

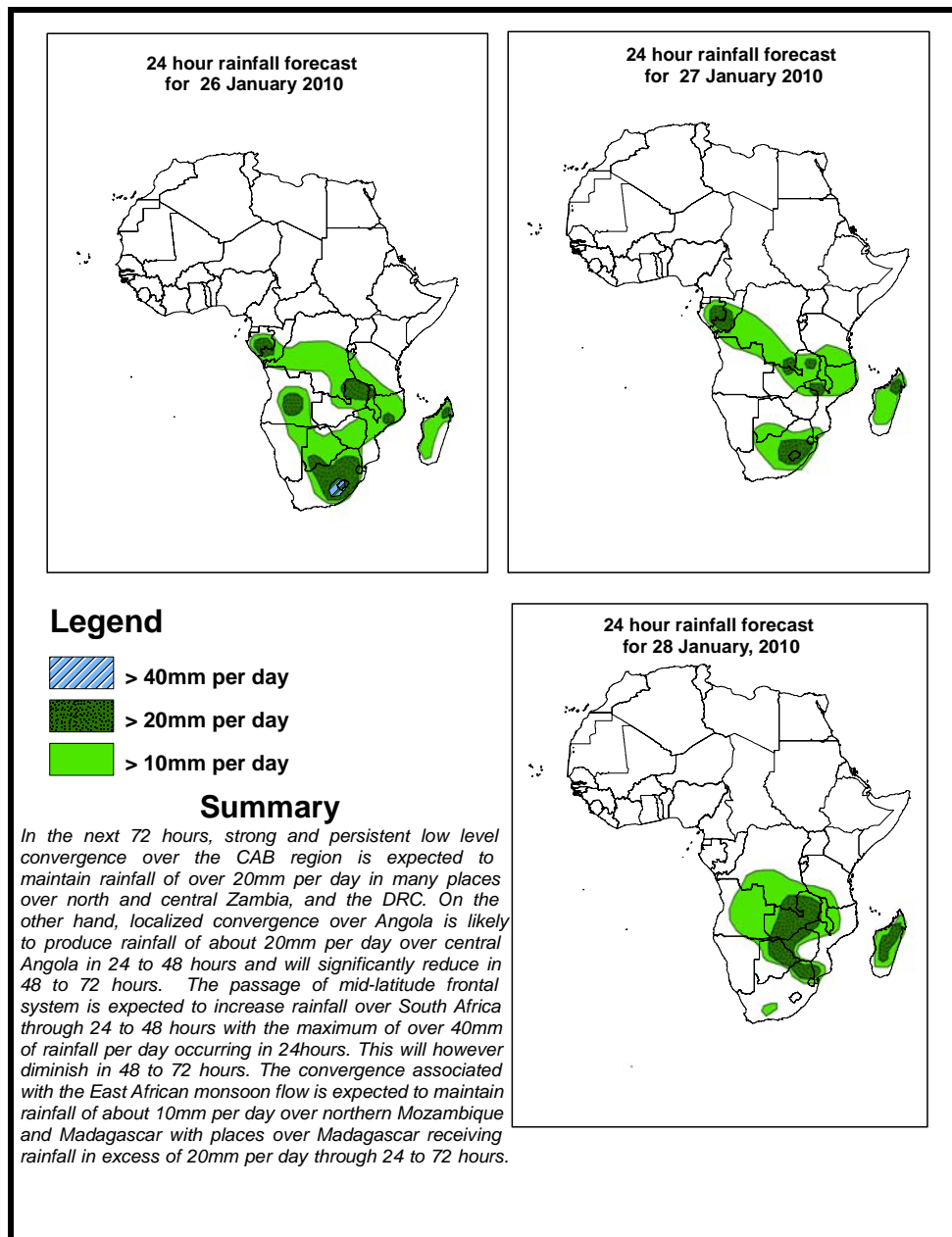


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid, 06Z of 26 January –06Z of 28 January 2010, (Issued at 14:00EST of 25 January 2010)

### 1.1. Twenty Four Hour Cumulative Rainfall Forecasts

The forecasts are expressed in terms of probability of precipitation (POP) exceedence based on the NCEP, UK Met Office and the ECMWF NWP outputs, the NCEP global ensemble forecasts system (GEFS) and expert assessment.



## **1.2. Models Comparison and Discussion - Valid from 00Z of 26 January 2010**

In 24 to 72 hours, a mid latitude low pressure system with centre over western Algeria is expected to shift to central Mediterranean Sea, while slightly weakening, with a trough extending southwestwards up to central Algeria. On the other hand, two ridges from a high pressure system over central Europe will extend southwards over Egypt up to central Sudan and southeastward over the Arabian Peninsula. The high pressure system centre is expected to move to the Middle East with the ridge over the Arabian Peninsula extending up to Ethiopia. In 24 to 48 hrs, the equatorial trough is expected to have pressure values of 1007mb over Gulf of Guinea, 1006 over northern DRC and Central African Republic and 1005mb over southern Sudan. Places in southern Africa are expected to attain pressure values of 1008mb over Namibia, Botswana, northern South Africa, Mozambique Channel and 1007 north east of coastal Madagascar. The pressure values will remain almost the same in most places through 48 to 72 hours, however, values over south Sudan and, Namibia, Botswana and northern South Africa, are expected to deepen to values of 1007mb and 1008mb respectively. The pressure system over north east of coastal Madagascar will deepen while shifting southeastward attaining pressure values of 1004mb. A weak high pressure system stretching from central Angola to southern Kenya passing over northern Zambia, southern DRC and Tanzania is expected in 24 to 48 hours, with centre pressure values of 1013mb. This high pressure system is expected to weaken and break into two high pressure cells over Kenya Tanzania border and central Angola, all assuming pressure values of 1012mb, in 48 to 72 hours.

At 850mb level, the mid latitude cyclonic circulation is expected to move eastwards while slightly deepening, with its two troughs extending southwards up to northern Mali and southern Persian Gulf, through 24 to 72 hrs. This will weaken and shift, the Anticyclone positioned over the Mediterranean Sea northeast of coastal Libya, northwards in 24 to 72 hrs. On the other hand the Arabian anticyclone will strengthen and will expand northwestwards over central Arabian Peninsula, pushing the trough from the mid latitude slightly northwards.

Northeasterly to easterly flow, from the east African monsoon, and westerly flow from the Atlantic Ocean are expected to converge over most parts of east central and southern Africa, through 24 to 72 hrs. The seasonal convergence over the CAB region is expected to persist through 24 to 72 hrs. Localized convergence over southern Angola and Namibia is expected through 24 to 72 hrs. A cyclonic system is expected off the east coast of Madagascar through 24 to 48 hours. Moreover, the passage of a mid latitude frontal system across southern parts of South Africa is expected to induce an interaction between mid-latitude and tropical weather system over southern parts of Africa.

At 500mb level, a wavy flow is expected over much of North Africa in 24 hours; however this pattern will weaken and tend to be zonal to 48 to 72 hrs. On the other hand, the southern hemisphere is expected to have a weak wavy pattern in the sub tropical areas through 24 to 72 hrs.

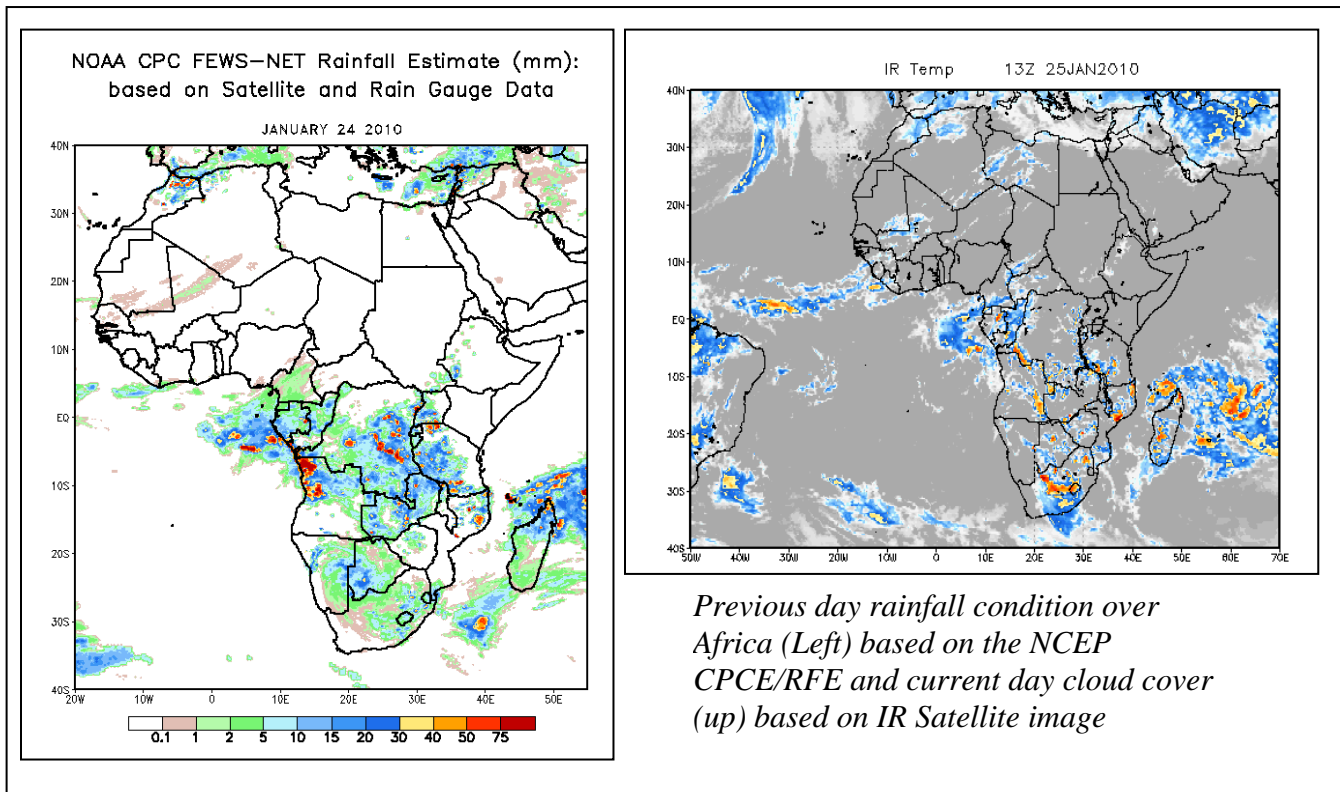
At 200mb, a mid latitude feeble westerly wave is expected, through 24 to 72 hours, over much of North Africa, with wind speeds of up to 110 knots while a narrow stretch from central Algeria to the north of the Arabian peninsula will experience wind speeds of up to 130knots in 24 hours reducing to 110knots in 48 to 72 hours.

In the next 72 hours, strong and persistent low level convergence over the CAB region is expected to maintain rainfall of over 20mm per day in many places over north and central Zambia, and the DRC. On the other hand, localized convergence over Angola is likely to produce rainfall of about 20mm per day over central Angola in 24 to 48 hours and will significantly reduce in 48 to 72 hours. The passage of mid-latitude frontal system is expected to increase rainfall over South Africa through 24 to 48 hours with the maximum of over 40mm of rainfall per day occurring in 24hours. This will however diminish in 48 to 72 hours. The convergence associated with the East African monsoon flow is expected to maintain rainfall of about 10mm per day over northern Mozambique and Madagascar with places over Madagascar receiving rainfall in excess of 20mm per day through 24 to 72 hours.

## 2. 0. Previous and Current Day Weather Discussion over Africa (24 –25 January 2010)

**2.1. Weather assessment for the previous day (24 January 2010):** During the previous day, intense rainfall activity was observed over northwest Angola and east central DRC. Light rainfall activity was observed over parts of Zambia, Tanzania, northern Madagascar, southwest Botswana, southern Uganda and the Great Lake region.

**2.2. Weather assessment for the current day (25 January 2010):** Intense cloud patches are scattered over central South Africa, parts of Angola, Gabon, Congo and Madagascar.



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