

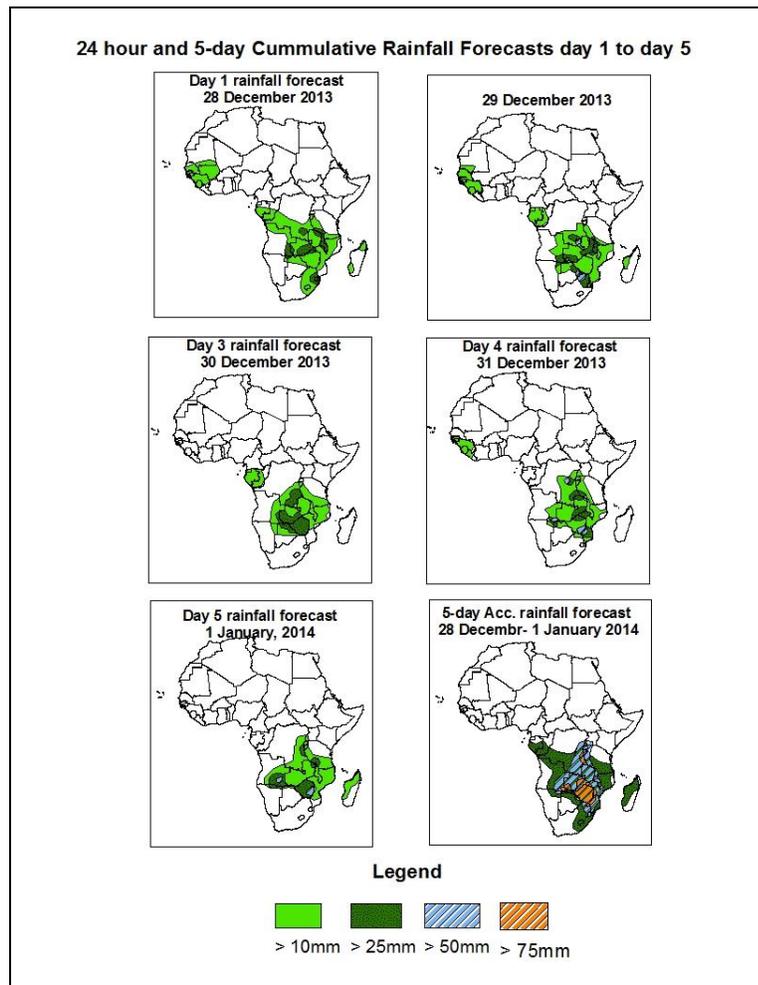


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid 06Z of 28 December – 06Z of 1 January, 2014. (Issued at 1800Z of 27 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.

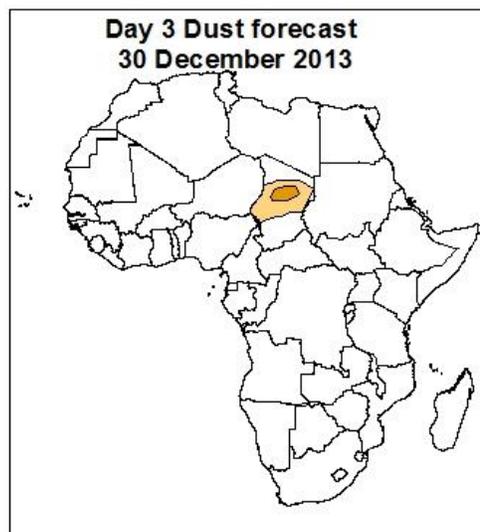
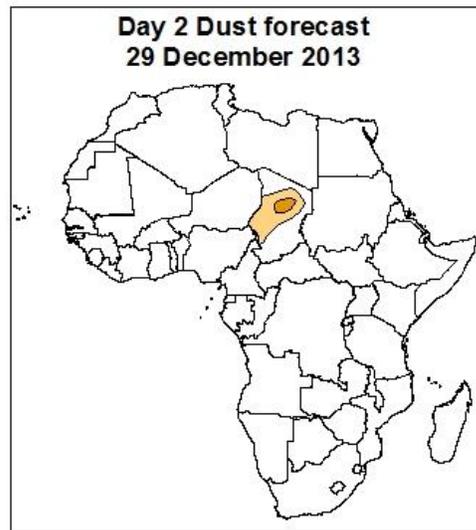
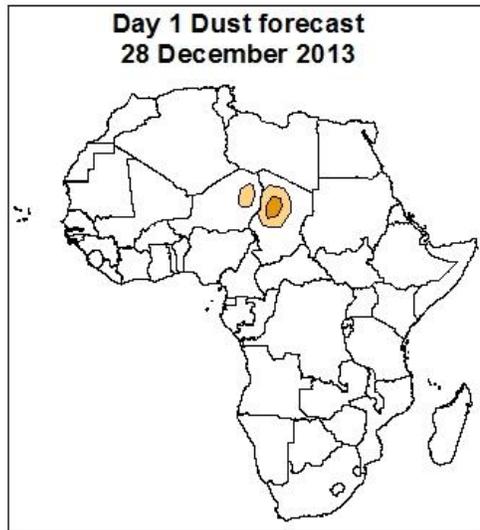


### Summary

Mascarene anticyclone is expected to intensify but propagate eastward and an expected pressure falls over the western Indian Ocean coast. This will result in rainfall increase over south Mozambique, Zambia, Zimbabwe, Malawi and Eastern Botswana. The St Helena Anticyclone is expected to maintain a moderate strength of its central pressure value between 1021hpa and 1023hpa pushing inland much of the rainfall currently observed over Namibia and Angola. In the Northern hemisphere, both the Arabian ridge and the Azores anticyclones are expected to remain active and moderately strong keeping the rain belt south. Parts of Senegal, Mauritania, Guinea and Gambia are expected to receive some rainfall due to the strong extra-tropical- Tropical.

## 1.2. Atmospheric Dust Forecasts: Valid 28 December- 30 December 2013

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



**Highlights**  
There is an increased  
chance for moderate  
dust over chad and  
Libya.



## 1.2. Model Discussion: Valid from 00Z of 27 December 2013

*Model comparison (Valid from 00Z: 27 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.*

According to both the GFS model and the UKMET model, St. Helena High Pressure System is expected to maintain a moderate strength of its central pressure value between 1021hpa and 1023hpa. It will continue pushing moisture inland but significantly reducing the rains in Namibia, South Angola, Botswana and the Western coast of South Africa.

According to both the GFS model and the UKMET model, the Mascarene high pressure system over southwestern Indian Ocean is expected to intensify with its central pressure increasing from 1022hpa and 1032hpa but propagate eastward. It is expected that it will maintain ejecting moisture inland the western coast of the Indian Ocean but reduce the rains in South Africa as the forecast period progress. Since moderate pressure falls are expected over the Mozambique Channel and the east cost of the Indian Ocean and moisture ejected by the mascarene, moderate rains are expected over areas of Zambia, Eastern Angola, DRC, Eastern Botswana, Tanzania, Zimbabwe, Malawi. The low pressure system north of Madagascar that is expected to persist much of the forecast period will reduce rainfall over Tanzania and Northern Mozambique.

In the Northern hemisphere, both the Arabian ridge and the Azores anticyclones are expected to remain active and moderately strong keeping the rain belt south. However as the northern frontal systems move eastwards weakening them, some rains are expected in parts of Uganda, Burundi and Rwanda.

At 850hpa level, strong convergence is expected in Democratic Republic of Congo (DRC), Zambia, Namibia, Botswana, Angola, Tanzania, Zimbabwe, Malawi, Gabon, Congo Brazzaville and South Africa. During the forecast period, moderate to severe weather is expected over these areas as shown by the rainfall map above.

At 500hpa level, troughs associated with mid-latitude frontal system extending over Algeria, Mauritania, Libya and Egypt are persistence during the forecast period. These interactions are only expected to result to rains over Senegal, Mauritania, Guinea and Gambia.

At 200hpa level, the sub-tropical Westerly Jet mainly (with wind speed >70kts and <150 kts), extending between Mauritania, Algeria, Guinea, Senegal, and Egypt, and across, Mali, Burkina Faso, Gambia, Niger, Chad, Libya and Northern Sudan persist during the forecast period. In the south, the sub-tropical westerly Jet (with 70 to 110kts wind speed) is expected though in rare times of the forecast period over South Africa and the Indian Ocean.

Therefore, Mascarene anticyclone is expected to intensify but propagate eastward with expected pressure falls over the western Indian Ocean coast. This will result in rainfall increase over south Mozambique, Zambia, Zimbabwe, Malawi and East Botswana. The St Helena Anticyclone is expected to maintain a moderate strength of its central pressure value between 1021hpa and 1023hpa as the forecast period progress pushing inland much of the rainfall currently observed over Namibia and Angola. In the Northern hemisphere, both the Arabian ridge and the Azores anticyclones are expected to remain active and moderately strong keeping the rain belt south. Parts of Senegal, Mauritania, Guinea and Gambia are expected to receive some rainfall due to the strong extra-tropical- Tropical.

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

(26 December 2013 – 27 December 2013)

### 2.1. Weather assessment for the previous day (26 December 2013)

During the previous day, moderate to heavy rainfall was observed over Gabon Congo Brazzaville, DRC, Angola, Zambia, Malawi, Namibia, South Africa, Botswana and Tanzania.

### 2.2. Weather assessment for the current day (27 December 2013)

Intense clouds were observed over Angola, DRC, Mozambique, Malawi, Zimbabwe Tanzania, Zambia, Madagascar, Namibia, Botswana, and South Africa.

