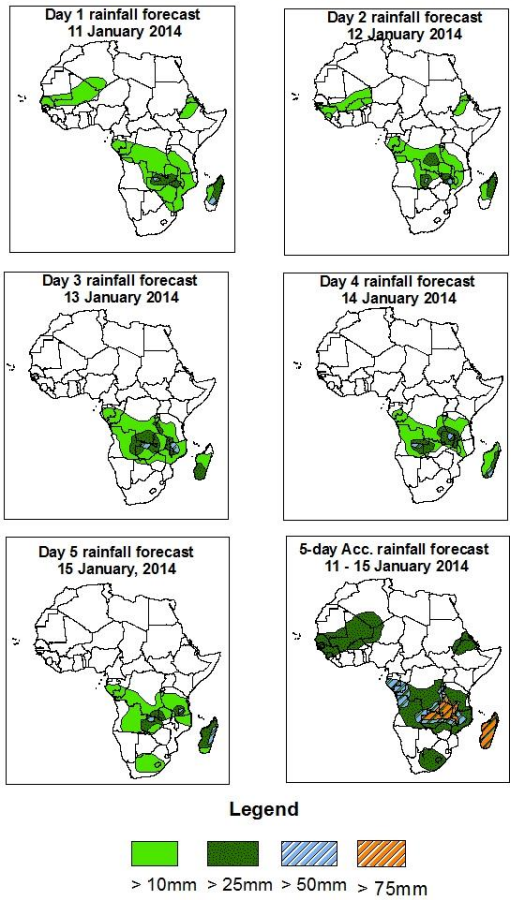
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 11 January – 06Z of 15 January, 2014. (Issued at 1800Z of 10 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.

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

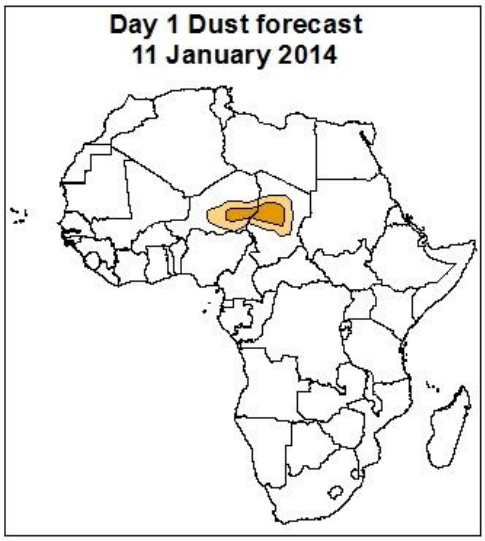


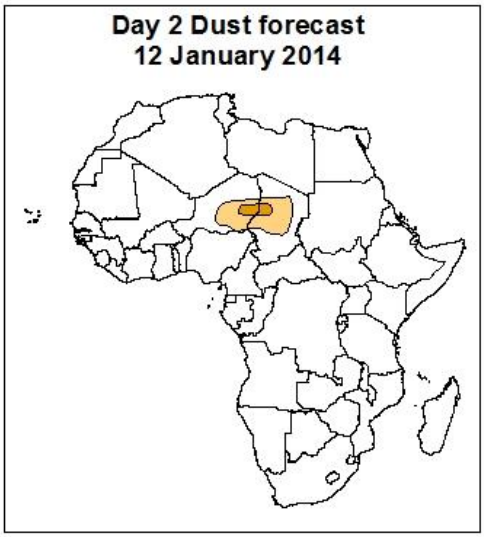
Summary

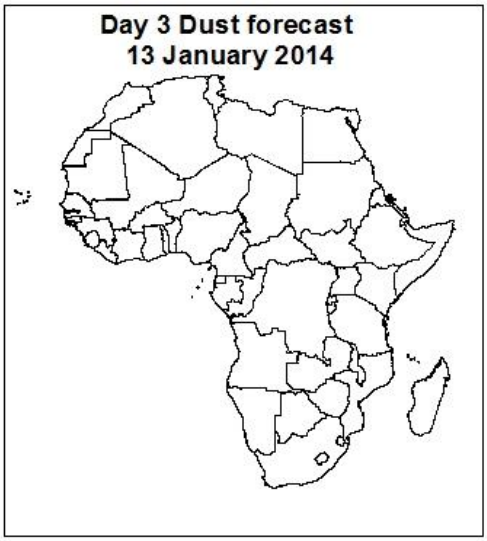
Mascarene anticyclone is expected to weaken and propagate eastward resulting to diffuse rains over most of the areas in the first half of the forecast period. However it is expected to build up in the second half pushing and concentrating rains a bit north. St. Helena High Pressure System is expected to generally maintain its central pressure values but slightly fluctuate between 2024 hpa and 2029hpa. Its diffluence effect is expected to continue minimizing rains over Namibia, Angola, Botswana and South Africa for the better part of the forecast period. In the Northern hemisphere, frontal systems still remain active during the first half of the forecast period occasionally weakening northern anti cyclones and consequently shifting the rains north and benefiting areas of Uganda, North DRC, Burundi and Rwanda. Parts of Senegal, Mauritania, Mali, Guinea and Gambia, Northern Ethiopia and Eretria are expected to receive some rainfall over the first half of the forecast period as a result of strong extra-tropical- Tropical interactions.

1.2. Atmospheric Dust Forecasts: Valid 11 January - 13 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 and Niger.

Legend

MDC, Vis. < 5km

HDC, Vis. < 1km

1.2. Model Discussion: Valid from 00Z of 10 January 2014

Model comparison (GFS and UKMET Valid from 00Z: 10 January 2014) shows 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 generally maintain its central pressure values but slightly fluctuate between 2024 hpa and 2029hpa. Its diffluence effect is expected to continue minimizing rains over Namibia, Angola, Botswana and South Africa for the better part of the forecast period.

According to both the GFS model and the UKMET model, the Mascarene high pressure system over southwestern Indian Ocean is expected to weaken with its central pressure decreasing from 1028 hpa and 1019hpa. It is also expected to propagate eastward leaving pressure falls over the Mozambique Channel. The pressure falls will result to diffuse weather over most of the areas and significant reduction in Tanzania and Mozambique. However it is expected to start building up in the second half of the forecast period that will follow with a push of the rains to the north.

In the Northern hemisphere, frontal systems are still active during the first half of the forecast period occasionally weakening northern anti cyclones and consequently relaxing the south push pressures and hence shifting the rains a bit north benefiting areas of Uganda, North Tanzania , North DRC, Burundi and Rwanda.

At 850hpa level, strong convergence is still expected over Democratic Republic of Congo (DRC), Zambia, Angola, Tanzania, Zimbabwe, Malawi and Madagascar. 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- Morocco and Libya and Egypt are persistence during the first half of the forecast period. These interactions are expected to result to moderate rains over

Senegal, Mauritania, Mali, Guinea and Gambia and even over Northern Ethiopia and Eretria over the first half of the forecast period.

At 200hpa level, the sub-tropical Westerly Jet mainly (with wind speed >70kts and <150 kts), extending between West Sahara, Mauritania, Morocco, Algeria, and Egypt, and across, Mali, Algeria, Tunisia, Niger, Chad, Libya and Northern Sudan persist during the forecast period. In the south, the sub-tropical westerly Jet (with 70 to 90kts wind speed) is expected over South Africa, Namibia and the Indian Ocean.

Therefore, Mascarene anticyclone is expected to weaken and propagate eastward resulting to diffuse rains over most of the areas in the first half of the forecast period. However it is expected to build up the second half pushing and concentrating a bit north. St. Helena High Pressure System is expected to generally maintain its central pressure values but slightly fluctuating between 2024 hpa and 2029hpa. It diffluence effect is expected to continue minimizing rains over Namibia, South Angola, Botswana and South Africa for the better part of the forecast period. In the Northern hemisphere, frontal systems still remain active during the first half of the forecast period occasionally weakening northern anti cyclones and consequently shifting the rains north and benefiting areas of Uganda, North DRC, Burundi and Rwanda. Parts of Senegal, Mauritania, Mali, Guinea and Gambia, Northern Ethiopia and Eretria are expected to receive some rainfall over the first half of the forecast period as a result of strong extra-tropical- Tropical interactions.

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2.0. Previous and Current Day Weather Discussion over Africa

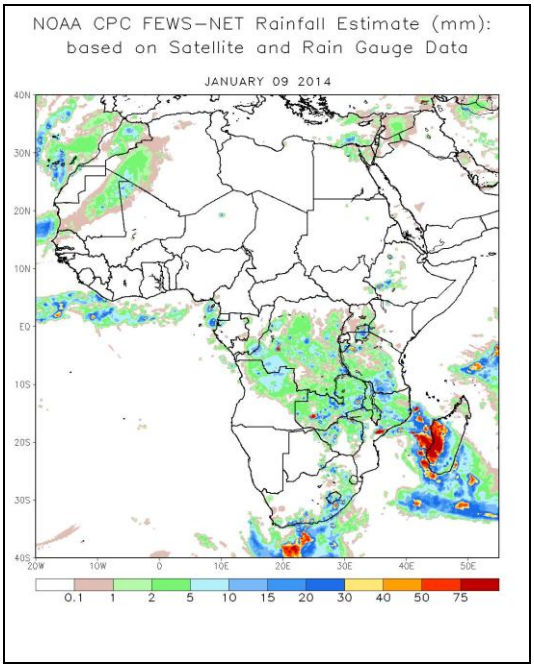
(09 January 2014– 10 January 2014)

2.1. Weather assessment for the previous day (09 January 2014)

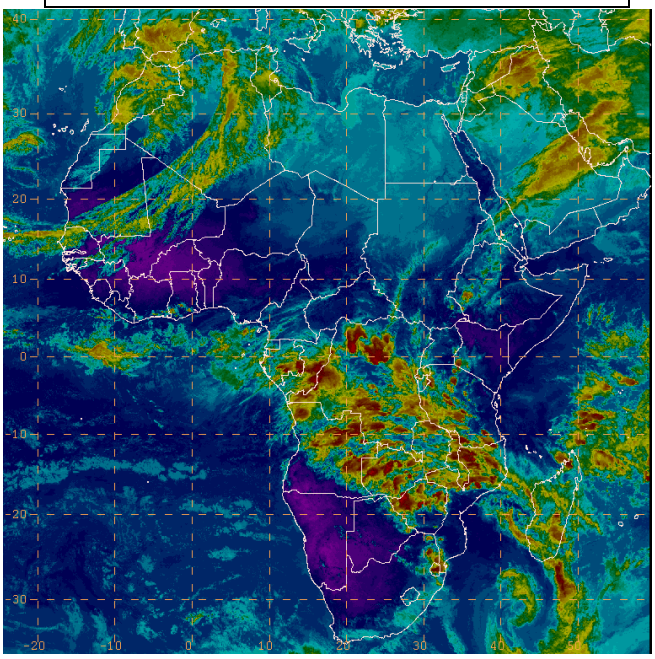
During the previous day, moderate to heavy rainfall was observed over Congo Brazzaville, DRC, Angola, Uganda, Zambia, Malawi, Mozambique, Madagascar, South Africa and Tanzania.

2.2. Weather assessment for the current day (10 January 2014)

Intense clouds were observed over Gabon, Congo Brazzaville, Angola, DRC, Zimbabwe, Mozambique, Malawi, Tanzania, Zambia, South Africa and Madagascar.



IR Satellite Image (valid 1722 Z of 10 January 2014)



Previous day rainfall condition over Africa (top Left) based on the NCEP CPCE/RFE and

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