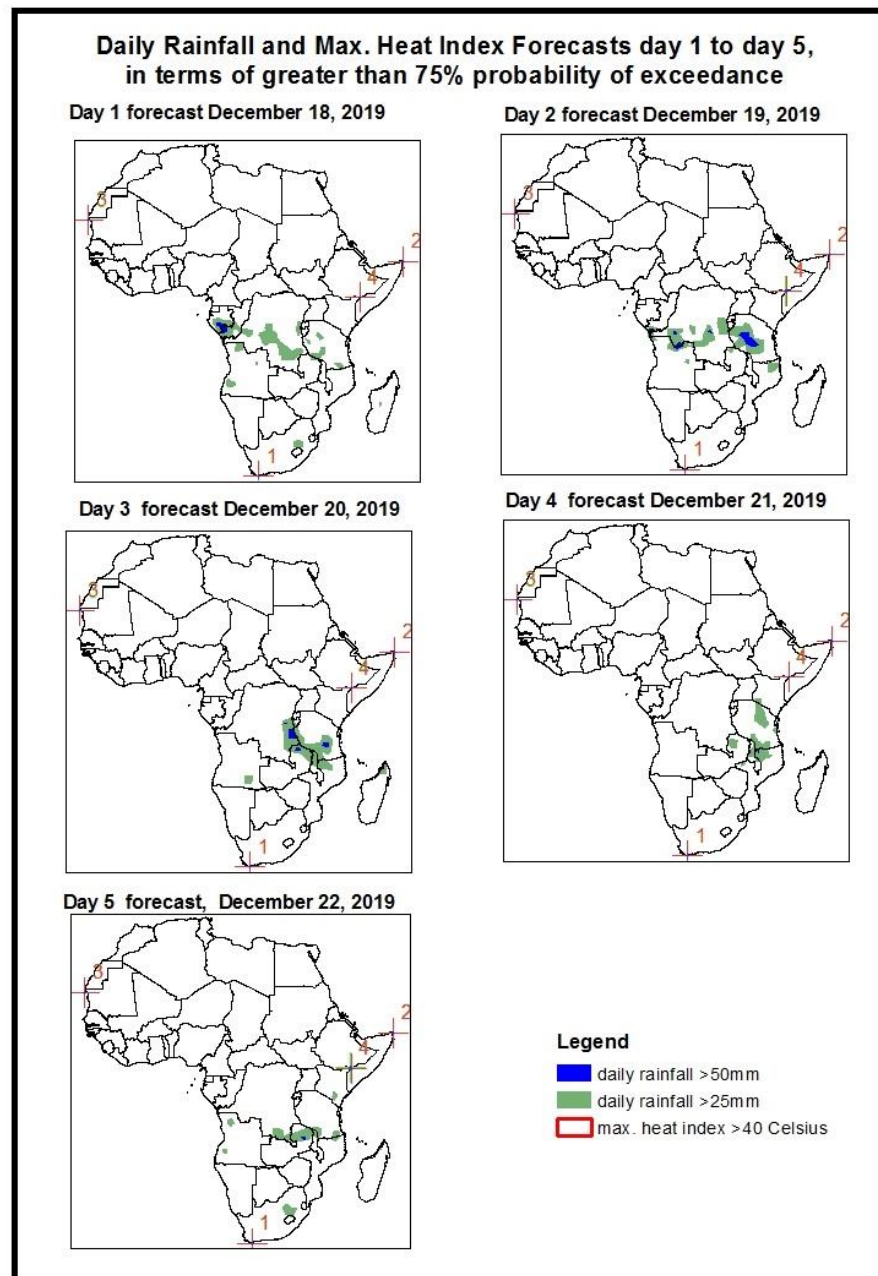


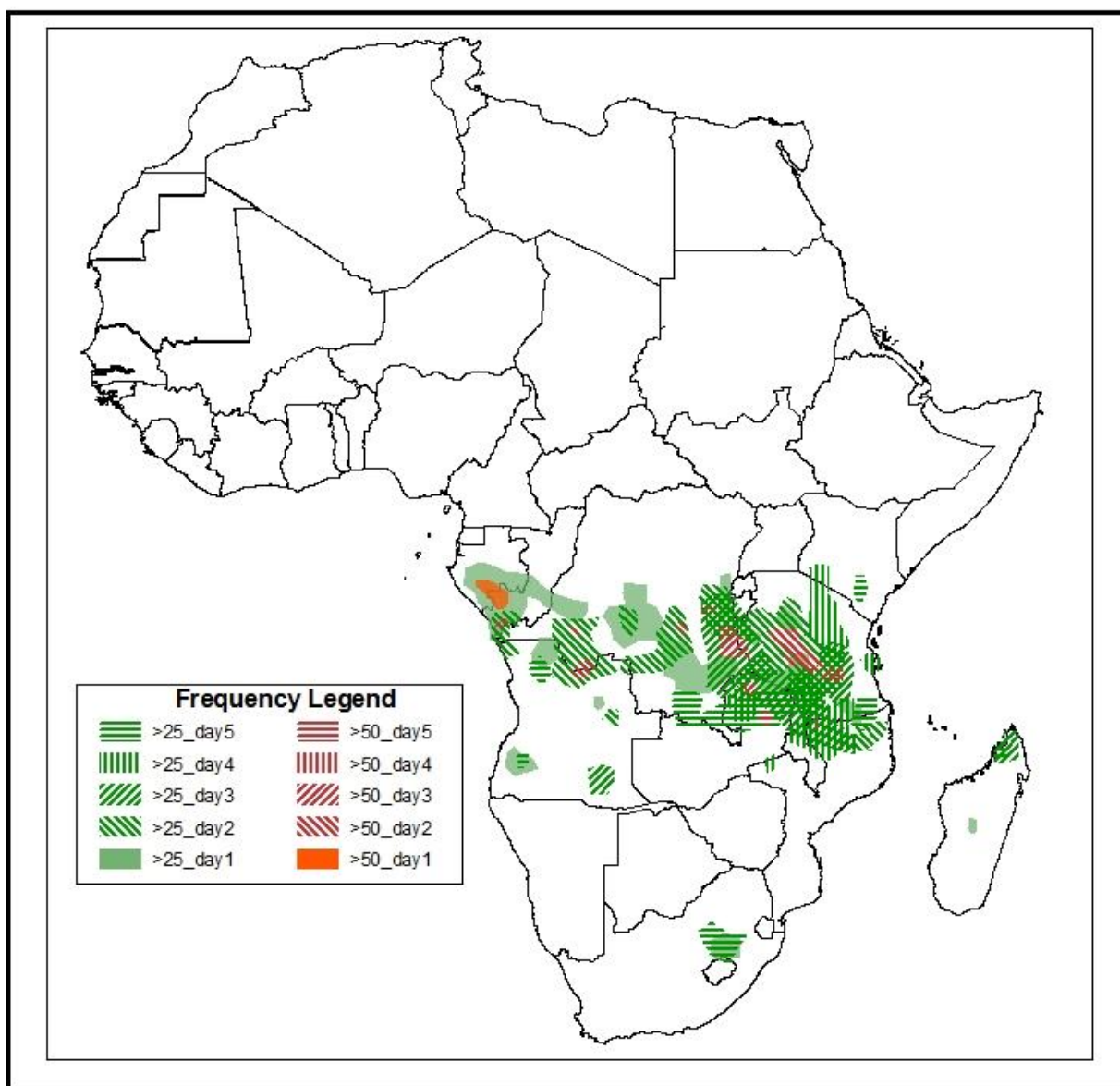
## 1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on December 17, 2019)

### 1.1. Daily Rainfall and Maximum Heat Index Forecasts (valid: 18 December – 22 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 ( $>40^{\circ}\text{C}$ ), based on the NCEP/GFS and the NCEP Global Ensemble Forecasts System (GEFS) and expert assessment.



## Five Days Rainfall Forecast Summary December 18 - December 22, 2019

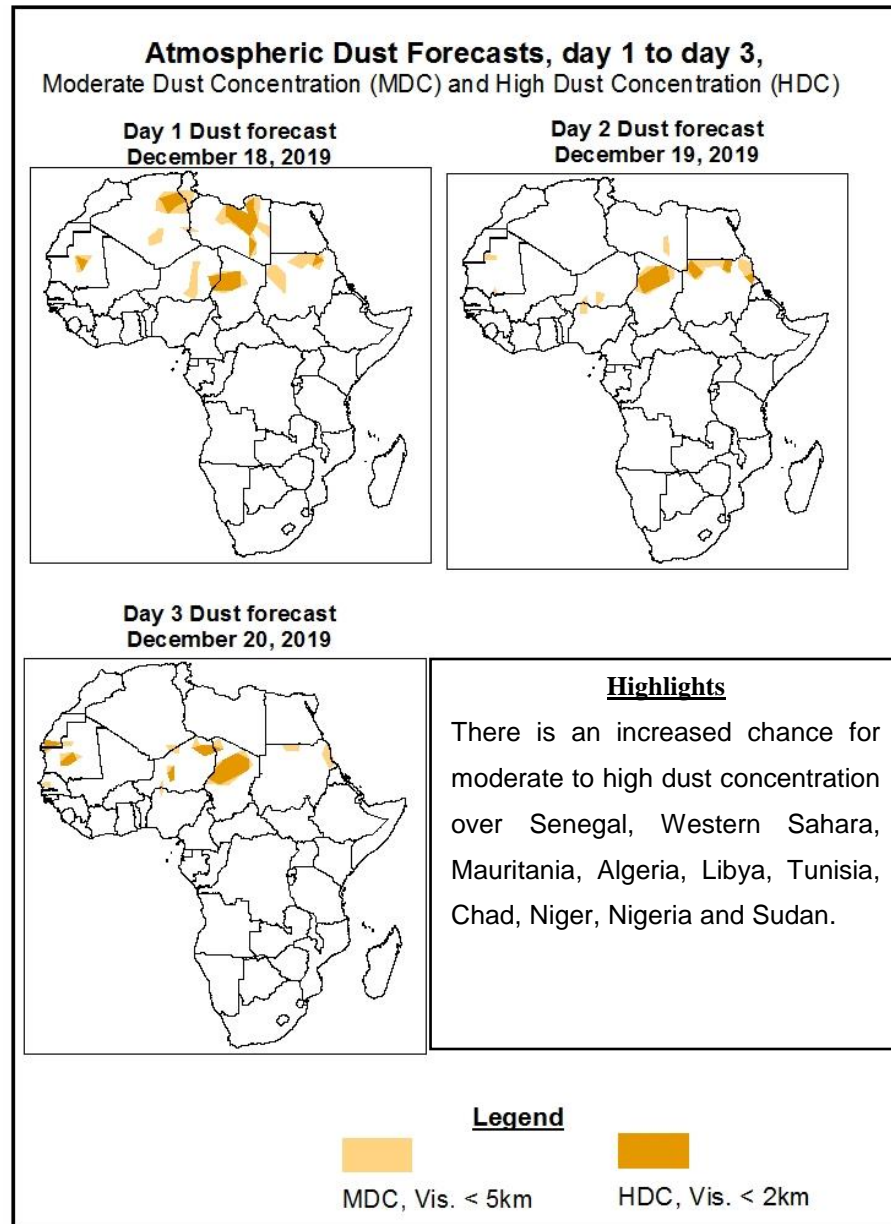


### Highlights

- Westerly flow from the Atlantic Ocean with its associated lower-level convergence is expected to enhance rainfall across western equatorial Africa. Strong lower-level wind convergences are expected to enhance rainfall over parts of Eastern Africa and Madagascar.
- At least 25mm for two or more days is likely over portions of Republic of Congo, DRC, Angola, South Africa, Lesotho, Mozambique, Madagascar, Zambia, Malawi, Tanzania, Burundi, Rwanda and Kenya.
- There is an increased likelihood for daily rainfall to exceed 50mm over local areas in Gabon, Republic of Congo, DRC, Angola, Zambia, Tanzania and Mozambique.

## 1.2. Atmospheric Dust Concentration Forecasts (valid: 18 Dec – 20 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: 18 December – 22 December 2019**

The Azores High Pressure system over the Northeast Atlantic is expected to slightly strengthen with its central pressure value increasing from 1021hPa to 1023hPa during the first two days of the forecast period and then its central pressure value is expected to remain constant at 1023hPa for the next two days before increasing to 1026hPa on the last day of the forecast period.

The St. Helena High Pressure system over the Southeast Atlantic Ocean is expected to strengthen while shifting eastwards with its central pressure value increasing from 1021hPa to 1025hPa during the first three days of the forecast period and then its center is expected to remain constant at 1025hPa for the rest of the forecast period.

The Mascarene High Pressure system over Southwest of Indian Ocean is expected to strengthen while shifting eastwards with its central pressure value increasing from 1021hPa to 1025hPa during the first three days of the forecast period and then its central pressure value is expected to slightly drop to 1024hPa for the rest of the forecast period.

At 925-hPa level, 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. 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, easterly and southeasterly flows from the Indian Ocean together with their low-level convergences is expected to prevail across most parts of southeastern Africa.

At 850-hPa level, strong dry northerly flow is expected remain active and prevail across southern Sahel countries. 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 winds over Kenya, Tanzania, Uganda, Burundi, Rwanda, Ethiopia, DRC, Mozambique, Malawi,

Zimbabwe, Zambia, Angola, Namibia, Botswana, South Africa and Madagascar; are likely to maintain the occasional enhanced to moderate precipitation over these areas.

Westerly flow from the Atlantic Ocean with its associated lower-level convergence is expected to enhance rainfall across western equatorial Africa. Strong lower-level wind convergences are expected to enhance rainfall over parts of Eastern Africa and Madagascar. At least 25mm for two or more days is likely over portions of Republic of Congo, DRC, Angola, South Africa, Lesotho, Mozambique, Madagascar, Zambia, Malawi, Tanzania, Burundi, Rwanda and Kenya. There is an increased likelihood for daily rainfall to exceed 50mm over local areas in Gabon, Republic of Congo, DRC, Angola, Zambia, Tanzania and Mozambique.

## 2.0. Previous and Current Day Weather over Africa

### 2.1. *Weather assessment for the previous day* (Dec 16, 2019)

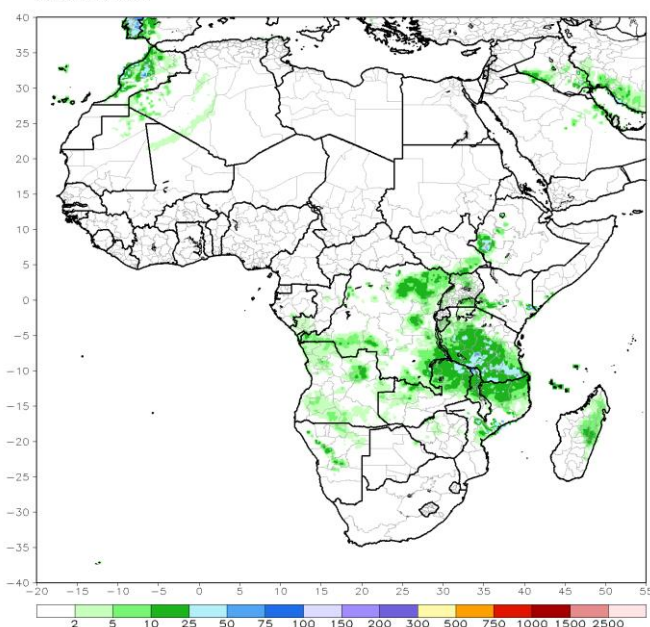
Daily rainfall amount exceeded 25mm over Morocco, DRC, Kenya, Ethiopia, Tanzania, Malawi, Zambia and Mozambique; and exceeded 50mm over Morocco, Ethiopia, Kenya, Tanzania, Malawi and Mozambique.

### 2.2. *Weather assessment for the current day* (Dec 17, 2019)

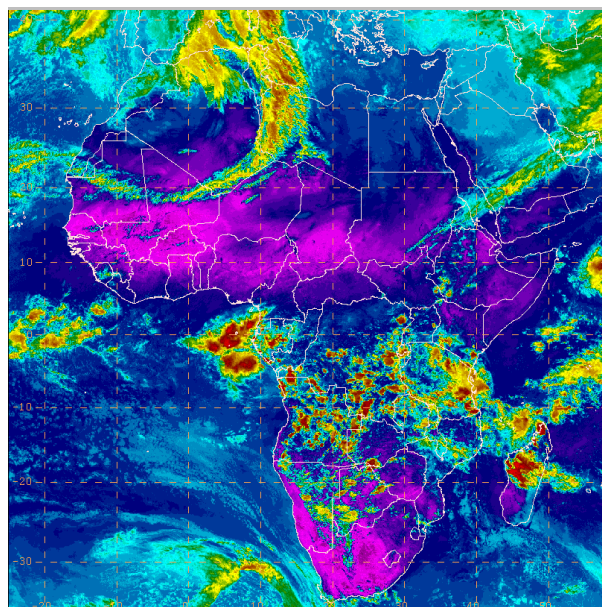
Deep convective clouds are observed over many places in the western equatorial Africa, East and Central Africa, and over a small portion of Southern Africa.

RFE2 Daily Total Rainfall (mm)

Period: 16Dec2019



IR Satellite Image (valid 1352 December 17, 2019)



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