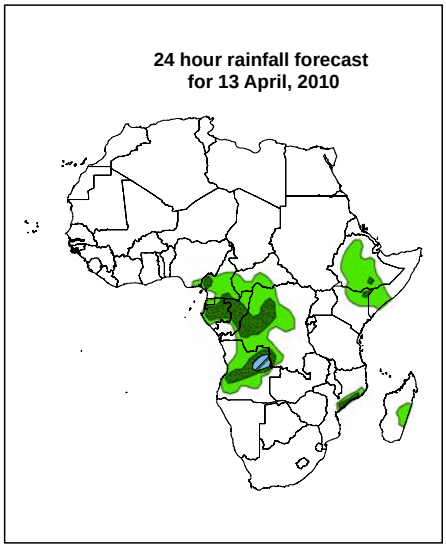
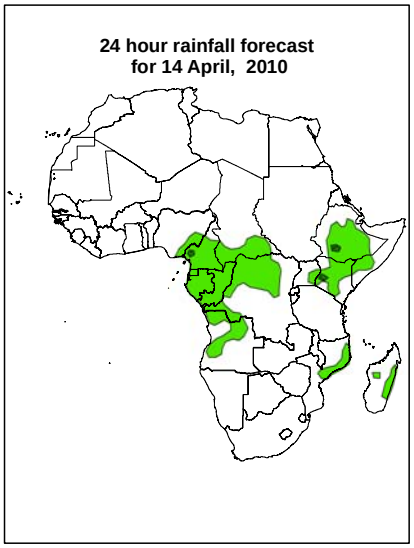
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid, 06Z of 13 April –06Z of 15 April 2010, (Issued at 14:00EST of 12 April 2010)

1.1. Twenty Four Hour Cumulative Rainfall Forecasts

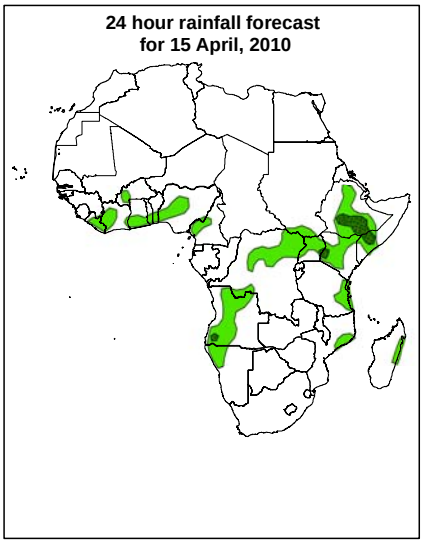
The forecasts are expressed in terms of probability of precipitation (POP) exceedence based on the NCEP, UK Met Office and the ECMWF NWP outputs, the NCEP global ensemble forecasts system (GEFS) and expert assessment.





Legend

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



Summary

Rainfall is expected to remain light over the Lake Victoria region through 24 to 72 hours due to the weakening of the seasonal convergence (CAB) in the region. With westward shift of the lower level convergence, many places in western parts of equatorial and southern Africa will continue receiving moderate to heavy rainfall through 24 to 72 hours. The onshore winds from the Indian Ocean will also increase rainfall along the coastal regions of East Africa.

1.2. Models Comparison and Discussion - Valid from 00Z of 12 April 2010

A low pressure system with central pressure value of 1003mb located over west of Algeria is expected to split in to two cells, while filling up slightly in 24 to 48 hours. Low pressure systems with central pressure values of 1003mb and 1006mb located over northwest of Libya and northeast of Niger, respectively are expected to move eastwards in 24 to 48 hours. The low over Libya is expected to weaken slightly, while shifting northwards through 48 to 72 hours. Another low pressure system located over northeastern Atlantic Ocean is expected to deepen through 24 to 48 hours. This low pressure system is expected to deepen further to about 994mb while its trough extending eastwards up to Algeria through 48 to 72 hours. On the other hand, a high pressure cell with central value of 1018mb, located over Eastern Europe, is expected to move eastwards, while extending its ridge axis to southern Egypt in 24 to 48 hours. In the southern hemisphere, a high pressure system with central pressure value of 1019mb located over southern Atlantic Ocean is expected to strengthen to a value of 1029mb while maintaining its position in 24 to 48 hours. The Mascarene high with central pressure values of 1025mb in southwestern Indian Ocean is expected to weaken slightly in 48 to 72 hours. Localized high pressure systems with central pressure values of 1021mb and 1024mb located over eastern part of Namibia and South Africa, respectively, are expected to weaken while a ridge associated with the high pressure located over South Africa is expected to extend northwards up to Angola, Zambia and Mozambique in 24 to 48 hours. The localized low pressure systems in the Gulf of Aden and the adjacent areas of Red Sea are expected to assume central pressure values of 1008mb and 1007mb, respectively with slight change through 24 to 72 hours. A localized low pressure system with central pressure values of 1010mb, located off the west coast of Angola is expected to maintain its position in 24 to 48 hours. The low pressure zones associated with the equatorial trough are expected to assume central pressure values of 1004mb over the Gulf of Guinea, 1003mb over central Africa and 1003mb over Sudan with a slight change in 24 to 72 hours.

At 850mb level, the lower level convergence in Congo Air Boundary (CAB) region is expected to remain weak through 24 to 72 hours. On the other hand, easterly to southeasterly winds from western Indian Ocean are expected to dominate the flow over much of eastern and southern Africa. As a result of this, the lower level wind convergences are mainly limited to the western coastal areas of equatorial the Horn of Africa through 24 to 72 hours. The seasonal wind convergence between the southeasterly winds of the southern hemisphere and northeasterly winds of the northern hemisphere is expected to maintain its position along 10^{o}N latitude between coastal West Africa and Sudan through 24 to 72 hours.

At 500mb level, despite wavy along northeastern Africa the flow over the subtropical areas of northern Africa is expected to remain more or less zonal, while the flow over the subtropical regions in the southern hemisphere is expected to remain wavy with a westerly trough propagating across South Africa through 24 to 48 hours.

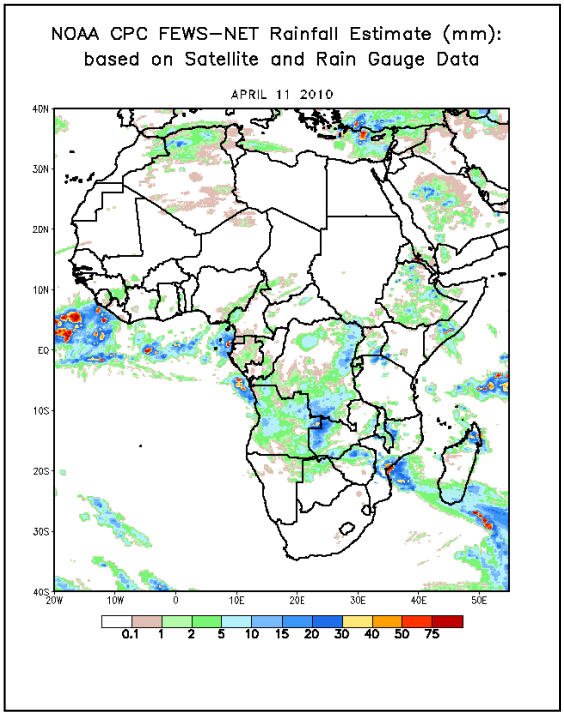
At 200mb, zonal westerlies are expected to dominate the flow in northern Africa regions in 24 to 48 hours, while the flow is expected to be slightly wavy over parts of East Africa in 48 to 72 hours. In the southeastern hemisphere, an eastward propagating wave, with the ridge axis crossing southern Africa is expected to dominate the flow through 24 to 48 hours, while the wave pattern is expected to weaken in 72 hours. In the northern hemisphere, the maximum wind speed associated with this flow is expected to exceed 130 knots across southern Tunisia to central Libya and exceed 110 knots across northern Atlantic Ocean to west of Egypt, while exceed 90 knots across northeast of Atlantic Ocean to western part of Egypt through 24 to 72 hours.

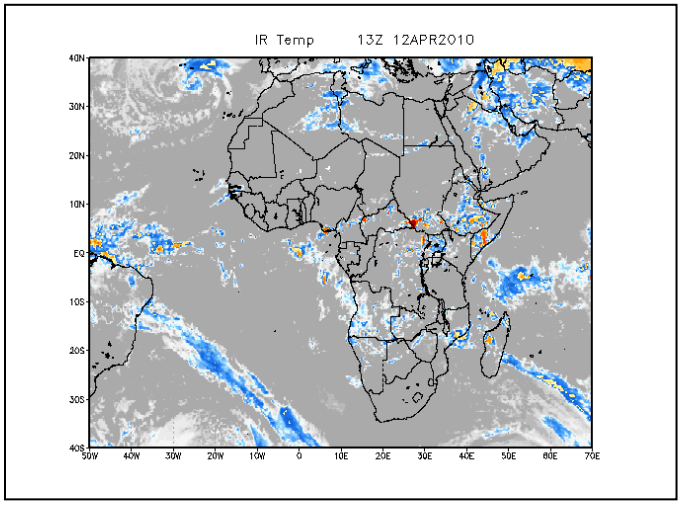
Rainfall is expected to remain light over the Lake Victoria region through 24 to 72 hours due to the weakening of the seasonal convergence (CAB) in the region. With westward shift of the lower level convergence, many places in western parts of equatorial and southern Africa will continue receiving moderate to heavy rainfall through 24 to 72 hours. The onshore winds from the Indian Ocean will also increase rainfall along the coastal regions of East Africa.

2.0. Previous and Current Day Weather Discussion over Africa (11 April 2010 – 12 April 2010)

2.1. Weather assessment for the previous day (11 April 2010): During the previous day, moderate to heavy rainfall events were observed over parts of western Zambia and adjacent areas of DRC, few places of northern Zimbabwe, southern Somalia and northern tip of Madagascar. Otherwise, most parts of eastern, central and southern Africa regions received light rainfall.

2.2. Weather assessment for the current day (12 April 2010): isolated patches of intense clouds are observed over southern Sudan, southern, central and eastern half of Ethiopia, southern Somalia, Uganda, eastern coastal areas of Madagascar and few places of northeastern DRC and eastern Mozambique as well as border areas of Central African Republic.





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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