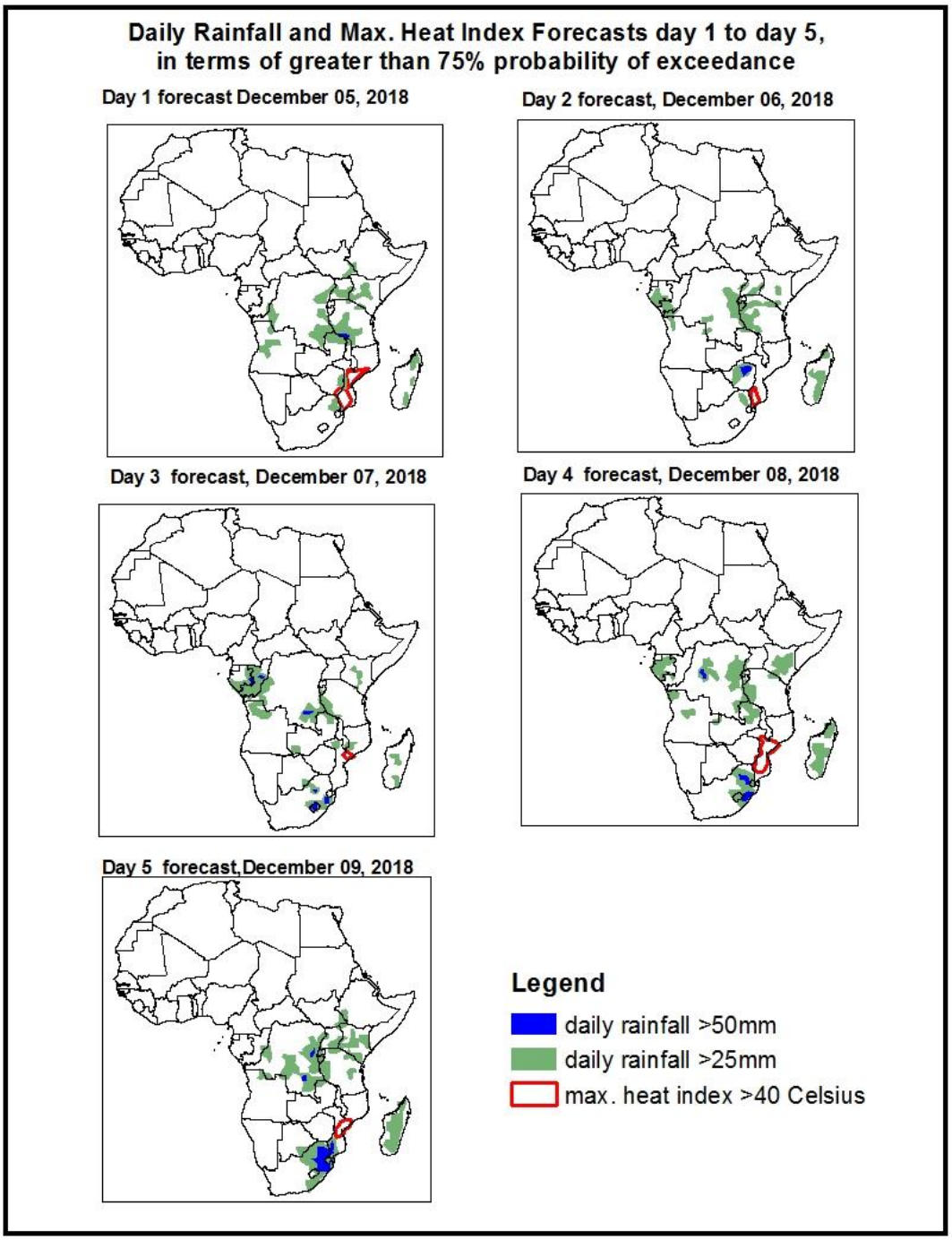
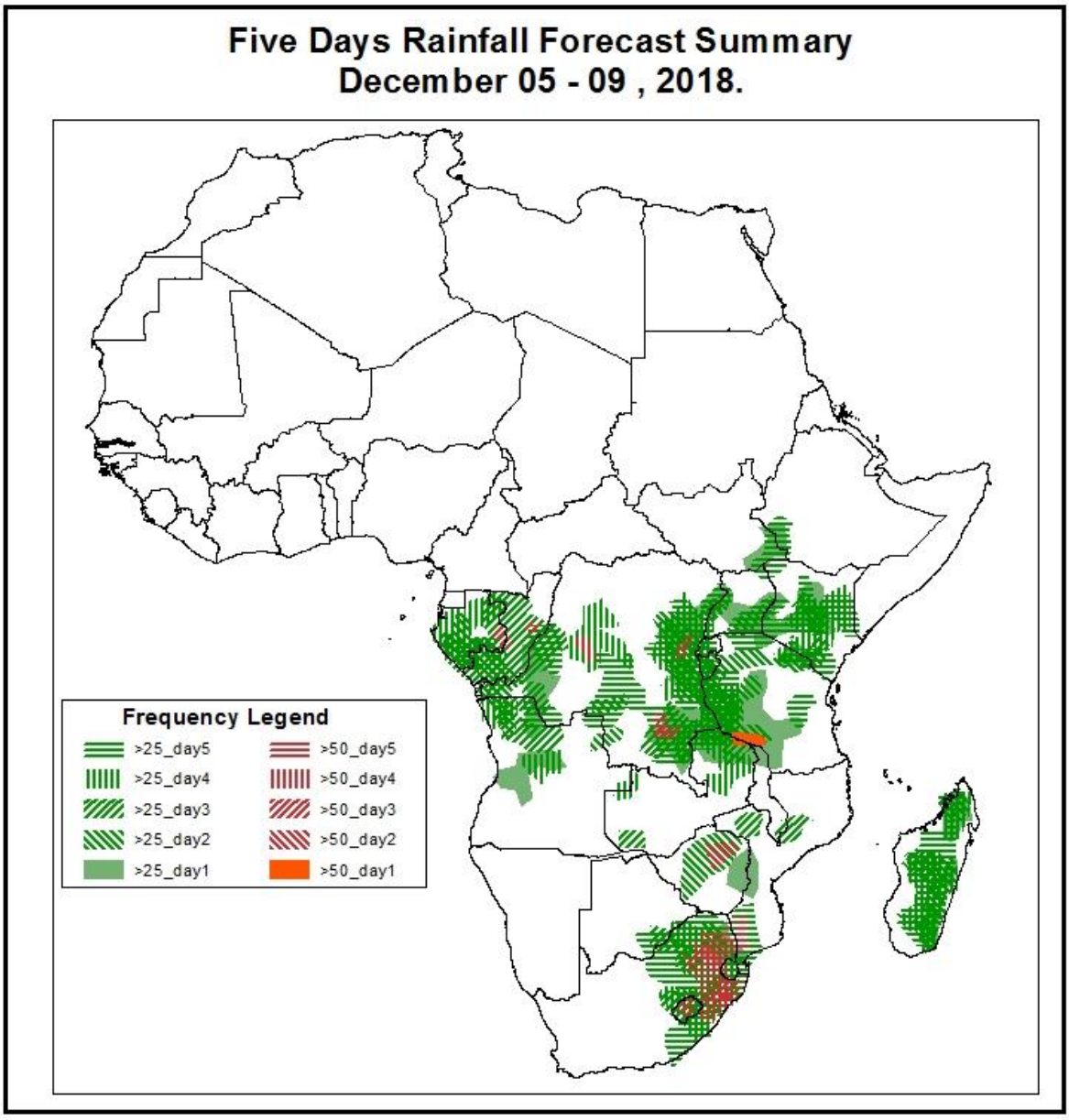
# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on *December 04,* 2018)

### *1.1. Daily Rainfall and Maximum Heat Index Forecasts (valid: Dec 05 -09, 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$^{o}$C), based on the NCEP/GFS and the NCEP Global Ensemble Forecasts System (GEFS) and expert assessment.



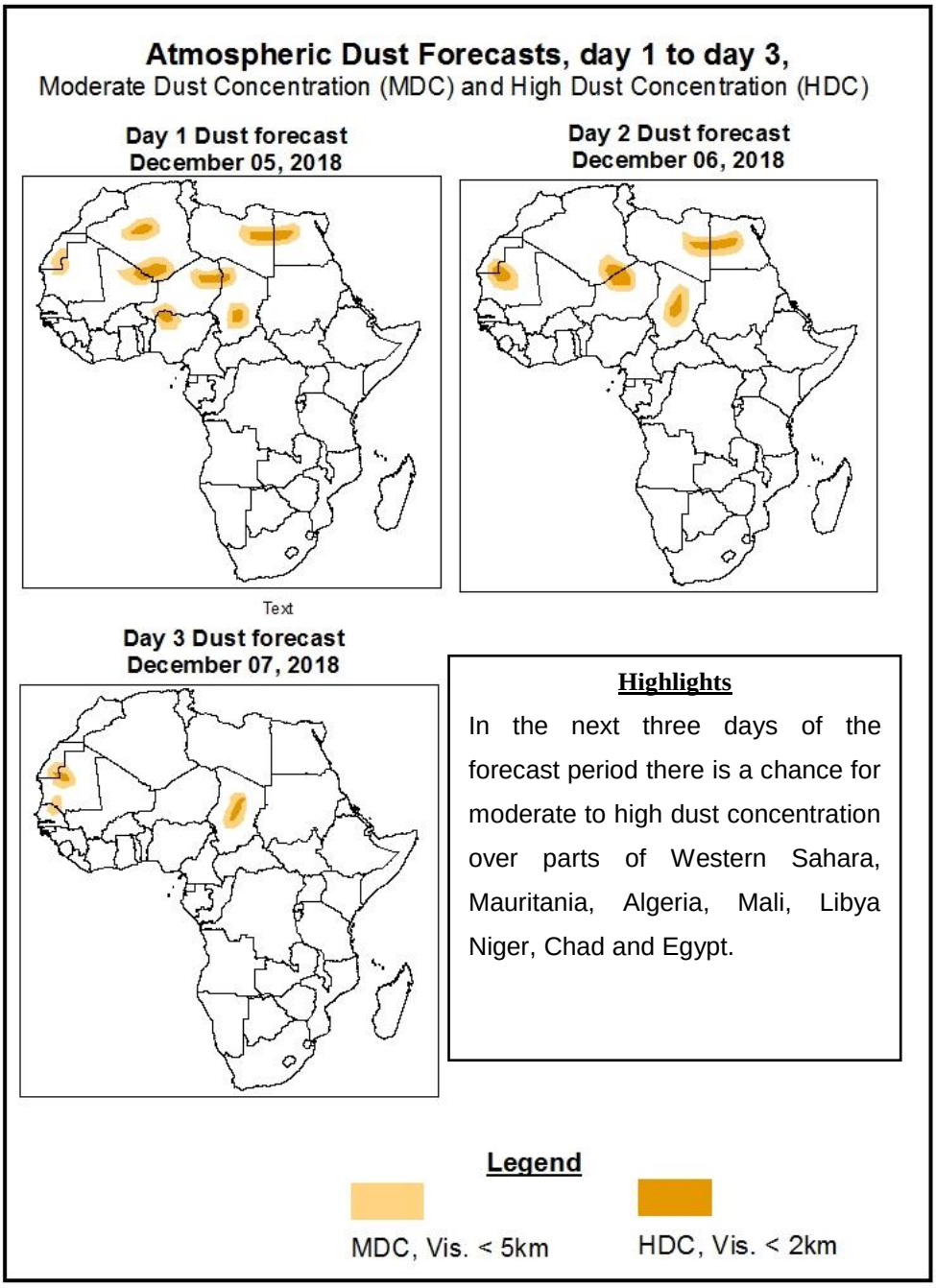



***Highlights***

- In the next five days the convergence of moist and unstable northwesterly and northeasterly is expected to continue affecting parts of Central Africa and the northern parts of Southern African countries, the continental low is expected to fluctuating over Southern Africa. These two systems continue to enhance rainfall activities over most parts of Central and Southern African countries, there is a chance for moderate to heavy rainfall over localized areas of Congo Brazzaville, Congo DR, Tanzania, Zambia, Zimbabwe, South Africa and Lesotho through the forecast period.
- There is a high likelihood for temperature heat index values to exceed $40^0$C over local areas of Mozambique.

## *1.2. Atmospheric Dust Concentration Forecasts* *(valid: December 05 – 09, 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: December 05 – 09, 2018*

The Azores High Pressure system over the North of Atlantic Ocean is expected to transit eastwards towards the main land of the Northern region. Its central pressure value is expected to strengthen from 1021hPa to 1033hPa at the end of the forecast period.

A weak St. Helena High Pressure system over Southwest Atlantic Ocean with the central pressure value of 1016hPa is expected to pick up its strength in the last three days of the forecast period. Its central pressure value is expected to increase from 1019hPa to 1027hPa.

The Mascarene High Pressure system over Southwest Indian Ocean is expected to relax as it progresses eastwards. Its central pressure value is expected to decrease from 1032hPa to 1029hPa by the end of the forecast period.

Deep continental low Pressure system is likely to continue oscillating about the interior of Southern Africa covering most parts of the sub- region through the forecast period.

At 925hPa, strong northeasterly to easterly flow is expected to continue prevailing over most parts of Northern Africa and the Sahel region. Congo air boundary continues to remain active over the Central parts of the continent. Also, moist and unstable winds from Northeast over Southern and the Southeast of Africa.

At 850hPa, Lower-level wind convergence associated with the Congo air boundary (CAB) over parts of Central Africa. Lower-level wind convergence associated with the Angola low over parts of Southern Africa.

In the next five days the convergence of moist and unstable northwesterly and northeasterly is expected to continue affecting parts of Central Africa and the northern parts of Southern African countries, the continental low is expected to fluctuating over Southern Africa. These two systems continue to enhance rainfall activities over most parts of Central and Southern African countries, there is a chance for moderate to heavy rainfall over localized areas of Congo Brazzaville, Congo DR, Tanzania, Zambia, Zimbabwe, South Africa and Lesotho through the forecast period.

There is a high likelihood for temperature heat index values to exceed $40^0$C over local areas of Mozambique.

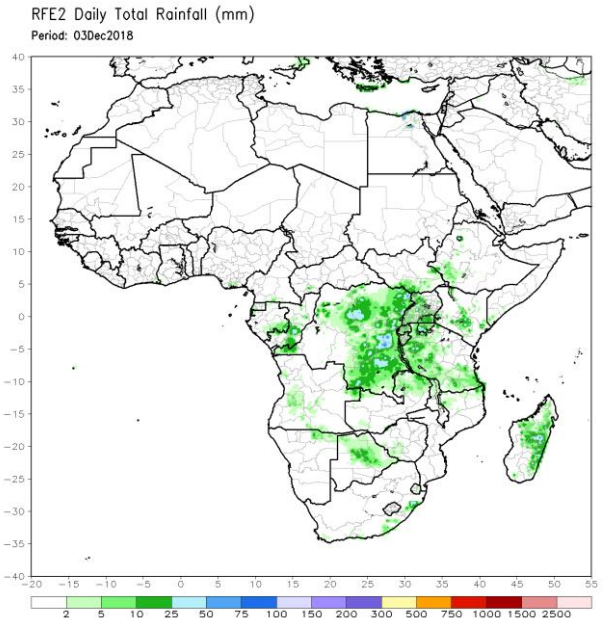
## 2.0. Previous and Current Day Weather over Africa

### *2.1. Weather assessment for the previous day* (December 03, 2018)

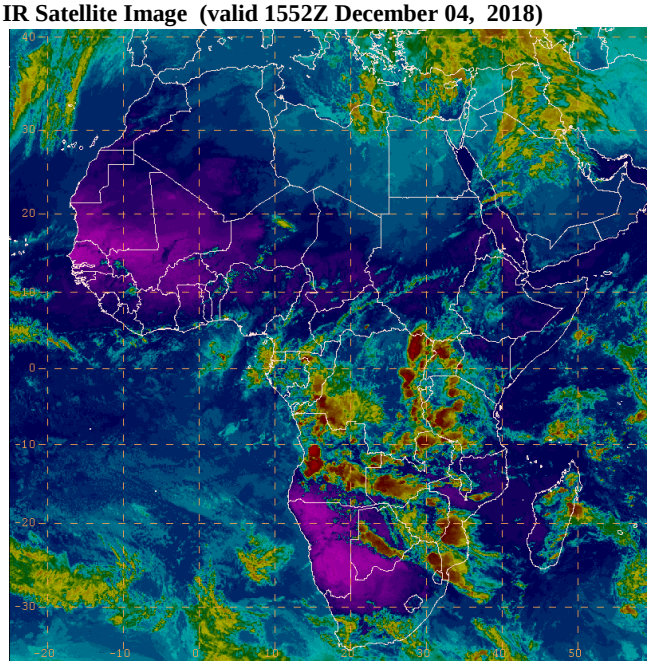
Daily rainfall above 25mm was observed over Congo DR.

### *2.2. Weather assessment for the current day* (*December 04,* 2018)

Intense convective clouds are observed over some areas of Central and southern African countries.




**IR Satellite Image (valid 1552Z December 04, 2018)**



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