



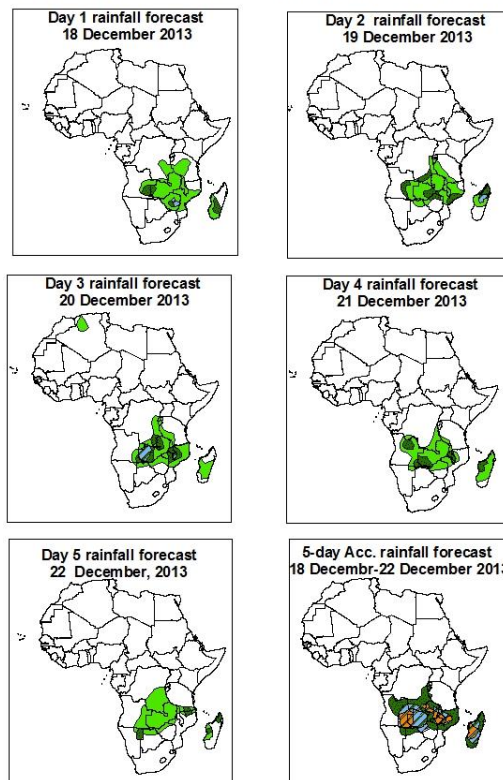
# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid 06Z of 18 December – 06Z of 22 December, 2013. (Issued at 1800Z of 17 December 2013)

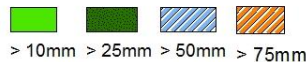
### 1.1. Twenty Four Hour Cumulative Rainfall Forecasts

The forecasts are expressed in terms of 75% probability of precipitation (POP) exceeded, based on the NCEP, UK Met Office and the ECMWF NWP outputs, the NCEP global ensemble forecasts system (GEFS) and expert assessment.

24 hour and 5-day Cumulative Rainfall Forecasts day 1 to day 5



Legend

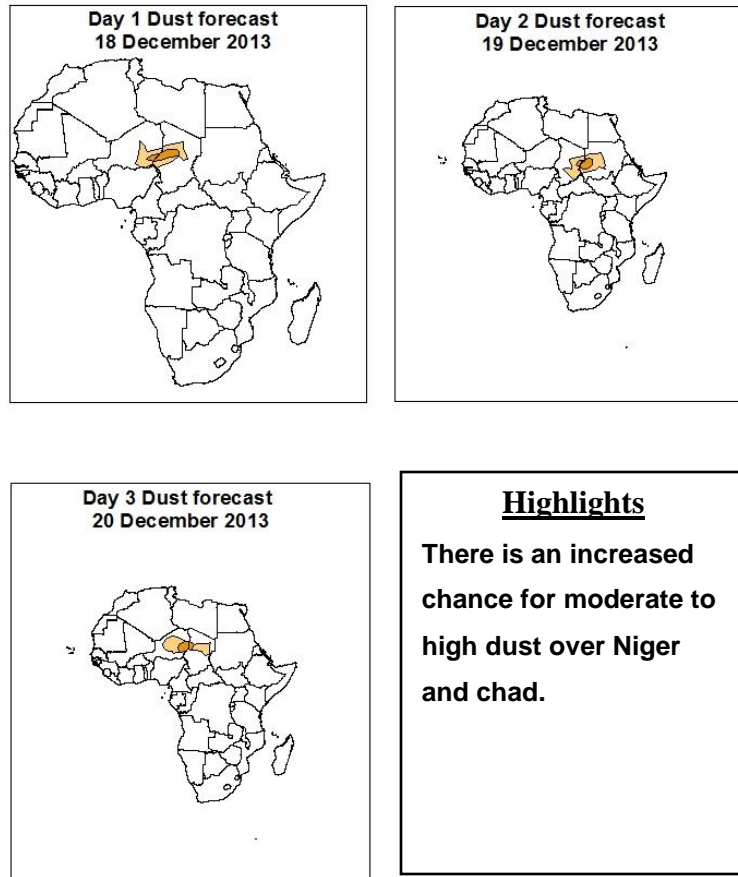


### Summary

During the forecast period, Zambia, Southern Tanzania, North Mozambique, Madagascar, Eastern Angola, Malawi and Southern DRC are expected to receive generally moderate to heavy rainfall. The building up of the mascarene anticyclone and the strengthening of the northern hemisphere anticyclones will result in most of the weather activities confined to Zambia, Southern Tanzania, North Mozambique, Madagascar, Eastern Angola, East Botswana, Malawi and Southern DRC. Areas of Chad, Algeria, Niger and Morocco are expected to receive some rainfall due existing strong extra-tropical-Tropical interactions over the areas.

## 1.2. Atmospheric Dust Forecasts: Valid 18 December- 20 December 2013

**Atmospheric Dust Forecasts, day 1 to day 3,**  
Moderate Dust Concentration (MDC) and High Dust Concentration (HDC)



**Legend**

	
MDC, Vis. < 5km	HDC, Vis. < 1km

## **1.2. Model Discussion: Valid from 00Z of 17 December 2013**

*Model comparison (Valid from 00Z: 17 December 2013) shows all the two models are in general agreement in terms of depicting positions of the northern and southern hemisphere sub-tropical highs, while they showed slight differences in depicting their intensity.*

The St. Helena High Pressure System over southeast Atlantic Ocean is expected to weaken gradually during the forecast period. Its central pressure value is expected to weaken from 1027 hpa to 1021hpa according to both the GFS model and the UKMET model. However the system will continue to push most of the weather to the north, depriving South Africa, Western Botswana and Namibia rains.

According to both the GFS model and the UKMET model, the Mascarene high pressure system over southwestern Indian Ocean is expected to start building up by the next 48 hours of the forecast period from 1019 hpa to 1024 hpa. However due to the weak/absence of the Mascarene anticyclone in the beginning of the forecast period, some parts of western and south west Kenya may continue to receive some rains during the first part of the forecast period. After the establishment of the Mascarene anticyclone and over the greater part of the forecast period, much of the rains over the eastern part of the continent will be confined to Zambia, North Mozambique, Madagascar, Eastern Angola, Malawi and Southern DRC.

In the Northern hemisphere, both the Arabian ridge and the Azores anticyclones have started to intensify hence pushing the rains further south. This will result in reduced rainfall over Kenya, Uganda, Northern Tanzania as well as Northern DRC.

During the forecast period, seasonal wind convergence is expected still to dominate over Southern- eastern Tanzania, Southern DRC, East Angola, Zimbabwe, Malawi, Zambia, Mozambique and Madagascar. The Interaction is expected to result to generally moderate to heavy rainfall in these areas. However during the forecast period, much of the rains will be concentrated in Zambia, Southern Tanzania, North Mozambique, Madagascar, Eastern Angola, Malawi and Southern DRC.

Areas of Chad, Morocco, Niger and Algeria expected to receive some rainfall due to the strong extra-tropical- Tropical interactions over the areas.

At 500hpa level, troughs associated with mid-latitude frontal system extending over Morocco, Algeria, Niger and chad remain deep throughout the forecast period. This will probably have some of rains over the Chad, Algeria, Niger and Morocco.

At 200hpa level, the sub-tropical Westerly Jet (with >70kts wind speed), extending between Mauritania, Morocco, and Egypt, across, Mali, Ghana, Niger, Chad, Algeria, Libya and Northern Sudan persist during the forecast period. Part of the jet also extends to Parts of Senegal, Gambia, Guinea, Sierra Leone, Burkina Faso and Benin. In the south, the sub-tropical westerly Jet (with 70 to 90kts wind speed) is expected to be mainly over South Africa, Lesotho, Swaziland and the western Indian Ocean.

Therefore, during the forecast period, Zambia, Southern Tanzania, North Mozambique, Madagascar, Eastern Angola, Malawi and Southern DRC are expected to receive generally moderate to heavy rainfall. The building up of the mascarene anticyclone and the strengthening of the northern hemisphere anticyclones will result in most of the weather activities confined to Zambia, Southern Tanzania, North Mozambique, Madagascar, Eastern Angola, Malawi and Southern DRC. Areas of Chad, Algeria, Niger and Morocco are expected to receive some rainfall due to the strong extra-tropical- Tropical interactions over the areas.

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

(12 December 2013 – 13 December 2013)

### 2.1. Weather assessment for the previous day (12 December 2013)

During the previous day, moderate to locally heavy rainfall was observed over Ivory coast, Guinea, DRC, Tanzania, Kenya, Zambia, Mozambique, Botswana, Northern Namibia , Zimbabwe, Angola, some parts South Africa, and Madagascar.

### 2.2. Weather assessment for the current day (13 December 2013)

Intense clouds were observed over Zimbabwe, Tanzania, Mozambique, Angola, Botswana, South African, Zambia and Madagascar.

