

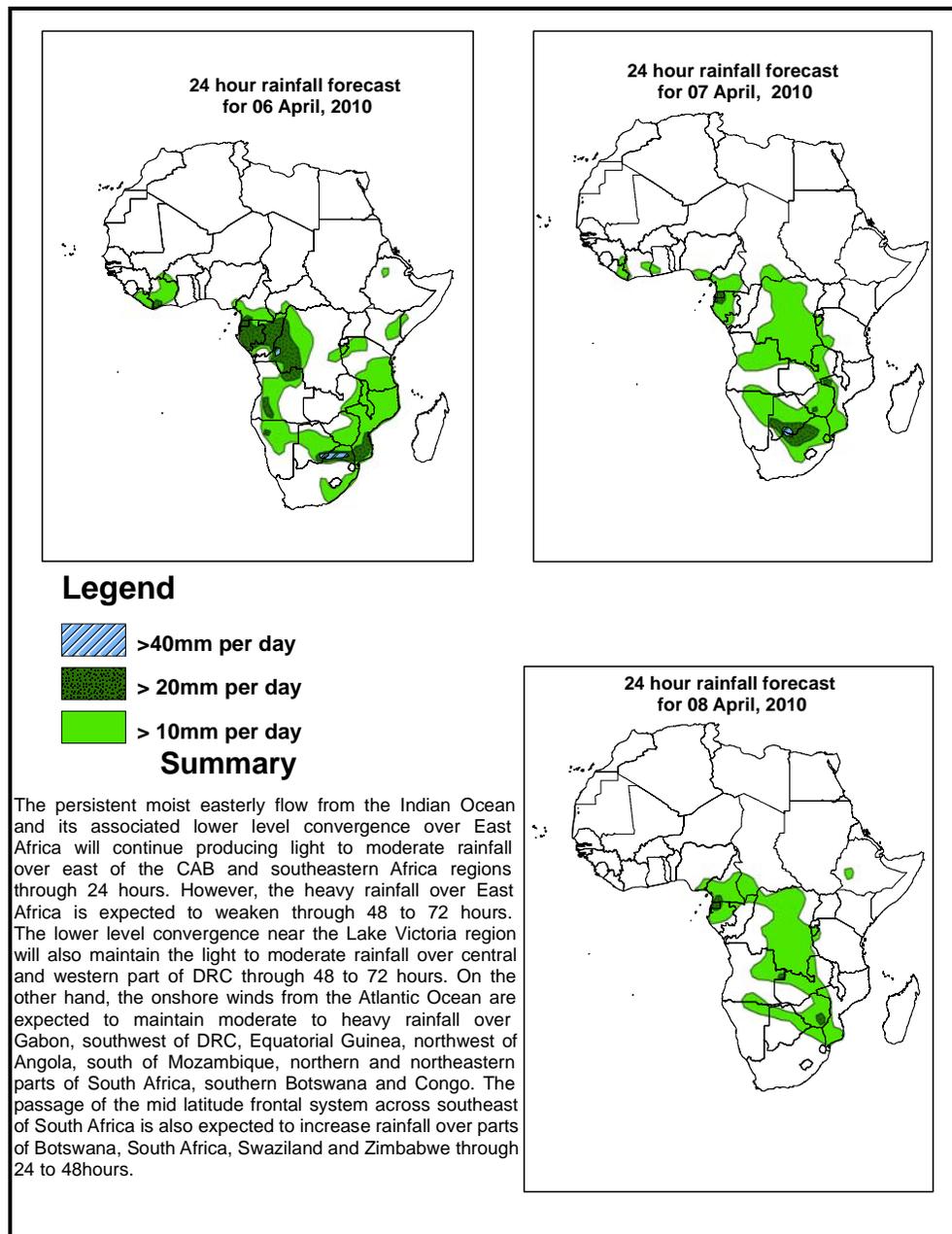


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid, 06Z of 06 April –06Z of 08 April 2010, (Issued at 14:00EST of 05 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 05 April 2010**

A high pressure system, with central pressure values of 1027mb, located over eastern Mediterranean Sea is expected to move slightly eastwards, while weakening in 24 to 72 hours. Its ridge axis also extends up to central Libya and Sudan in 24 to 48 hours while slightly back hanged towards east in 72 hours. In the southern hemisphere a localized high pressure cell is expected to develop over southeast of South Africa with central pressure value of 1020mb and over Madagascar with central pressure value of 1018mb in 24 hours. On the other hand, low pressure system with central pressure value of 1009mb is expected to persist over the Gulf of Aden in 24 to 72 hours, while another low pressure system with central pressure value of 1005mb, located over the Red Sea is expected to persist in 24 to 72 hours. A low pressure system with central pressure value of 1010mb, located off the coast of west of Angola, is expected to persist in 24 hours. The low pressure zones associated with the equatorial trough are expected to maintain its central pressure values of 1005mb over Gulf of Guinea and 1004mb over central Africa and 1003mb over southern Sudan each through 24 to 72 hours with a slight change in central pressure.

At 850mb level, the Saharan sub tropical anticyclone is expected to dominate 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. A mid-latitude frontal system in the southern hemisphere is expected to move eastwards across the southern tip of South Africa through 24 to 48 hours. The lower level wind convergence in the Congo Air Boundary (CAB) region is expected to weaken gradually through 24 to 72 hours. Besides, the lower tropospheric convergence zones over parts of the Gulf of Guinea countries and western parts of equatorial and southern Africa are expected to remain weak through 24 to 72 hours.

At 500mb level, a mid latitude trough located over northwest Africa is expected to move slightly eastwards over northwest Africa in 24 to 48 hours while maintaining its position. This mid latitude trough is expected to move further eastwards while slightly relaxing in 48 to 72 hours. On the other hand, the mid latitude flow over the southern hemisphere is expected to be slightly wavy in 24 to 48 hours, while becoming zonal in 72 hours.

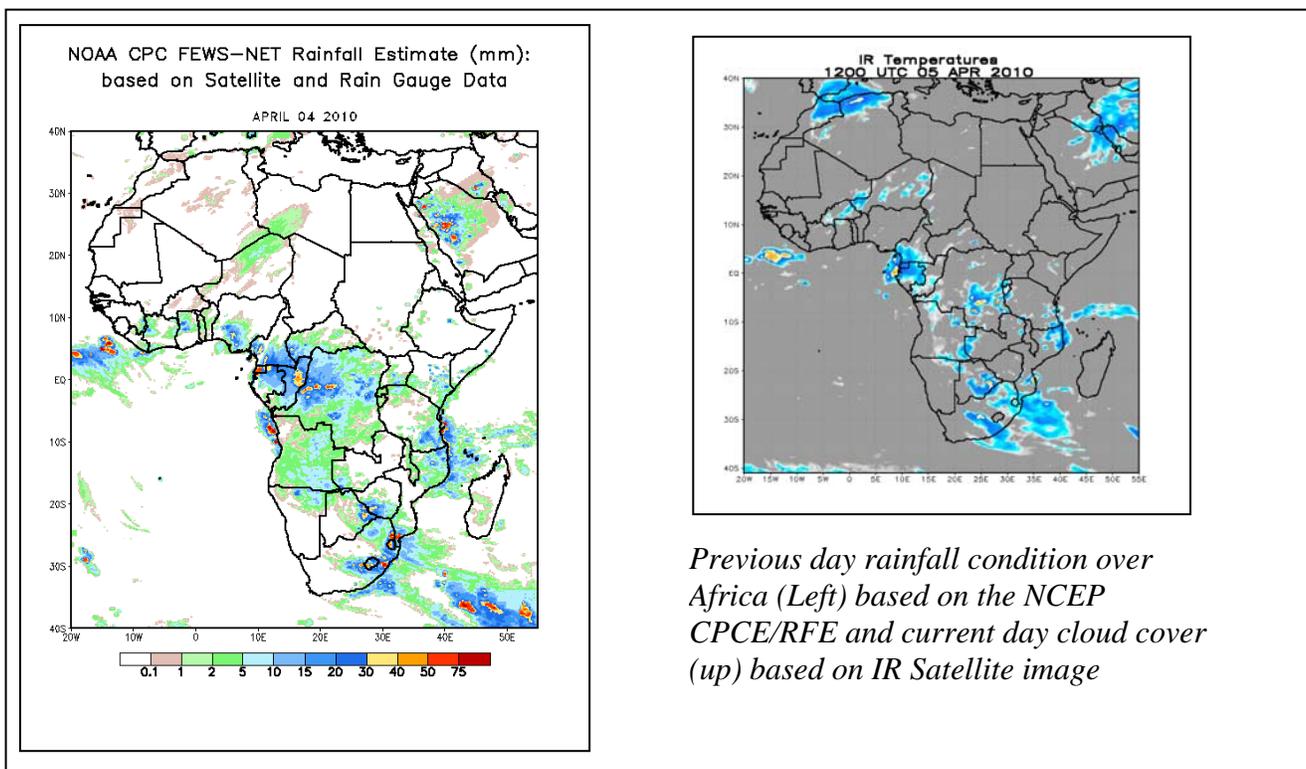
At 200mb, the flows over the subtropical regions of northern Africa are expected to be wavy across the northern Africa region through 24 to 72 hours. On the other hand a wavy pattern in the westerly flow is expected to weaken gradually over the subtropical regions of the southern hemisphere in 24 to 72 hours. In the northern hemisphere, the maximum wind speed associated with this flow is expected to exceed 110 knots across west of Libya to east of Egypt, east of Libya to northern Red Sea, northeast of Nigeria to west of Arabian Peninsula, while exceed 90 knots across east of Algeria to Red Sea, north of Nigeria to Arabian Peninsula through 24 to 72 hours.

The persistent moist easterly flow from the Indian Ocean and its associated lower level convergence over East Africa will continue producing light to moderate rainfall over east of the CAB and southeastern Africa regions through 24 hours. However, the heavy rainfall over East Africa is expected to weaken through 48 to 72 hours. The lower level convergence near the Lake Victoria region will also maintain the light to moderate rainfall over central and western part of DRC through 48 to 72 hours. On the other hand, the onshore winds from the Atlantic Ocean are expected to maintain moderate to heavy rainfall over Gabon, southwest of DRC, Equatorial Guinea, northwest of Angola, south of Mozambique, northern and northeastern parts of South Africa, southern Botswana and Congo. The passage of the mid latitude frontal system across southeast of South Africa is also expected to increase rainfall over parts of Botswana, South Africa, Swaziland and Zimbabwe through 24 to 48hours.

## 2.0. Previous and Current Day Weather Discussion over Africa (04 April 2010 – 05 April 2010)

**2.1. Weather assessment for the previous day (04 April 2010):** During the previous day, moderate to heavy rainfall events were observed over Equatorial Guinea, part of Gabon, Congo, southern part of Cameroon, central and western half of DRC, southeastern Tanzania, northwest coasts of Angola, border between Botswana and Zimbabwe and southeastern part of South Africa.

**2.2. Weather assessment for the current day (05 April 2010):** isolated patches of intense clouds are observed over Equatorial Guinea, Gabon and adjacent areas of Congo, southern Cameroon, southern DRC, Rwanda, Burundi, central and eastern parts of Southern Africa, Botswana, Swaziland, northern Mozambique as well as eastern Mali and adjacent areas of Burkina Faso.



*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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