

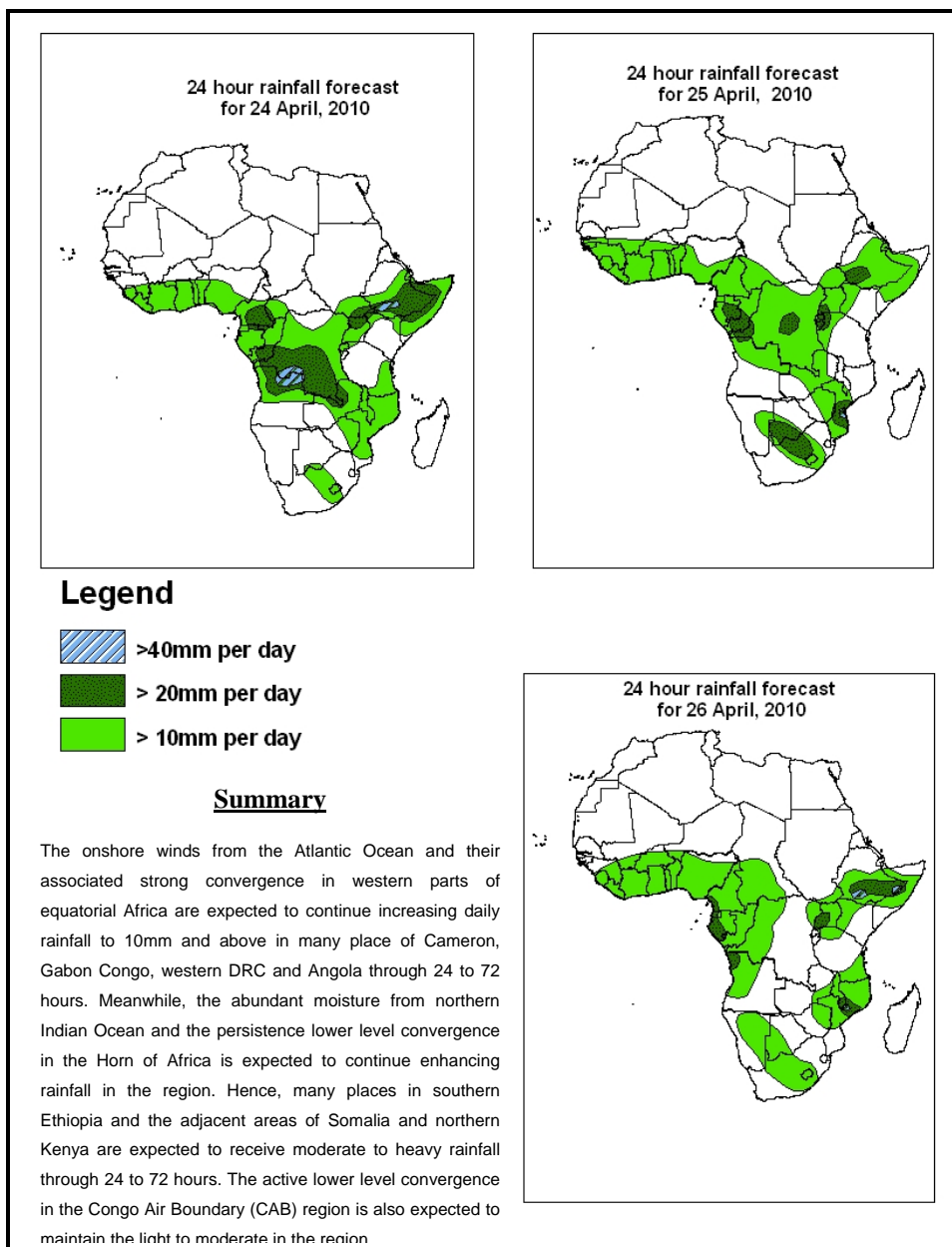


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid, 06Z of 24 April –06Z of 26 April 2010, (Issued at 14:00EST of 23 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 23 April 2010**

Low pressure systems with central pressure values of 1009mb and 1011mb located over western Algeria and southwest of Libya respectively are expected to prevail over the region through 24 to 48 hours. The heat low over western Sudan is expected to maintain its central pressure values of 1006mb through 24 to 72 hours. A localized low pressure system, with central pressure value of 1008mb in the Red Sea area is expected to deepen, while maintaining its position through 24 to 72 hours. On the other hand, high pressure systems with central pressure values of 1026mb and 1019mb located in eastern Mediterranean Sea and northeastern Atlantic respectively are expected to persist in 24 to 48 hours. A high pressure with central pressure value of 1031mb located over southern part of South Africa is expected to split into two and while moving slightly eastwards in 24 to 48 hours. The subtropical high pressure over southern Indian Ocean is expected to shift eastwards through 48 to 72 hours. A low pressure system with central pressure value of 1010mb located off the coast of Somalia is expected to maintain its position through 24 to 72 hours. Low pressure with central pressure value of 1010mb located along the coast of Gabon is expected to maintain its position through 24 to 72 hours. The equatorial trough is expected to maintain its position while deepening from 1009mb to 1003mb over Guinea, 1005mb to 1004mb over Central Africa and 1007mb to 1004mb over southern Sudan through 24 to 72 hours.

At 850mb level, a mid-latitude frontal system is expected to move from western to eastern Mediterranean Sea through 24 to 72 hours. Meanwhile, the Saharan anticyclone is expected to build up over northern Africa through 48 to 72 hours. 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. A mid latitude frontal system located near 50<sup>0</sup>E longitude is expected to persist in 24 to 48 hours, while shifting eastwards in the next 72 hours. The anticyclonic circulation centered between 20<sup>0</sup>E and 30<sup>0</sup>E longitude is expected to be well organized extending its ridge axis towards the southern Africa regions in 48 to 72 hours.

At 500mb level, consistent with the lower tropospheric flow, a mid tropospheric westerly trough is expected to move between 30<sup>0</sup>E and 50<sup>0</sup>E longitudes, enhancing the lower level convergence in the Horn Africa 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 continue dominating the flow in the region through 24 to 72 hours.

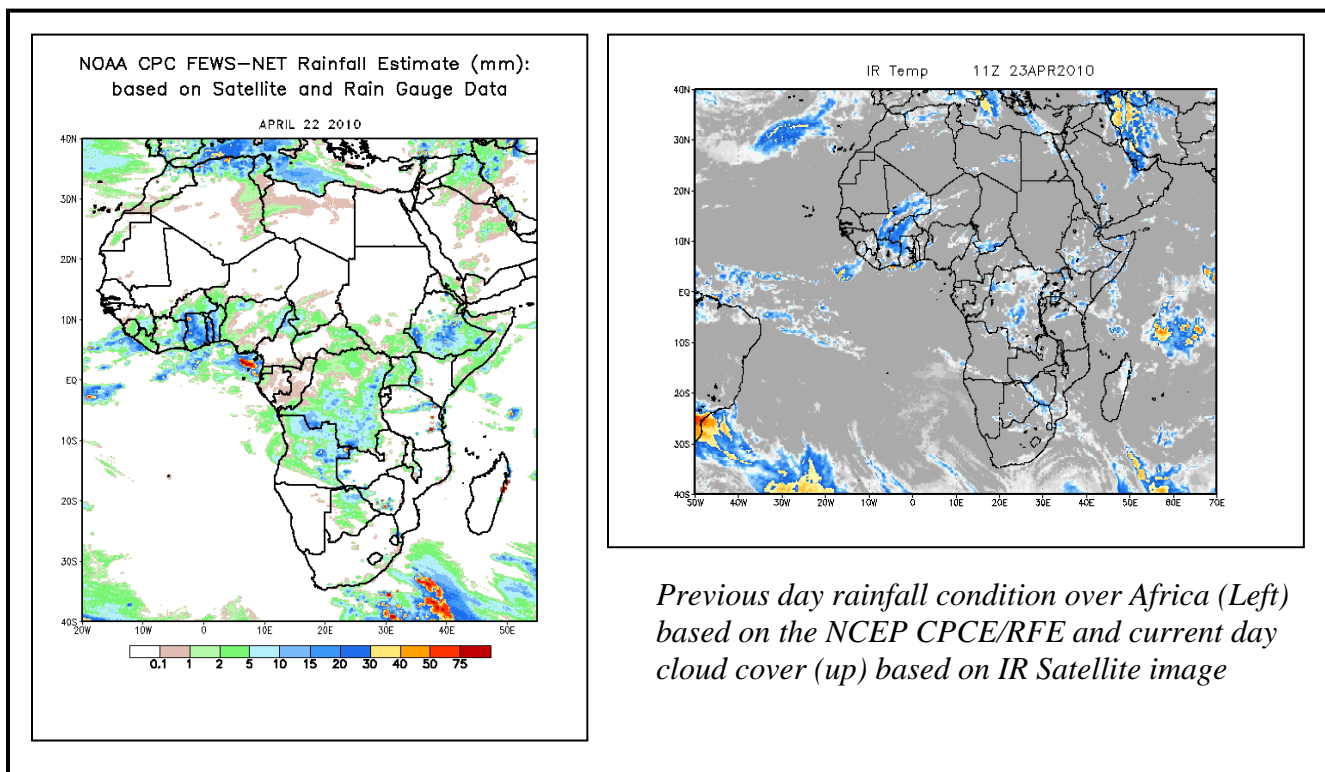
At 200mb, the persistent wavy pattern in the subtropical areas of the northern hemisphere is expected weaken through 24 to 72 hours. As a result of this, the influence of the mid-latitude westerly troughs is expected to be limited in the areas north of Eritrea. On the other hand, a southeast-northwest oriented trough between the Indian and Atlantic Oceans across southern parts of South Africa is expected to continue dominating the flow in the region through 24 to 48 hours, while system is tending to weaken through 48 to 72hours.. In the northern hemisphere, the maximum wind speed associated with this flow is expected to exceed 90 knots across southeastern Egypt to west of Arabian Peninsula. In the southern hemisphere the wind speed expected to exceed 130 knots in the region between 200E to 300E and 400E to 600E longitudes. Similarly a wind speed expected to exceed 110 knots in the region between 100E to 450E and 150E to 600E, while exceed 90 knots in the region between 00E to 600E longitude through 24 to 72 hours. The speed of the jet wind is expected to weaken through 48 hours and will attain its strength through 48 to 72 hours in association with an east ward propagating the westerly wave.

The onshore winds from the Atlantic Ocean and their associated strong convergence in western parts of equatorial Africa are expected to continue increasing daily rainfall to 10mm and above in many place of Cameron, Gabon Congo, western DRC and Angola through 24 to 72 hours. Meanwhile, the abundant moisture from northern Indian Ocean and the persistence lower level convergence in the Horn of Africa is expected to continue enhancing rainfall in the region. Hence, many places in southern Ethiopia and the adjacent areas of Somalia and northern Kenya are expected to receive moderate to heavy rainfall through 24 to 72 hours. The active lower level convergence in the Congo Air Boundary (CAB) region is also expected to maintain the light to moderate in the region.

## **2.0. Previous and Current Day Weather Discussion over Africa (22 April 2010 – 23 April 2010)**

**2.1. Weather assessment for the previous day (22 April 2010):** During the previous day, moderate to heavy rains was observed over Ghana, Togo, southern, southwestern, eastern and southeastern parts of Ethiopia, southern and eastern parts of DRC and adjacent areas, northern and eastern parts of Angola and few places of eastern Tanzania and southern Zimbabwe.

**2.2. Weather assessment for the current day (23 April 2010):** Isolated intense clouds are observed over Ivory Coast, Burkina Faso, Mali, Ghana, southern Chad, DRC, southern half of Ethiopia, border between Kenya and Uganda, and few places of central Tanzania, western Zimbabwe and central and northern Somalia.



*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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