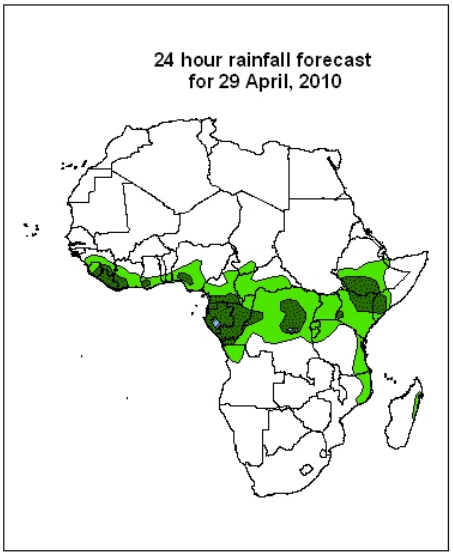
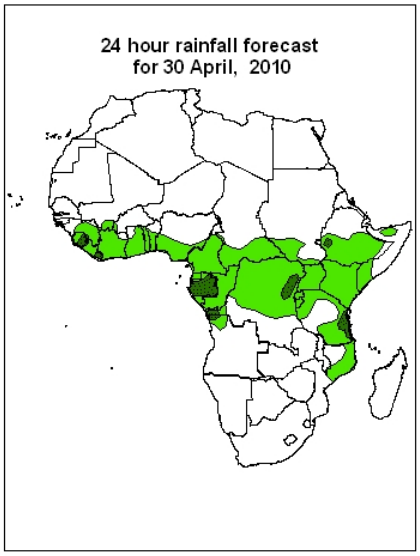
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid, 06Z of 29 April –06Z of 01 May 2010, (Issued at 14:00EST of 28 April 2010)

1.1. Twenty Four Hour Cumulative Rainfall Forecasts

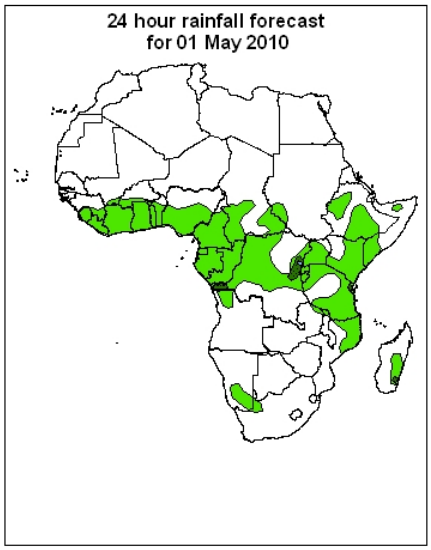
The forecasts are expressed in terms of probability of precipitation (POP) exceedence based on the NCEP, UK Met Office and the ECMWF NWP outputs, the NCEP global ensemble forecasts system (GEFS) and expert assessment.





Legend

- >40mm per day
- > 20mm per day
- > 10mm per day



Summary

The onshore winds from the Atlantic Ocean and their associated strong convergence in the Gulf of Guinea and western parts of equatorial Africa are expected to continue enhancing rainfall in the in many places of Sierra Leone, Liberia, southern Nigeria, southern Cameroon, Congo, Gabon, Equatorial Guinea and northern half of DRC through 24 to 72 hours. Meanwhile, the moderate to heavy rainfall in many places in southern and southwestern parts of Ethiopia, northeastern Kenya and the adjacent areas of Somalia and east coast of Tanzania is expected to continue due to the abundant moisture incursion from the northern Indian Ocean and its associated lower level convergence in the Horn of Africa 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 rainfall in the region.

1.2. Models Comparison and Discussion - Valid from 00Z of 28 April 2010

Localized low pressure systems, with central pressure values of 1006mb and 1009mb located in the Red Sea and Gulf of Aden respectively are is expected to maintain their position while deepening through 24 to 72 hours. On the other hand, a high pressure system with central pressure value of 1021mb located over southern Europe is expected to split into two cells, while slightly weakening in 48 to 72 hours. The associated ridge is expected to extend up to Libya. A localized high pressure system with central pressure value of 1024mb located over South Africa is expected to weaken slightly while maintaining its position through 24 to 72 hours. The ridge extending from this high is expected to reach up to Botswana in 24 to 72 hours. A high pressure system with central pressure value of 1021mb located over Zimbabwe is expected to maintain its position while weakening slightly through 24 to 72 hours. A low pressure system with central pressure value of 1009mb located off the coast of Somalia is expected to maintain its position with slight change through 24 to 72 hours. Low pressure systems with central pressure values of 1010mb located along the coasts of Gabon and Angola are expected to maintain their position with slight change through 24 to 72 hours. The equatorial trough is expected to maintain its position with central pressure values of 1006mb located over Guinea and 1005mb each over southern Sudan and Central Africa with slight change through 24 to 72 hours. The heat low over Sudan, with central pressure value of 1002mb is expected to maintain its position through 24 to 72 hours.

At 850mb level, the sub-tropical anticyclonic circulation is expected to dominate the flow over northern Africa through 24 to 72 hours, while a mid latitude trough located near 40^0E longitude is expected to move northeastwards through 24 to 72 hours. The northwesterly and southeasterly winds are expected to converge along equatorial regions near 10^0N latitude in 24 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. In the subtropical regions of the northern hemisphere, a mid-latitude frontal system located near 15^0E longitude is expected to weaken in 24 hours, while shifting eastwards in the next 48 hours.

At 500mb level, a back hanged mid-latitude westerly trough located near 0^0 longitude is expected to deepen slightly, while extending up to 20^0N latitude through 24 to 72 hours. This mid tropospheric trough is expected to weaken slightly in the next 72 hours. On the

other hand, the mid-latitude westerly flow in the southern hemisphere is expected to maintain its wavy pattern across southern Africa through 48 to 72 hours.

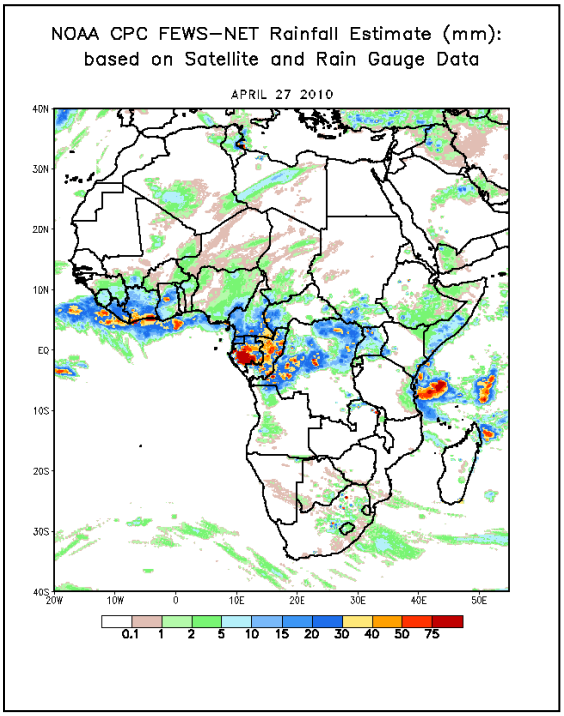
At 200mb, the persistent wavy pattern in the subtropical areas of the northern hemisphere is expected to move eastwards across western Africa through 24 to 48 hours. On the other hand, a southeast-northwest oriented trough between the Indian and Atlantic Oceans across southern parts of South Africa is expected to move eastward, while crossing southern part of South Africa through 24 to 48 hours. In the northern hemisphere, the maximum wind speed associated with this flow is expected to exceed 130 knots across northwest of Libya to Persian Gulf and central Libya to western Egypt and exceed 110 knots across central Libya to eastern part of Persian Gulf, western Egypt to Persian Gulf and eastern part of Libya to east of Egypt. Also, the maximum wind speed is expected to exceed 90 knots across central Libya to Arabian Peninsula, west coast of Africa to west Asia and southern Algeria to Arabian Peninsula. In the southern hemisphere, the maximum wind speed is expected to exceed 110 knots in the region between 15^0E to 32^0E and 5^0E to 30^0E longitude while exceed 90 knots between 0^0 to 15E and 0^0 to 35^0E 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.

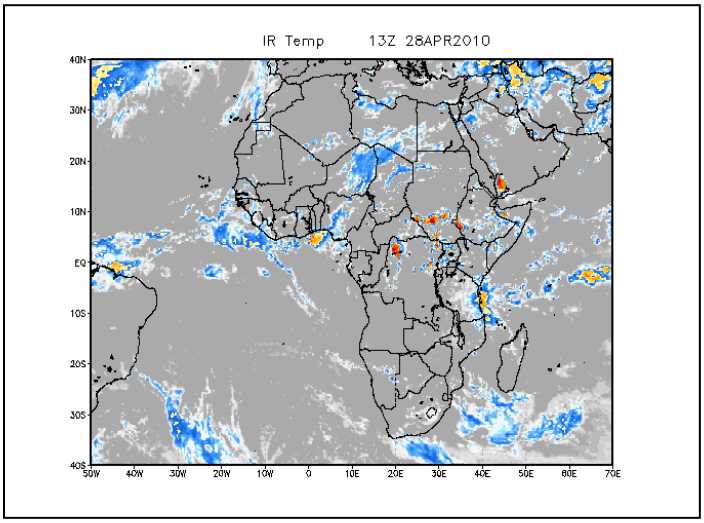
The onshore winds from the Atlantic Ocean and their associated strong convergence in the Gulf of Guinea and western parts of equatorial Africa are expected to continue enhancing rainfall in the in many places of Sierra Leone, Liberia, southern Nigeria, southern Cameroon, Congo, Gabon, Equatorial Guinea and northern half of DRC through 24 to 72 hours. Meanwhile, the moderate to heavy rainfall in many places in southern and southwestern parts of Ethiopia, northeastern Kenya and the adjacent areas of Somalia and east coast of Tanzania is expected to continue due to the abundant moisture incursion from the northern Indian Ocean and its associated lower level convergence in the Horn of Africa 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 rainfall in the region.

2.0. Previous and Current Day Weather Discussion over Africa (27 April 2010 – 28 April 2010)

2.1. Weather assessment for the previous day (27 April 2010): During the previous day, moderate to heavy rains was observed over Liberia, Ivory Coast, Ghana, Cameroon, Gabon, Congo, western part of Central African Republic, northern half of DRC and adjacent areas, Uganda, southern Sudan and southern Somalia.

2.2. Weather assessment for the current day (28 April 2010): Isolated intense clouds are observed over southern part of Sudan and adjoining areas of Central African Republic, northwest and northeast parts of DRC, southwestern, eastern and southeastern parts of Ethiopia and adjacent areas of Somalia, Uganda and eastern coastal areas of Tanzania as well as few places of Chad and southern part of Cameroon.





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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