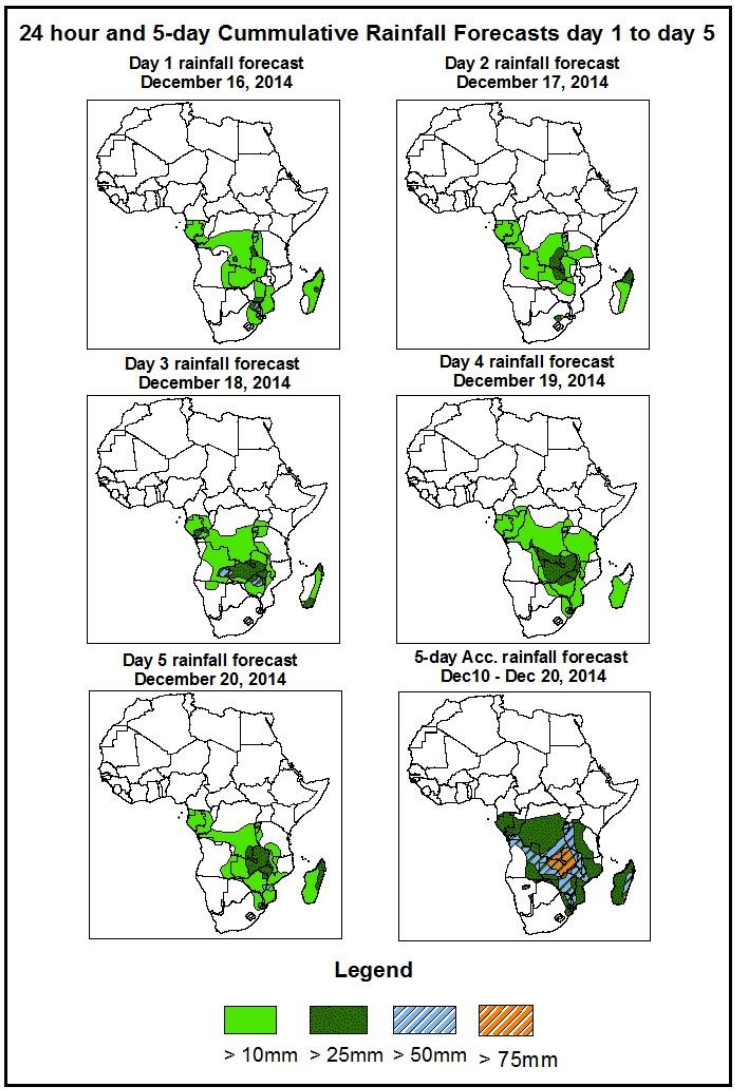
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Rainfall Forecast: Valid 06Z of December 16 – 06Z of December 20, 2014. (Issued at 1830Z of December 15, 2014)

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.



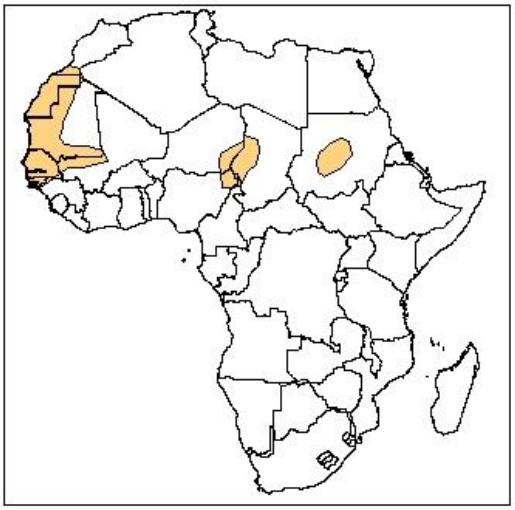
Summary

In the next five days, convective systems across the Equatorial Africa region, low-level wind convergence over Gabon, Botswana, Zambia, Zimbabwe, Mozambique Congo Brazzaville and DRC, are expected to enhance rainfall in these regions. There is an increased chance for moderate to heavy rainfall over portions of Gabon, Equatorial Guinea, Congo Brazzaville, Angola, Zimbabwe, Mozambique and Botswana.

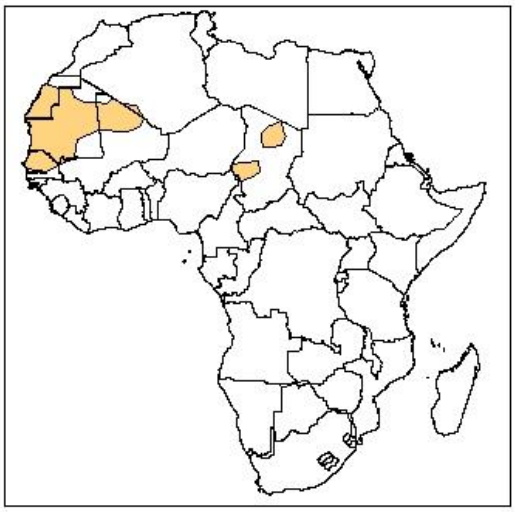
Atmospheric Dust Forecasts, day 1 to day 3,

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

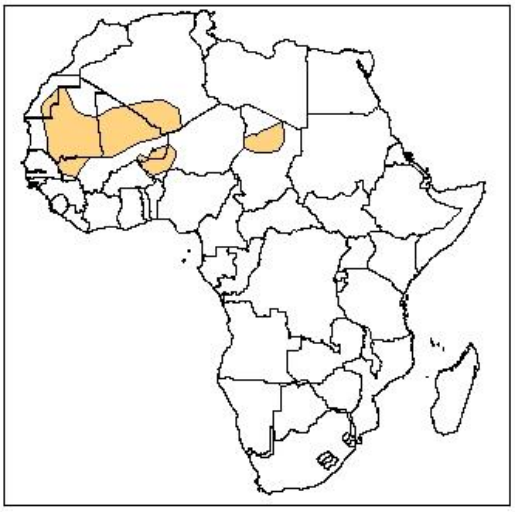
Day 1 Dust forecast
December 16, 2014



Day 2 Dust forecast
December 17, 2014



Day 3 Dust forecast
December 18, 2014



Highlights

There is an increased chance for high to moderate dust concentration over portions of Niger, Mauritania, Algeria, Mali, Chad, Sudan and Western Sahara.

Legend

MDC, Vis. < 5km

HDC, Vis. < 1km

1.2. Model Discussion: Valid from 00Z of December 15, 2014

The Azores high pressure system over the Northeast Atlantic Ocean is expected to weaken from a central pressure value of 1038hpa in 24 hours to a central pressure value of 1034hpa in 120 hours, according to the GFS model.

The Arabian High Pressure system is expected to strengthen from a central pressure value of 1025hpa in 24 hours to 1028hpa in 48 hours and weaken to 1024hpa towards 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 weaken from a central value of 1025hpa in 24 hours to 1021hpa in 72 hours and strengthen again to 1028hpa 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 weaken from a central pressure value of 1029hpa in 24 hours to 1023hpa towards 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, Senegal, Sudan Western Sahara and Niger, through 24 to 120 hours.

At 850Hpa level, seasonal wind convergences are expected to remain active over DRC, Angola, South Africa, Botswana, Madagascar, Congo Brazzaville and Zambia, Zimbabwe, Mozambique and northern Namibia during the forecast period, according to the GFS model.

At 700hpa level, a cyclonic circulation is expected over Angola and Namibia, whereas northeasterly to easterly flow is expected to prevail across DRC and much of East Africa.

At 500Hpa, backward leaning extra-tropical troughs dominate the entire southern Africa region including the Mozambique Channel up to 72 hours and become zonal through 96 hours up to the end of the forecast period. The entire North African region is dominated by extra-tropical migratory ridges.

In the next five days, convective systems across the Equatorial Africa region, low-level wind convergence over Gabon, Botswana, Zambia, Zimbabwe, Mozambique Congo Brazzaville and DRC, are expected to enhance rainfall in these regions. There is an increased chance for moderate to heavy rainfall over portions of Gabon, Equatorial Guinea, Congo Brazzaville, Angola, Zimbabwe, Mozambique and Botswana.

2.0. Previous and Current Day Weather Discussion over Africa

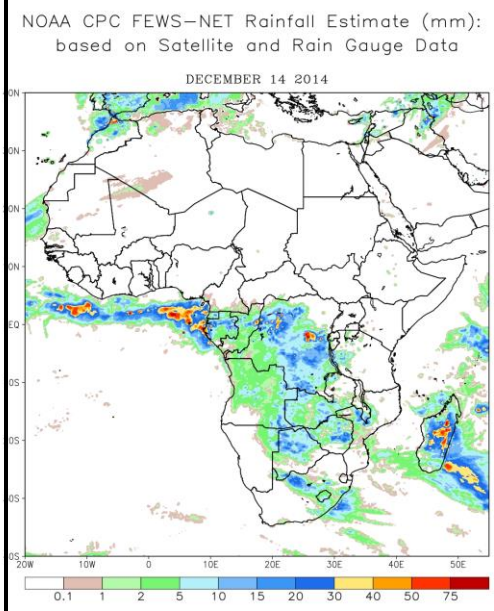
(December 14, 2014 – December 15, 2014)

2.1. Weather assessment for the previous day (December 14, 2014)

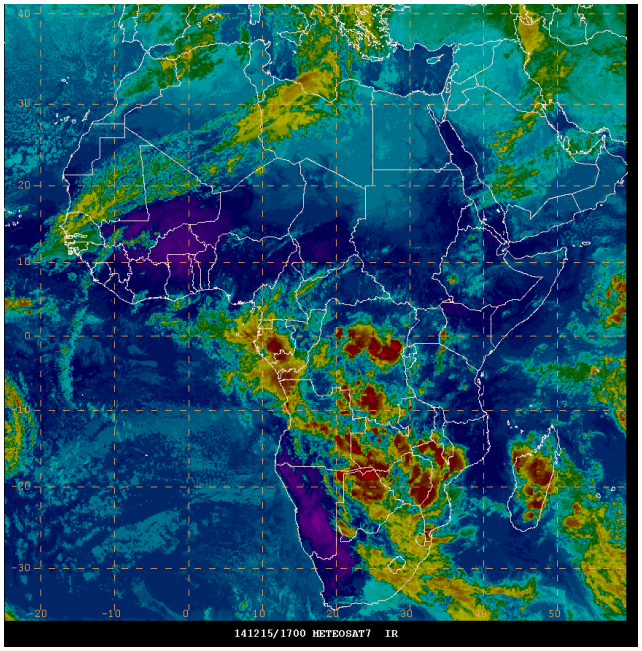
During the previous day, moderate to locally heavy rainfall was observed over portions of Angola, DRC, Gabon, Namibia, South Africa, Zambia, Zimbabwe and Madagascar.

2.2. Weather assessment for the current day (December 15, 2014)

Intense convective deep clouds are still observed across portions of DRC, Botswana, Angola, Zambia, Mozambique, Northern Namibia and Madagascar.



IR Satellite Image (valid 1700 Z of December 15, 2014)



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