



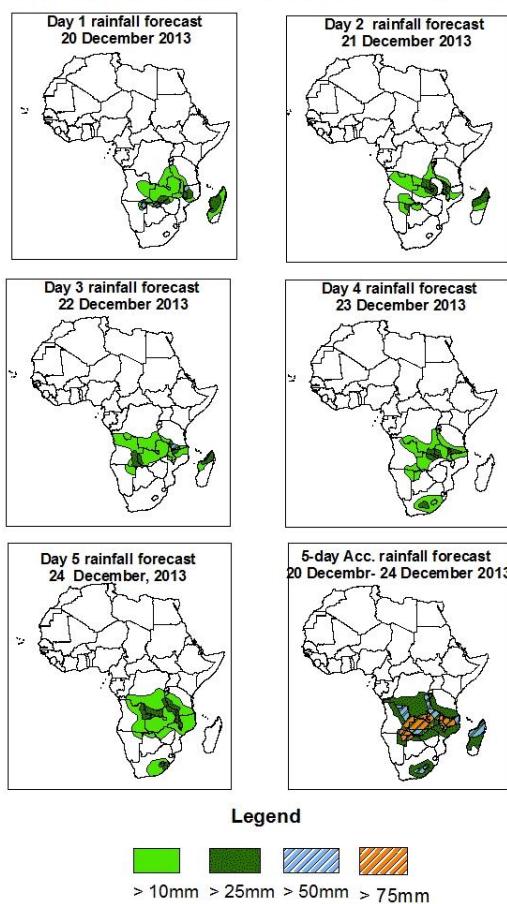
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 20 December – 06Z of 24 December, 2013. (Issued at 1800Z of 19 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 Cummulative Rainfall Forecasts day 1 to day 5

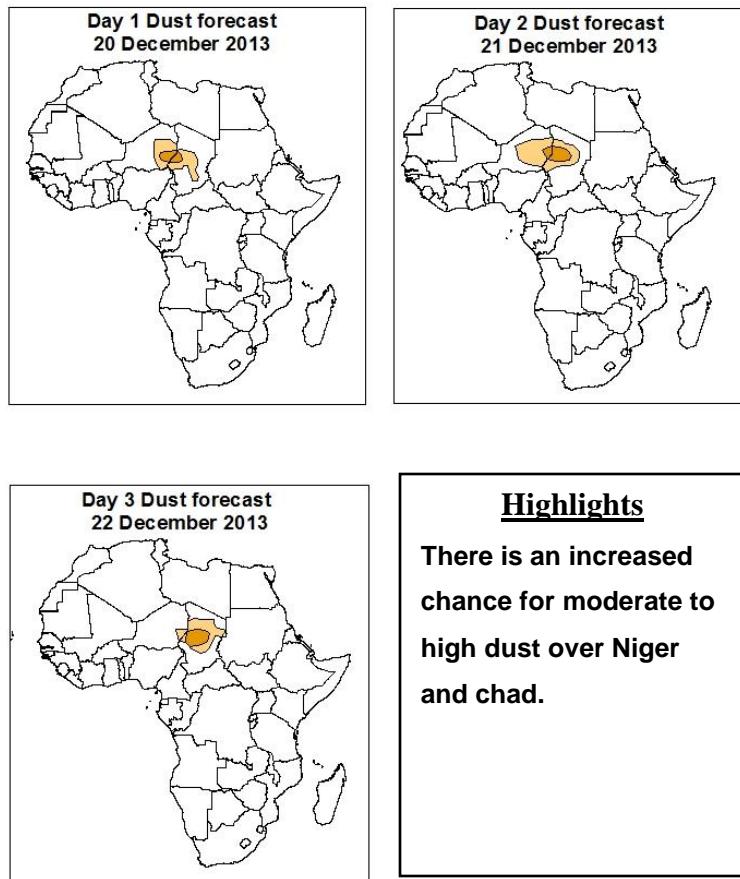


Summary

During the forecast period, Mascarene anticyclone is expected to remain active pushing much of the rains towards Zambia, North Mozambique, Madagascar, Eastern Malawi and Southern DRC. However it is expected to propagate eastward towards the end of the forecast period allowing some increase of rains in south Mozambique as well as Zimbabwe. The St. Helena High Pressure System over southeast Atlantic Ocean is expected to generally maintain its central pressure pushing the weather to the north but expected to relax as its control center shifts westward allowing some rains in Parts of South Africa as Well as Namibia and Botswana. The northern hemisphere anticyclones are expected to relax towards the end of the forecast period, resulting to increased rains over Central DRC and North Tanzania Areas of Nigeria, Niger Senegal, Ghana, Togo Benin and Algeria are expected to receive some rainfall due to the strong extra-tropical- Tropical interactions.

1.2. Atmospheric Dust Forecasts: Valid 20 December- 22 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 to high dust over Niger and chad.

Legend

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

1.2. Model Discussion: Valid from 00Z of 19 December 2013

Model comparison (Valid from 00Z: 19 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 over southeast Atlantic Ocean is expected to still maintain its central pressure value at between 1023 hpa and 1021 hpa during the forecast period. Therefore the system will keep most of the weather to the north continuing to , deprive South Africa, Western Botswana, western Angola and Namibia rains. However as the system is expected to move west during the last period of the forecast, there is a chance of some rains in parts of South African, Botswana and Namibia.

According to both the GFS model and the UKMET model, the Mascarene high pressure system over southwestern Indian Ocean is expected to maintain its central pressure at between 1020hpa and 1022. It is also expected to remain active during the forecast period but will propagate slightly eastward towards the end of the forecast period. This will hence result in improved rains over some parts of South Africa as well as south Mozambique and Zimbabwe.

In the Northern hemisphere, both the Arabian ridge and the Azores anticyclones are expected to remain active keeping the rain belt to the south. This will result in continued reduction of rainfall over Kenya, Uganda, Tanzania as well as much of DRC. .However the anticyclones are expected to relax towards the end of the forecast period, resulting to increased rains over Central DRC and North Tanzania

At 500hpa level, troughs associated with mid-latitude frontal system extending over Nigeria, Niger Senegal, Ghana, Togo Benin and Algeria remaining deep throughout the forecast period. These interactions are expected to result to rains over these areas (Nigeria, Niger Senegal, Ghana, Togo Benin and Algeria).

At 200hpa level, the sub-tropical Westerly Jet (with >70kts wind speed), extending between Mauritania, Morocco, and Egypt, across, Mali, Niger, Chad, Algeria, Libya and Northern Sudan persist during the forecast period. Part of the jet also extends to Parts of Senegal, Gambia, Guinea, Togo, Ghana, Ivory Coast, 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, Mascarene anticyclone is expected to remain active hence pushing much of the rains towards Zambia, North Mozambique, Madagascar, Eastern Malawi and Southern DRC. However it is expected to propagate eastward towards the end of the forecast period allowing some increase of rains in south Mozambique as well as Zimbabwe. The St. Helena High Pressure System over southeast Atlantic Ocean is expected to generally maintain its central pressure pushing the weather to the north but expected to relax as its Control center shifts westward allowing some rains in Parts of South Africa as We as Namibia and Botswana. Areas of Nigeria, Niger Senegal, Ghana, Togo Benin and Algeria are expected to receive some rainfall due to the strong extra-tropical- Tropical interactions.

2.0. Previous and Current Day Weather Discussion over Africa

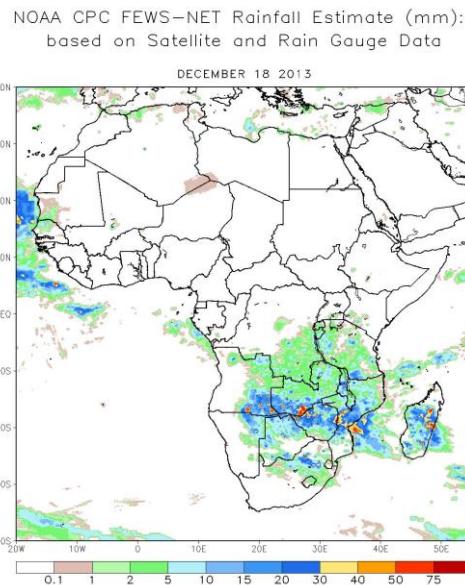
(18 December 2013 – 19 December 2013)

2.1. Weather assessment for the previous day (18 December 2013)

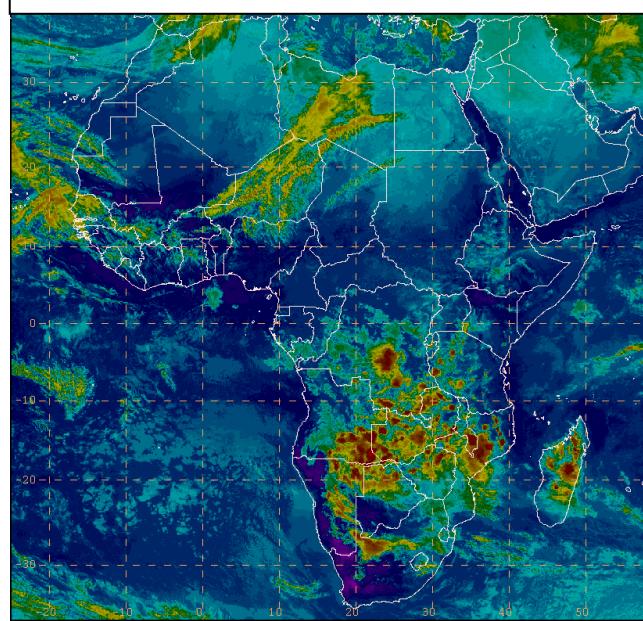
During the previous day, moderate to locally heavy rainfall was observed over Tanzania, Southern DRC, Zambia, Mozambique, Botswana, North-East Namibia, Zimbabwe, Angola, some parts South Africa, and Madagascar.

2.2. Weather assessment for the current day (19 December 2013)

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



IR Satellite Image (valid 1722 Z of 19 December 2013)



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

Author:Samuel N Muchiri, (Kenya Meteorological Services / CPC-African Desk); Samuel.muchiri@noaa.gov