

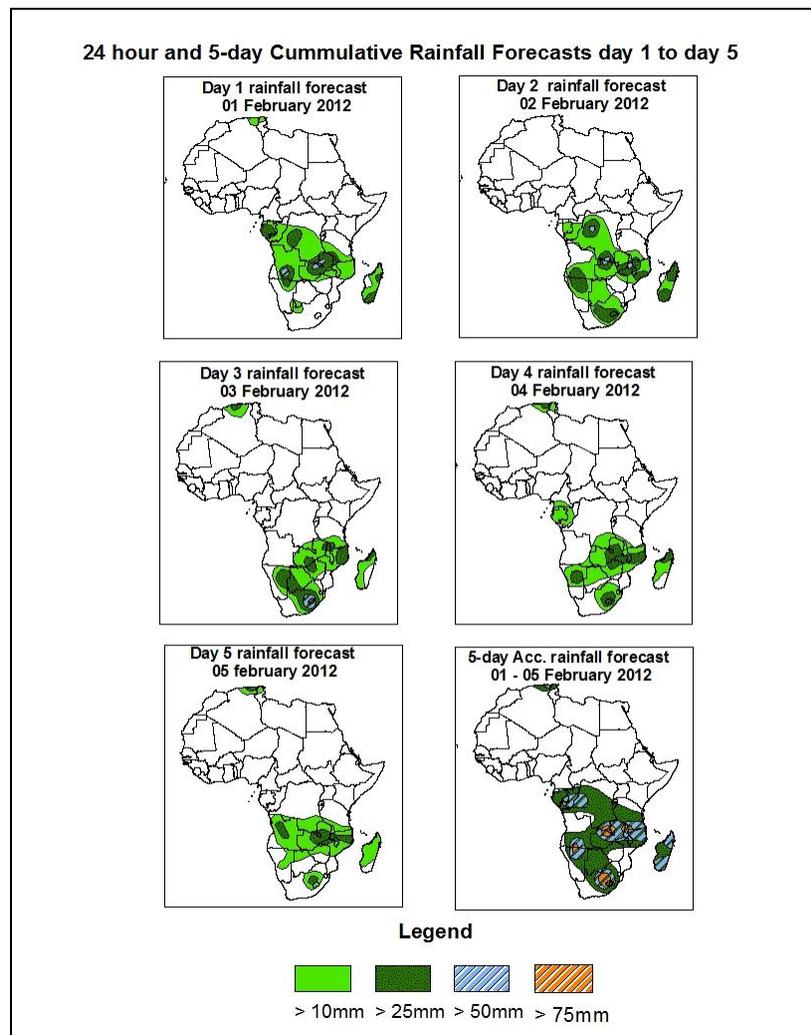


NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 01 February – 06Z of 05 February 2012, (Issued at 17:30Z of 31 January 2012)

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

In the next five days, seasonal wind convergence in the CAB region, localized convergences and the interaction between eastward propagating mid-latitude and tropical systems across southern and southeastern Africa are expected to enhance rainfall in their respective regions. Hence, there is an increased chance for heavy rainfall over northern Algeria, Congo, eastern Gabon, southern DRC, southern Angola, northern Namibia, Zambia, Malawi, southern Tanzania, northern Mozambique, eastern South Africa and Madagascar.

1.2. Models Comparison and Discussion-Valid from 00Z of 31 January 2012

The GFS, ECMWF and UKMET models indicate series of lows and their associated troughs across central and the South African countries. The low over DRC is expected to fill up, with its mean sea level pressure value increasing from 1008mb to 1009mb while shifting slightly to the northwest through 24 to 72 hours and then it tends to deepen back to 1004mb towards end of the forecast period according to **GFS** model. According to the **ECMWF** model, it is expected to deepen, with its MSLP value decreasing from 1008mb to 1004mb while shifting to the northeast towards end of the forecast period. According to the **UKMET** model, it is expected to deepen, with its MSLP value decreasing from 1008mb to 1004mb towards end of the forecast period. Another low is expected to form in the vicinity of Botswana and tends to fill up, with its MSLP value increasing from 1006mb to 1012mb while shifting to the south towards end of the forecast period according to **GFS** model. This low pressure is expected to deepen, with its MSLP value decreasing from 1012mb to 1009mb and then it tends to fill up back to 1012mb towards end of the forecast period according **ECMWF** model. According to **UKMET** model, this low is expected to fill up, with its MSLP value increasing from 1007mb to 1012mb toward end of the forecast period. Another low pressure is expected to form across Mozambique Channel and tends to fill up, with its mean sea level pressure value increasing from 1005mb to 1009mb while shifting to the east to reach Madagascar towards end of the forecast period, according **GFS** model. According to the **ECMWF**, this low pressure is expected to fill up, with its MSLP value increasing from 1008mb to 1012mb while shifting to the west towards end of the forecast period. This low tends to fill up, with its MSPL value increasing from 1006mb to 1012mb towards end of forecast period, according **UKMET** model. The fourth low over Sudan tends to fill up, with its MSLP value increasing from 1005mb to 1006mb through 24 to 96 hours and then it tends to deepen back to 1005mb towards end of the forecast period, according to **GFS** model. This low pressure is expected to fill up, with its MSLP value increasing from 1005 to 1008mb towards end of the forecast period according to **ECMWF** model. According the **UKMET** model, this low pressure tends to decrease from 1005mb to 1004mb through 24 to 48 hours and then it tends to fill up to 1005mb towards end of the forecast period.

The St. Helena High pressure system over southeast Atlantic Ocean is expected to deepen, with its MSLP value decreasing from 1028mb to 1024mb while shifting slightly to the east towards end of the forecast period according to **GFS** model. This high pressure system is expected to deepen, with its MSLP value decreasing from 1027mb to 1020mb according to **ECMWF** model. According to **UKMET** model, this high pressure tends to deepen, with its MSLP value decreasing from 1028mb to 1020mb while shifting slightly to the east towards end of the forecast period. The Mascarene high pressure system over southwest Indian Ocean is expected to fill up with its central pressure value increasing from 1012mb to 1020mb while shifting to the west towards the end of the forecast period according to **GFS** model. This high pressure system is expected to fill up, with its MSLP value increasing from 1012mb to 1020mb towards end of the forecast period, according to both **ECMWF** and **UKMET** models.

At the 850hpa level, a lower tropospheric seasonal wind convergence is expected to remain active over the CAB region aligning itself with a convergence across southern Africa. The convergence tends to intensify while shifting slightly to the south and reach southern DRC and then Tanzania and Zambia towards end of the forecast period. Localized wind convergences are also expected to dominate the flow over Angola and Namibia then it tends to intensify and to shift to the east to reach Zambia and South Africa towards end of the forecast period. Another lower tropospheric cyclone and its associated trough are expected to dominate the flow over Madagascar and it tends to weaken towards end of the forecast period.

At 500hpa, eastward propagating trough in the mid-latitude westerly flow is expected to prevail over Mediterranean Sea and northern Africa during the forecast period; with the low geopotential value of 5820gpm extending to the latitudes of Morocco by 48hours and it tends to propagate towards Algeria then to Tunisia by 96 with the low geopotential value of 5640gpm towards end of the forecast period. A second trough is expected to prevail over Mediterranean Sea and northern Africa during the forecast period; with the low geopotential value of 5700gpm extending to the latitude of Egypt through 24 to 48 hours. A mid latitude frontal system is also expected to propagate eastwards across the Southern African countries with the low geopotential value of 5820gpm towards end of the forecast period.

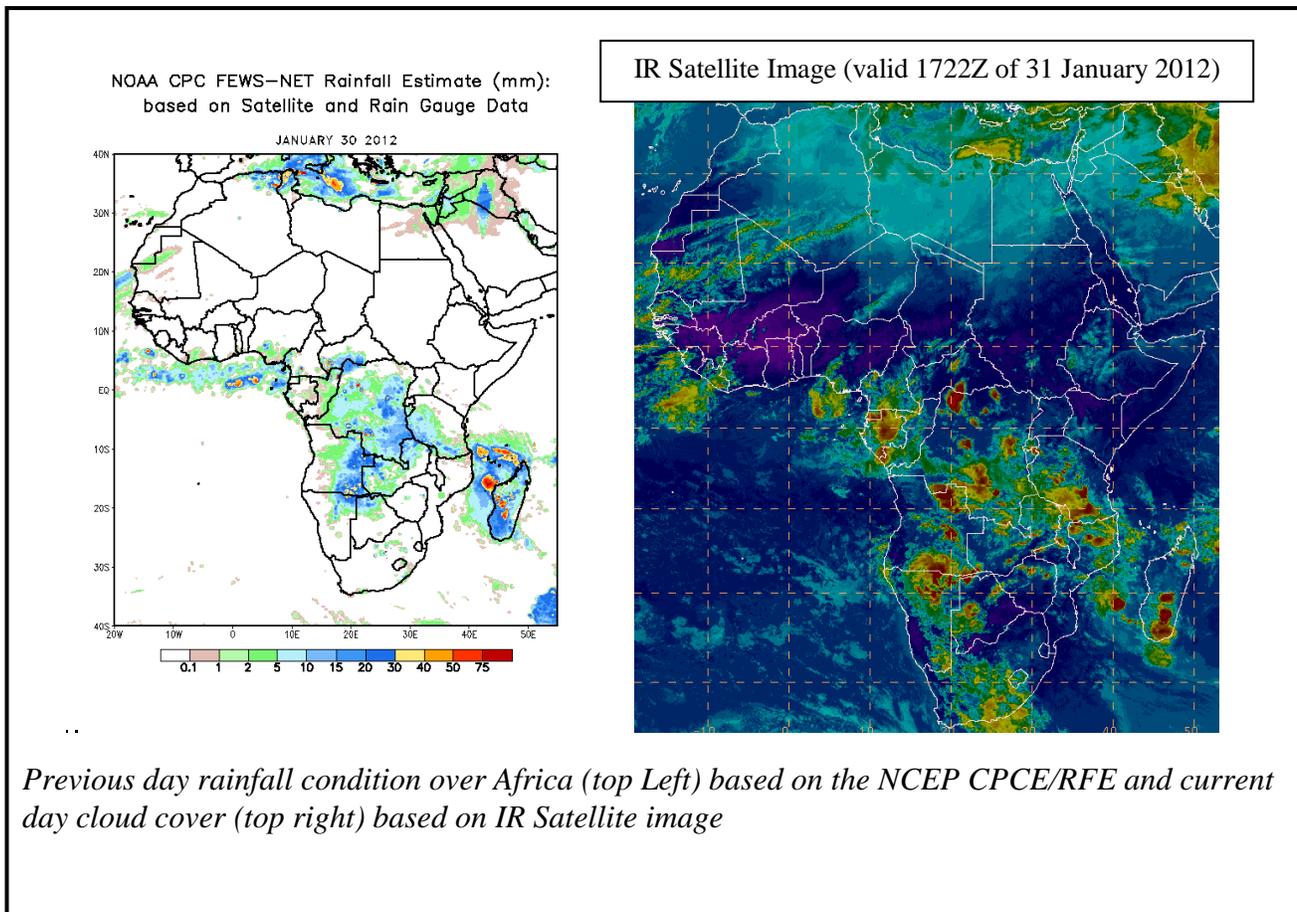
At 200mb, strong winds associated with Sub-Tropical Westerly Jet are expected to dominate the flow over northern Africa, during the forecast period. The intensity of the jet is expected to exceed 150kts through 24 to 72 hours and then 130kts while moving to the east towards end of the forecast period in the region between Atlantic Ocean and the Persian Gulf across Mauritania, southern Algeria, southern Libya and Sudan. The Sub-tropical Westerly Jet in the Southern Hemisphere is expected to dominate the flow over the South Africa. The intensity of the jet is expected to exceed 90kts in the region between southeastern Atlantic Ocean and Indian Ocean across South Africa.

In the next five days, seasonal wind convergence in the CAB region, localized convergences and the interaction between eastward propagating mid-latitude and tropical systems across southern and southeastern Africa are expected to enhance rainfall in their respective regions. Hence, there is an increased chance for heavy rainfall over northern Algeria, Congo, eastern Gabon, southern DRC, southern Angola, northern Namibia, Zambia, Malawi, southern Tanzania, northern Mozambique, eastern South Africa and Madagascar.

2.0. Previous and Current Day Weather Discussion over Africa (30 January – 31 January 2012)

2.1. Weather assessment for the previous day (30 January 2012): During the previous day, moderate to locally heavy rainfall was observed over northern Tunisia, northern Algeria, parts of DRC, northern Botswana, parts of Zambia, northern Namibia, eastern Angola, southern Tanzania and parts Madagascar.

2.2. Weather assessment for the current day (31 January 2012): Intense clouds are observed over DRC, Angola, Namibia, Zambia, western Botswana, Gabon, Congo, northern of Mozambique and parts of Madagascar.



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