

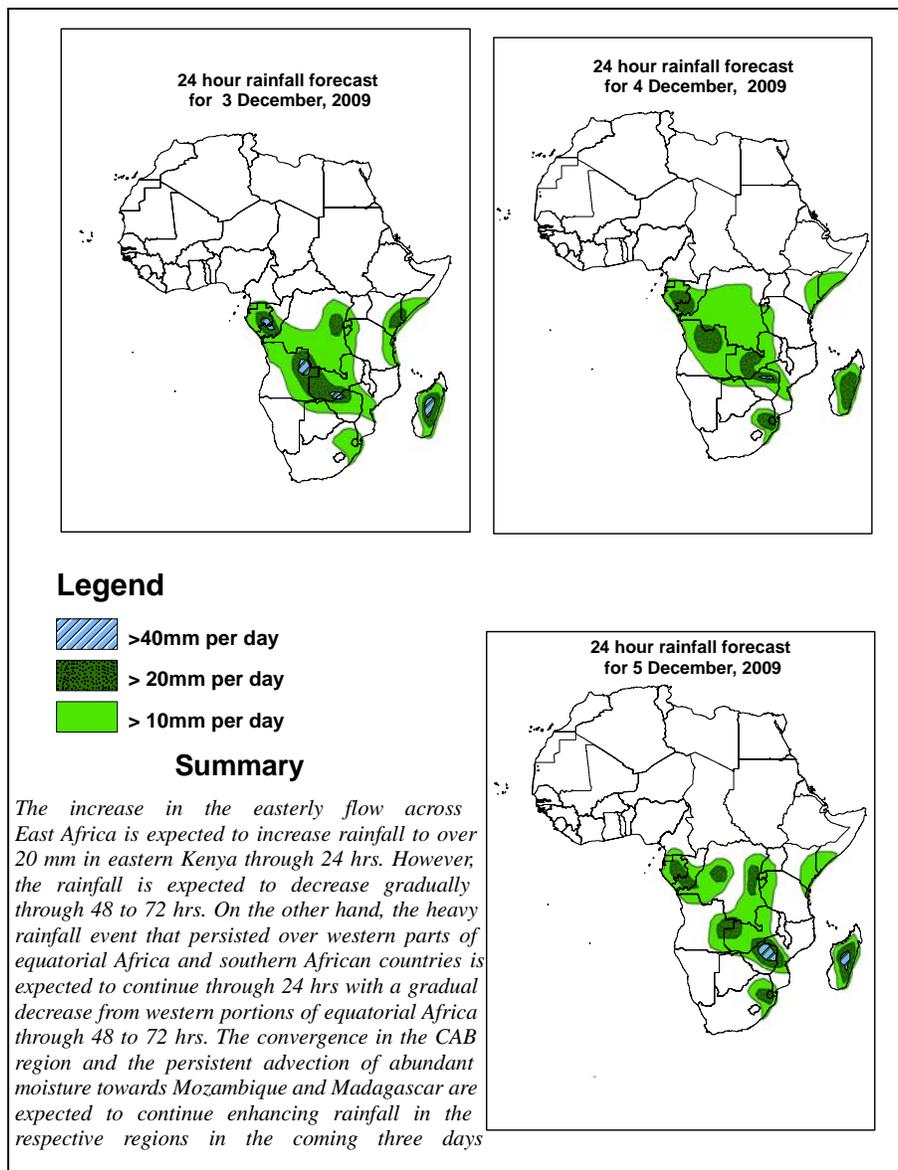


## NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

### 1.0. Rainfall Forecast: Valid, 06Z of 3 December – 06Z of 5 December 2009, (Issued at 14:00EST Of 2 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 1 December 2009**

All the GFS, ECMWF and UK Met Office models are in agreement in indicating a gradual increase in low tropospheric easterly flow across East African countries, while the northwesterly flow over western parts of equatorial and southern African region and its associated confluence zone that persisted in the region between Gabon and Zimbabwe is expected to weaken gradually through 24 to 72 hrs. As a result of this, the lower tropospheric convergence and confluence zone is expected to expand towards the central and eastern parts of equatorial Africa. Especially, the convergence associated with the Congo Air Boundary is expected to become more and more active over the Great Lake region during the period of 24 to 72 hrs.

On the other hand, a lower tropospheric cyclonic circulation is expected to move eastwards across Lesotho and eastern parts of South Africa between 24 to 48 hrs, while the northwesterly to northerly winds over southwest Indian Ocean are expected to continue advecting abundant moisture to Madagascar and central and southern Mozambique.

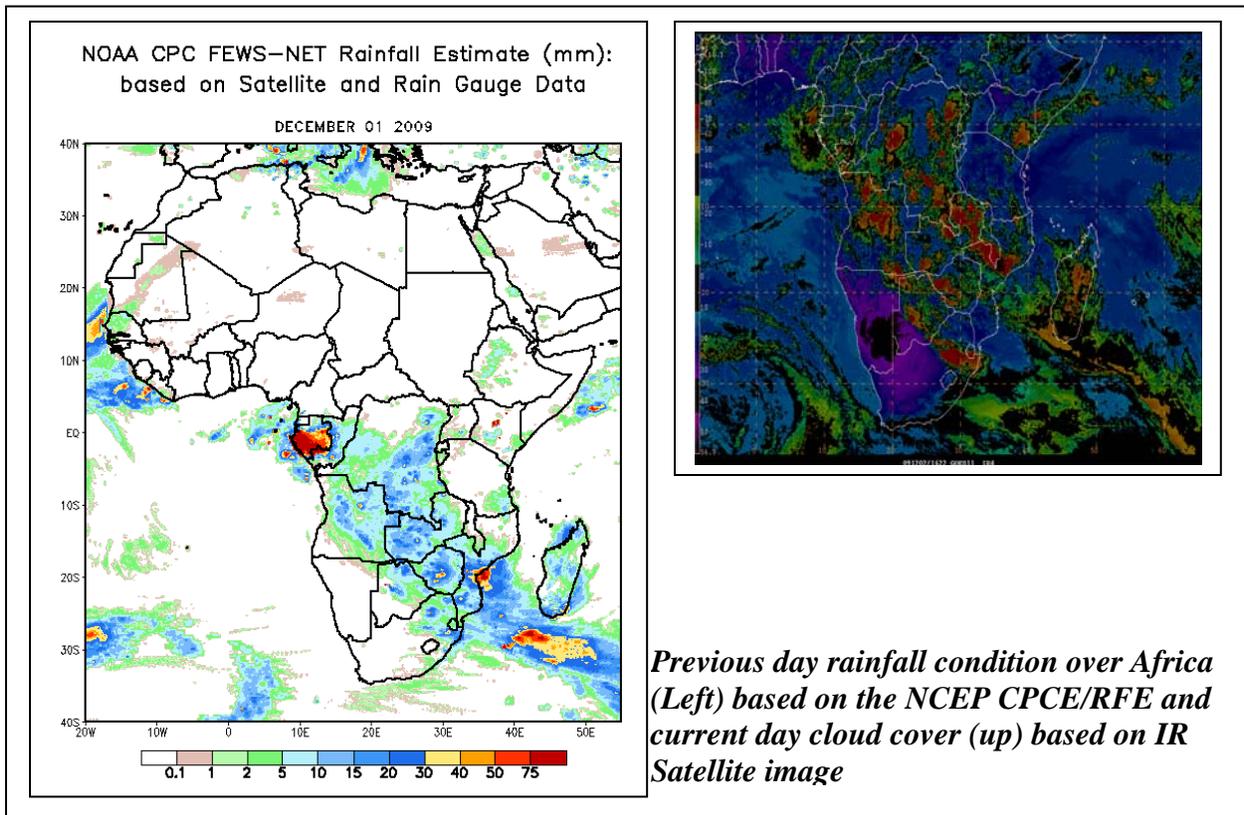
All the three models indicated persistent zonal westerly at 500mb level to dominate the flow over southern African countries and the adjacent oceans, while, mid-tropospheric cyclonic circulation is expected to pass through eastern Mediterranean Sea while weakening through 24 to 48 hrs. On the other hand, the core of the maximum wind speed (in excess of 110knts) at 200mb level is expected in the region between Morocco and Egypt through 24 to 48 hrs, while all the models are expecting relatively weak subtropical westerly jet over southern Hemisphere. However, all the models are in agreement in enhancing the subtropical westerly jet in both hemispheres after 72hrs.

In general, the expected increase in the easterly flow across East Africa is expected to increase rainfall to over 20 mm in eastern Kenya through 24 hrs. However, the rainfall is expected to decrease gradually through 48 to 72 hrs. On the other hand, the heavy rainfall event that persisted over western parts of equatorial Africa and southern African countries is expected to continue through 24 hrs with a gradual decrease from western portions of equatorial Africa through 48 to 72 hrs. The convergence in the CAB region and the persistent advection of abundant moisture towards Mozambique and Madagascar are expected to continue enhancing rainfall in the respective regions in the coming three days.

## 2. Previous and Current Day Weather Discussion over Africa (1 – 2 December to 2009)

**2.1. Weather assessment for the previous day (1 December 2009):** During the previous day, moderate to heavy rainfall events were observed over parts of Gabon, southern Congo, southern DR Congo, Angola, Zambia, northeastern Botswana, Zimbabwe, eastern South Africa, southern Mozambique and Madagascar

**2.2. Weather assessment for the current day (2 December 2009):** Intense clouds are observed over parts of Gabon, southern Congo, DR Congo, eastern Kenya, eastern Angola, Zambia, Zimbabwe, eastern South Africa, southern Mozambique and Madagascar.



**Author(s):** 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 State.