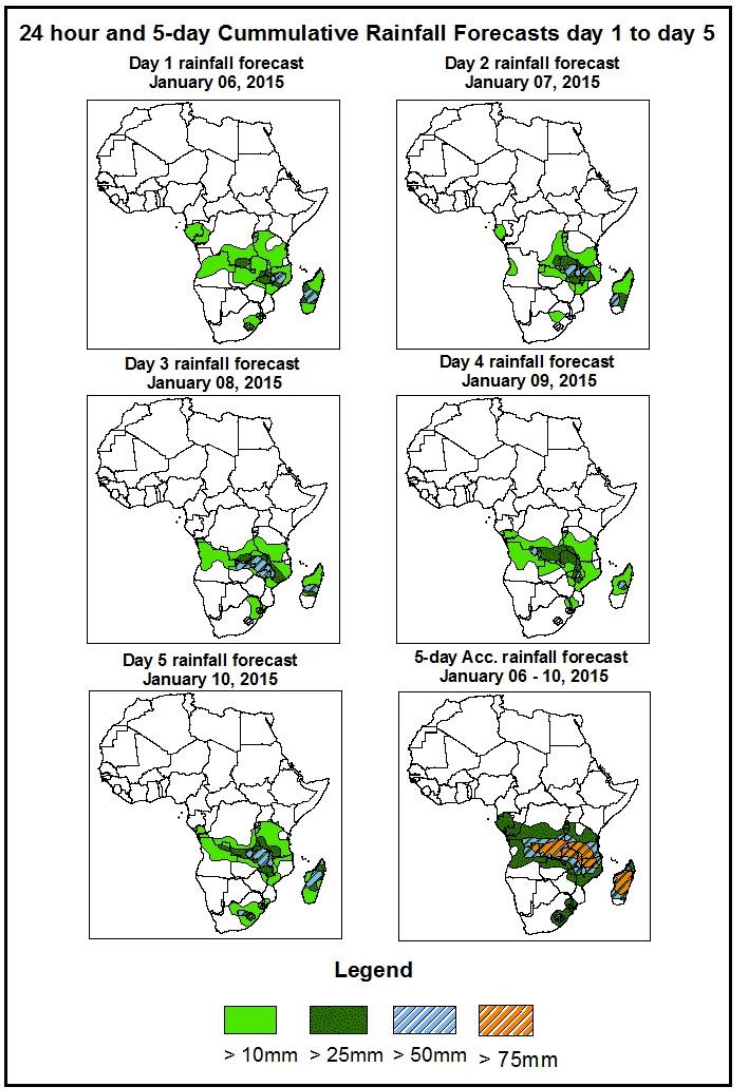
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Rainfall Forecast: Valid 06Z of January 06 – 06Z of January 10 2015. (Issued at 1700Z of January 05, 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.



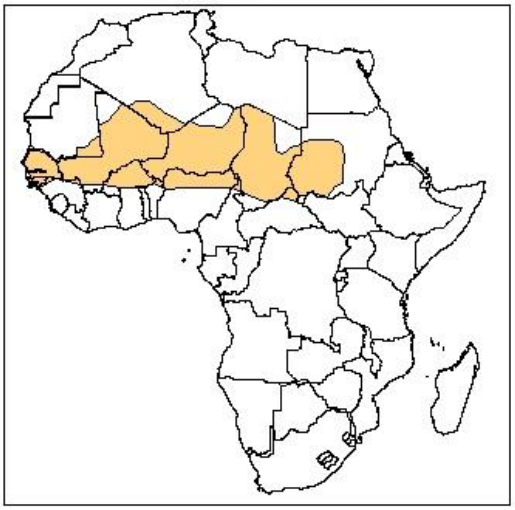
Summary

In the next five days, convective systems across eastern Angola, western Zambia, southern and central DRC, Central parts of Botswana, Malawi, western and Northern parts of Mozambique and Central parts of Tanzania and Madagascar, low-level wind convergence over Angola, Zambia, DRC, Botswana, Malawi, portions of Mozambique and Central parts of Tanzania and Madagascar are expected to enhance rainfall in these regions. As a result of this, heavy rainfall is likely over southern DRC, portions of Tanzania, Mozambique, Madagascar, Zambia, Zimbabwe and Malawi during the forecast period.

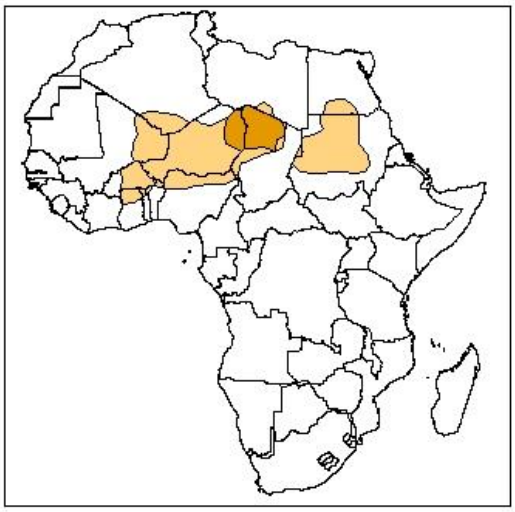
Atmospheric Dust Forecasts, day 1 to day 3,

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

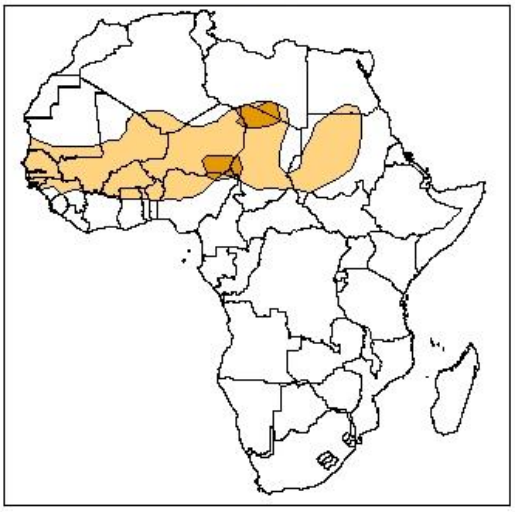
Day 1 Dust forecast
January 06, 2015



Day 2 Dust forecast
January 07, 2015



Day 3 Dust forecast
January 08, 2014



Highlights

There is an increased chance for moderate to heavy dust concentration over portions of Mauritania, Algeria, Mali, Chad, Egypt , Sudan, northern Ghana, I. Coast, Senegal, Western Sahara, Burkina Faso and Niger ,northern Nigeria, Central African Republic and , Sierra Leone

Legend

MDC, Vis. < 5km

HDC, Vis. < 1km

1.2. Model Discussion: Valid from 00Z of December 24, 2014

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 1041hpa towards the end of the forecast period, according to the GFS model.

The Arabian High Pressure system is expected to weaken from a central pressure value of 1022hpa in 24 hours to 1021hpa, which is maintained up to the end of the forecast period, according to the GFS model.

The central pressure value of the Mascarene high pressure system over the southwestern Indian Ocean is expected to strengthen from 1026hpa in 24hours to 1030hpa in 72 hours, and then weaken to 1026hpa towards 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 strengthen from a central pressure value of 1022hpa in 24 hours to 1024hpa in 48 hours and weaken to 1022hpa at the end of the forecast period, according to the GFS model.

At 925Hpa level, dry northeasterly wind (>25kts) is expected to prevail across portions of Mauritania, Algeria, Mali, Chad, Egypt, Sudan, northern Ghana, Ivory Coast, Senegal, Western Sahara, Burkina Faso and Niger ,northern Nigeria, Central African Republic and Sierra Leone , through 24 to 120 hours.

At 850Hpa level, seasonal wind convergences are expected to remain active over parts of Eastern Angola, Western Zambia, Southern and Central DRC, Central parts of Botswana, Malawi, western and Northern parts of Mozambique and Central parts of Tanzania and Madagascar during the forecast period, according to the GFS model.

At 700hpa level, an anticyclonic circulation is expected to dominate the entire southern African region including the Mozambique Channel, while a trough off the horn of Africa extends into the East African region during the forecast period, according to the GFS model.

At 500Hpa, an extension ridge of St. Helena High pressure cell is expected over the entire southern Africa region. Easterly flow will continue to dominate the eastern Africa region during the forecast period, according to the GFS model.

In the next five days, convective systems across eastern Angola, western Zambia, southern and central DRC, Central parts of Botswana, Malawi, western and Northern parts of Mozambique and Central parts of Tanzania and Madagascar, low-level wind convergence over Angola, Zambia, DRC, Botswana, Malawi, portions of Mozambique and Central parts of Tanzania and Madagascar are expected to enhance rainfall in these regions. As a result of this, heavy rainfall is likely over southern DRC, portions of Tanzania, Mozambique, Madagascar, Zambia, Zimbabwe and Malawi during the forecast period.

2.0. Previous and Current Day Weather Discussion over Africa

(January 04, 2015 – January 05, 2015)

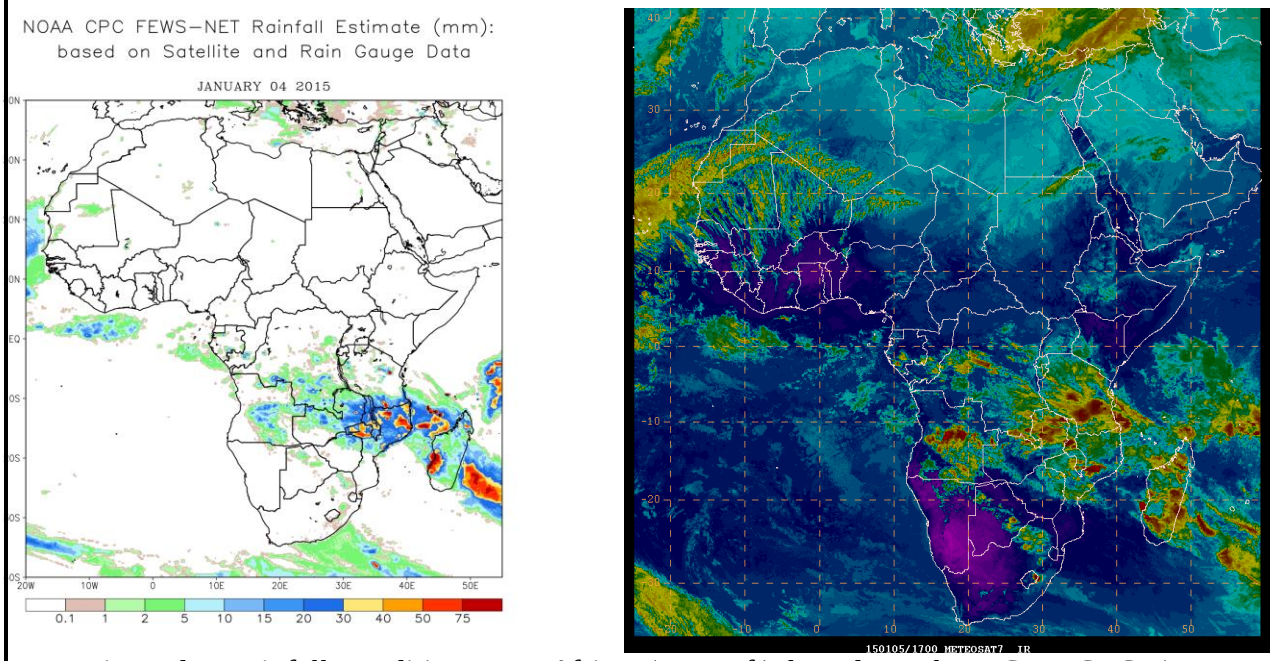
2.1. Weather assessment for the previous day (January 04, 2015)

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

2.2. Weather assessment for the current day (January 05 2015)

Intense convective deep clouds are observed across portions of southern DRC, central Angola and some parts of Tanzania, Zambia, Botswana, Malawi Zimbabwe, northern and central Mozambique and Madagascar.

IR Satellite Image (valid 1700 Z of January 05, 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

Author: Abraham Changara (Kenya Meteorological Department / CPC-African Desk); abraham.changa@noaa.gov