

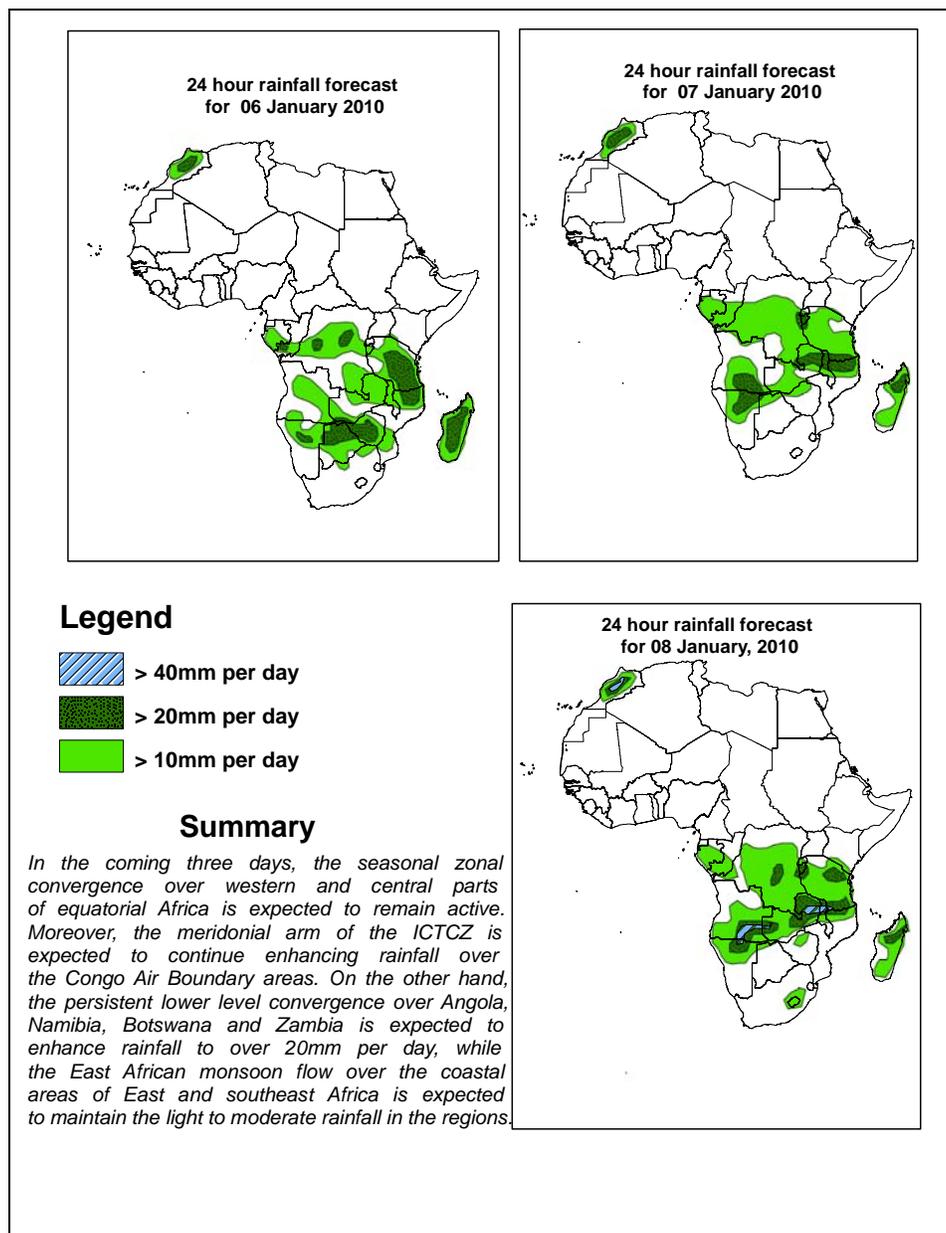


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid, 06Z of 06 January –06Z of 08 January 2010, (Issued at 14:00EST of 05 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 06 January 2010**

The sub-tropical high is expected to have two ridge axes extending towards Libya and the Arabian Peninsula through 24 hrs. With a deep mid-latitude low pressure system expected to move from Northeast Atlantic Ocean towards the vicinity of Algeria, the maximum sea level pressure values within the extent of the western branch of the ridge decreases from about 1020mb to 1016mb through 24 to 72 hrs, while the eastern branch of the ridge intensifies with its central pressure values increasing from about 1018 to 1025mb in 72hrs.

At 850mb level, an anticyclonic circulation over eastern Mediterranean Sea is expected to have two ridges, extending towards Libya and the Arabian Peninsula through 24 hrs. The anticyclonic circulation is expected to move towards northern parts of the Arabian Peninsula through 48 to 72 hrs, as a result of which the western branch of the ridge weakens while its eastern branch intensifies further. The zonal convergence between northeasterly winds emanating from this anticyclone and moist southwesterly winds from the Atlantic Ocean is expected to remain active over western and central parts of Equatorial Africa through 24 to 72 hrs. Moreover the seasonal meridional convergence is expected to shift from its 24hr position over eastern DRC towards the Great Lakes region through 48 to 72 hrs. Moreover, the northeasterly monsoon flow is expected to remain active over coastal the regions of eastern and southeastern Africa in the coming three days. On the other hand, a deep cyclonic circulation and its associated trough are expected to move in the region between northeast Atlantic Ocean and Algeria through 24 to 72 hrs while deepening.

At 500mb level, a deep trough in the westerlies is expected to extend towards Madagascar through 24hrs. The trough is expected to remain back hanged in the region through 48 to 72 hrs. On the other hand, the subtropical regions in the northern hemisphere are expected to be dominated by a more or less zonal flow through 24 hrs. However, the flow is expected to get disturbed and a wavy patten will develop through 48 to 72 hrs. This wavy patten is expected to have two trough axes, one along the latitudes of central Algeria and the second one along 50oE longitude. Accordingly, the northeast African region will remain under the influence of high in geopotential height through 48 to 72 hrs.

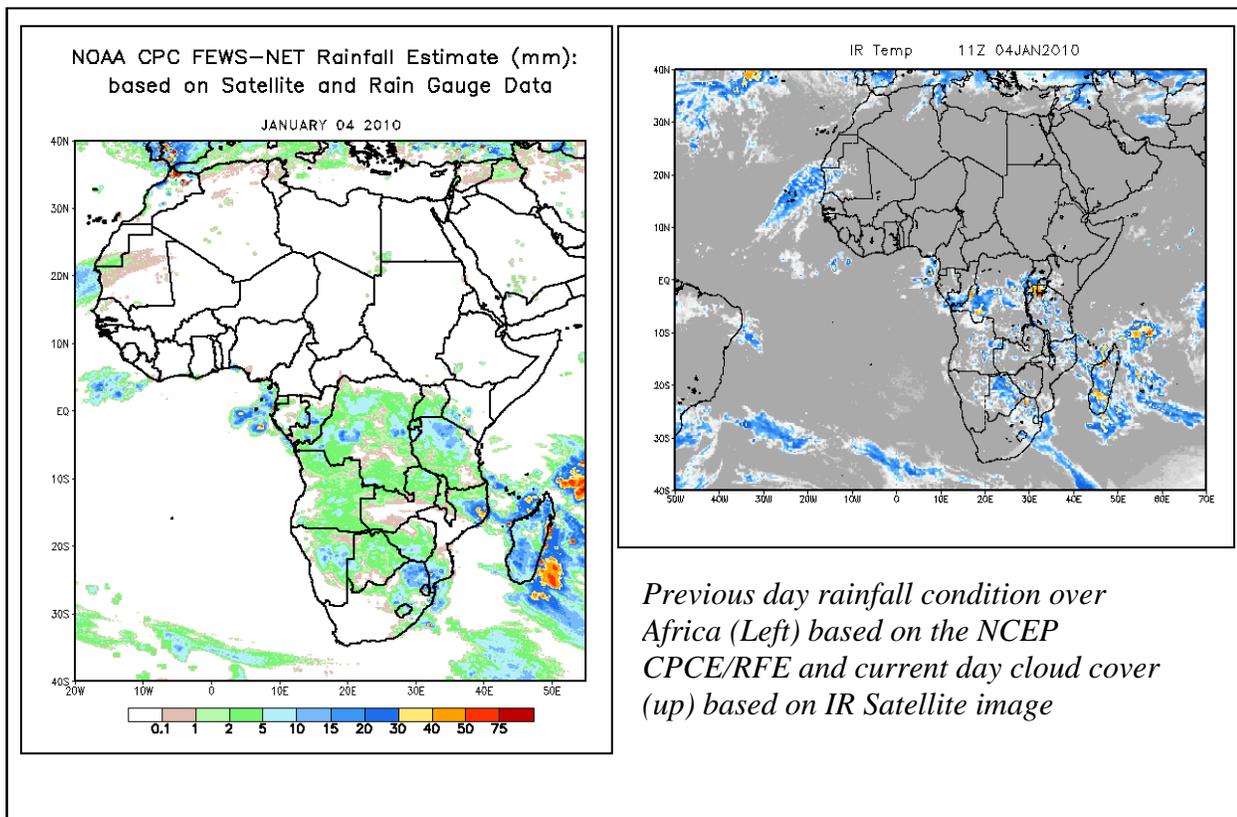
At 200mb, consistent with the mid-tropospheric flow, the upper tropospheric flow over sub-tropical areas of the northern hemisphere is expected to remain zonal through 24hrs, with zones of strong wind limited over northeast and northwest African regions. However, the flow is expected to attain a wavy pattern through 48 to 72 hrs and the zone of maximum wind is expected to get organized as well. Especially, jet is expected to attain wind speed values that exceed 130kts through 72 hrs.

In the coming three days, the seasonal zonal convergence over western and central parts of equatorial Africa is expected to remain active. Moreover, the meridional arm of the ICTCZ is expected to continue enhancing rainfall over the Congo Air Boundary areas. On the other hand, the persistent lower level convergence over Angola, Namibia, Botswana and Zambia is expected to enhance rainfall to over 20mm per day, while the East African monsoon flow over the coastal areas of East and southeast Africa is expected to maintain the light to moderate rainfall in the regions.

## 2. 0. Previous and Current Day Weather Discussion over Africa (04 –05 January 2010)

**2.1. Weather assessment for the previous day (04 January 2010):** During the previous day, light rainfall events were observed over parts of northern Tanzania, parts of northeastern south Africa parts of eastern Mozambique Congo DR and Madagascar.

**2.2. Weather assessment for the current day (05 January 2010):** Clouds are observed in south western Congo and Congo DR, northern Botswana, Madagascar and the great lakes region.



**Author(s):** Edson Nkonde (Zambia Meteorological Department/CPC-African Desk)  
Anthony Twahirwa (Rwanda Meteorological Services / CPC-African Desk)

**Disclaimer:** *This bulletin is for training purposes only and should be used as guidance. NOAA does not make forecasts for areas outside of the United States.*