

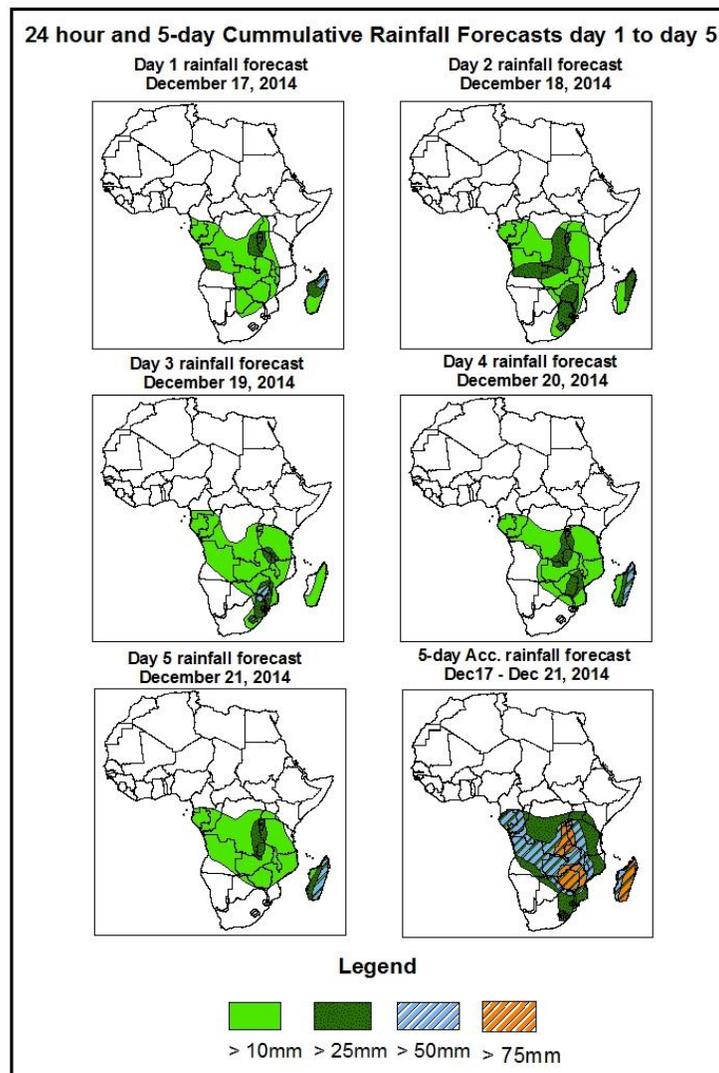


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1. Rainfall Forecast: Valid 06Z of December 17 – 06Z of December 21, 2014. (Issued at 1830Z of December 16, 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.

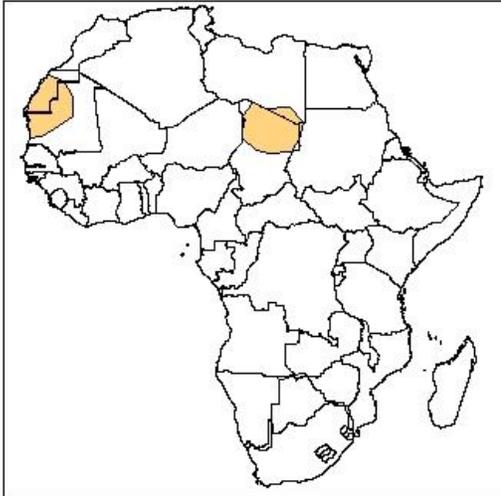


### Summary

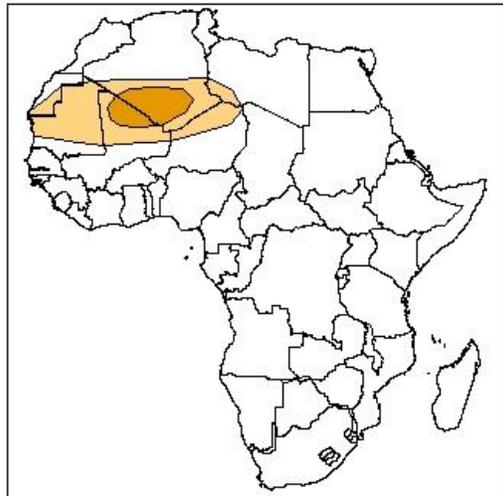
In the next five days, westward propagating convective systems across the Equatorial Africa region, low-level wind convergence over across eastern and southern DRC, the Lake Victoria region, and over portions of the Southern Africa region are expected to enhance rainfall in these regions. As a result of this, heavy rainfall is likely over eastern and southern DRC, 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)

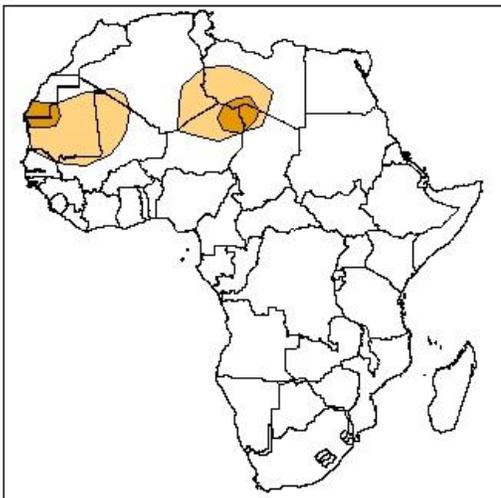
**Day 1 Dust forecast**  
December 17, 2014



**Day 2 Dust forecast**  
December 18, 2014



**Day 3 Dust forecast**  
December 19, 2014



**Highlights**

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

**Legend**



MDC, Vis. < 5km



HDC, Vis. < 1km

## **1.2. Model Discussion: Valid from 00Z of December 16, 2014**

The Azores high pressure system over the Northeast Atlantic Ocean is expected to weaken from a central pressure value of 1036hpa in 24 hours to a central pressure value of 1033hpa in 120 hours, according to the GFS model.

The Arabian High Pressure system is expected to weaken from a central pressure value of 1028hpa in 24 hours to 1019hpa 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 1019hpa in 24 hours to 1024hpa in 96 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 1027hpa 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 and Niger, through 24 to 120 hours.

At 850Hpa level, seasonal wind convergences are expected to remain active over eastern DRC, Rwanda, Burundi, and western Tanzania. Another area of wind convergence is expected to prevail near the Angola Namibia border, and across Zambia, Botswana, Zimbabwe, Mozambique and parts of South Africa 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, 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 eastern and southern DRC, portions western Tanzania, Zimbabwe, Zambia, Malawi, central Mozambique, and Madagascar.

## 2.0. Previous and Current Day Weather Discussion over Africa

(December 15, 2014 – December 16, 2014)

### 2.1. Weather assessment for the previous day (December 15, 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 16, 2014)

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

