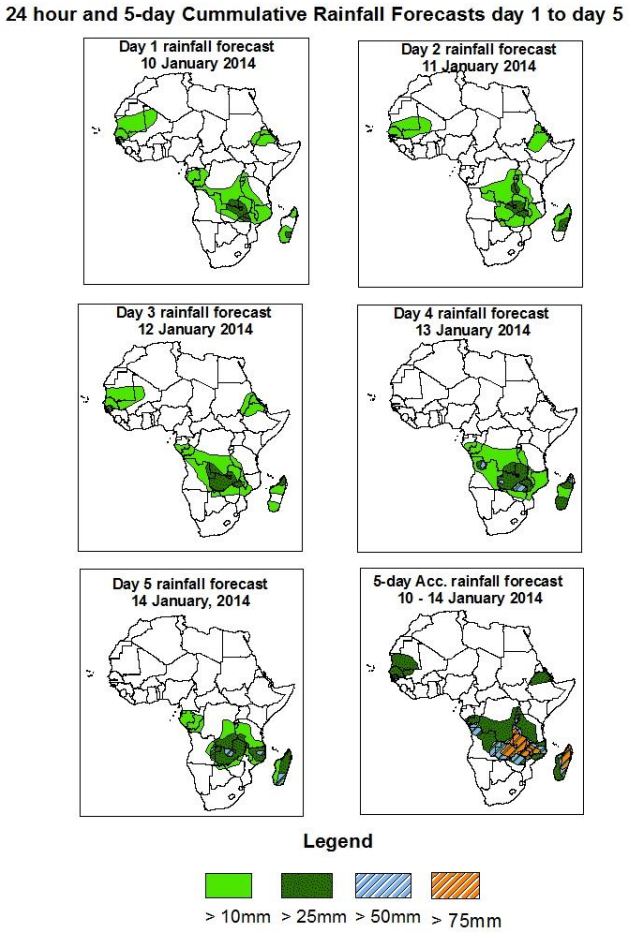
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 10 January – 06Z of 14 January, 2014. (Issued at 1800Z of 9 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.

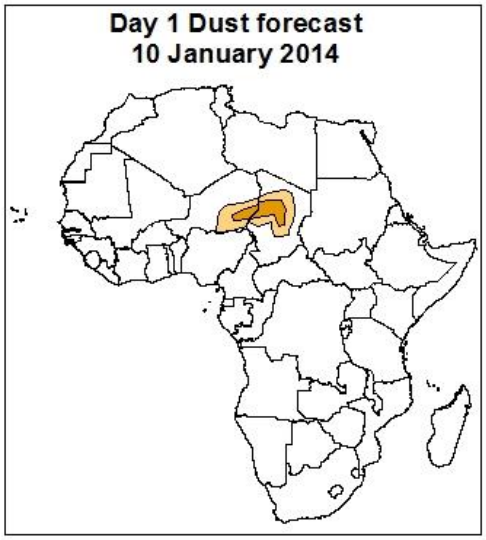


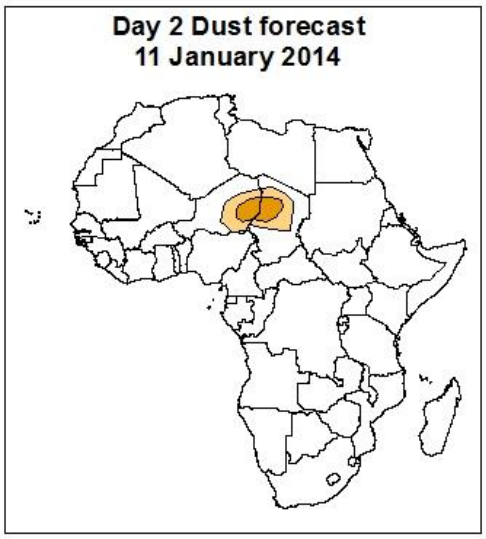
Summary

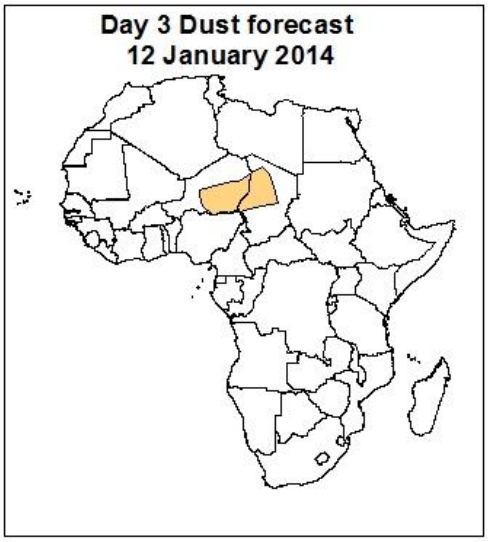
Mascarene anticyclone is expected to weaken and propagate eastward with significant reduction of rains in Tanzania and parts of northern Mozambique. St Helena is expected to initially weaken but intensify towards the second half of the forecast period. It is therefore expected to continue pushing moisture inland but its diffluence effect minimizing rains over Namibia, South Angola, Botswana and the Western coast of South Africa for the better part of the forecast period. During the second half of the forecast period, the system will control much of the Mozambique Channel and consequently pushing the rains to Zambia, Malawi, and DRC, parts of Mozambique, Angola, Tanzania and Zimbabwe. The Northern hemisphere frontal systems remain active during the first half of the forecast period occasionally weakening northern anti cyclones and consequently shifting the rains north benefiting areas of Uganda, North DRC, Burundi and Rwanda. Parts of Senegal, Mauritania, Mali, Guinea and Gambia as well as parts of Northern Ethiopia 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 10 January - 12 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 09 January 2014

Model comparison (GFS and UKMET Valid from 00Z: 09 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 initially weaken with its central pressure value changing from 1027 hpa to 1025 hpa but intensify again to 1029 hpa towards second half of the forecast period. It is therefore expected to continue pushing moisture inland but minimizing rains over Namibia, South Angola, Botswana and the Western coast of South Africa for the better part of the forecast period. During the second half of the forecast period, the system will control much of the Mozambique Channel and consequently concentration of the rains in Zambia, Malawi, and DRC, parts of Mozambique, Angola, Tanzania and Zimbabwe

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 1020hpa. 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.

In the Northern hemisphere, frontal systems remain active during the first half of the forecast period occasionally weakening northern anti cyclones and consequently shifting the rains north benefiting areas of Uganda, North DRC, Burundi and Rwanda.

At 850hpa level, strong convergence is still expected over Democratic Republic of Congo (DRC), Gabon, Congo Brazzaville, Uganda Burundi, Rwanda, Zambia, Mozambique, 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 rains over Senegal, Mauritania, Mali, Guinea and Gambia and slightly over Northern Ethiopia 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 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 90kts 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 weaken and propagate eastward resulting to diffuse rains over most of the areas with significant reduction in Tanzania and parts of northern Mozambique. St Helena is expected to initially weaken with its central pressure value changing from 1027 hpa to 1025 hpa but intensify again to 1029 hpa towards the second half of the forecast period. It is therefore expected to continue pushing moisture inland but minimizing rains over Namibia, South Angola, Botswana and the Western coast of South Africa for the better part of the forecast period. During the second half of the forecast period, the system will control much of the Mozambique Channel and consequently pushing the rains to Zambia, Malawi, and DRC, parts of Mozambique, Angola, Tanzania and Zimbabwe. In the Northern hemisphere, frontal systems 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, and Mali, Guinea and Gambia and parts of Northern Ethiopia 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

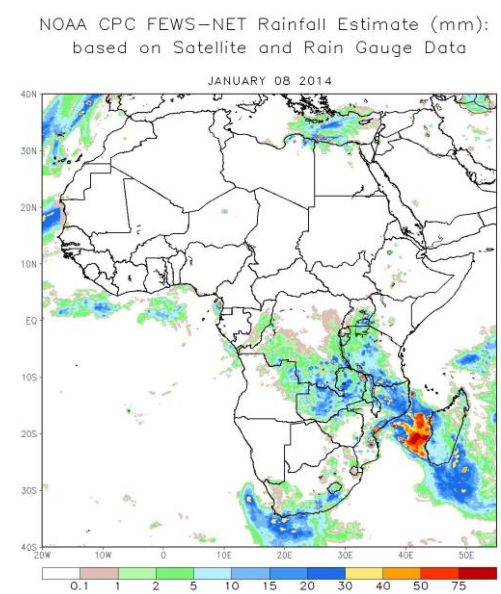
(08 January 2014– 09 January 2014)

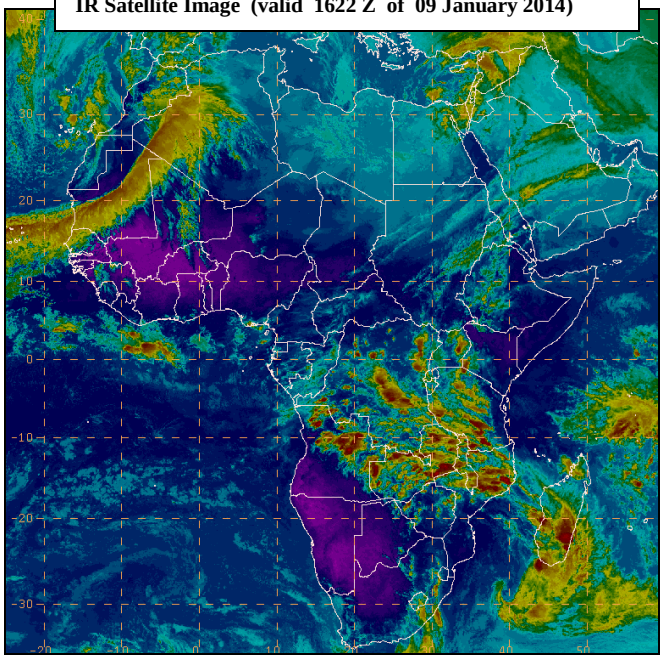
2.1. Weather assessment for the previous day (08 January 2014)

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 (09 January 2014)

Intense clouds were observed over Uganda, Angola, DRC, Mozambique, Malawi, 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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