

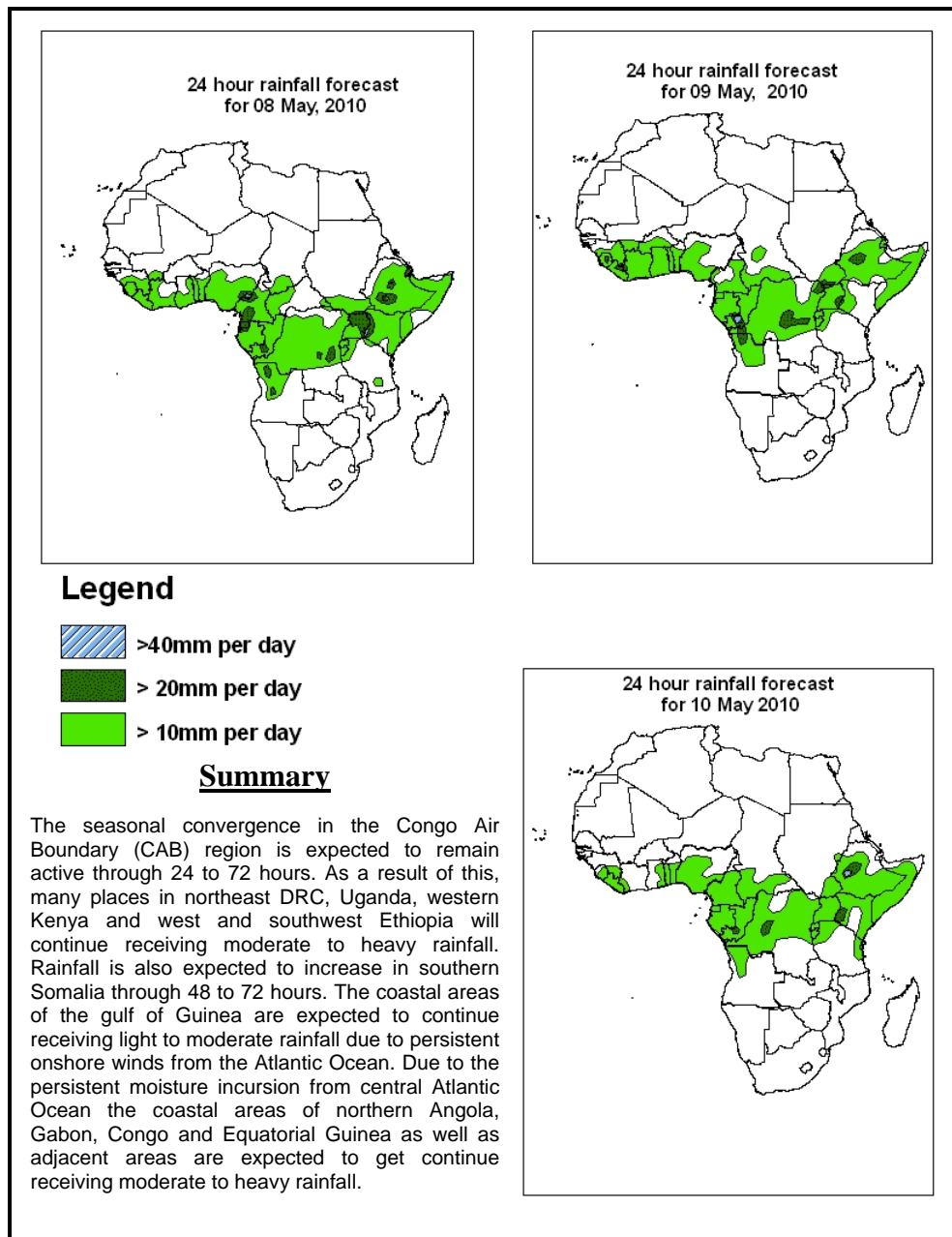


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid, 06Z of 08 May – 06Z of 10 May 2010, (Issued at 14:00EST of 07 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 07 May 2010**

A localized low pressure system located west of Algeria with central pressure value of 1005mb is expected to persist with slight change in 24 to 72 hours. A low pressure with central pressure value of 999mb located over northeast of Libya is expected to move northeastwards while filling up in 24 to 48 hours. A low pressure with central pressure value of 1004mb located over southern Niger is expected to persist through 24 to 72 hours. Low pressures located in the Red Sea and Gulf of Aden with central pressure values of 1005mb and 1006mb, respectively, are expected to maintain their position with slight change through 24 to 72 hours. A low pressure system, with central pressure value of 1006mb, located off the coast of Somalia is expected to maintain its position through 24 to 72 hours. Low pressure systems with central pressure values of 1011mb and 1010mb located along the coasts of Angola and central DRC are expected to persist with slight change through 24 to 72 hours. In southern hemisphere, a frontal low located over southern Atlantic Ocean in the region between 10W and 10E is expected to move eastwards reaching along west coast of South Africa in 24 to 48 hours. This frontal low is expected to move further eastwards crossing the southern Africa regions reach up to east coast of South Africa in 48 to 72 hours. On the other hand, localized high pressure systems with central pressure values of 1019mb and 1022mb located over Zimbabwe and South Africa respectively are expected to persist with slight change in 24 to 48 hours. A sub tropical high pressure system with central pressure values of 1022mb located over southern Atlantic Ocean is expected to develop in 48 to 72 hours. The equatorial trough is expected to maintain its position with central pressure values of 1004mb in the Gulf of Guinea, 1004mb 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 back hanged mid latitude trough located along 0° longitude is expected to move eastwards reaching along 20°E longitude in 24 to 48 hours. This trough is expected to move slightly further eastwards being meridional up to near 25°E longitude in 48 to 72 hours while extending its axis reaching up to near 20°N latitude through 24 to 72 hours. Another trough located between 10°W to 10°E longitude is expected more or less to persist through 24 to 72 hours. On the other hand, the sub tropical anticyclone is expected to dominate part of the northern Africa regions in 24 to 72 hours. The northeasterly and southwesterly trade winds are expected to converge

near 10<sup>0</sup>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 trough located between 30<sup>0</sup>E and 60<sup>0</sup>E longitude, is expected to move slightly eastwards in 24 to 48 hours while moving further eastwards in 48 to 72 hours. On the other hand, the mid tropospheric Anticyclonic circulation is expected to dominate the northern Africa regions 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 48 hours while becoming slightly wavy in 48 to 72 hours.

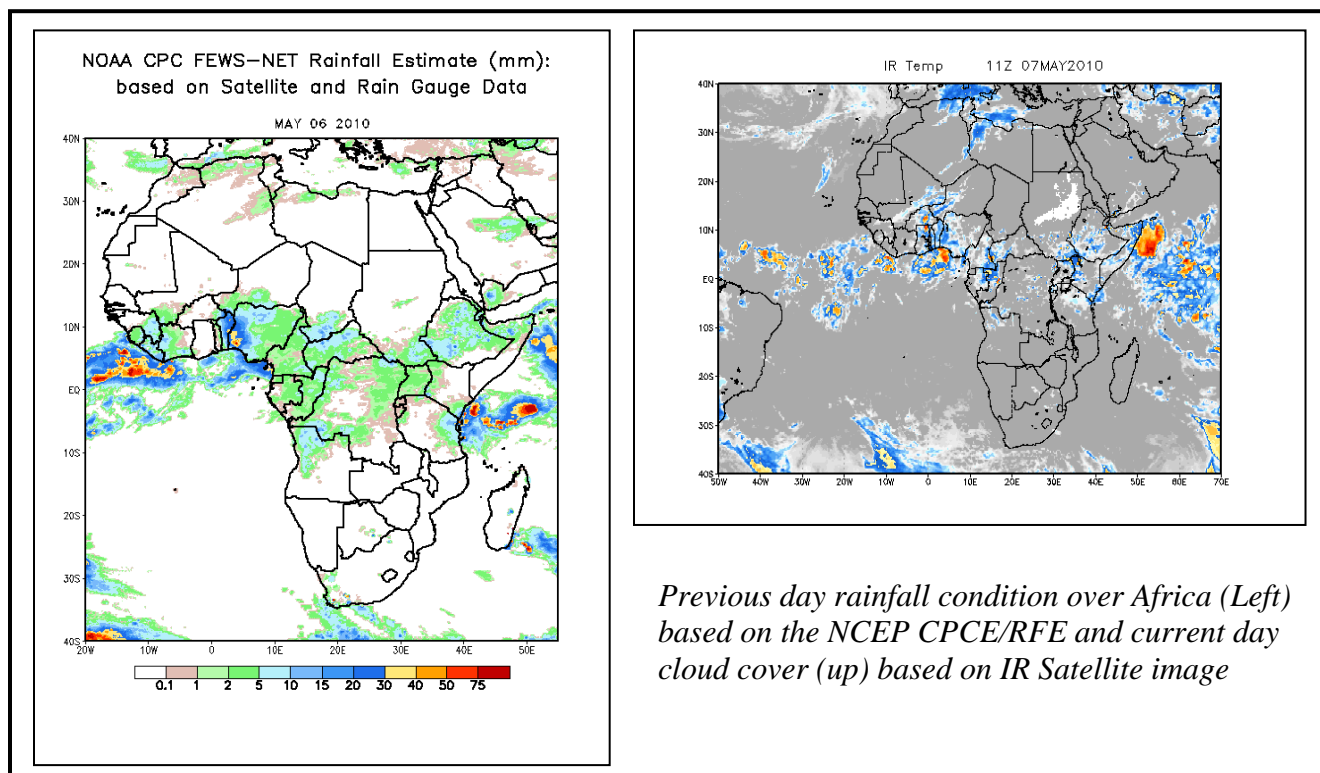
At 200mb, the flow in the northern Africa regions is expected to be more or less zonal through 24 to 48 hours, while becoming wavy in 48 to 72 hours. On the other hand, the wind flow in the southern hemisphere is expected to be zonal through 24 to 72 hours. In the northern hemisphere, the maximum wind speed associated with this flow is expected to exceed 90 knots across central Libya to Arabian Peninsula. In the southern hemisphere, the maximum wind speed is expected to exceed 130 knots in the region between near 10<sup>0</sup> to 15<sup>0</sup>E longitude, while exceed 110 knots between 5<sup>0</sup>E to 25<sup>0</sup>E and 10<sup>0</sup>W to 30<sup>0</sup>E longitude. The maximum wind speed exceeds 90 knots in the region between 0<sup>0</sup> to 30<sup>0</sup>E and 20<sup>0</sup>W to 40<sup>0</sup>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 eastward propagating the westerly wave.

The seasonal convergence in the Congo Air Boundary (CAB) region is expected to remain active through 24 to 72 hours. As a result of this, many places in northeast DRC, Uganda, western Kenya and west and southwest Ethiopia will continue receiving moderate to heavy rainfall. Rainfall is also expected to increase in southern Somalia through 48 to 72 hours. The coastal areas of the gulf of Guinea are expected to continue receiving light to moderate rainfall due to persistent onshore winds from the Atlantic Ocean. Due to the persistent moisture incursion from central Atlantic Ocean the coastal areas of northern Angola, Gabon, Congo and Equatorial Guinea as well as adjacent areas are expected to continue receiving moderate to heavy rainfall.

## 2.0. Previous and Current Day Weather Discussion over Africa (06 May 2010 – 07 May 2010)

**2.1. Weather assessment for the previous day (06 May 2010):** During the previous day, moderate to heavy rains was observed over Benin, southwestern part of Nigeria and coastal areas of Cameroon, Kenya and Tanzania as well as southern part of Chad and adjoining areas of Central African Republic, few places of southwestern, northern and eastern Ethiopia and southwestern part of South Africa.

**2.2. Weather assessment for the current day (07 May 2010):** Isolated intense clouds are observed over eastern Mali, southwestern Niger, Burkina Faso, Ghana, Togo, Benin, western and southwestern Nigeria, eastern and southeastern Cameroon, northwestern Gabon, central part of Congo, northwestern and southeastern parts of Kenya and adjacent areas of Tanzania and Sudan and parts of southern, southwestern and eastern parts of Ethiopia.



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

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