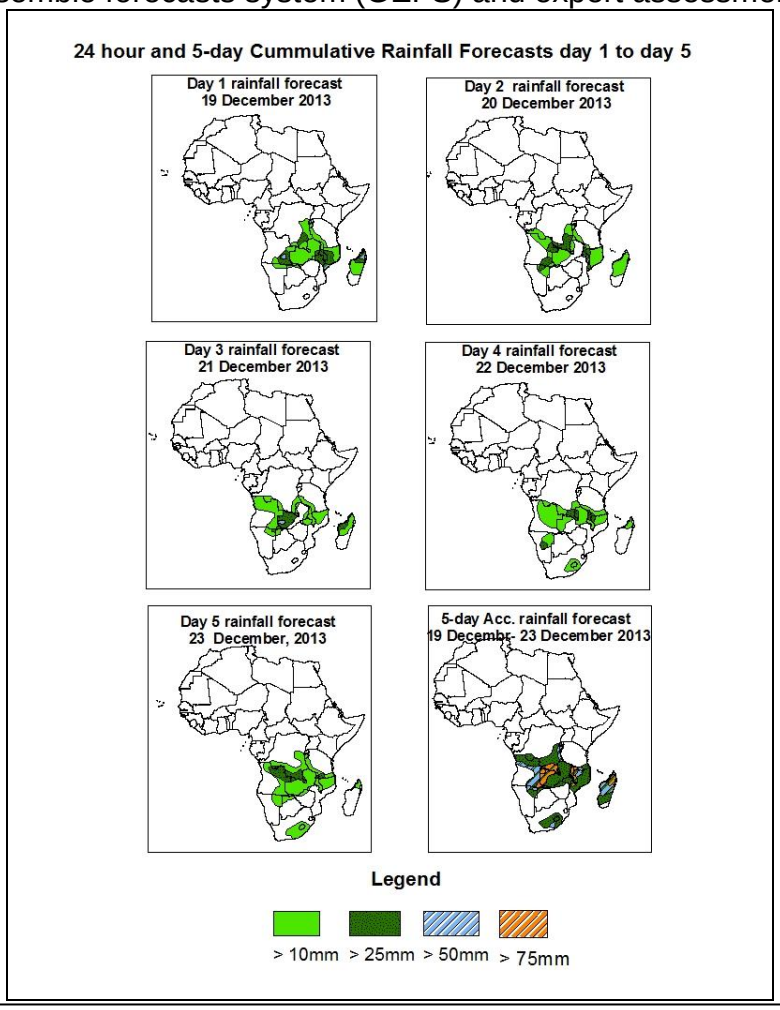
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 19 December – 06Z of 23 December, 2013. (Issued at 1800Z of 18 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.

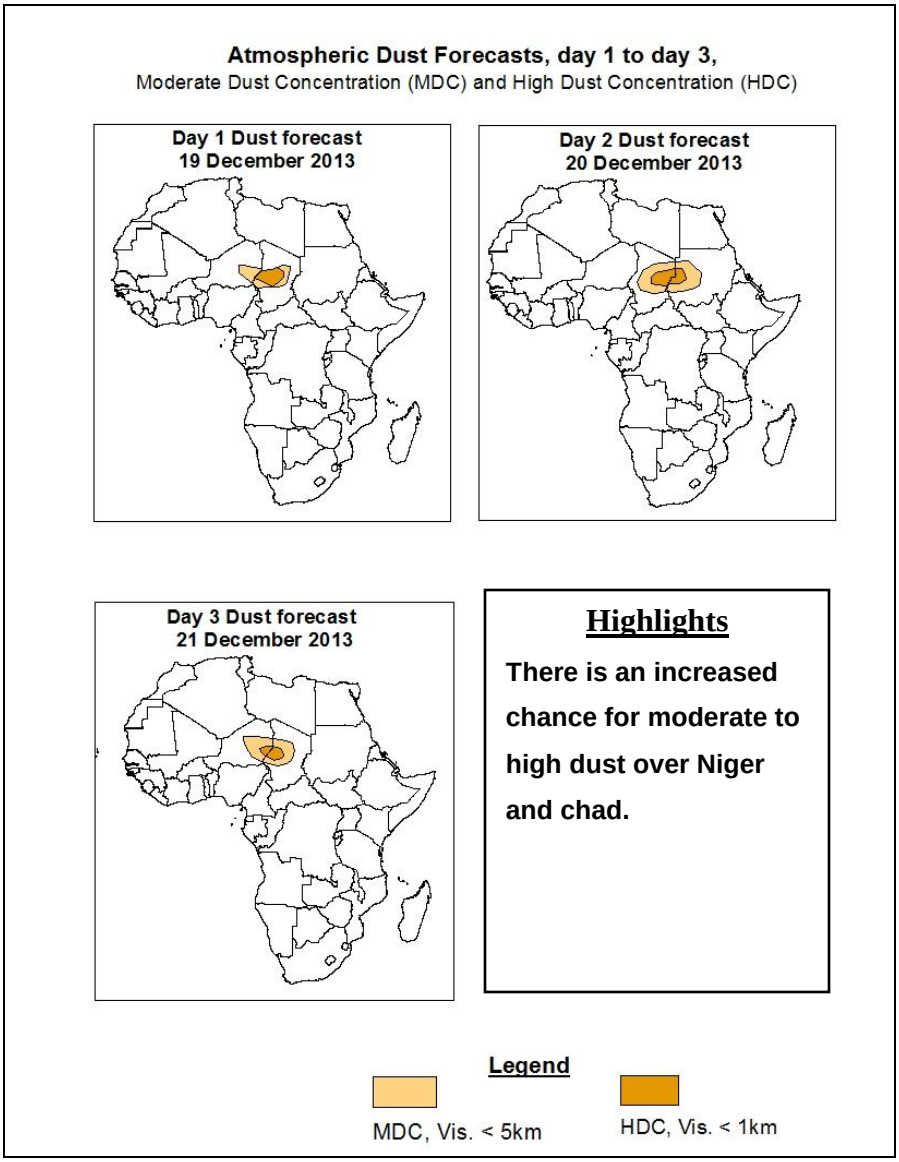


Summary

During the forecast period, Mascarene anticyclone is expected to remain active hence pushing much of the rains towards Zambia, North Mozambique, Madagascar, Malawi and Southern DRC. The St. Helena High Pressure System over southeast Atlantic Ocean is expected to generally maintain its central pressure value pushing the weather to the north away from South African and, Namibia.

A Significant reduction of rainfall is expected over Zimbabwe, southern Mozambique as well as Kenya and northern Tanzania. Areas of Chad, Morocco, Niger Senegal, Nigeria, Mali and Algeria are expected to receive some rainfall due to the strong extra-tropical- Tropical interactions over the areas.

1.2. Atmospheric Dust Forecasts: Valid 19 December- 21 December 2013



1.2. Model Discussion: Valid from 00Z of 18 December 2013

Model comparison (Valid from 00Z: 18 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 generally 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, depriving South Africa, Western Botswana, western Angola 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 slightly intensify from 1019 hpa to 1022 hpa. It is also expected to remain active during the forecast period hence pushing much of the rains towards Zambia, North Mozambique, Malawi and Southern DRC. Significant reduction of rainfall is expected over Zimbabwe and southern Mozambique.

In the Northern hemisphere, both the Arabian ridge and the Azores anticyclones are expected to maintain and hence keep pushing the rain belt to the south. This will result in continued reduction of rainfall over Kenya, Uganda, Tanzania as well as much of DRC.

During the forecast period, seasonal wind convergence is expected still to dominate over Tanzania, Angola, Zambia, North Mozambique, Madagascar, Malawi and Southern DRC. The convergence is expected to result to generally moderate to heavy rainfall in these areas. However much of the rains will be concentrated in Zambia, North Mozambique, Madagascar, Eastern Angola, Malawi and Southern DRC. Areas of Chad, Morocco, Niger Senegal, Nigeria, Mali 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 Chad, Morocco, Niger Senegal, Nigeria, Mali and Algeria remaining deep throughout the forecast period. This will probably have some of rains over these areas (Chad, Morocco, Niger Senegal, Nigeria, Mali and Algeria).

At 200hpa level, the sub-tropical Westerly Jet (with >70kts wind speed), extending between West Sahara, 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. The St. Helena High Pressure System over southeast Atlantic Ocean is expected to generally maintain its central pressure pushing the weather to the north. A Significant reduction of rainfall is expected over Zimbabwe, southern Mozambique as well as Kenya and northern Tanzania. Areas of Chad, Morocco, Niger Senegal, Nigeria, Mali and Algeria 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

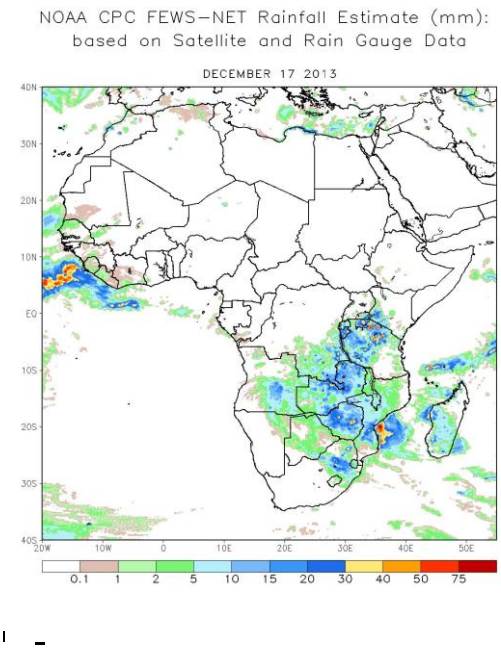
(16 December 2013 – 17 December 2013)

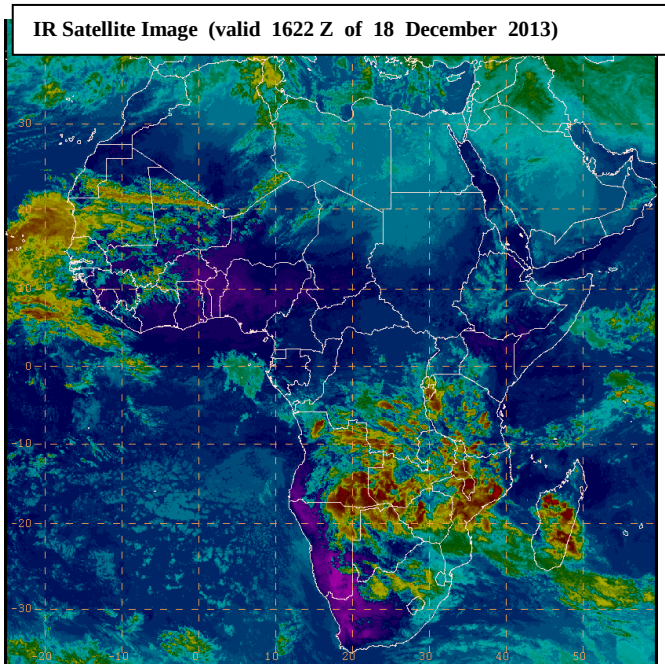
2.1. Weather assessment for the previous day (16 December 2013)

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 (17 December 2013)

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





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

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