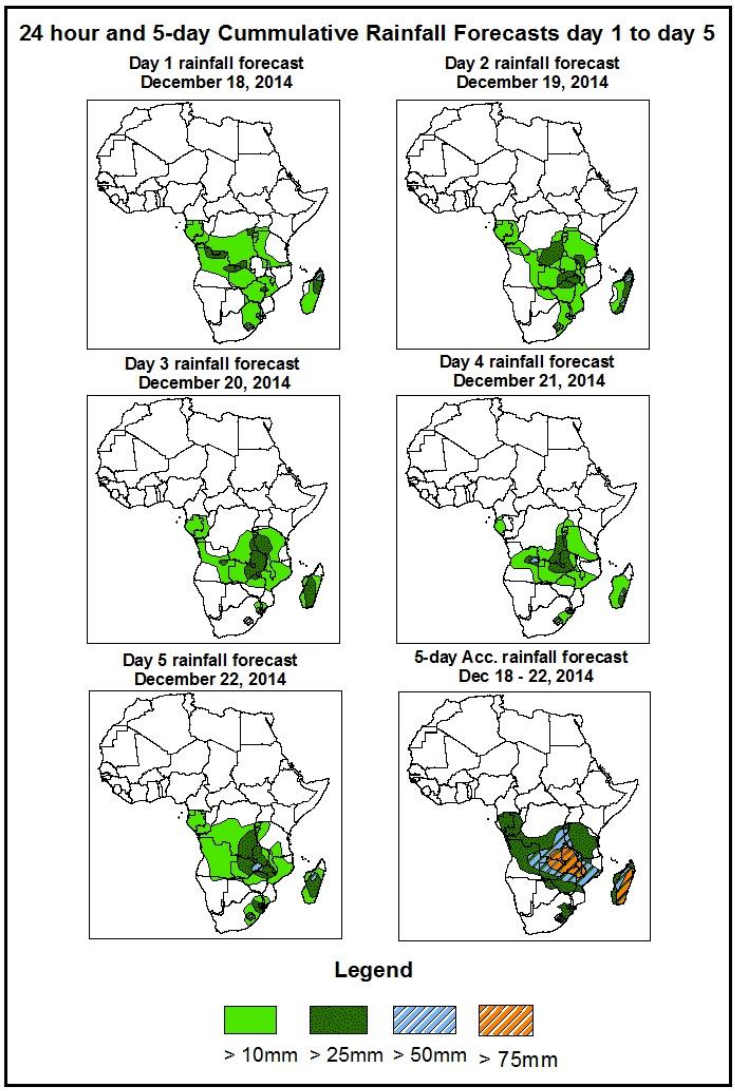
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Rainfall Forecast: Valid 06Z of December 18 – 06Z of December 22, 2014. (Issued at 1830Z of December 17, 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.



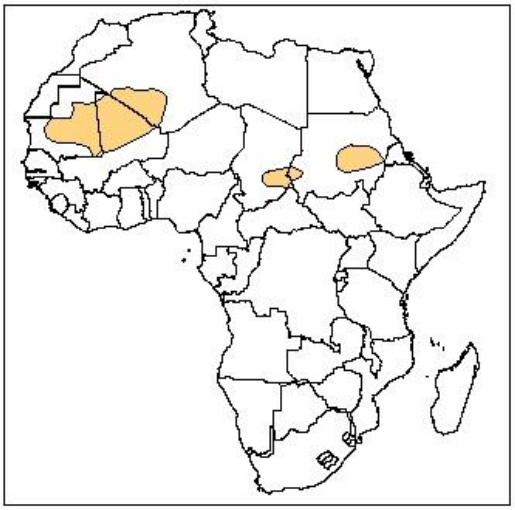
Summary

In the next five days, westward propagating convective systems across the Equatorial Africa region, low-level wind convergence over across eastern and southern DRC, the Lake Victoria region, and over portions of the Southern Africa region are expected to enhance rainfall in these regions. As a result of this, heavy rainfall is likely over Gabon, DRC, Burundi, Rwanda portions western Tanzania, Zimbabwe, Zambia, Malawi, central Mozambique, and Madagascar.

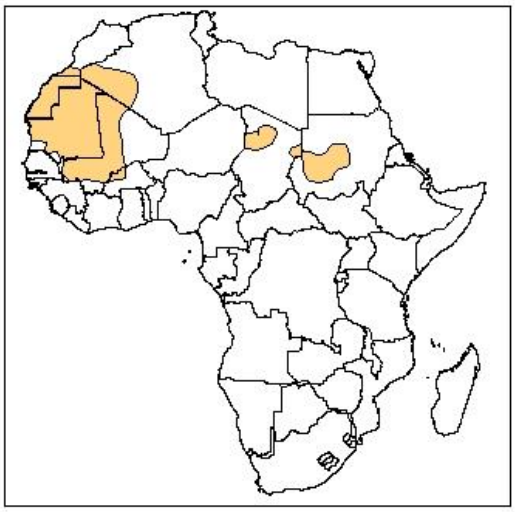
Atmospheric Dust Forecasts, day 1 to day 3,

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

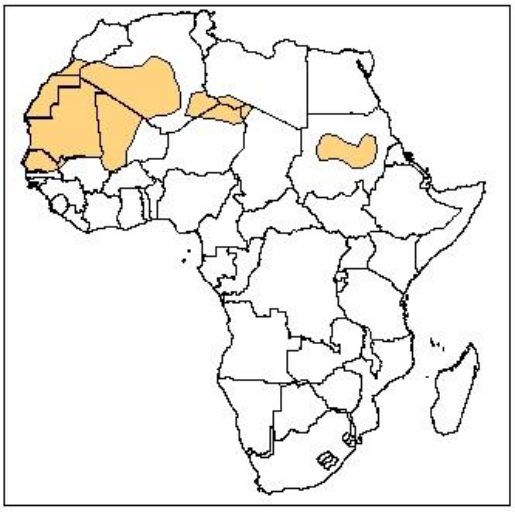
Day 1 Dust forecast
December 18, 2014



Day 2 Dust forecast
December 19, 2014



Day 3 Dust forecast
December 20, 2014



Highlights

There is an increased chance for moderate dust concentration over portions of Western Sahara, Algeria Mauritania, Mali, Niger, Senegal, Sudan, Morocco, Burkina Faso and Chad.

Legend

MDC, Vis. < 5km

HDC, Vis. < 1km

1.2. Model Discussion: Valid from 00Z of December 17, 2014

The Azores high pressure system over the Northeast Atlantic Ocean is expected to strengthen from a central pressure value of 1034hpa in 24 hours to a central pressure value of 1037hpa in 72 hours and weaken to a central pressure value of 1032 in 120 hours, according to the GFS model.

The Arabian High Pressure system is expected to weaken from a central pressure value of 1025hpa in 24 hours to 1018hpa 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 1021hpa in 24 hours to 1027hpa in 96 hours, and weaken to 1026 in 120 hours, 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 1026hpa in 24 hours to 1024hpa 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, Western Sahara, Burkina Paso, Sudan and Niger, through 24 to 120 hours.

At 850Hpa level, seasonal wind convergences are expected to remain active over DRC, Rwanda, Burundi, Uganda and western Tanzania. Another area of wind convergence is expected to prevail near the Angola Namibia border, and across Zambia, Botswana, Zimbabwe, Mozambique Madagascar and parts of South Africa during the forecast period, according to the GFS model.

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

At 500Hpa, a trough associated with a mid-latitude frontal system is expected to propagate across Southern Africa region during the beginning of the forecast period, according to the GFS model.

In the next five days, westward propagating convective systems across the Equatorial Africa region, low-level wind convergence over across eastern and southern DRC, the Lake Victoria region, and over portions of the Southern Africa region are expected to enhance rainfall in these regions. As a result of this, heavy rainfall is likely over Gabon, DRC, Burundi, Rwanda portions western Tanzania, Zimbabwe, Zambia, Malawi, central Mozambique, and Madagascar.

2.0. Previous and Current Day Weather Discussion over Africa

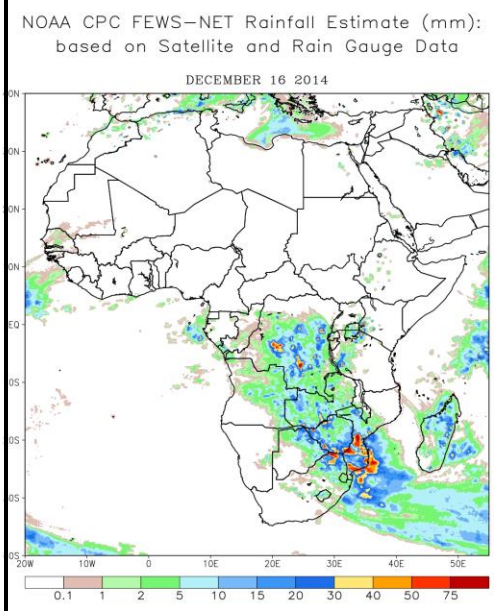
(December 16, 2014 – December 17, 2014)

2.1. Weather assessment for the previous day (December 16, 2014)

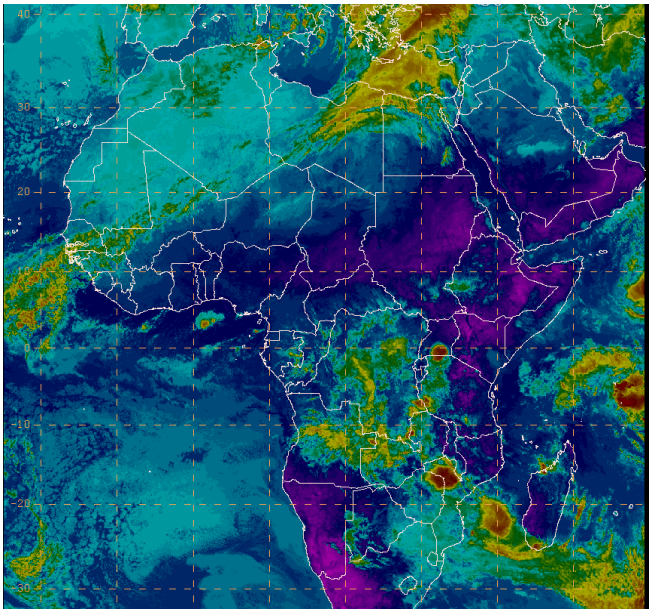
During the previous day, moderate to locally heavy rainfall was observed over portions of Gabon, Congo Brazzaville, parts of DRC, western Zambia, Botswana, Zimbabwe, central and southern Mozambique, eastern South Africa, and Madagascar.

2.2. Weather assessment for the current day (December 17, 2014)

Intense convective deep clouds are still observed across portions of Congo-Brazzaville, DRC, DRC, Angola, Burundi, Rwanda, western Tanzania, Zambia, Botswana, Zimbabwe, southern Mozambique and Madagascar.



IR Satellite Image (valid 1800 Z of December 17, 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

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