

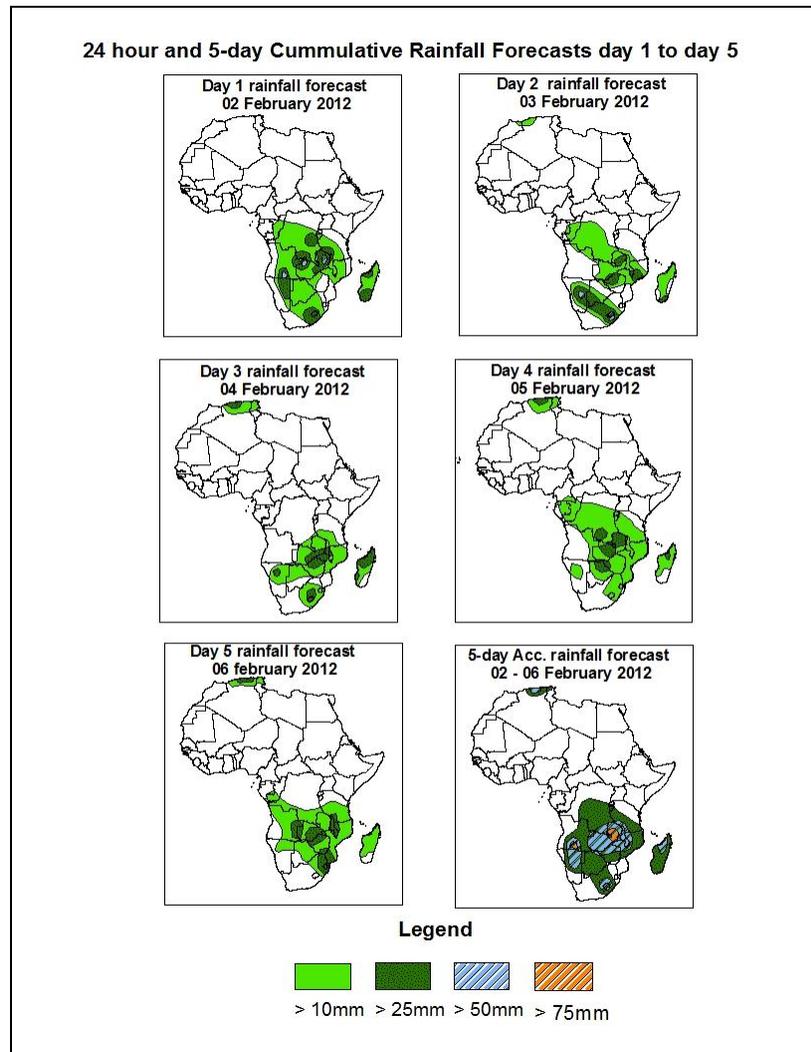


NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 02 February – 06Z of 05 February 2012, (Issued at 16:30Z of 01 February 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 wind convergences and cyclonic circulations in the vicinity of Angola and Mozambique Channel are expected to enhance rainfall in their respective regions. Hence, there is an increased chance for heavy rainfall over southern Angola, northern Namibia, Zambia, northern Zimbabwe, Malawi, southwestern Tanzania, southern DRC and northern Mozambique.

1.2. Models Comparison and Discussion-Valid from 00Z of 01 February 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 deepen, with its mean sea level pressure value decreasing from 1008mb to 1004mb while shifting slightly to the northwest towards end of the forecast period according to the **GFS** model. According to **ECMWF** model it is expected to deepen from MSLP value of 1008mb to 1007mb through 24 to 48hours and then it tends to fill up to 1009mb through 48 to 72 hours and then it tends to deepen back to 1003mb towards end of the forecast period. According to the **UKMET** model, it is expected to maintain MSLP value of 1008mb through 24 to 72hours and then it tends to deepen from MSLP value of 1008mb to 1004mb while shifting to the south 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 1007mb to 1009mb through 24 to 72 hours and tends to move towards southern Botswana and the adjoining areas of Zimbabwe, then it tends to deepen to MSLP value of 1008mb towards end of the forecast period according **GFS** model. According to **ECMWF** model, the low pressure is expected to form through 24hours with a central pressure value of 1009mb and it is tends to fill up to 1012mb towards end of the forecast period. According the **UKMET** model too, the low pressure forms during 24 hours with a MSLP value of 1007mb and it is expected to fill up to 1012mb through 24 to 72hours and then it tends to maintain MSLP value of 1012mb until the end of the forecast period. Another low pressure which is expected to form across Mozambique Channel and tends to fill up, with its MSLP value increasing from 1009mb to 1010mb through 24 to 96 hours while shifting towards east, then it tends to deepen to 1008mb towards end of the forecast period according **GFS** model. According to the **ECMWF** model, this low pressure is expected to form during 24hours with a value of 1009mb and tends to fill up to 1012mb during the rest of the forecast period. On the other hand **UKMET** model forecasts, tends to locate the low in across southeastern Mozambique with a MSLP value of 1007mb. The model tends to maintain its central pressure value from 24 to 48hours and then and the low tends to fill up to 1012mb towards end of the forecast period. **The fourth** low over South Sudan Republic tends to deepen, with its MSLP value decreasing from 1010mb to 1004mb until the end of the forecast period according **GFS** model. According to **ECMWF** model this low is expected to fill up, with its MSLP value increasing from 1006 to 1008mb through 24 to 96 hours and then it tends to deepen back to 1004mb towards end of the forecast period.

According to the **UKMET** model, the low pressure tends to increase from 1004mb to 1005mb through 24 to 48 hours and then it tends to deepen, with its MSLP value decreasing from 1005 to 1002mb until the end of the forecast period.

The St. Helena High pressure system over southeast Atlantic Ocean is expected to weaken, with its MSLP value decreasing from 1028mb to 1023mb while moving to northwest towards the end of the forecast period according to **GFS** model. This high pressure system tends to weaken, with its MSLP value decreasing from 1028mb to 1020mb through 24 to 48 hours, then it tends to maintain the same value until the end of forecast period according to **ECMWF**. According to **UKMET** model, it is expected to weaken, with its MSLP value decreasing from 1028mb to 1020mb through 24 to 72 hours and then tends to maintain the same value towards the end of the forecast period. The Mascarene high pressure system over southwest Indian Ocean is expected to intensify, with its central pressure value increasing from 1012mb to 1020mb through 24 to 72 hours and tends to maintain its value of 1020mb towards the end of the forecast period according to both **GFS** and **UKMET** models. According to **ECMWF** model it is expected to intensify, with its central pressure system value increasing from 1012mb to 1020mb through 24 to 96 hours, then it tends to weaken, with its MSLP value decreasing from 1020mb to 1016mb through 96 to the end of forecast.

At the 850hpa level, a lower tropospheric seasonal wind convergence is expected to remain active over parts of CAB region during the forecast period. Localized wind convergences are also expected to dominate the flow over southern Angola while the convergence line moving to the south up to 48 hours to reach northern Namibia and then South Africa through 72 to 96 hours. Another local cyclonic circulation is also expected in the northern Mozambique Channel tending to change its location and intensity during the forecast period and finally settling near coastal Mozambique.

At 500hpa, eastward propagating trough in the westerly is expected to dominate the flow over Mediterranean Sea and northern Africa during the forecast period; with the low geopotential value of 5760gpm extending to the latitudes northern Morocco by 24. The northeast-southwest oriented trough, associated with low is expected eastwards to reach Algeria by 48 with the low geopotential value of 5760gpm and then Tunisia by 72 with the low geopotential value of 5580gpm towards end of the forecast period. A mid

latitude frontal system is also expected to propagate eastwards across the Southern African with the low geopotential value of 5820gpm through 24 to 72 hours and then 5880gpm through 96 to end of the forecast period.

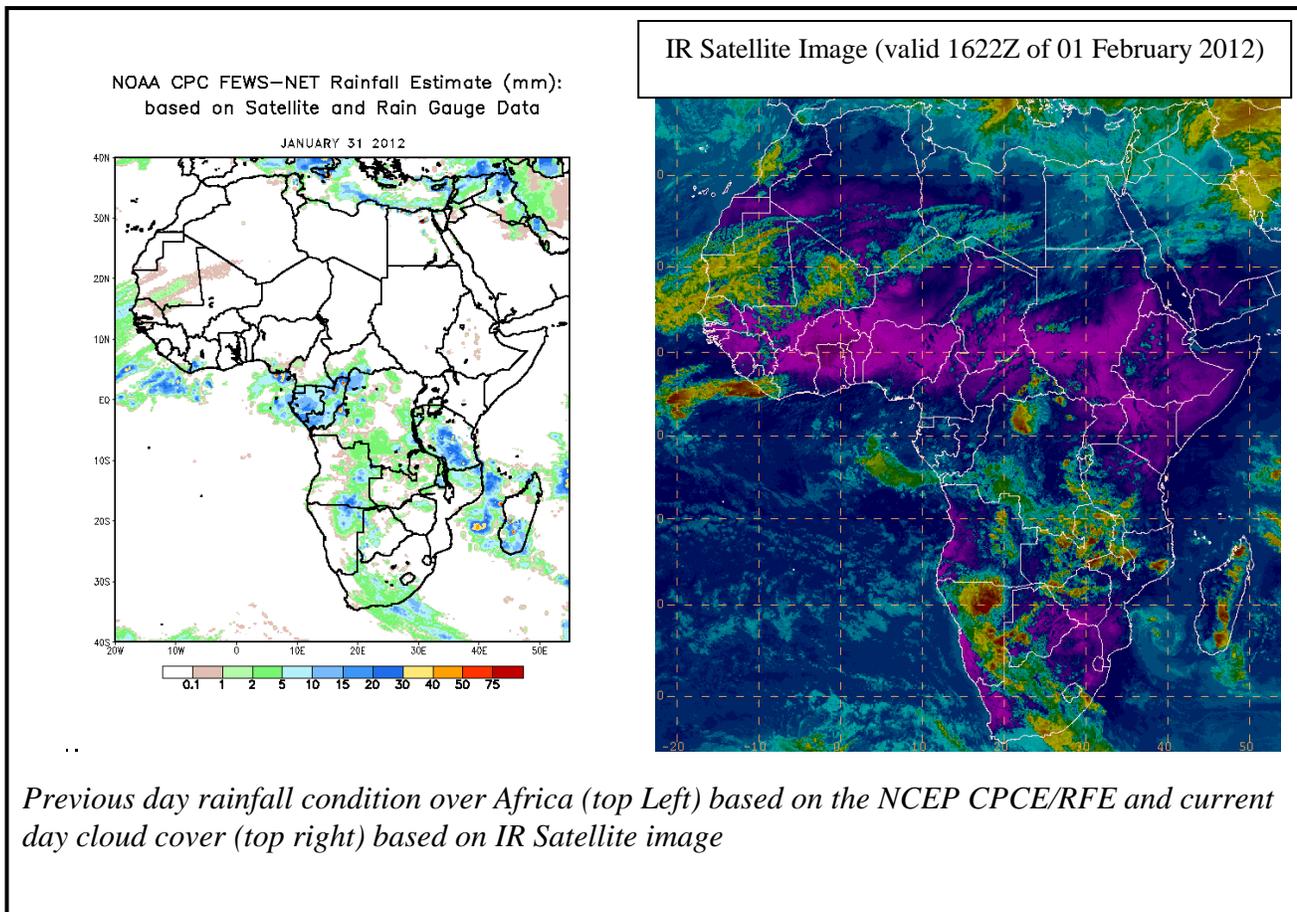
At 200mb, strong winds associated with Sub-Tropical Westerly Jet are expected to dominate the flow over northern Africa, during the forecast period. The intensity of the jet is expected to exceed 150kts in the region between Atlantic Ocean and the Persian Gulf while moving to the east by 24hours. The jet core tends to propagate towards in the region between Mali and Persian Gulf through 72 and 96 hours, with the maximum wind values decreasing to 110kts. 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 wind convergences and cyclonic circulations in the vicinity of Angola and Mozambique Channel are expected to enhance rainfall in their respective regions. Hence, there is an increased chance for heavy rainfall over southern Angola, northern Namibia, Zambia, northern Zimbabwe, Malawi, southwestern Tanzania, southern DRC and northern Mozambique.

2.0. Previous and Current Day Weather Discussion over Africa (31 January – 01 February 2011)

2.1. Weather assessment for the previous day (31 January 2012): During the previous day, moderate to locally heavy rainfall was observed over portions of Congo, parts of Gabon, northern Namibia, parts of western DRC, parts of Tanzania and southern Madagascar.

2.2. Weather assessment for the current day (01 February 2012): Intense clouds are observed over Zambia, western Tanzania, parts of DRC, portion of Madagascar, parts of Botswana and Namibia.



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