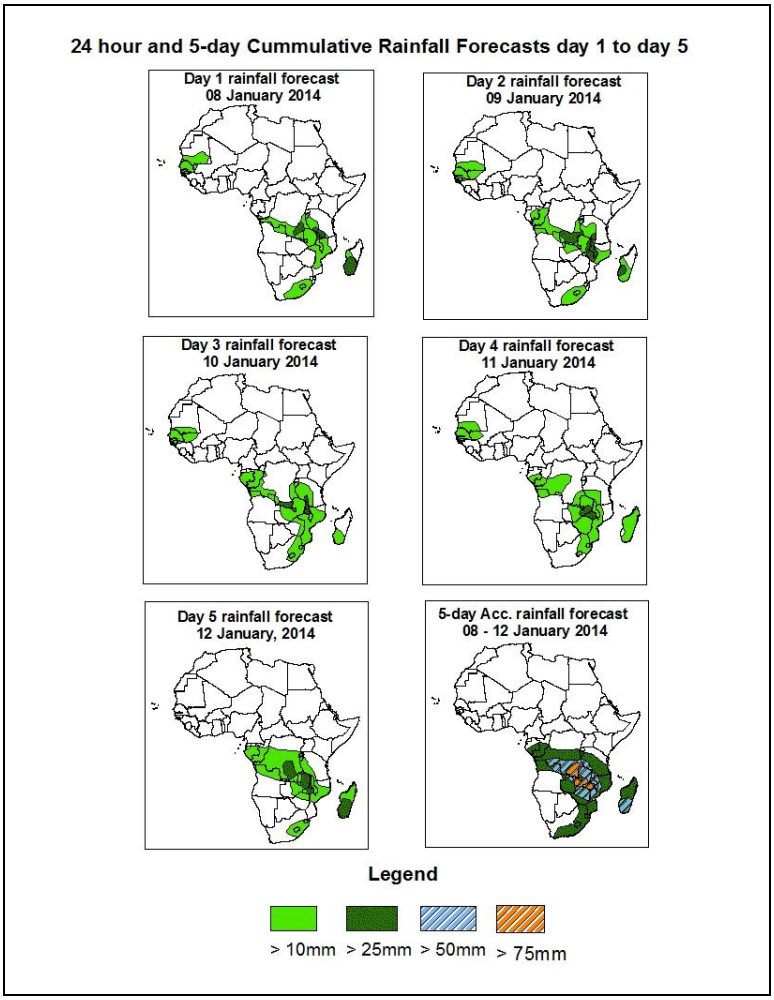
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 08 January – 06Z of 12 January, 2014. (Issued at 1800Z of 7 January 2014)

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.

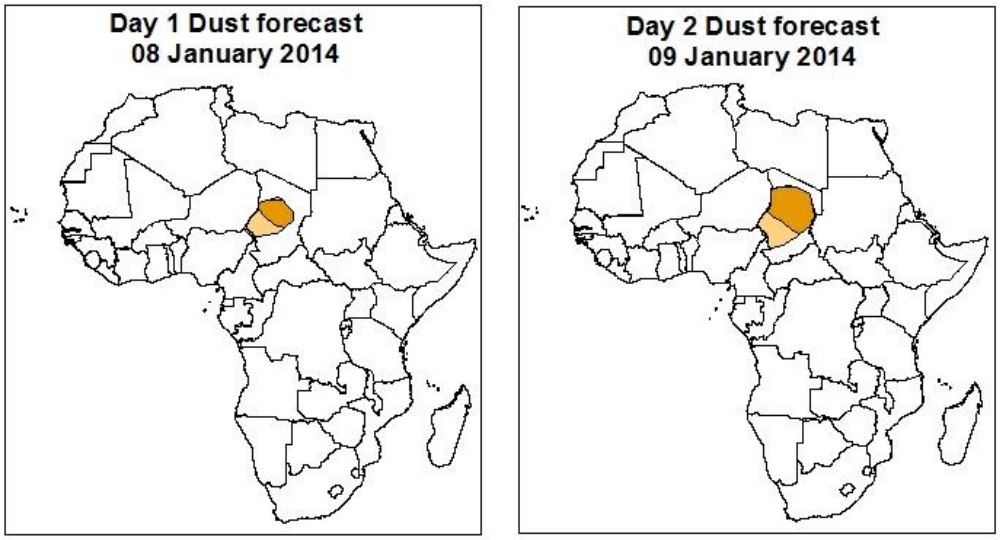


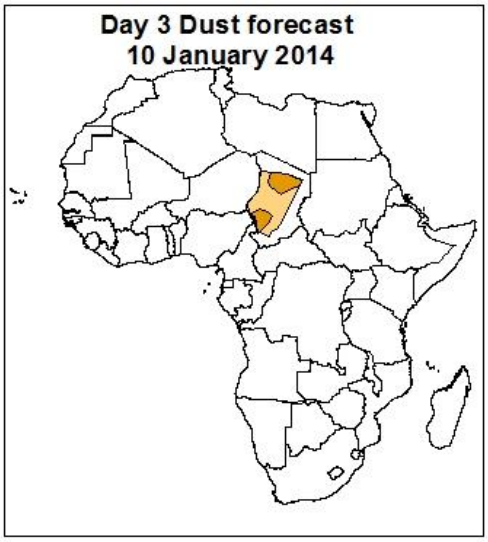
Summary

Mascarene anticyclone is expected to generally intensify but propagate eastward. This will result in moderate rainfall DRC, Tanzania, Mozambique, Zambia, Zimbabwe, Malawi and parts of South African. However the deep low pressure system over the channel will reduce rains over parts of Mozambique and Tanzania. The St Helena Anticyclone is expected to intensify with its central pressure value increasing from 1021 hpa and 1029 hpa. It will significantly reduce the rains in Namibia, South Angola, Botswana and the Western coast of South Africa. 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, and Mali are expected to receive some rainfall due to the strong extra-tropical- Tropical.

1.2. Atmospheric Dust Forecasts: Valid 08 January - 10 January 2014

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.

Legend

MDC, Vis. < 5km

HDC, Vis. < 1km

1.2. Model Discussion: Valid from 00Z of 07 January 2014

Model comparison (Valid from 00Z: 07 January 2014 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 intensify with its central pressure value increasing from 1021 hpa and 1029 hpa. 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 1019 hpa and 1027hpa but weaken to 1016 hpa towards the end of the forecast period. It is expected to maintain ejecting moisture inland the western coast of the Indian Ocean resulting to moderate rains over areas of Zambia, Tanzania, Eastern Angola, DRC, Mozambique, Zimbabwe and Malawi. However the deep low pressure system over the channel will reduce rains over parts of Mozambique and Tanzania.

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 there are chances of the rains shifting north and benefiting areas of Uganda, Tanzania, Burundi and Rwanda during the forecast period.

At 850hpa level, strong convergence is expected in Democratic Republic of Congo (DRC), Zambia, Namibia, Mozambique, Angola, Tanzania, Zimbabwe, Malawi, Madagascar, 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 Mauritania, Libya and Egypt are persistence during the forecast period. These

interactions are only expected to result to rains over Senegal, Mauritania, Mali, 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, 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, Namibia and the Indian Ocean.

Therefore, Mascarene anticyclone is expected to generally intensify but propagate eastward. This will result in moderate rainfall DRC, Tanzania, Mozambique, Zambia, Zimbabwe, Malawi and parts of South African. However the deep low pressure system over the channel will reduce rains over parts of Mozambique and Tanzania.
The St Helena Anticyclone is expected to intensify with its central pressure value increasing from 1021 hpa and 1029 hpa. It will significantly reduce the rains in Namibia, South Angola, Botswana and the Western coast of South Africa. 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, and Mali are expected to receive some rainfall due to the strong extra-tropical- Tropical.

2.0. Previous and Current Day Weather Discussion over Africa

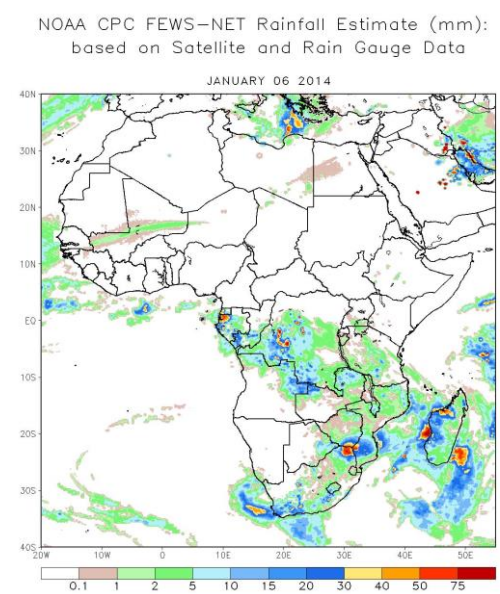
(06 January 2014– 07 January 2014)

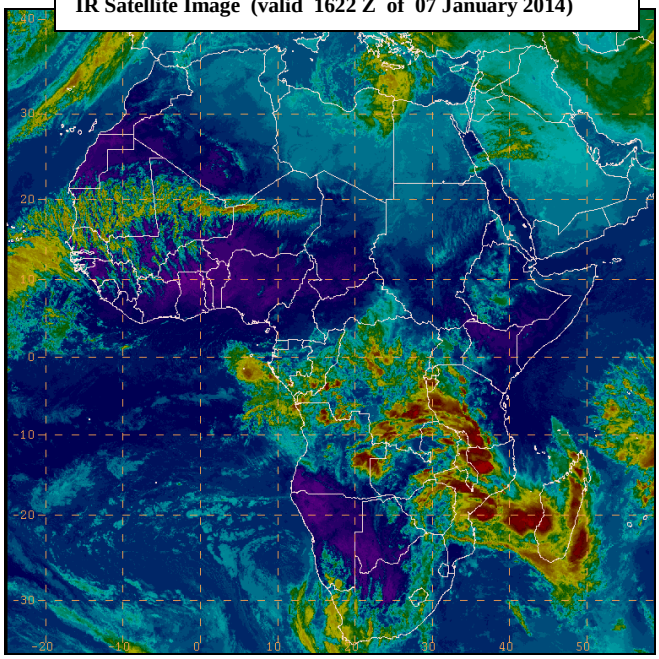
2.1. Weather assessment for the previous day (06 January 2014)

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 (07 January 2014)

Intense clouds were observed over Gabon, Congo Brazzaville, Angola, DRC, Mozambique, Malawi, Zimbabwe Tanzania, 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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