



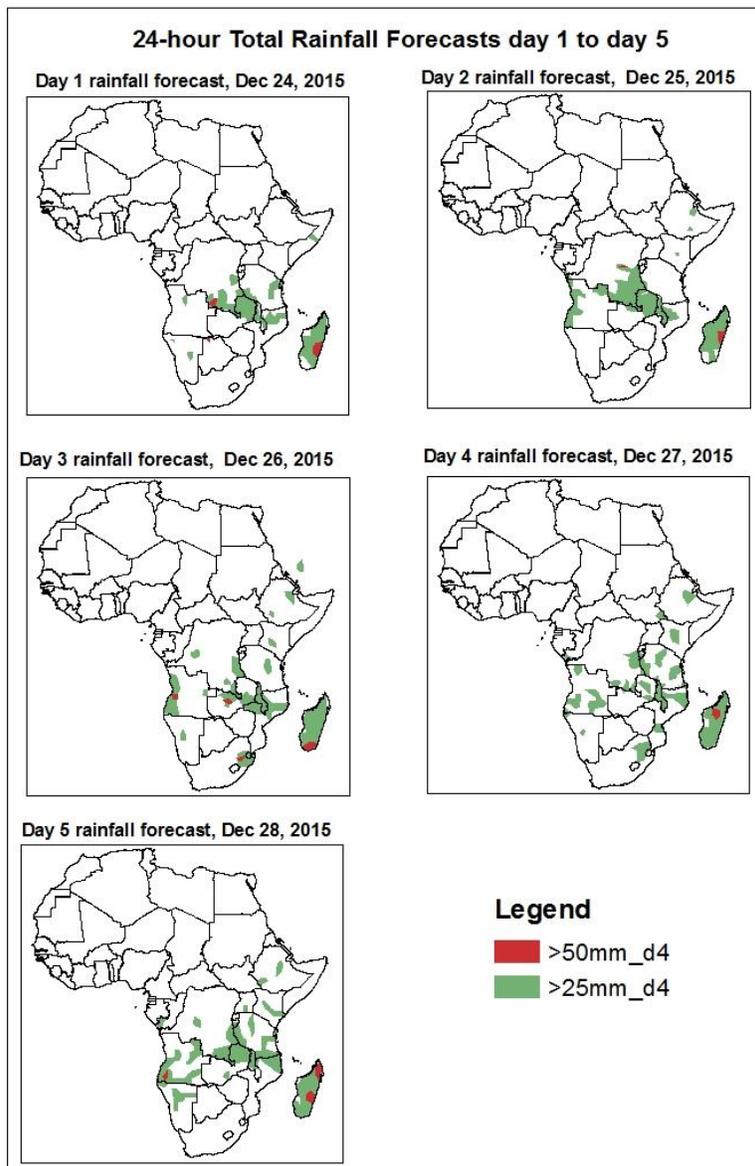
# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1. Rainfall and Dust Concentration Forecasts

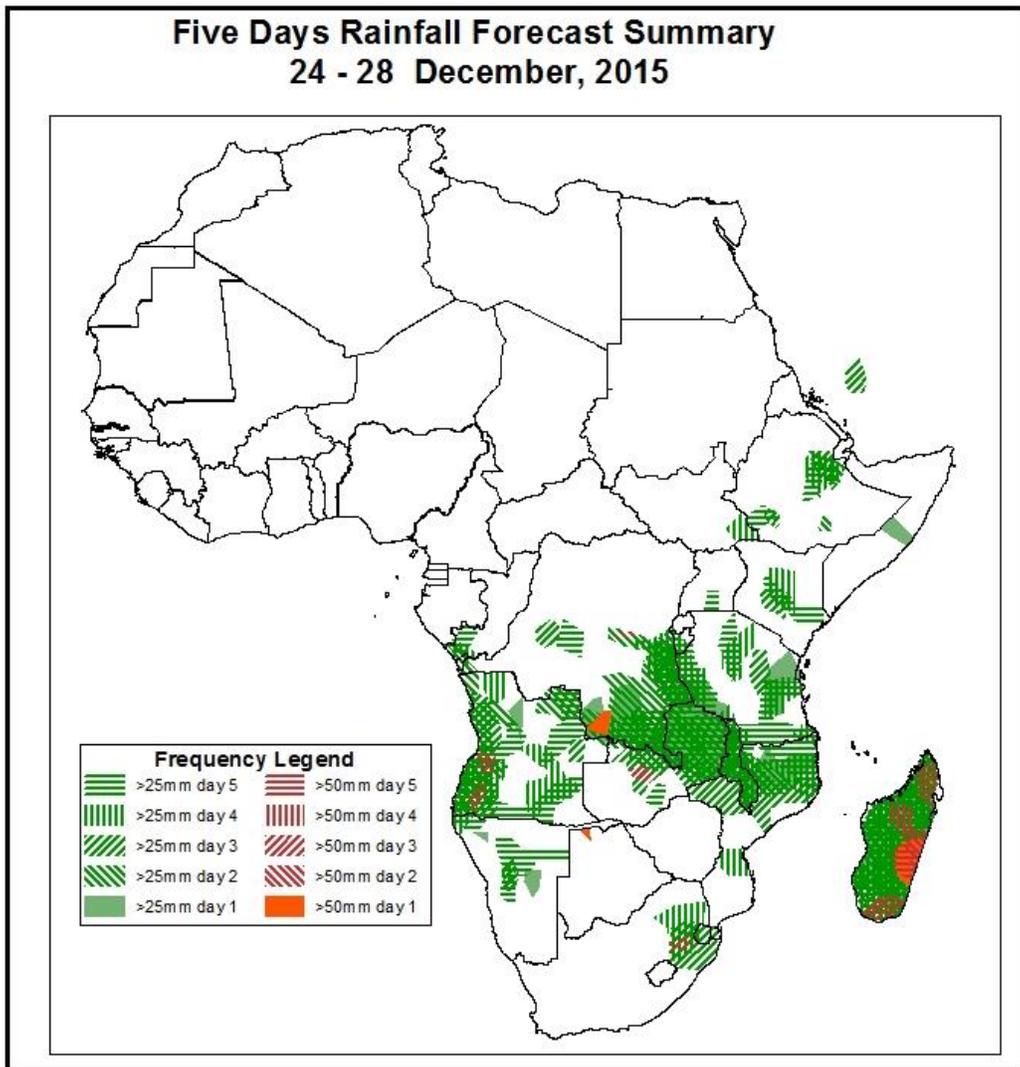
Valid: 06Z of Dec 24 – 06Z of Dec 28, 2015. (Issued on December 23, 2015)

### 1.1. 24-hour Cumulative Rainfall Forecasts

The forecasts are expressed in terms of high probability of precipitation (POP), based on the NCEP/GFS, ECMWF and the NCEP Global Ensemble Forecasts System (GEFS) and expert assessment.



**Five Days Rainfall Forecast Summary  
24 - 28 December, 2015**

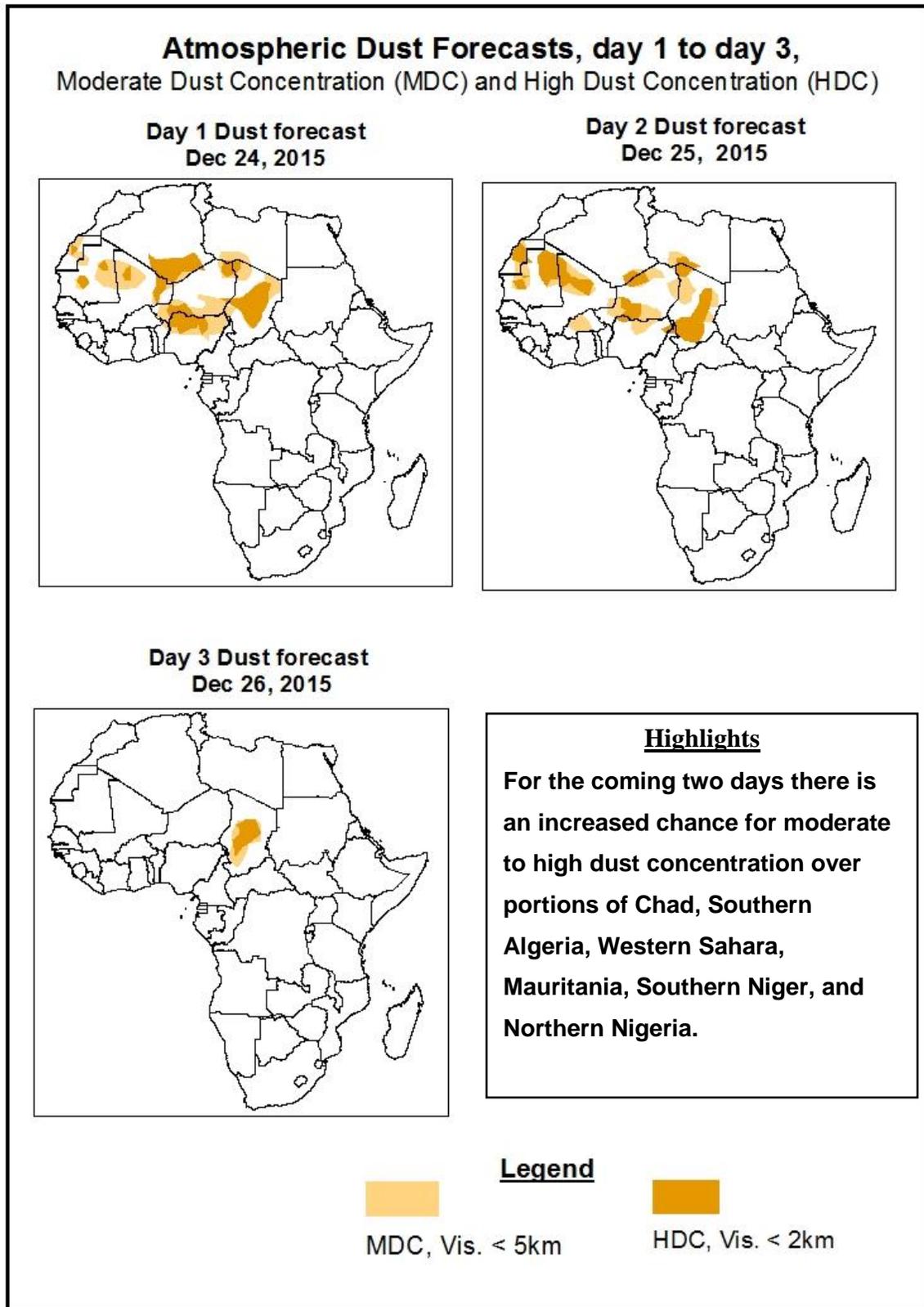


In the coming five days, there is an increased chance for two or more days of moderate to heavy rainfall over most parts of Madagascar, Malawi, Swaziland, Northern Mozambique, Southern DRC, western Angola, central Namibia, North Eastern Ethiopia, Eastern Zambia and parts of Tanzania, with high probability of heavy rainfall over western Madagascar, Southern DRC and western Angola

## 1.2. Atmospheric Dust Concentration Forecasts

Valid: 12Z of Dec 24– 12Z of Dec 26, 2015

The forecasts are expressed in terms of high probability of dust concentration, based on the Navy Aerosol Analysis and Prediction System, NCEP/GFS lower-level wind forecasts and expert assessment.



### 1.3. Model Discussion, Valid: 24 – 28 December, 2015

The Extension of Azores high pressure system over Sahara is expected to weaken in to 1034mb, into 1031mb and into 1030mb in 24, 48 and 72 hours' time respectively from its central value 1035mb. This high pressure system is also expected to intensify in to 1031mb and in to 1032mb in 96 and 120 hours' time respectively. As this pressure system is expected to intensify for the first 48 hours, during this period, the dust concentration that have been *prevailed* over Chad, Southern Algeria, Western Sahara, Mauritania, Southern Niger, and Northern Nigeria on previous days will continue for about two days . Following the continuous weakening of this pressure system, the dust concentration over the mentioned regions (except chad) is expected to decrease significantly in 72 hours' time. During the forecast period, the spatial position of this high pressure system is expected not to make significant shift.

The Siberian high pressure system is expected to intensify in to 1028mb and in to 1031mb in 24 and 48 hours' time respectively from its central value of 1026mb and attain this central value for about 24 hours. This pressure system is also expected to intensify in to 1033mb in 96 hours' time and back to weaken in to the relative minimum value of 1028mb. During the forecast period, this high pressure system is expected to interact with sub-tropical systems and bring unseasonal rainfall over isolated parts of NE Ethiopia.

The St Helena high pressure system over South East Atlantic Ocean is expected to attain its central value of 1032mb for about 24 hours and start continuous weakening to attain 1029mb in 48 hours' time, 1024mb in 72 hours' time and 1022mb in 96 hours' time. By the end of the forecast period, this system is expected to attain its relative minimum value of 1021mb. During the forecast period, the spatial position of this pressure system tends to make slight shift in to the west direction.

The Mascarene high pressure system over Southwest Indian Ocean is expected to intensify in to 1021mb and in to 1023mb in 24 and 48 hours' time respectively and weaken into 1022mb in 96 hours' time. This pressure system is also expected to further intensify into 1026mb and in to 1032mb in 96 and 120 hours' time respectively.

At 925mb level, Strong low level convergence is observed over Northern Ethiopia, this system, by interacting with subtropical system, is expected to bring rainfall over isolated parts of North Eastern Ethiopia. Over Northern Africa, even if anticyclonic activity is observed to be strong, stile North easterly wind is dominant to bring dust in to Western Sahara and Mauritania, Algeria, Mali, Niger and Chad. Dust concentration over the mentioned region, is expected to decrease in 72 hours' time.

At 850mb level, Normally North-south oriented meridional component of ITCZ that have been located between Southern Ethiopia and Northern South Africa, is expected to attain diagonal position crossing Gabon, Congo, DRC Zambia, Malawi, Mozambique and Madagascar. Strong and moist north westerly wind (coming from Indian Ocean) continuous to bring enhance rainfall over south eastern Africa. Relatively enhanced rainfall activity (in terms of amount and distribution) is expected over Madagascar and Western Zambia.

In the coming five days, there is an increased chance for two or more days of moderate to heavy rainfall over most parts of Madagascar, Malawi, Swaziland, Northern Mozambique, Southern DRC, western Angola, central Namibia, North Eastern Ethiopia, Eastern Zambia and parts of Tanzania, with high probability of heavy rainfall over western Madagascar, Southern DRC and western Angola

## 2.0. Previous and Current Day Weather over Africa

### 2.1. Weather assessment for the previous day (December 22, 2015)

Moderate to heavy rainfall was observed over local areas in most parts of Western Madagascar, Northern Namibia, central Botswana, Tanzania, Zambia, western DRC, and Eastern Zambia.

### 2.2. Weather assessment for the current day (December 23, 2015)

Intense convective clouds are observed across many places over Namibia, Eastern Madagascar, central Botswana, Southern Zimbabwe, Northern Mozambique, DRC, Zambia, and Western Angola.

