

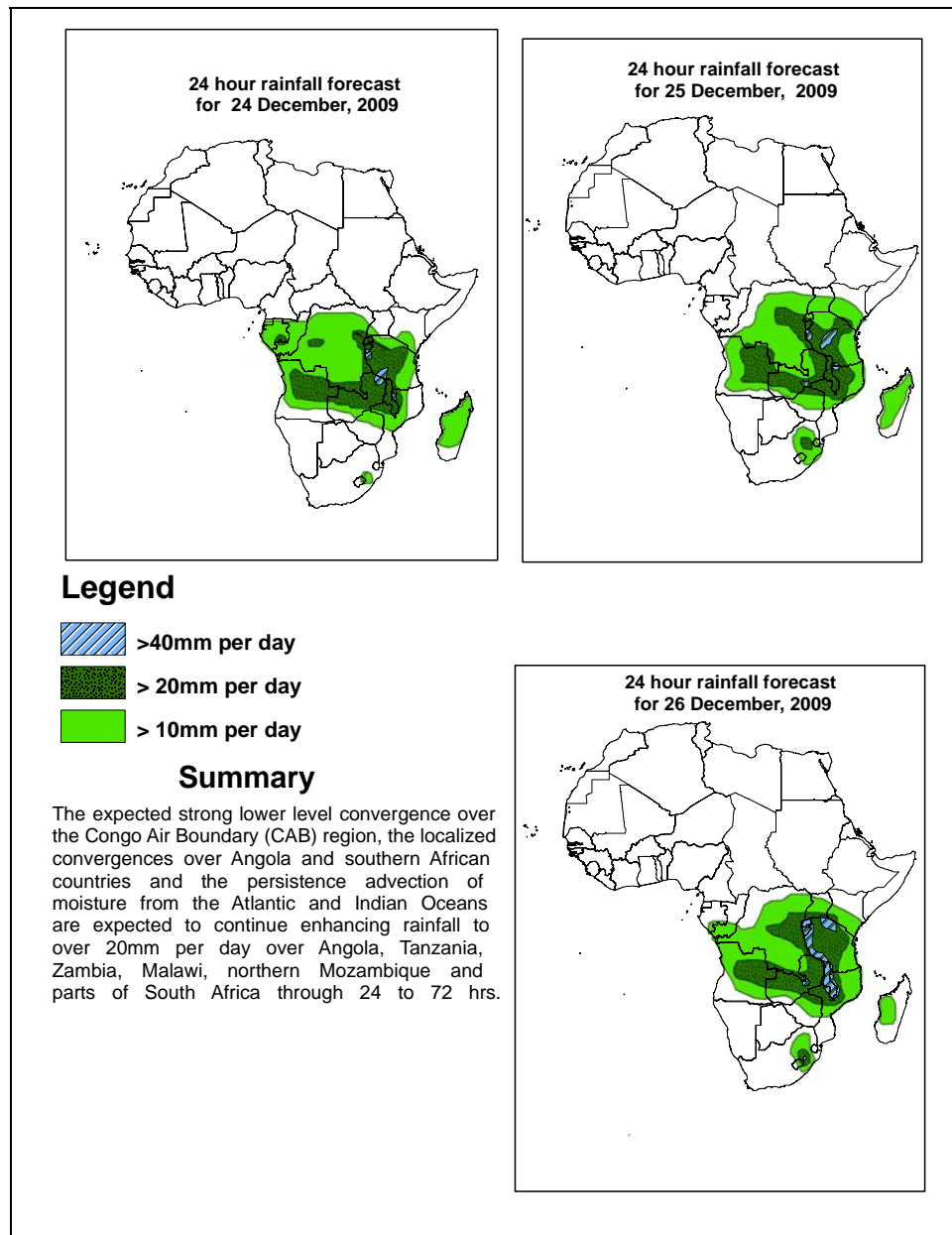


NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid, 06Z of 24 December –06Z of 26 December 2009, (Issued at 14:00EST of 23 December 2009)

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 23 December 2009

An east-west oriented ridge, associated with the Saharan High, is expected to extend in the region between eastern Mali and Jordan, with maximum pressure value of about 1023mb within the extent of the ridge, during 24hrs. The ridge is expected to fill up gradually through 48 to 72 hrs, with the maximum pressure value within the extent of the ridge decreasing from about 1025mb through 24hrs to 1022mb through 72hrs.

At 850mb level, consistent with the surface conditions, the anticyclone over the Arabian Peninsula is expected to weaken gradually during 24 to 72 hrs. Besides, the center of the Arabian anticyclone is expected to shift towards the Persian Gulf. As result of this, the peripheral winds from the Arabian anticyclone remain southeasterly over the Gulf of Eden through 24 to 72 hrs. This southeasterly flow is also expected to maintain the trough in the easterly that extends between northern Red Sea and central Ethiopia.

On the other hand, the persistent westerly flow from the Atlantic Ocean is expected to continue dominating the flow over Gabon and DR Congo. This westerly flow together with easterly flow from the Indian Ocean is expected to maintain the Congo Air Boundary active in the coming three days. Moreover, part of the westerly flow attains a northerly component, which converges over southeastern and southern parts of Africa with a northeasterly flow that comes from the Indian Ocean. Localized convergence zone is expected to develop over eastern parts of South Africa and the adjacent areas through 48 to 72hrs

At 500mb level, a mid tropospheric trough that extends between Jordan and Ethiopia is expected to move towards the Persian Gulf while filling up during the coming three days. Another trough in the westerly is expected to develop in the area extending between northern Red Sea and northern Sudan during 72hrs. On the other hand, the mid-tropospheric flow in sub-tropical regions of the southern hemisphere is expected to remain more or less zonal through 24 to 72 hrs.

At 200mb, a deep trough over northern parts of the Arabian Peninsula moves towards the Persian Gulf while weakening. Consistent with the mid-tropospheric trough a secondary trough in the westerly is expected to develop in the region extending between Jordan and northern Sudan through 72 hrs. The passage of these westerly troughs is expected to cause transport of mid and upper tropospheric from the colder areas of the mid-latitudes to the warmer areas of tropical parts of northeast Africa. Following the orientation of the westerly trough, two zones of maximum wind are expected, one over northeast Atlantic Ocean and the other over southern parts of the Arabian Peninsula. During the coming three days, the core of the Jet over northwest Atlantic Ocean is expected to weaken slightly while extending towards Morocco and Algeria. On the other hand, the Jet over the Arabian Peninsula is expected to extend towards northern Sudan while strengthening further.

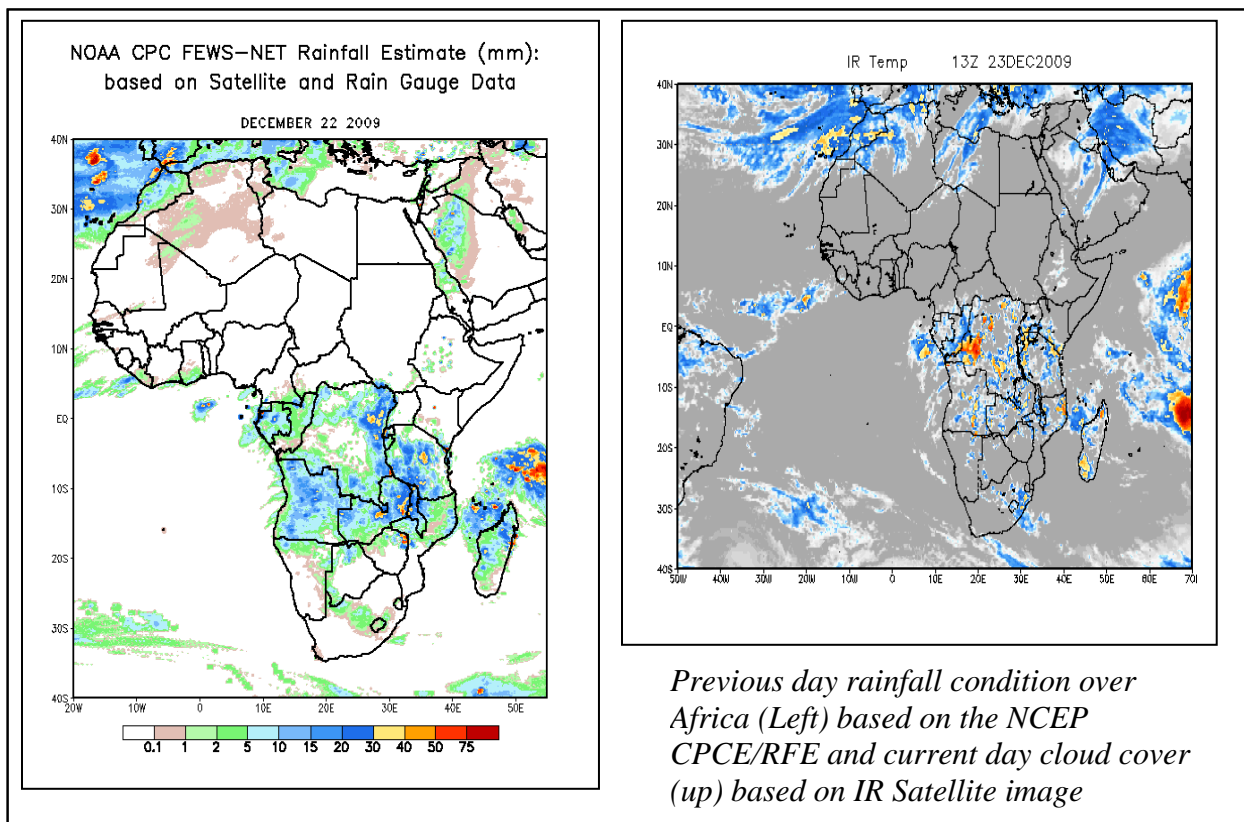
In general, the expected strong lower level convergence over the Congo Air Boundary (CAB) region, the localized convergences over Angola and southern African countries and the persistence advection of moisture from the Atlantic and Indian Oceans are

expected to continue enhancing rainfall to over 20mm per day over Angola, Tanzania, Zambia, Malawi, northern Mozambique and parts of South Africa through 24 to 72 hrs.

2. 0. Previous and Current Day Weather Discussion over Africa (22 –23 December 2009)

2.1. Weather assessment for the previous day (22 December 2009): During the previous day, moderate to heavy rainfall events were observed over Gabon, eastern DR Congo, Angola, Zambia, northern Zimbabwe, Tanzania, northern Mozambique and Madagascar.

2.2. Weather assessment for the current day (23 December 2009): Moderate to heavy clouds were observed over parts of Congo, DR Congo, eastern Angola, intense clouds over grate lakes region and northern Mozambique.



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

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