

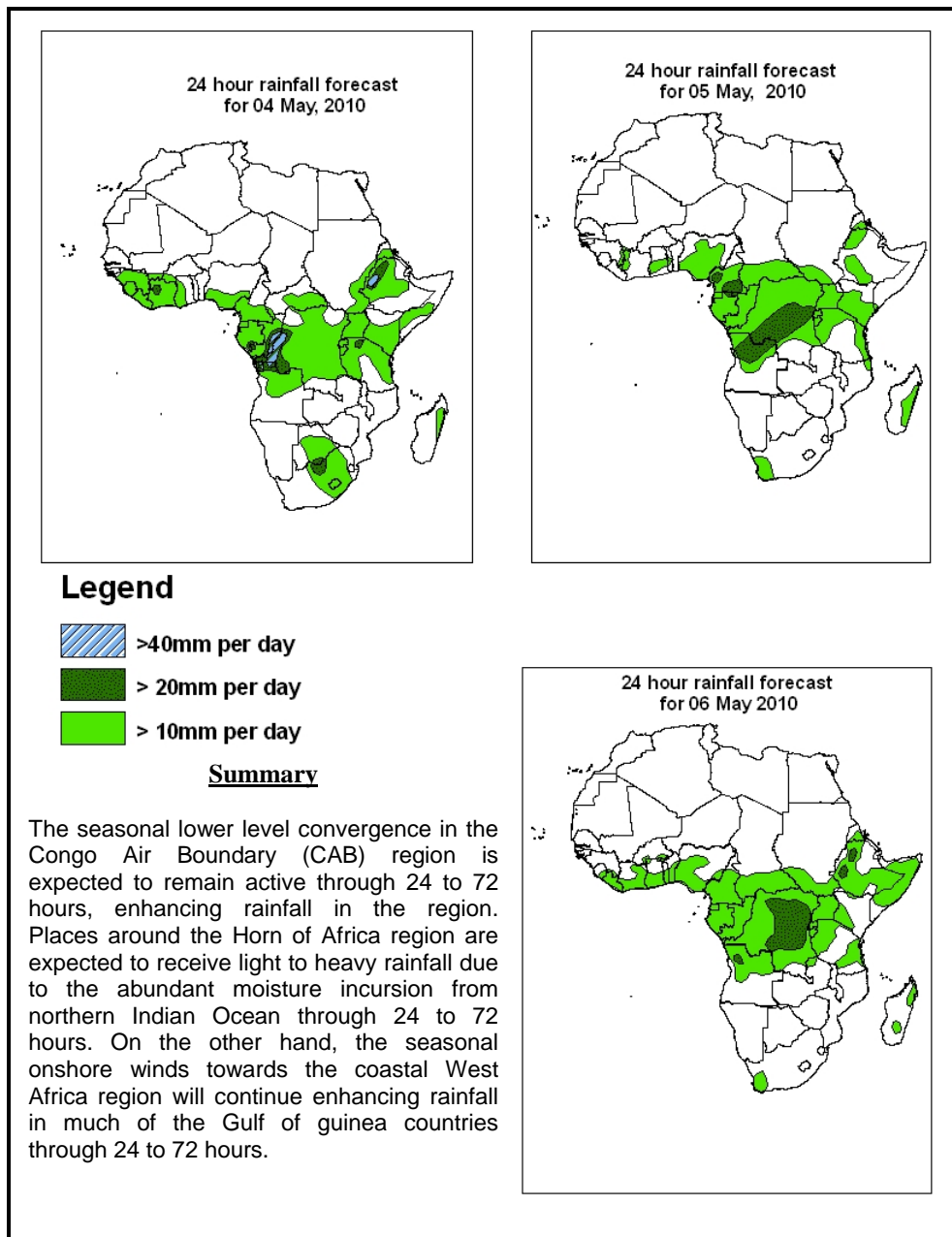


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid, 06Z of 04 May – 06Z of 06 May 2010, (Issued at 14:00EST of 03 May 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 03 May 2010**

Localized low pressure systems, located west of Algeria with central pressure value of 1002mb is expected to move eastwards while slightly deepening in 24 to 48 hours. Low pressures located in the Red Sea and Gulf of Aden with central pressure values of 1005mb and 1007mb, respectively, are expected to maintain their position while deepening through 24 to 72 hours. A low pressure system, with central pressure value of 1007mb, located off the coast of Somalia is expected to maintain its position through 24 to 72 hours. A low pressure system with central pressure value of 1011mb located off coast of Gabon is expected to maintain its position in 24 hours. A low pressure system with central pressure value of 1011mb located along the coasts of Angola is expected to persist with slight change through 24 to 72 hours. On the other hand low pressure systems with central pressure value of 1006mb located off coast of southwestern part of South Africa is expected to extend its trough axis towards Botswana and Mozambique in 24 to 48 hours. The equatorial trough is expected to maintain its position with central pressure values of 1006mb in the Gulf of Guinea, 1006mb over Central Africa Republic and 1007mb over southern Sudan through 24 to 48 hours. The heat low over Sudan, with central pressure value of 1005mb is expected to maintain its position with slight change through 24 to 72 hours.

At 850mb level, the mid latitude trough situated between  $20^{\circ}\text{W}$  to  $0^{\circ}$  is expected to move slightly eastwards while slightly deepening through 24 to 72 hours. On the other hand, the sub-tropical anticyclonic circulation is expected to dominate the western and northeastern parts of Africa through 24 to 72 hours. The northeasterly and southwesterly trade winds are expected to converge near  $10^{\circ}\text{N}$  latitude in the region between coastal West Africa and Sudan through 24 to 72 hours. Meanwhile, the southeasterly winds from the periphery of the anticyclone in the Indian Ocean are expected to continue carrying moisture towards a strong lower level convergence in East Africa through 24 to 72 hours.

At 500mb level, a mid-latitude westerly trough, located between  $10^{\circ}\text{W}$  to  $10^{\circ}\text{E}$  longitude, is expected to persist in 24 to 48 hours while being zonal in the next 72 hours. Another back hanged trough located along  $30^{\circ}\text{E}$  longitude is expected to persist through 24 to 72 hours. In the southern hemisphere, a zonal pattern in the mid-latitude westerlies dominates the flow in the sub-tropical regions through 24 to 72 hours.

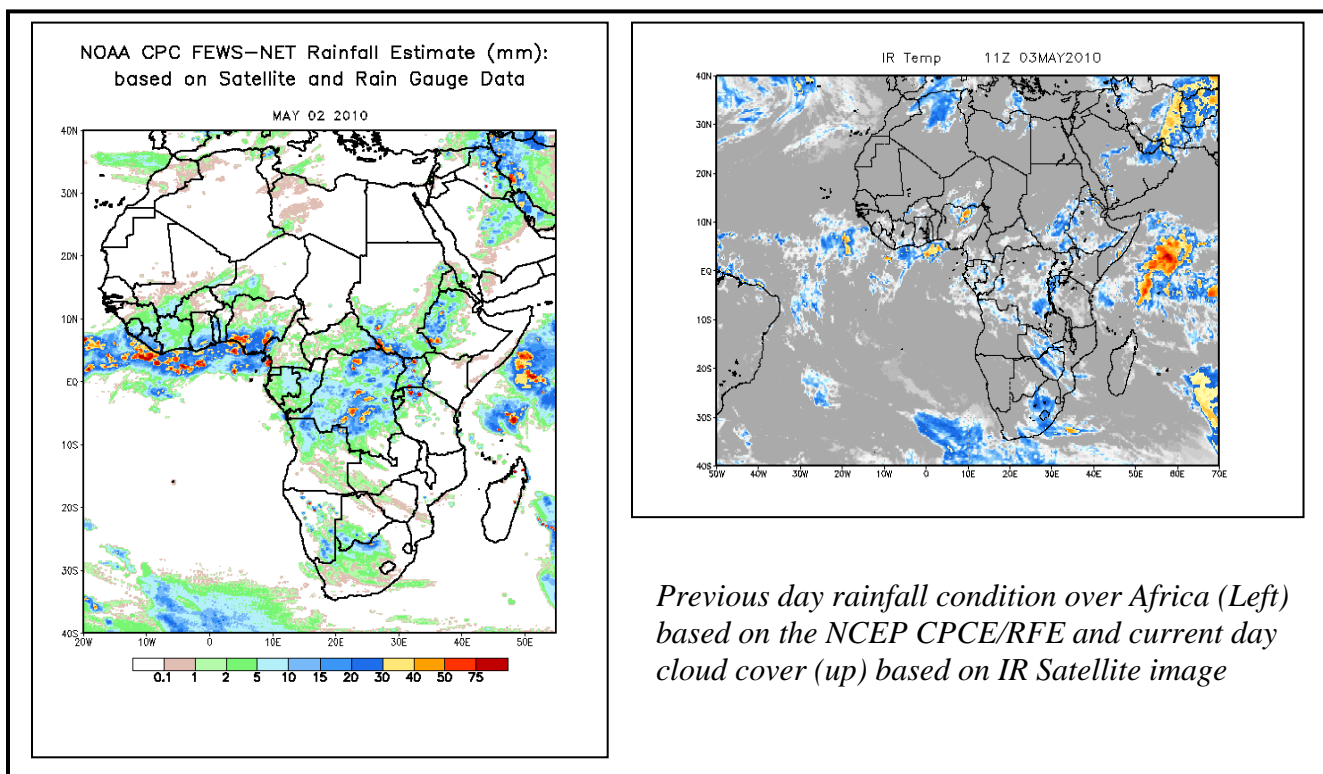
At 200mb, a deep westerly trough located along west coast of Africa is expected to propagate eastwards. The flow in the northern Africa regions is expected to remain more or less zonal through 24 to 72 hours. On the other hand, a southeast-northwest oriented trough between the Indian and Atlantic Oceans across southern parts of South Africa is expected to move slightly eastward, while deepening through 24 to 48 hours. In the northern hemisphere, the maximum wind speed associated with this flow is expected to exceed 110 knots across western Egypt to western Asia, western Morocco to central Algeria, west of Arabian Peninsula to western Asia and east of Morocco to northwest of Libya, while exceed 90 knots across southern Libya to western Asia, northwest coast of Africa to western Libya, southeast of Egypt to western Asia. In the southern hemisphere, the maximum wind speed is expected to exceed 130 knots in the region between near 2°E to 18°E, while exceed 110 knots between 35°E to 60°E and 0°E to 20°E longitude. The maximum wind speed exceeds 90 knots in the region between 30° to 60°E and 10°W to 25°E longitude in 24 to 72 hours. The speed of the jet wind is expected to weaken in 48 to 72 hours in association with an east ward propagating the westerly wave.

The seasonal lower level convergence in the Congo Air Boundary (CAB) region is expected to remain active through 24 to 72 hours, enhancing rainfall in the region. Places over the Horn of Africa region are expected to receive light to heavy rainfall due to the abundant moisture incursion from northern Indian Ocean through 24 to 72 hours. On the other hand, the seasonal onshore winds towards the coastal West Africa region will continue enhancing rainfall in much of the Gulf of guinea countries through 24 to 72 hours.

## 2.0. Previous and Current Day Weather Discussion over Africa (02 May 2010 – 03 May 2010)

**2.1. Weather assessment for the previous day (02 May 2010):** During the previous day, moderate to heavy rains was observed over southern part of Nigeria, Togo, Liberia, western and southwestern parts of Ethiopia, southern Sudan, Uganda, DRC and few places of northwestern Tanzania, southern Ghana, northwestern Angola and central and southeastern parts of Namibia.

**2.2. Weather assessment for the current day (03 May 2010):** Isolated intense clouds are observed over northern Nigeria, eastern and southeastern Sudan, much of Ethiopia, coastal areas of Ivory Coast, eastern and southeastern parts of DRC, Rwanda, Burundi, southeastern part of Somalia, western half of Zambia, Zimbabwe and central and southern parts of South Africa.



*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.*