

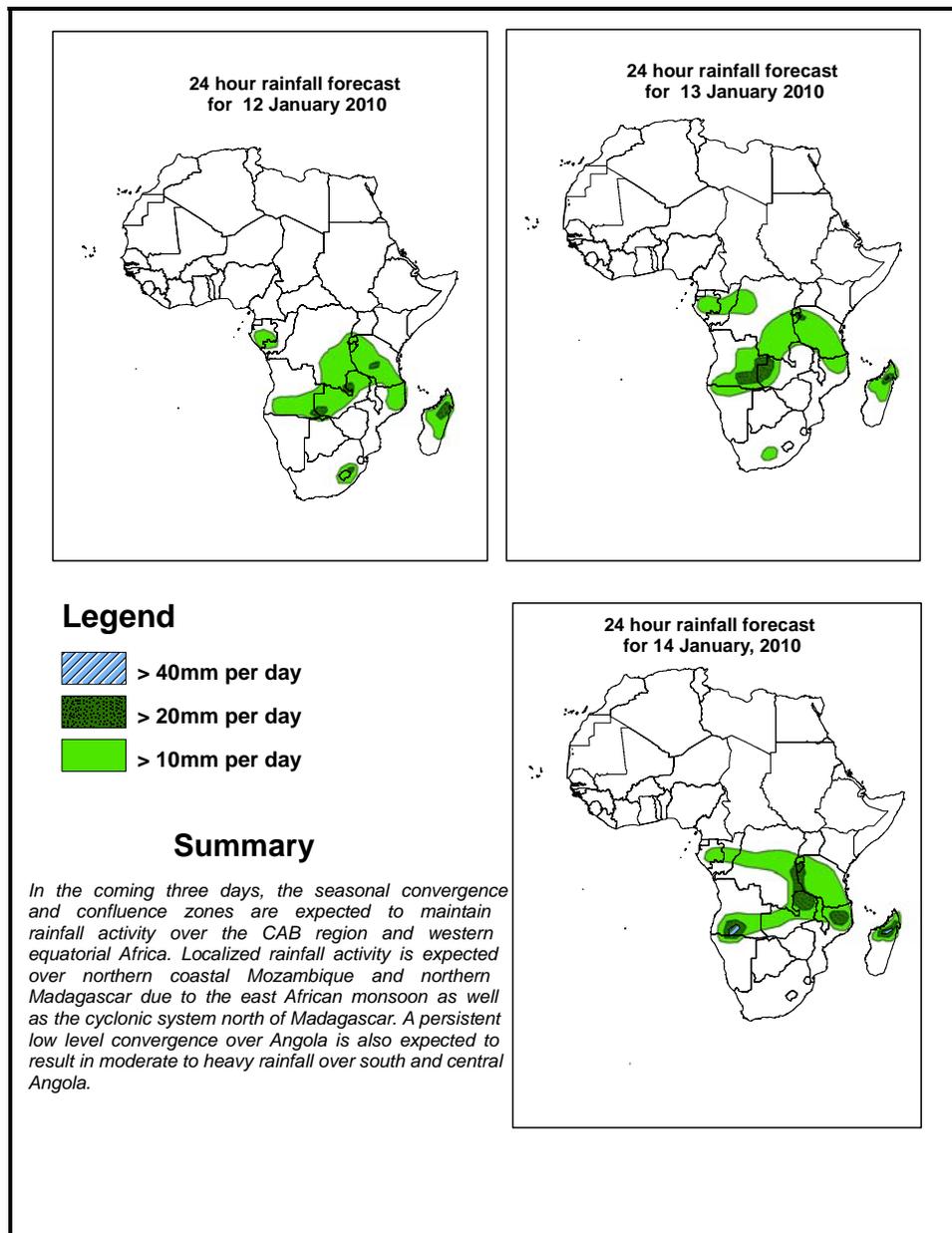


NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid, 06Z of 12 January –06Z of 14 January 2010, (Issued at 14:00EST of 11 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 12 January 2010

A zonally oriented subtropical ridge is expected to develop in the region between northeast Atlantic Ocean and Egypt through 24 to 48 hrs. With a mid-latitude low-pressure system moving from western to eastern Mediterranean Sea region, this ridge is expected to weaken through 48 to 72 hrs. On the other hand, the high pressure system over the Arabian Peninsula is expected to persist, with its ridge extending towards Ethiopia. A low pressure system over northern Madagascar is expected to move to the west, while slightly deepening.

At 850mb level, the Saharan Anticyclone is expected over northwestern Africa with its ridge extending eastwards up to eastern Algeria. Ahead of it, a cyclonic system from the mid latitudes is expected to extend southwards towards the 10° N latitude. The Arabian anticyclone over the Arabian Peninsula will have a ridge extending westward up to the mid-latitude cyclonic system in eastern Libya. Through 24 to 72hrs, the mid-latitude trough will be pushed northwards toward the Mediterranean Sea while the Arabian and the Saharan highs will move eastwards tending to merge. The peripheral winds of the Saharan high and the Arabian high are expected to dominate the northeasterly flow of much of northern Africa. This dry northeasterly flow, together with moist southwesterly flow from the Atlantic Ocean is expected to maintain a strong lower level convergence over western and central parts of equatorial Africa, resulting in rainfall activity in the coming three days in the regions. The persistent cyclonic circulation north of Madagascar and the east African monsoon flow will bring rainfall activity over northern Madagascar and the eastern coast of Africa respectively. The peripheral flow from the Mascarene anticyclone, in the Indian Ocean, is expected to converge with a westerly moist flow that comes from the Atlantic Ocean to maintain the convergence in the CAB region in the coming three days. Convergence of the westerly wind flow from the Atlantic Ocean and the easterly wind flow from the CAB region and the Indian Ocean over Angola will result in moderate to heavy rainfall activity over the area through 24 to 72hrs.

At 500mb level, the axis of the mid-latitude trough in the westerlies is expected to shift from about 10° E longitude to about 20° E longitude while extending southward from 30° N to about 18° N while weakening through 24 to 72 hrs. In 48 to 72hrs, the flow is expected to be zonal. The northeast-southwest oriented trough over the Arabian Peninsula extending towards the horn of Africa will be replaced by an anticyclonic system through 24 to 72hrs

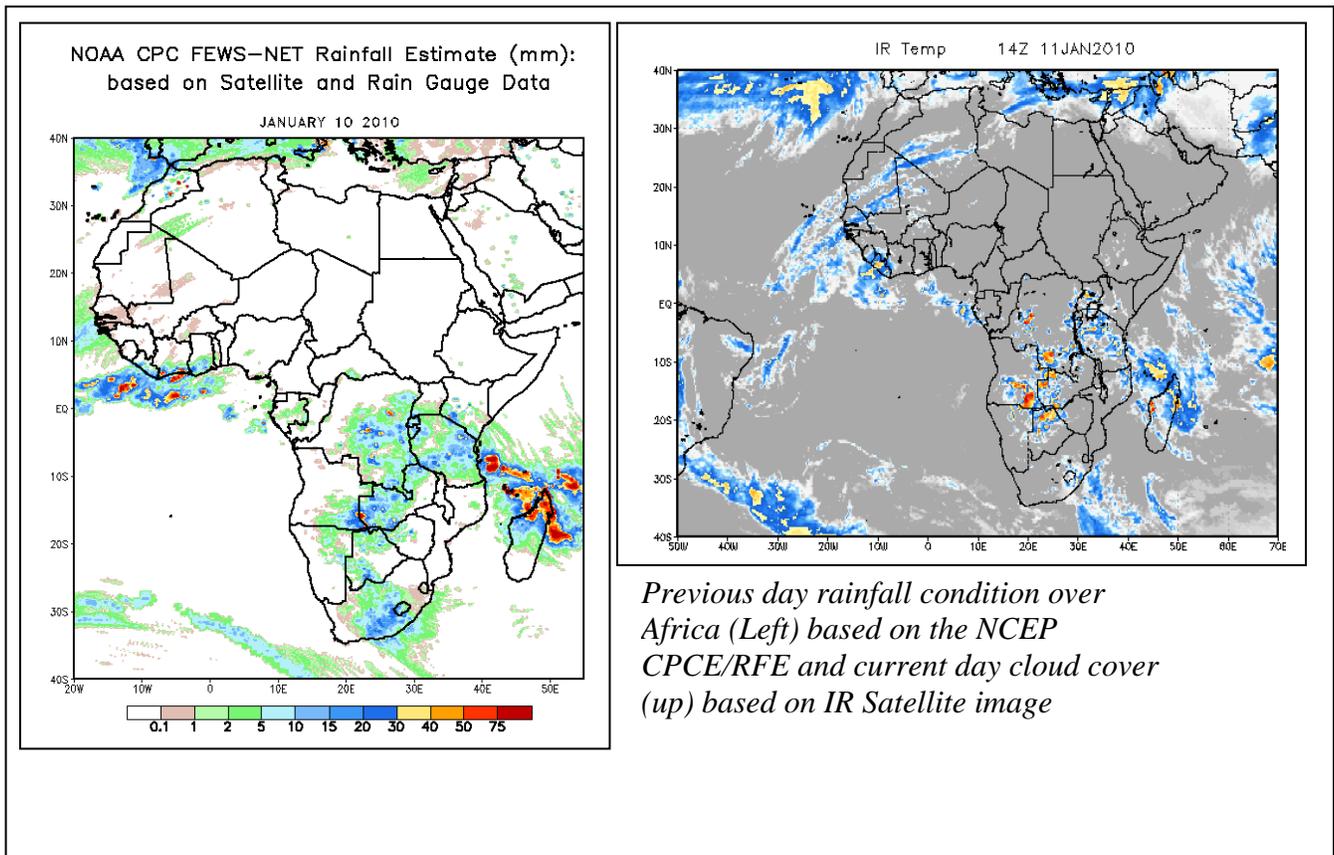
At 200mb, consistent with the mid-tropospheric flow, a weak wavy pattern is expected, weaken further while moving eastward. The associated zones of maximum winds are also expected to move eastward while attaining a zonal orientation through 24 to 72 hrs.

In the coming three days, the seasonal convergence and confluence zones are expected to maintain rainfall activity over the CAB region and western equatorial Africa. Localized rainfall activity is expected over northern coastal Mozambique and northern Madagascar due to the east African monsoon as well as the cyclonic system north of Madagascar. A persistent low level convergence over Angola is also expected to result in moderate to heavy rainfall over south and central Angola.

2. 0. Previous and Current Day Weather Discussion over Africa (07 –08 January 2010)

2.1. Weather assessment for the previous day (10 January 2010): During the previous day, intense to moderate rainfall events were observed over northern Madagascar. Some rainfall activities were also reported over parts of Zambia Tanzania, Angola, DRC, Botswana, great lake region and South Africa.

2.2. Weather assessment for the current day (11 January 2010): Clouds are observed over western Zambia, Tanzania, Great lakes region southern parts of DRC, south east Angola, north east Mozambique and Madagascar.



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.