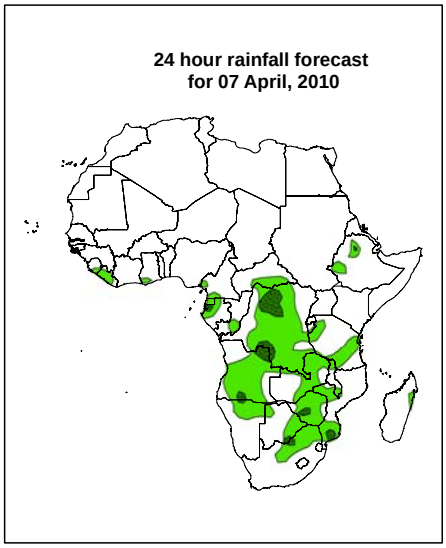
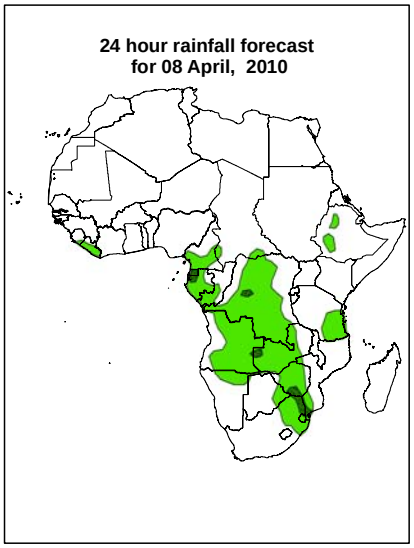
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid, 06Z of 07 April –06Z of 09 April 2010, (Issued at 14:00EST of 06 April 2010)

1.1. Twenty Four Hour Cumulative Rainfall Forecasts

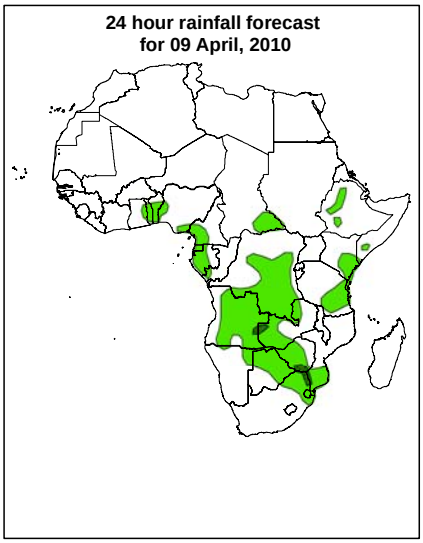
The forecasts are expressed in terms of probability of precipitation (POP) exceedence based on the NCEP, UK Met Office and the ECMWF NWP outputs, the NCEP global ensemble forecasts system (GEFS) and expert assessment.





Legend

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



Summary

In the coming three days, 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. The passage of a mid-latitude frontal system across South Africa is also expected to maintain the moderate to heavy rainfall over southeast Africa region. On the other hand, the onshore winds from the Atlantic Ocean are expected to maintain light to moderate rainfall over Gabon, southern Cameroon, Equatorial Guinea, southern Angola and northern Namibia.

1.2. Models Comparison and Discussion - Valid from 00Z of 06 April 2010

A high pressure system, with central pressure values of 1021mb, located over Azores is expected to persist in 24 hours. Another high pressure system with central pressure value of 1022mb located over central Mediterranean Sea is expected to persist through 24 to 72 hours, while extending its ridge up to Sudan and Mali. In the southern hemisphere a localized high pressure cell located over southeast of South Africa with central pressure value of 1018mb is expected to persist in 48 to 72 hours. On the other hand, the localized low pressure systems in Gulf of Aden region and the adjacent areas of Res Sea are expected to assume central pressure values of 1009mb and 1004mb, 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 persist 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 1003mb over southern Sudan through 24 to 72 hours.

At 850mb level, the dry northeasterly to easterly flow from the Saharan anticyclone is expected to continue dominating the flow over much of the northern African regions, while the anticyclone is expected to move slightly to the east 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 through 72 hours.

At 500mb level, an axis of a mid latitude trough is expected to move from 20^0E to 35^0E longitude across northeast Africa. On the other hand, the mid latitude trough over southern Africa is expected to move towards southwest Indian Ocean while filling up in 24 to 72 hours.

At 200mb, a stationary wave pattern is expected to dominate the flow over northern Africa, with trough axes extending southward along 5^oW longitude in northwest Africa and along 55^oE in the Middle East region through 24 to 72 hours. Similar wavy pattern is expected to develop in the subtropical regions of the southern hemisphere through 24 to 72 hours. In the northern hemisphere, the maximum wind speed associated with this flow is expected to exceed 110 knots across central Libya to Arabian Peninsula, while exceed 90 knots across southern Algeria to Arabian Peninsula and northeast of Niger to Arabian Peninsula through 24 to 72 hours.

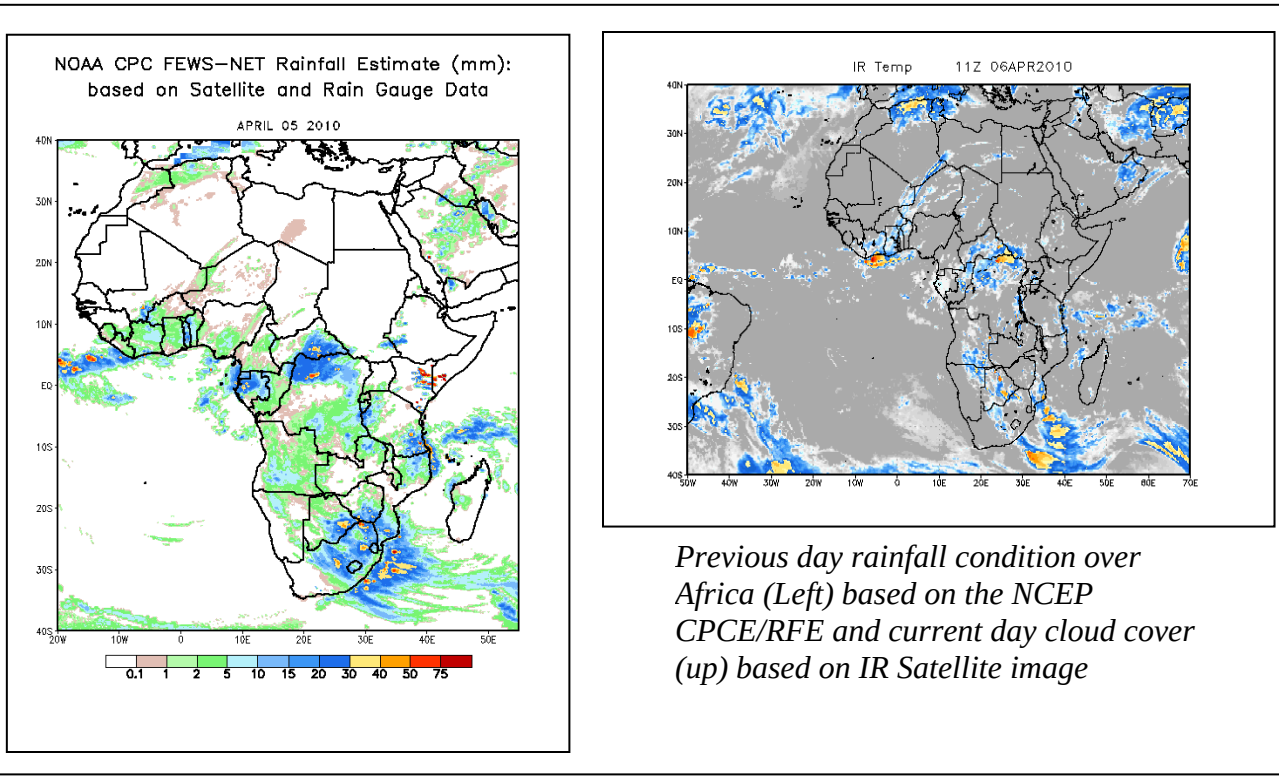
In the coming three days, the lower level convergence in the Congo Air Boundary region is expected to maintain the moderate to heavy rainfall in DRC and its adjacent areas. The passage of a mid-latitude frontal system across South Africa is also expected to maintain the moderate to heavy rainfall over southeast Africa region. On the other hand,

the onshore winds from the Atlantic Ocean are expected to maintain light to moderate rainfall over Gabon, southern Cameroon, Equatorial Guinea, southern Angola and northern Namibia.

2.0. Previous and Current Day Weather Discussion over Africa (05 April 2010 – 06 April 2010)

2.1. Weather assessment for the previous day (05 April 2010): During the previous day, moderate to heavy rainfall events were observed over Equatorial Guinea, part of Gabon, southeastern part of Cameroon, northwestern part of DRC, southeastern Tanzania, eastern Kenya and adjacent areas of Somalia, southeastern part of Botswana as well as central and eastern parts of South Africa.

2.2. Weather assessment for the current day (06 April 2010): isolated patches of intense clouds are observed over Central African Republic, northern half of DRC, southeastern part of Angola and adjacent areas of Namibia, Botswana and southern part of Mozambique.



Previous day rainfall condition over Africa (Left) based on the NCEP CPCE/RFE and current day cloud cover (up) based on IR Satellite image

Author(s): *Solomon Yohannes (National Meteorological Agency of Ethiopia / CPC-African Desk)*
