

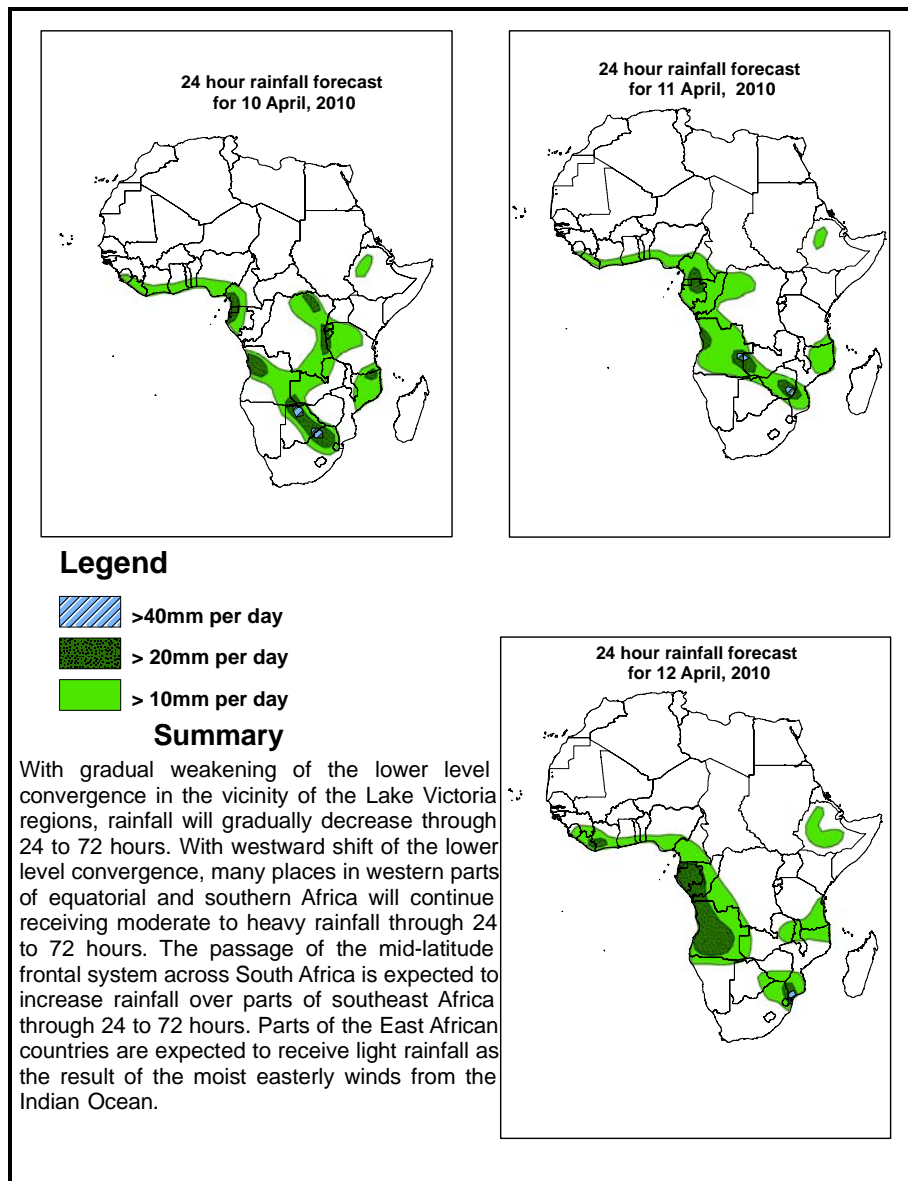


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid, 06Z of 10 April –06Z of 12 April 2010, (Issued at 14:00EST of 09 April 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 09 April 2010**

A low pressure system with central pressure value of 1008mb located over eastern Libya is expected to move slightly eastwards while deepening in 24 to 48 hours. This low pressure system is expected to move further eastwards while maintaining its central pressure through 48 to 72 hours. On the other hand, a ridge associated with the subtropical high pressure system is expected to extend towards Chad through 24 to 48 hours across parts of the northern Africa countries. In the southern hemisphere, a ridge associated with the St. Helena Anticyclone is expected to shift eastwards crossing the southern tip of Africa, while extending towards Zimbabwe through 24 to 48 hours. The Mascarene high with central pressure values of 1022mb in southern Indian Ocean is expected to extend its axis towards southern Mozambique through 24 to 72 hours. The localized low pressure systems in the Gulf of Aden and the adjacent areas of Red Sea are expected to assume central pressure values of 1009mb and 1007mb, respectively in 24 hours, while slightly deepening in 48 to 72 hours. A localized low pressure system with central pressure values of 1010mb, located off the west coast of Gabon and Angola is expected to maintain its position, while slightly deepening through 24 to 72 hours. The low pressure zones associated with the equatorial trough are expected to deepen with their central pressure values changing from 1006mb to 1002mb over the Gulf of Guinea, 1005mb to 1001mb over central Africa and 1004 to 1000mb over Sudan in 24 to 72 hours.

At 850mb level, the lower level convergence in Congo Air Boundary (CAB) region is expected to weaken gradually through 24 to 72 hours. On the other hand, easterly to southeasterly winds from western Indian Ocean are expected to dominate the flow over much of eastern and southern Africa. As a result of this, the lower level wind convergences are mainly limited to the western coastal areas of equatorial and southern Africa through 48 to 72 hours. The seasonal wind convergence between the southeasterly winds of the southern hemisphere and northeasterly winds of the northern hemisphere is expected to maintain its position along 10°N latitude between coastal West Africa and Sudan through 24 to 72 hours. On the other hand, a fast moving mid-latitude frontal system is expected to cross southern parts of South Africa in 24 hours.

At 500mb level, the flow over the subtropical areas of northern Africa is expected to remain more or less zonal, while the flow over the subtropical regions in the southern hemisphere is expected to remain wavy with a westerly trough propagating across South Africa through 24 to 48 hours.

At 200mb, an expanded anticyclonic zone is expected to dominate the flow over East Africa, parts of central Africa and southeast Africa, while the rest of the continent is expected to be dominated by westerlies. The trough associated with this stationary wave pattern is expected to remain deep across West Africa and northern Indian Ocean in the northern hemisphere. In the southeastern hemisphere, the pattern is expected to become an eastward propagating wave, with the trough axis crossing southern Africa between 24 to 48 hours and the wave pattern is expected to weaken through 48 to 72

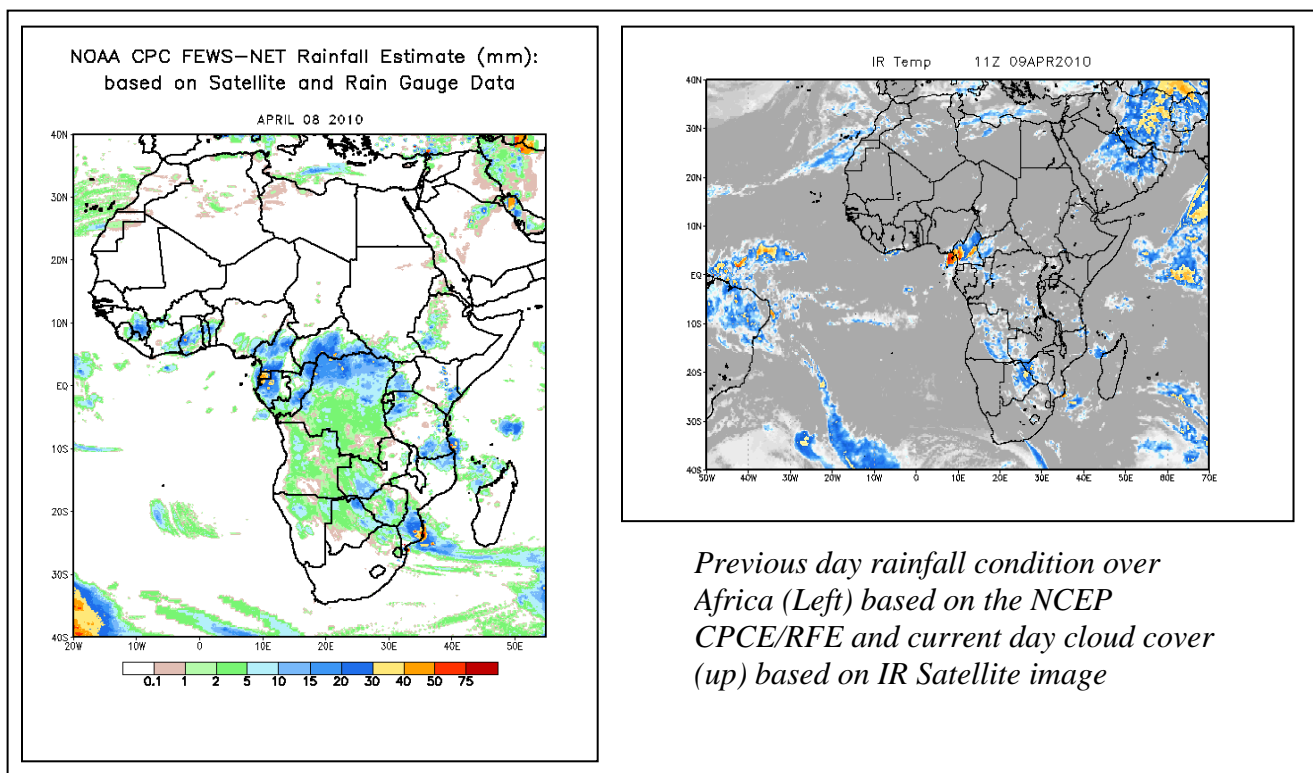
hours. In the northern hemisphere, the maximum wind speed associated with this flow is expected to exceed 110 knots across southeastern Libya to central Red Sea and southern Egypt to west of Arabian Peninsula, while exceeding 90 knots across northeast of Niger to east of Arabian Peninsula through 24 to 72 hours. In the southern hemisphere, the maximum wind speed associated with the flow is expected to exceed 110knots in the region between 32<sup>0</sup>E to 42<sup>0</sup>E longitudes through 24 to 72 hours

With gradual weakening of the lower level convergence in the vicinity of the Lake Victoria regions, rainfall will gradually decrease through 24 to 72 hours. With westward shift of the lower level convergence, many places in western parts of equatorial and southern Africa will continue receiving moderate to heavy rainfall through 24 to 72 hours. The passage of the mid-latitude frontal system across South Africa is expected to increase rainfall over parts of southeast Africa through 24 to 72 hours. Parts of the East African countries are expected to receive light rainfall as the result of the moist easterly winds from the Indian Ocean.

## 2.0. Previous and Current Day Weather Discussion over Africa (08 April 2010 – 09 April 2010)

**2.1. Weather assessment for the previous day (08 April 2010):** During the previous day, moderate to heavy rainfall events were observed over parts of Equatorial Guinea, Gabon, Cameroon, Central African Republic, northern part of DRC and few places of eastern Guinea, northwestern and southeastern parts of Tanzania, southern Uganda, northern Botswana, southeastern Kenya, southwestern Ethiopia and southern part of Mozambique.

**2.2. Weather assessment for the current day (09 April 2010):** isolated patches of intense clouds are observed over Cameroon, eastern part of Botswana, few places of Angola, DRC, west of Central African Republic and central part of Congo.



*Previous day rainfall condition over Africa (Left) based on the NCEP CPCE/RFE and current day cloud cover (up) based on IR Satellite image*

**Author(s):** Solomon Yohannes (National Meteorological Agency of Ethiopia / 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.