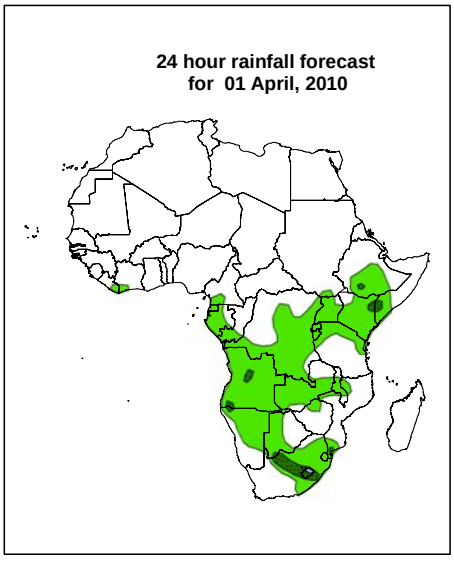
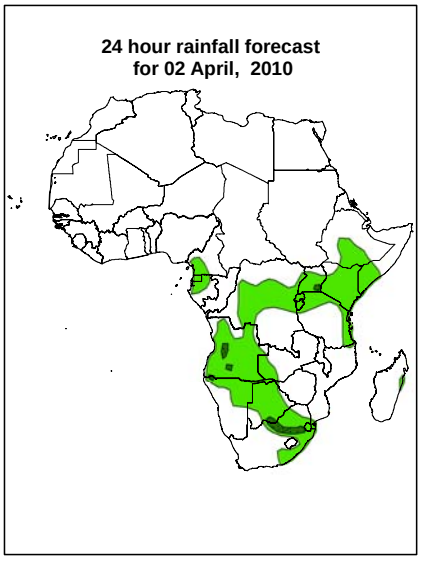
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid, 06Z of 01 April –06Z of 03 April 2010, (Issued at 14:00EST of 31 March 2010)

1.1. Twenty Four Hour Cumulative Rainfall Forecasts

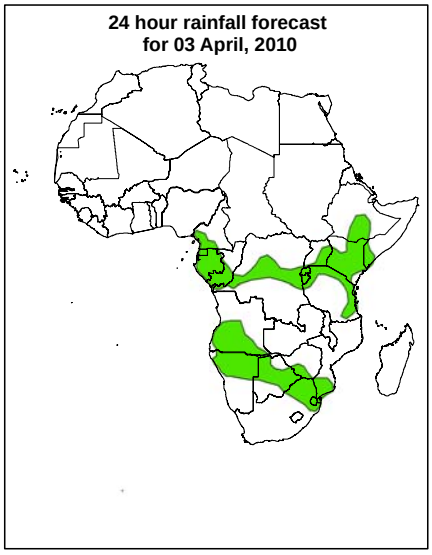
The forecasts are expressed in terms of probability of precipitation (POP) exceedence based on the NCEP, UK Met Office and the ECMWF NWP outputs, the NCEP global ensemble forecasts system (GEFS) and expert assessment.





Legend

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



Summary

The 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 Angola, South Africa and Lesotho as well as areas between Kenya and Somalia. The lower level convergence near the Lake Victoria region will also maintain the light to moderate rainfall over southern half and central parts of DRC, southwestern and southern Ethiopia, northern Namibia, most parts of Angola, northern and eastern parts of Tanzania, parts of Kenya and Uganda. On the other hand, the onshore winds from the Atlantic Ocean are expected to maintain moderate to heavy rainfall over Gabon, Equatorial Guinea and coastal areas of Cameroon. The passage of mid latitude frontal system across South Africa is expected to increase rainfall over Botswana and adjacent areas of Zimbabwe, Swaziland and parts of South Africa.

1.2. Models Comparison and Discussion - Valid from 00Z of 31 March 2010

High pressure systems, with central pressure values of 1018mb located over west of Mediterranean Sea is expected to move eastwards while slightly deepening in 24 to 48 hours. This high pressure cell is expected to move further eastwards while deepening further in 48 to 72 hours. Another high pressure cell with central pressure value of 1021mb located over north of Red Sea is expected to move slightly eastwards while weakening in 24 to 48 hours. In the southern hemisphere localized high pressure cell with central pressure value of 1020mb located over southeast of South Africa is expected to persist through 24 to 72 hours, while its associated ridge extending up to Zimbabwe in 24 to 48 hours. A high pressure system with central pressure value of 1023mb over southern Atlantic Ocean is expected to move eastwards, while slightly weakening in 24 to 48 hours. Another high pressure cell with central pressure value of 1019mb located over Madagascar is expected to persist, while slightly strengthening in 24 to 48 hours. On the other hand, low pressure systems with central pressure values of 1010mb and 1011mb are expected to persist over the Red Sea and Gulf of Aden, respectively, 24 to 72 hours. A low pressure system with central pressure value of 1009mb, located off the coast of Angola, is expected to maintain its position and central value in 24 to 48 hours, while slightly moving towards south in 72 hours. The low pressure zones associated with the equatorial trough are expected to deepen slightly from 1007mb to 1004mb over Gulf of Guinea, from 1006mb to 1003mb over central Africa and 1005mb to 1003mb over southern Sudan through 24 to 72 hours.

At 850mb level, a back hanged westerly trough over northwest Africa is expected to move eastwards while deepening in 24 to 48 hours. This trough is expected to move further eastwards, while slightly retreating northwards in 72 hours. On the other hand, the Saharan anticyclone is expected to dominate the flow over northern African regions, while expanding towards the Arabian Peninsula across Red Sea through 24 to 72 hours. The moist easterly to southeasterly winds from the Indian Ocean and their associated convergence are expected to maintain the light to moderate rainfall activity over parts of East African countries through 24 to 72 hours. On the other hand, a mid-latitude frontal system is expected to align itself with the 20^0E longitude near 35^0S latitude, in the vicinity of the southern tip of Africa through 48 to 72 hours. The convergence in the CAB region is expected to remain weak 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 weaken slightly through 48 to 72 hours.

At 500mb level, a weak mid-latitude trough near the 35^0E longitude and 20^0N latitude is expected to move eastwards in 24 to 48 hours, while weakening further in 72 hours. On the other hand, the mid latitude flow over the southern hemisphere is expected to remain zonal through 24 to 72 hours.

At 200mb, the flows over the subtropical regions of northern Africa are expected to remain zonal across the northern Africa region through 24 to 72 hours. On the other

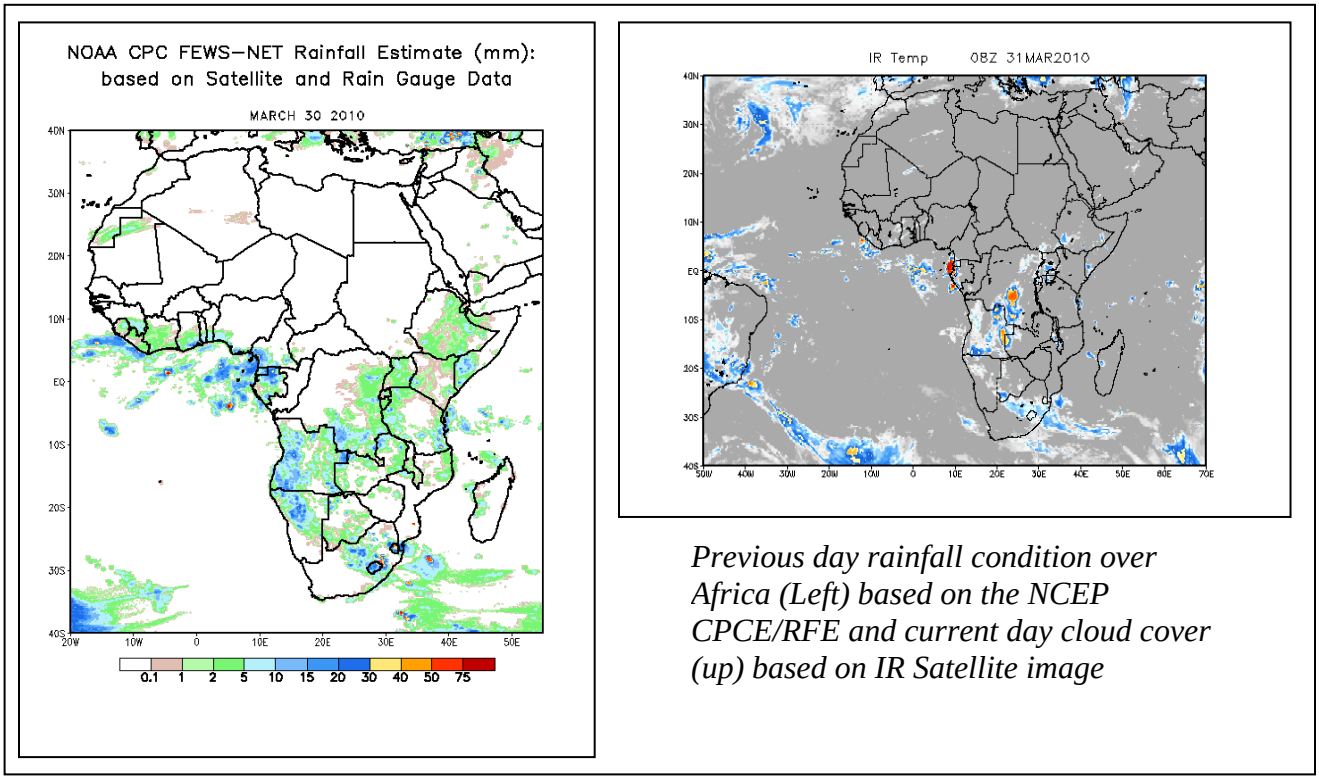
hand a wavy pattern in the westerly flow is to weaken gradually over the subtropical regions of the southern hemisphere in 24 to 72 hours. In the northern hemisphere, the maximum wind speed associated with this flow is expected to exceed 90 knots across central Red Sea to west of Asia through 24 to 72 hours. In the southern hemisphere, the maximum wind speed is expected to exceed 110 knots across southwest Indian Ocean to southern Indian Ocean, while the wind speed exceed 90 knots across central South Africa to southern Indian Ocean in 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 Angola, South Africa and Lesotho as well as areas between Kenya and Somalia. The lower level convergence near the Lake Victoria region will also maintain the light to moderate rainfall over southern half and central parts of DRC, southwestern and southern Ethiopia, northern Namibia, most parts of Angola, northern and eastern parts of Tanzania, parts of Kenya and Uganda. On the other hand, the onshore winds from the Atlantic Ocean are expected to maintain moderate to heavy rainfall over Gabon, Equatorial Guinea and coastal areas of Cameroon. The passage of mid latitude frontal system across South Africa is expected to increase rainfall over Botswana and adjacent areas of Zimbabwe, Swaziland and parts of South Africa.

2.0. Previous and Current Day Weather Discussion over Africa (30-31 March 2010)

2.1. Weather assessment for the previous day (30 March 2010): During the previous day, moderate to heavy rainfall events were observed over few places of Equatorial Guinea, Gabon, coastal areas of Cameroon, Angola and adjacent areas of Zambia and DRC, Namibia, South Africa, Lesotho, Swaziland and southern Somalia.

2.2. Weather assessment for the current day (31 March 2010): isolated patches of intense clouds are observed over Equatorial Guinea, central DRC, southern Uganda, southwestern Ethiopia, central part of South Africa and Lesotho.



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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