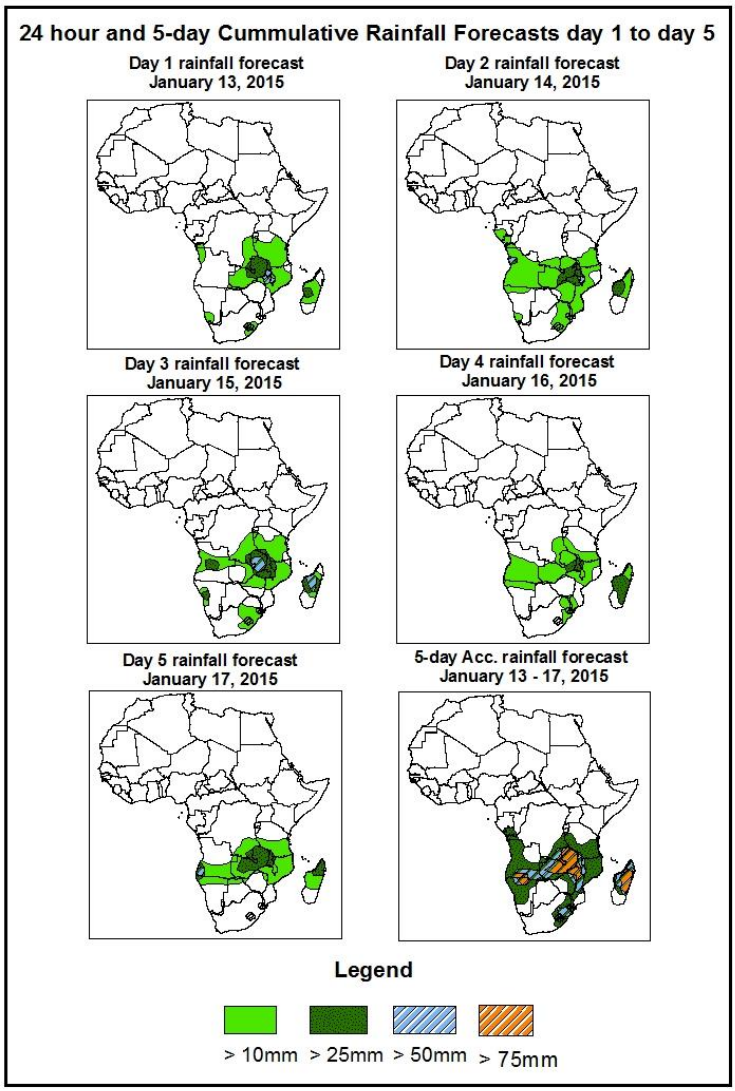
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Rainfall Forecast: Valid 06Z of January 13 – 06Z of January 17, 2015. (Issued at 1630Z of January 12, 2015)

1.1. Twenty Four Hour Cumulative Rainfall Forecasts

The forecasts are expressed in terms of 75% probability of precipitation (POP) exceeded, based on the NCEP/GFS and the NCEP global ensemble forecasts system (GEFS) and expert assessment.



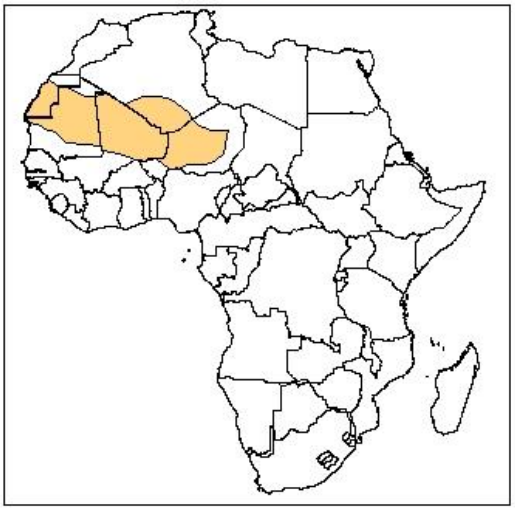
Summary

In the next five days, east-west oriented lower-level wind convergence in the region between Northern Angola and Mozambique including Tanzania, a lower-level cyclonic circulation in the Mozambique Channel are expected to enhance rainfall in these regions. Hence, there is an increased chance for heavy rainfall over north-central Angola, southern DRC, Malawi, southern Tanzania, central and northern Mozambique, and much of Madagascar.

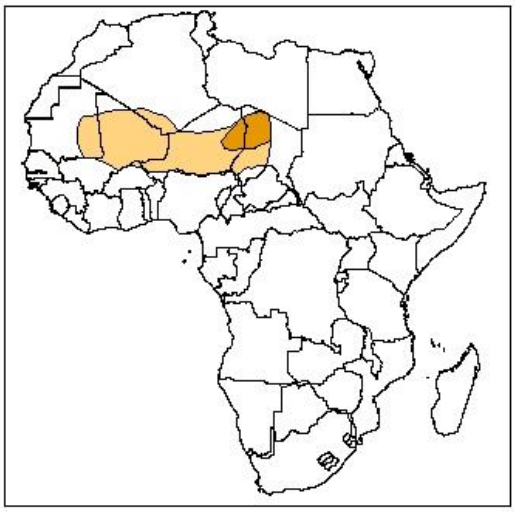
Atmospheric Dust Forecasts, day 1 to day 3,

Moderate Dust Concentration (MDC) and High Dust Concentration (HDC)

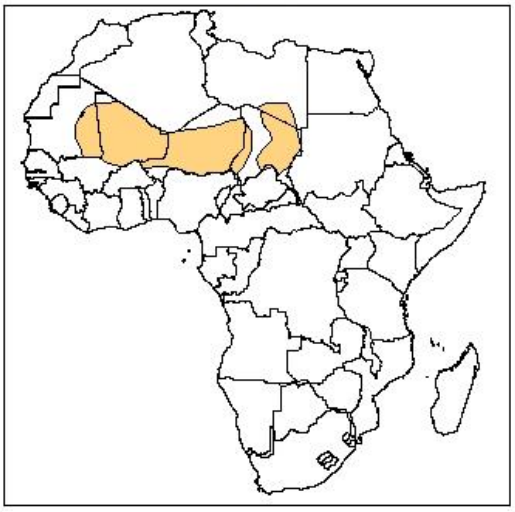
Day 1 Dust forecast
January 13, 2015



Day 2 Dust forecast
January 14, 2015



Day 3 Dust forecast
January 15, 2014



Highlights

There is an increased chance for moderate to high dust concentration over many parts of the Sahel, and North Africa countries, with highest dust concentration expected over Mauritania, Mali, Chad Niger, Western Sahara and Algeria.

Legend

MDC, Vis. < 5km

HDC, Vis. < 1km

1.2. Model Discussion: Valid from 00Z of January 12, 2015

The Azores high pressure system over the Northeast Atlantic Ocean is expected to strengthen from a central pressure value of 1033hpa to a central pressure value of 1035hpa during the forecast period, according to the GFS model.

The Arabian High Pressure system is expected to weaken from a central pressure value of 1030hpa to 1028hpa in 120 hours, according to the GFS model.

The central pressure value of the Mascarene high pressure system over the southwestern Indian Ocean is expected to increase from 1028hpa in 24hours to 1030hpa in 72 hours, then weaken to 1027 at the end of the forecast period, according to the GFS model.

The St Helena high pressure system over the Southeast Atlantic Ocean is expected to weaken from a central pressure value of 1023hpa in 24 hours to 1022hpa in 120 hours, according to the GFS model.

A low pressure system in the Mozambique Channel is expected to deepen with its central pressure value decreasing from 1004hpa in 24 hours to 997hpa in 96 hours, and filling up as it moves over Madagascar land, with a central pressure value of 1000hpa towards the end of the forecast period, according to the GFS model.

At 925Hpa level, dry northeasterly to easterly wind (>20kts) is expected to prevail across much of the Sahel, northern Africa countries through 24 to 72 hours, and the intensity of the wind tends to weaken across the Northcentral and Northeastern regions of Africa, while remaining strong across Northwestern Africa towards end of the forecast period.

At 850Hpa level, dry northerly winds are expected to prevail across Central Africa countries and the northern parts of the Greater Horn of Africa during the forecast period. Wind convergences are expected to remain active in Angola, northern Namibia, Malawi, Mozambique and Madagascar, during the forecast period. Zonally oriented wind convergence is expected to prevail in the region between Angola and Mozambique,

whereas a cyclonic circulation in the Mozambique Channel is expected to deepen then fill up towards the end of the forecast period.

At 700hpa level, a zonally oriented trough is expected to prevail in the region between Angola and the Mozambique Channel during the forecast period, according to the GFS model.

At 500Hpa, a trough associated with a mid-latitude frontal system is expected to prevail across eastern Mediterranean Sea and the neighboring areas of Northeast Africa, with the southern extent of the trough reaching the northern parts of Kenya through 24 to 96 hours.

In the next five days, east-west oriented lower-level wind convergence in the region between Northern Angola and Mozambique including Tanzania, a lower-level cyclonic circulation in the Mozambique Channel are expected to enhance rainfall in these regions. Hence, there is an increased chance for heavy rainfall over north-central Angola, southern DRC, Malawi, southern Tanzania, central and northern Mozambique, and much of Madagascar.

2.0. Previous and Current Day Weather Discussion over Africa

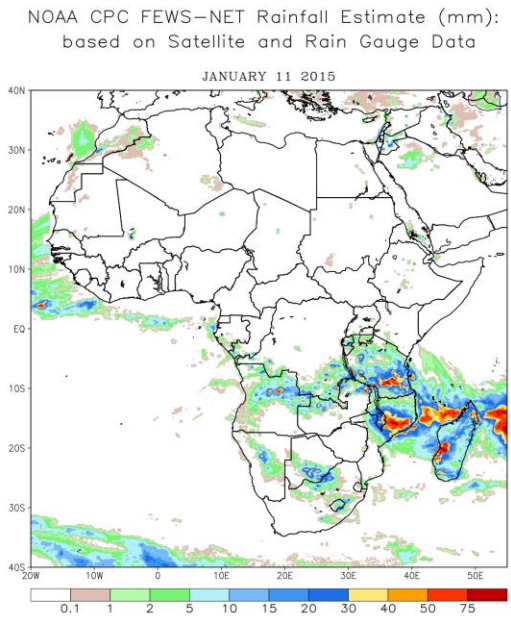
(January 11, 2015 – January 12, 2015)

2.1. Weather assessment for the previous day (January 11, 2015)

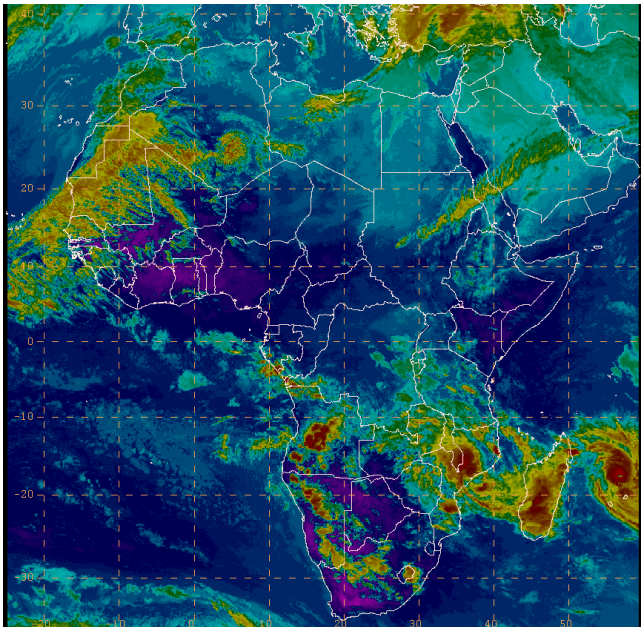
During the previous day, moderate to locally heavy rainfall was observed over portions of southern DRC, Angola, Zambia, some regions of Botswana, southern Tanzania, central and northern Mozambique and Madagascar.

2.2. Weather assessment for the current day (January 12, 2015)

Intense convective deep clouds are observed across portions of southern , north and central Angola, southern Tanzania, Zambia, Malawi, northern and central Mozambique and much of Madagascar.



IR Satellite Image (valid 1630Z of January 12, 2015)



Previous day rainfall condition over Africa (top Left) based on the NCEP CPCE/RFE and current day cloud cover (top right) based on IR Satellite image

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