

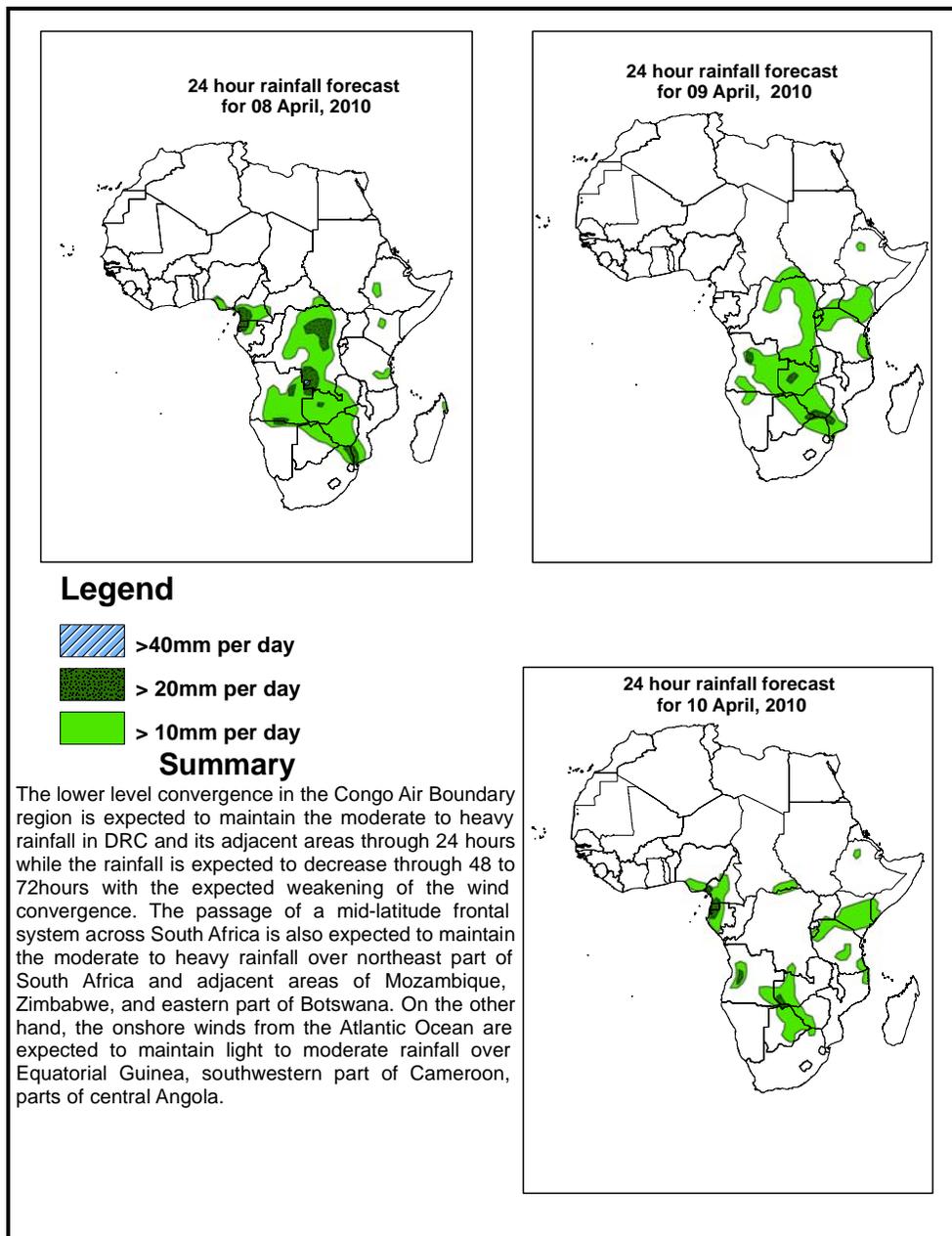


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

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

A sub tropical high pressure system, with central pressure values of 1019mb, located over coast of Libya is expected to move slightly eastwards while extending its ridge axis up to Sudan and Mali through 24 to 48 hours. This high pressure cell is expected to move further eastwards, while limiting its influence to Egypt in 48 to 72 hours. In the southern hemisphere a localized high pressure cell located over southeastern parts of South Africa, with central pressure value of 1019mb, is expected to persist in 24 to 48 hours. This high pressure is expected to shift eastwards into southern Indian Ocean. Behind this high pressure system, a mid-latitude frontal system is expected to cross the southern parts of South Africa through 48 to 72 hours. On the other hand, the localized low pressure systems in Gulf of Aden and the adjacent areas of Red Sea are expected to assume central pressure values of 1009mb and 1005mb, respectively through 24 to 72 hours. A localized low pressure system with central pressure value of 1009mb, located off the west coast of Angola is expected to maintain its position with slight change in central pressure through 24 to 72 hours. The low pressure zones associated with the equatorial trough are expected to maintain their central pressure values of 1004mb over the Gulf of Guinea, 1005mb over central Africa and 1003 over Sudan in 24 to 48 hours while slightly deepening over central Africa and Sudan through 48 to 72 hours.

At 850mb level, shallow mid latitude westerly troughs is expected to dominate the flow over Middle East and the adjacent areas of northern Red Sea, while its associated inverted trough is expected to dominate the flow over eastern Sudan, Eritrea and northern Ethiopia. The dry northeasterly to easterly flow from the Saharan anticyclone is expected to continue dominating the flow over much of the northern African regions through 24 to 72 hours. On the other hand, the moist easterly to southeasterly winds from the Indian Ocean and their associated convergence are expected to persist dominating the flow over the Horn of Africa region through 24 to 72 hours. The lower level wind convergence in the Congo Air Boundary (CAB) region is expected to weaken gradually through 24 to 72 hours. A mid-latitude frontal system in the southern hemisphere is expected to move eastwards across the southern tip of South Africa between 48 and 72 hours.

At 500mb level, the flow over the subtropical areas of Africa is expected to remain more or less zonal, while the flow over the subtropical regions in the southern hemisphere is expected to attain a wavy pattern with a westerly trough expected to extend northwards across eastern South Africa.

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 the westerly flow is expected to be deep across West Africa and northern Indian Ocean in the northern hemisphere; and across the southeastern Atlantic and southwestern Indian Oceans in the southern hemisphere . In the northern hemisphere, the maximum wind speed

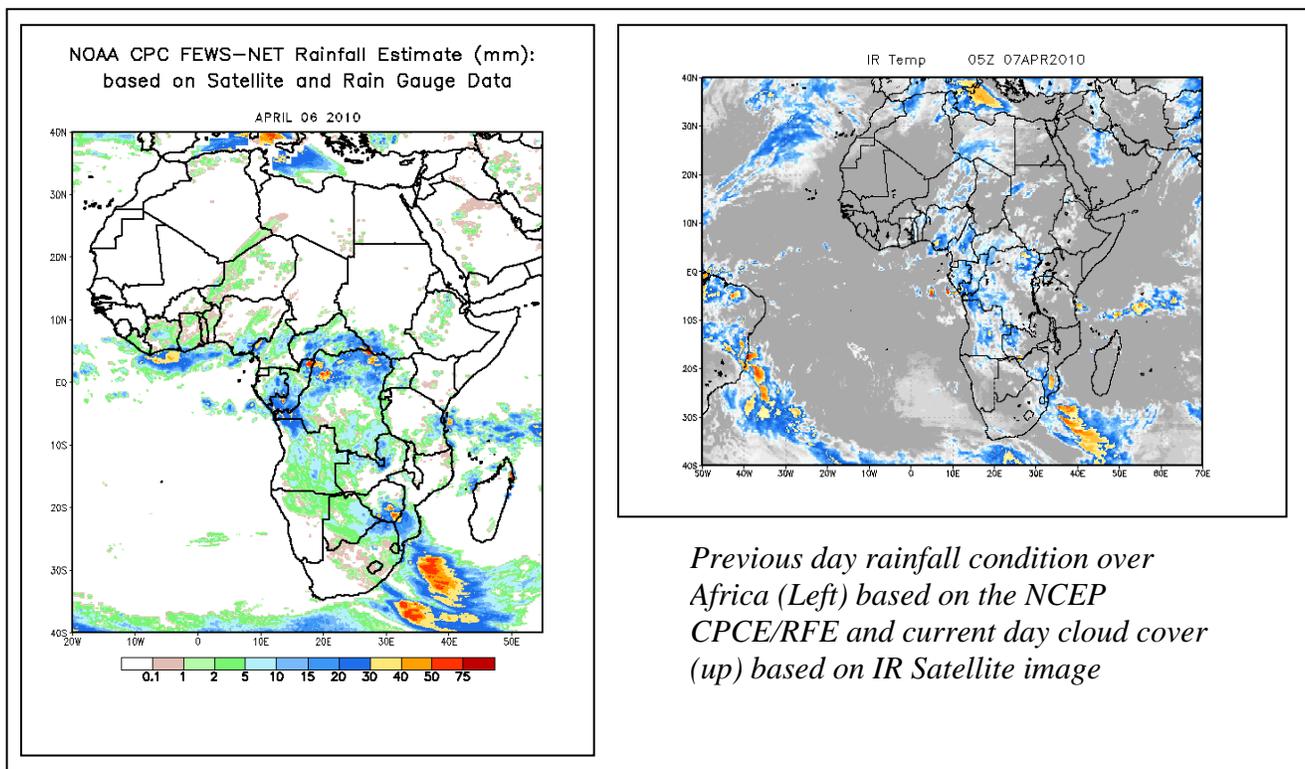
associated with this flow is expected to exceed 110 knots across southern Libya to Arabian Peninsula, while exceed 90 knots across southern northeast of Niger to Arabian Peninsula through 24 to 72 hours.

The lower level convergence in the Congo Air Boundary region is expected to maintain the moderate to heavy rainfall in DRC and its adjacent areas through 24 hours while the rainfall is expected to decrease through 48 to 72hours with the expected weakening of the wind convergence. The passage of a mid-latitude frontal system across South Africa is also expected to maintain the moderate to heavy rainfall over northeast part of South Africa and adjacent areas of Mozambique, Zimbabwe, and eastern part of Botswana. On the other hand, the onshore winds from the Atlantic Ocean are expected to maintain light to moderate rainfall over Equatorial Guinea, southwestern part of Cameroon, parts of central Angola.

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

**2.1. Weather assessment for the previous day (06 April 2010):** During the previous day, moderate to heavy rainfall events were observed over eastern part of Gabon, southern part of Congo and adjacent areas, northern part of DRC, southeast of Zimbabwe and adjacent areas of South Africa and Mozambique.

**2.2. Weather assessment for the current day (07 April 2010):** isolated patches of intense clouds are observed over eastern part of Gabon, northern Cameroon, southeastern Nigeria, northeastern and southwestern parts of DRC, northern and central parts of Angola, western Zambia and southern part of Mozambique and its adjoining areas.



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