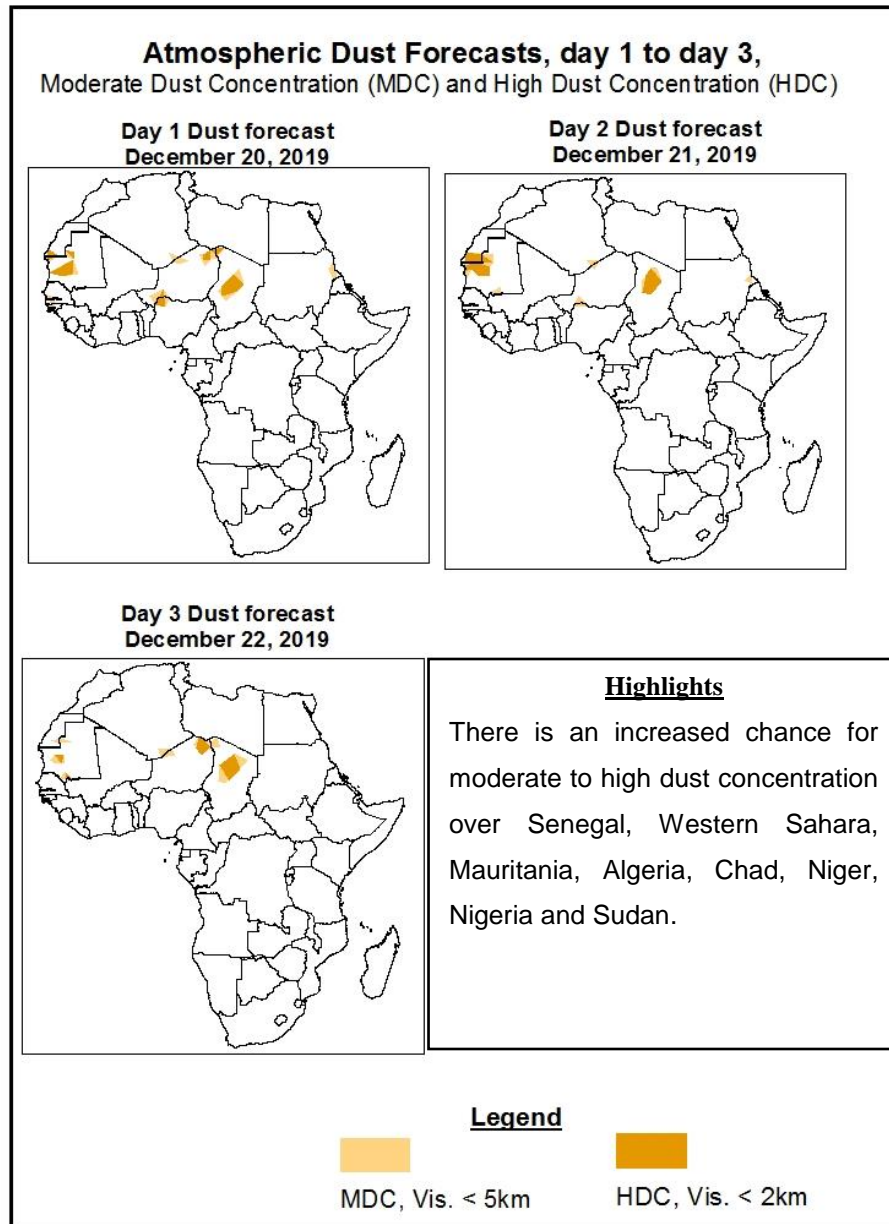


### **Highlights**

- Strong lower-level wind convergences are expected to enhance rainfall over parts of East Africa.
- At least 25mm for two or more days is likely over portions of Republic of Congo, DRC, Angola, South Africa, Lesotho, Mozambique, Zambia, Malawi, Tanzania, Burundi and Kenya.
- There is an increased likelihood for daily rainfall to exceed 50mm over local areas in DRC, Tanzania, Zambia, Lesotho and South Africa.

## 1.2. Atmospheric Dust Concentration Forecasts (valid: 20 Dec – 22 Dec 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: 20 December – 24 December 2019**

The Azores High Pressure system over the Northeast Atlantic Ocean has its center purely continental and is generally expected to intensify while shifting eastwards with its central pressure value increasing from 1022hPa to 1029hPa during the first four days of the forecast period. On the last day of the forecast period, its central pressure value is expected to drop to 1027hPa.

The St. Helena High Pressure system over the Southeast Atlantic Ocean is expected to slightly strengthen while shifting eastwards with its central pressure value increasing from 1024hPa to 1026hPa during the first day of the forecast period and then its central pressure value is expected to steadily decrease to 1024hPa during the rest of the forecast period.

The Mascarene High Pressure system over Southwest of Indian Ocean is expected to shift eastwards with its central pressure value generally remaining constant at 1025hPa for the first three days of the forecast period before increasing to 1028hPa for the rest of the forecast period.

The relatively strong Arabian Ridge is expected to remain active during the forecast period and hence, it will have a significant impact on the weather across most parts of northeastern Africa and portions of the Great Horn of Africa.

At 925-hPa level, strong hot, dry and dusty northerly to northeasterly flow from the Sahara is expected to prevail across northern Sahel region and northwestern parts of Africa, while the cool and moist southwesterly flow from the Atlantic Ocean with its low-level convergence is expected to prevail across the Gulf of Guinea, southern Sahel regions and most neighboring areas of Central, western equatorial and southwestern Africa. The evolution of ITD is clearly visible during the forecast period. On the other hand, the northeasterly flow from the Indian Ocean with its low-level convergence is expected to prevail across most parts of the Greater Horn of Africa and parts of Central Africa whereas the combination of northeasterly and easterly flows from the Indian Ocean together with their low-level convergences is expected to prevail across most parts of southern Africa.

At 850-hPa level, strong dry northerly flow is expected remain active and prevail across southern Sahel countries while an area of anticyclonic circulation is over Northwest Africa. On the other hand, meridional and seasonal wind convergence is expected to remain active across the Lake Victoria region, Congo Basin and the neighboring areas of Central and southern Africa during the forecast period. Converging lower-level winds over Kenya, Tanzania, Uganda, Burundi, Rwanda, Ethiopia, DRC, southern Cameroon, Mozambique, Malawi, Zimbabwe, Zambia, Angola, Namibia, Botswana, South Africa and Madagascar; are likely to maintain the occasional enhanced to moderate precipitation over these areas.

Strong lower-level wind convergences are expected to enhance rainfall over parts of East Africa. At least 25mm for two or more days is likely over portions of Republic of Congo, DRC, Angola, South Africa, Lesotho, Mozambique, Zambia, Malawi, Tanzania, Burundi and Kenya. There is an increased likelihood for daily rainfall to exceed 50mm over local areas in DRC, Tanzania, Zambia, Lesotho and South Africa.

## 2.0. Previous and Current Day Weather over Africa

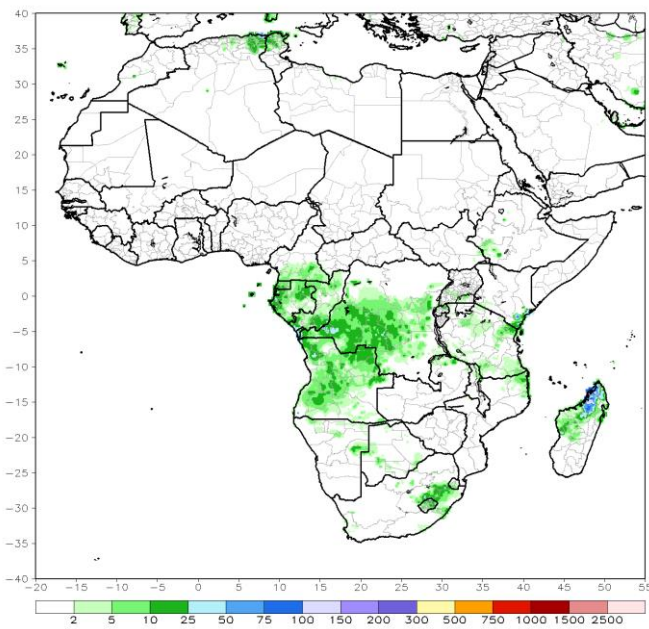
### 2.1. Weather assessment for the previous day (Dec 18, 2019)

Daily rainfall amount exceeded 25mm over Algeria, Tunisia, Gabon, Republic of Congo, DRC, Angola, Kenya, Tanzania, South Africa, Lesotho and Madagascar; and exceeded 50mm over Algeria, DRC, Kenya and Madagascar.

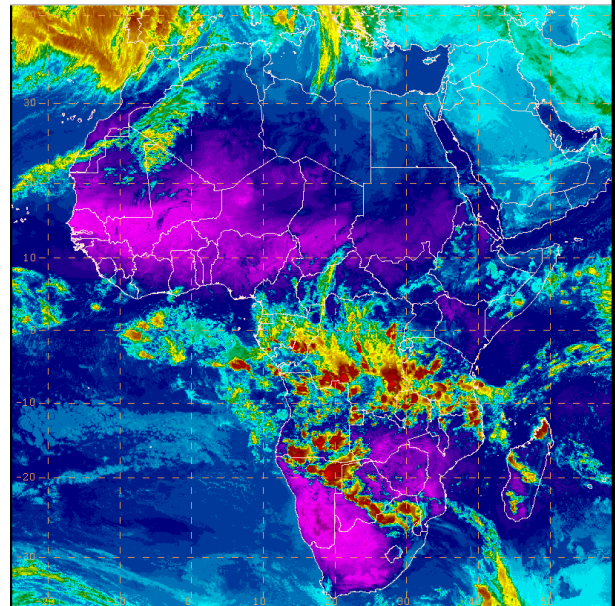
### 2.2. Weather assessment for the current day (Dec 19, 2019)

Deep convective clouds are observed over many places in the western equatorial and Central Africa, and over a small portion of Southern and East Africa.

RFE2 Daily Total Rainfall (mm)  
Period: 18Dec2019



IR Satellite Image (valid 1452 December 19, 2019)



**Author: Musa SSEMUNJU (CPC-African Desk/Uganda National Meteorological Authority)**