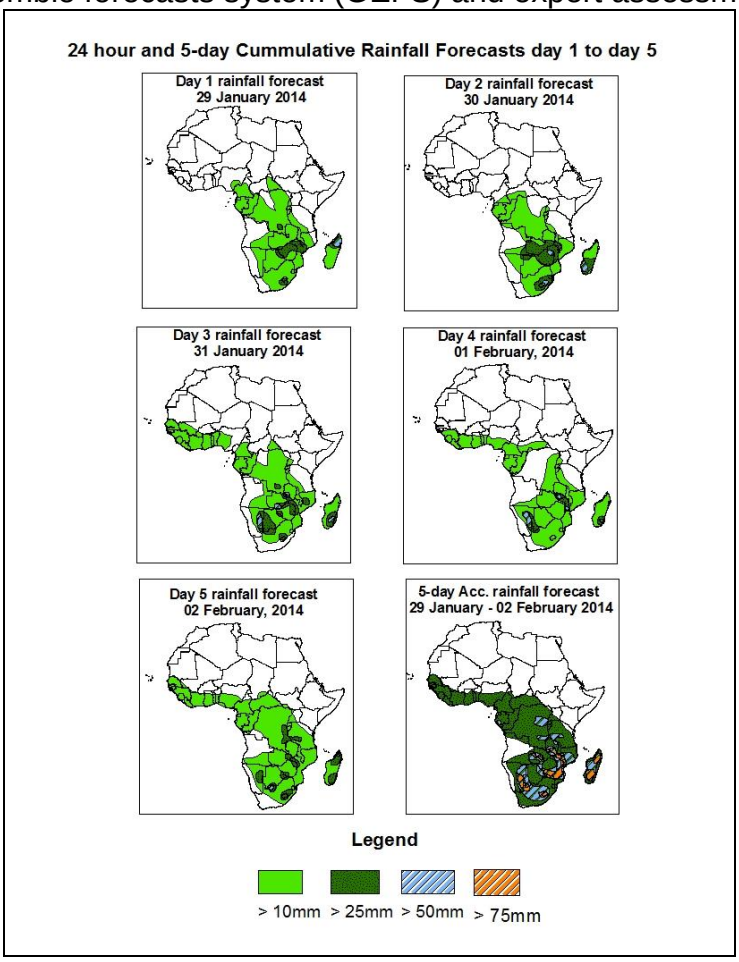
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 29 January – 06Z of 02 February, 2014. (Issued at 1800Z of 28 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.

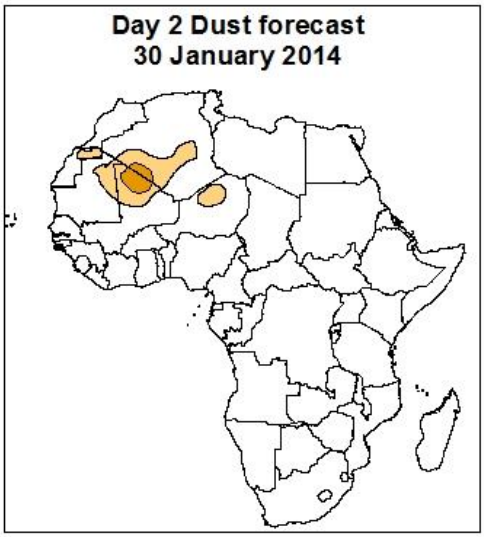


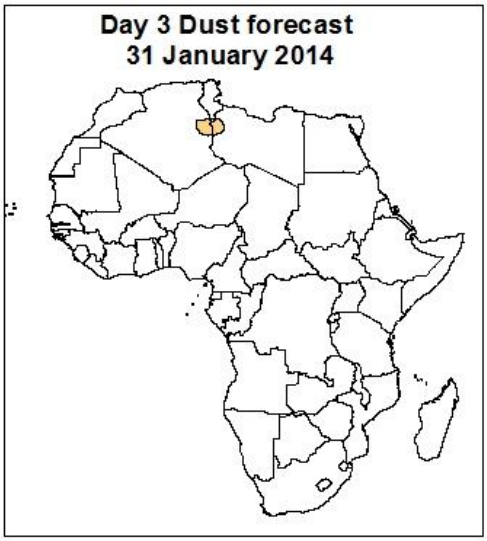
Summary

Mascarene high pressure is expected to moderately intensity with its central pressure increasing from 1023 hpa to 1028 hpa for most part of the forecast period. However, the anticyclone will be relatively east of the West Indian coast or relatively south of the continent relaxing its pressure over South Africa, Mozambique and Zimbabwe. This will result in increased rains over these areas. The system is expected to reduce its intensity towards the end of the forecast period resulting to widespread but diffuse rains. St. Helena High Pressure System is expected to remain dominant with its central pressure fluctuating between 1021 hpa and 1025 hpa but remains relatively west of the African west coast. This will result into rains over Namibia, Botswana and South Africa for most part of the forecast period. Parts of Senegal, Mali, Mauritania, Benin, Togo, Ghana, Ivory Coast, Burkina Faso, Guinea, Gambia and Niger are expected to receive some rainfall during the forecast period as a result of expected extra-tropical- Tropical interactions.

1.2. Atmospheric Dust Forecasts: Valid 29 January - 31 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 West Sahara, Niger, Mauritania, Algeria, Mali and Libya

Legend

MDC, Vis. < 5km

HDC, Vis. < 1km

1.2. Model Discussion: Valid from 00Z of 28 January 2014

Model comparison (GFS and UKMET Valid from 00Z: 28 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 remain dominant with its central pressure fluctuating between 1021 hpa and 1025 hpa though it remains relatively west of the African west coast. This will result into rains over Namibia, Botswana and South Africa for most part of the forecast period.

According to both the GFS model and the UKMET model, the Mascarene high pressure is expected to moderately intensity with its central pressure increasing from 1023 hpa to 1028 hpa. However for most part of the forecast period, the anticyclone is relatively east of the West Indian coast or relatively south of the continent relaxing its pressure over South Africa, Mozambique and Zimbabwe. This will result in increased rains over these areas. The system is expected to reduce its intensity towards the end of the forecast period resulting to widespread but diffuse rains.

At 850hpa level, Moderate to strong convergence is still expected over Democratic Republic of Congo (DRC), Gabon, Congo Brazzaville, Central African Republic (CAR) , Cameroon, Namibia, Uganda, Zambia, Angola, Tanzania, Malawi, Mozambique, 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 systems persist during the forecast period. The systems are expected to influence some isolated rains over Senegal, Mali, Mauritania, Benin, Togo, Ghana, Ivory Coast, Burkina Faso, Guinea, Gambia and Niger.

At 200hpa level, the sub-tropical Westerly Jet mainly (with wind speed >70 knots and <150 knots), extending between West Sahara, Mauritania, Algeria, and Egypt, and across, Mali, Algeria, Tunisia, Niger, Chad, Libya and Northern Sudan persist during the

forecast period. Winds of over 150 Knots are also expected over Libya and Algeria. In the south, the sub-tropical westerly Jet (with 70 to 90kts wind speed) is expected though rare over South Africa and the Indian Ocean.

Therefore, the Mascarene high pressure is expected to moderately intensity with its central pressure increasing from 1023 hpa to 1028 hpa for most part of the forecast period. However, the anticyclone will be relatively east of the West Indian coast or relatively south of the continent relaxing its pressure over South Africa, Mozambique and Zimbabwe. This will result in increased rains over these areas. The system is expected to reduce its intensity towards the end of the forecast period resulting to widespread but diffuse rains. St. Helena High Pressure System is expected to remain dominant with its central pressure fluctuating between 1021 hpa and 1025 hpa but remains relatively west of the African west coast. This will result into rains over Namibia, Botswana and South Africa for most part of the forecast period. Parts of Senegal, Mali, Mauritania, Benin, Togo, Ghana, Ivory Coast, Burkina Faso, Guinea, Gambia and Niger are expected to receive some rainfall during the forecast period as a result of expected extra-tropical- Tropical interactions.

2.0. Previous and Current Day Weather Discussion over Africa

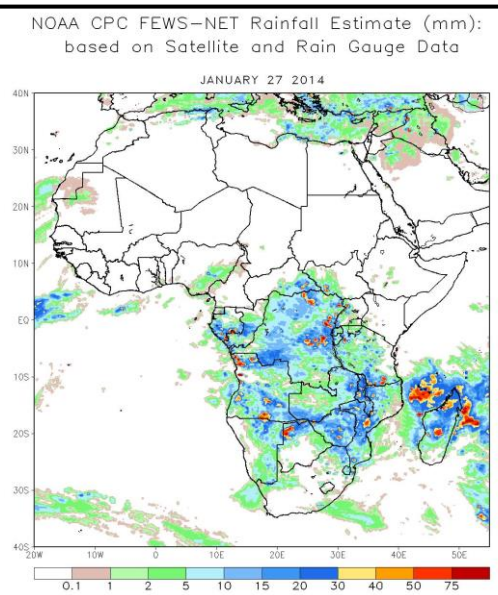
(27 January 2014 – 28 January 2014)

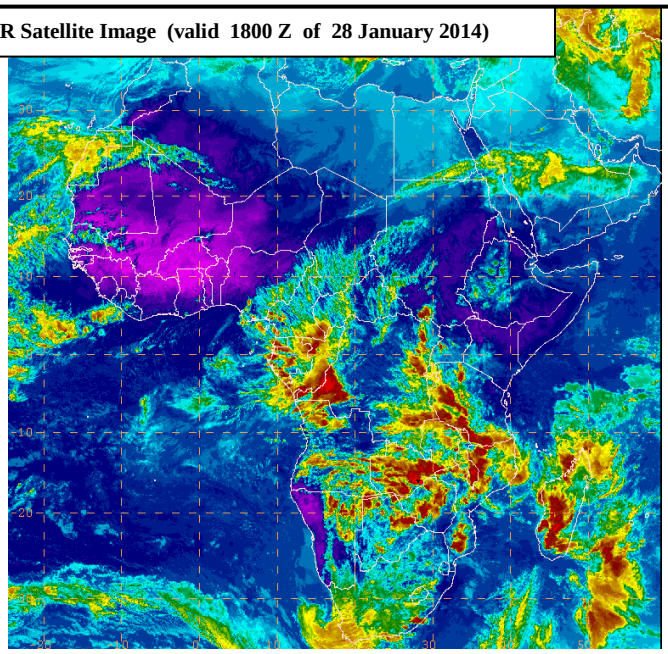
2.1. Weather assessment for the previous day (27 January 2014)

During the previous day, moderate to heavy rainfall was observed over Gabon, Congo Brazzaville, Central Africa Republic, DRC, Tanzania, Angola, Zambia, Malawi, Zimbabwe, Mozambique, Madagascar, Namibia and Botswana.

2.2. Weather assessment for the current day (28 January 2014)

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





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