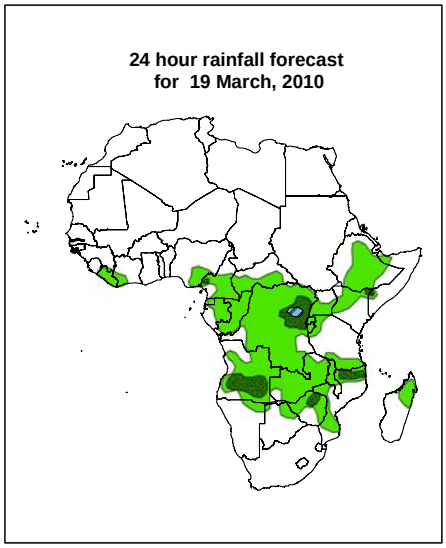
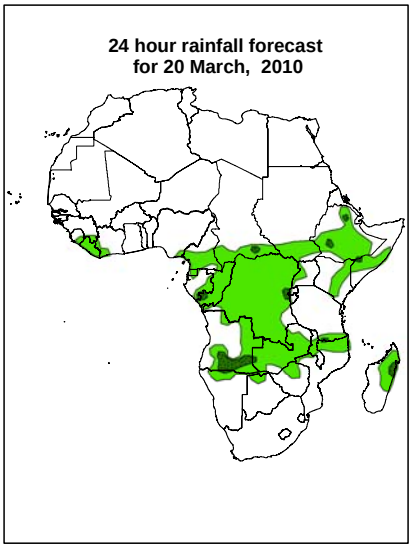
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid, 06Z of 19 March –06Z of 21 March 2010, (Issued at 14:00EST of 18 March 2010)

1.1. Twenty Four Hour Cumulative Rainfall Forecasts

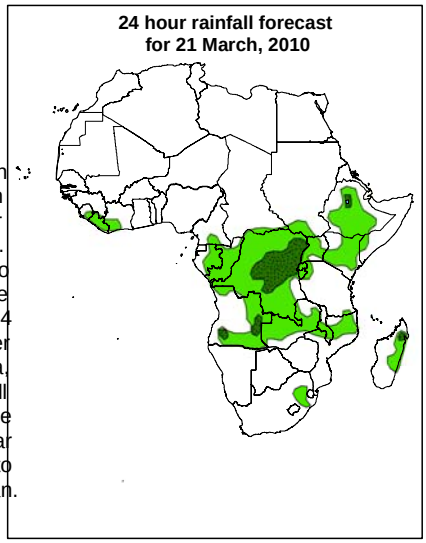
The forecasts are expressed in terms of probability of precipitation (POP) exceedence based on the NCEP, UK Met Office and the ECMWF NWP outputs, the NCEP global ensemble forecasts system (GEFS) and expert assessment.





Legend

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



Summary

The persistent moist easterly flow from the Arabian Sea and the adjacent areas of northern Indian Ocean is expected to increase rainfall to over 10mm per day over parts of the Horn of Africa. The active lower level convergence over the Congo Air Boundary (CAB) region is expected to continue maintaining moderate rainfall in the region through 24 to 72 hours. On the other hand, the persistent lower level convergence over parts of the Gulf of Guinea, western parts of southern and equatorial Africa will maintain the light to moderate rainfall in coming three days. Parts of northern Mozambique and Madagascar will continue receiving light to moderate rainfall due to the persistent onshore winds from the Indian Ocean.

1.2. Models Comparison and Discussion - Valid from 00Z of 18 March 2010

The northern hemisphere subtropical high pressure system with a central pressure value of 1035mb is expected to move slightly to east through 24 to 72 hours. The ridge associated with this high pressure system is expected to extend up to the Sahel region in 24 to 72 hours. In the southern hemisphere, a ridge that extends from the Mascarene high pressure system towards southern Mozambique across southeast of South Africa is expected to weaken slightly through 48 to 72 hours. On the other hand, low pressure systems are expected to develop over Gulf of Aden and Red Sea and maintain their position through 24 to 72 hours. Besides, a low pressure system off the west coast of Madagascar, with central pressure value of 1012mb is expected to persist through 24 to 72 hours, while slightly deepening through 48 to 72. More over, low pressure system located over southwestern parts of Africa, with central pressure value of 1012mb is expected to persist with slightly filling up between 48 to 72 hours. The low pressure zones associated with the equatorial trough are expected to maintain central pressure values of 1009mb over Gulf of Guinea and central Africa in 48 to 72 while 1007mb over southern Sudan, while slightly deepening through 48 to 72 hours.

At 850mb level, the dry northeasterly winds associated with Saharan anticyclone are expected to dominate the flow over much of northern Africa through 24 to 72 hours. On the other hand, the easterly winds from the periphery of the Arabian anticyclone are expected to maintain moisture incursion towards East Africa through 24 to 72 hours. The seasonal wind convergence over the Congo Air Boundary (CAB) region is expected to remain active through 24 to 72 hours. On the other hand, lower tropospheric convergence zones over parts of the Gulf of Guinea countries and western parts of equatorial and southern Africa are expected to maintain light to moderate rainfall in the regions.

At 500mb level, a trough in the mid-latitude westerly flow near 20^{o}E Longitude is expected to deepen while maintaining its position through 24 to 48 hours and becoming back hanged through 48 to 72 hours. On the other hand, the persistent westerly trough in the vicinity of Mozambique Channel is expected to weaken gradually through 48 to 72 hours and its associated winds are expected to assume zonal flow.

At 200mb, the persistent wavy pattern in the sub-tropical regions of both hemispheres is expected to weaken gradually as a result of which winds tend to assume a zonal flow through 48 to 72 hours. The maximum wind speed associated with this flow is expected to exceed 130 knots in the region between eastern Libya and western Egypt to Persian Gulf, while the maximum wind values are expected to exceed 110 knots across southeastern Algeria, southern Libya and southern Egypt through 24 to 72 hours.

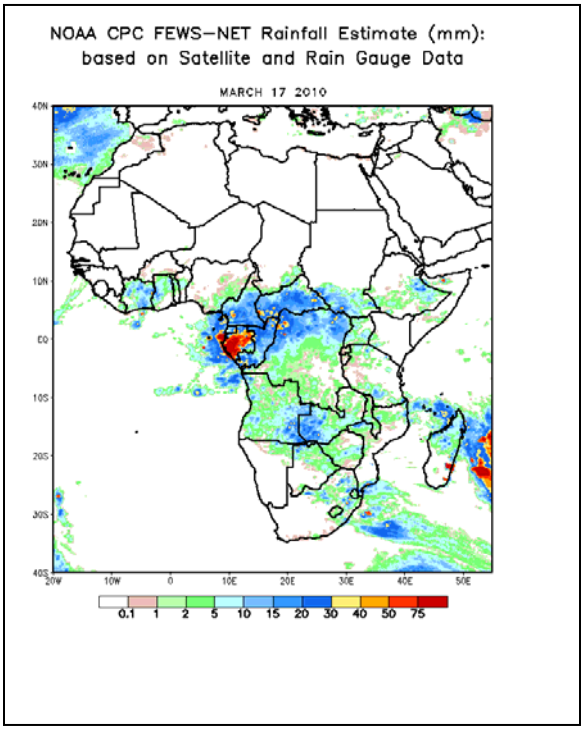
The persistent moist easterly flow from the Arabian Sea and the adjacent areas of northern Indian Ocean is expected to increase rainfall to over 10mm per day over parts of the Horn of Africa. The active lower level convergence over the Congo Air Boundary

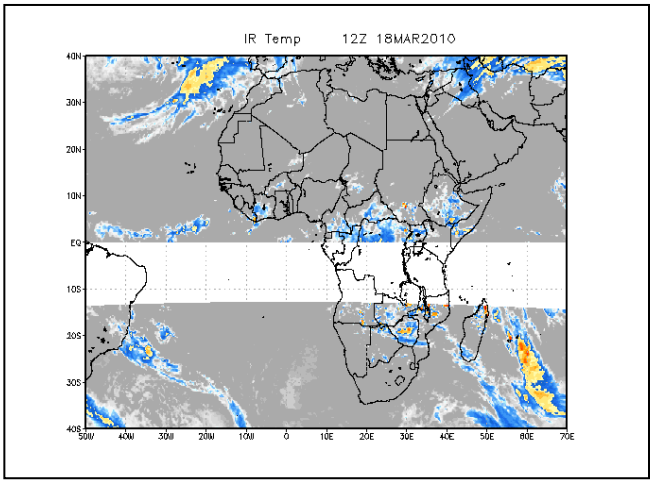
(CAB) region is expected to continue maintaining moderate rainfall in the region through 24 to 72 hours. On the other hand, the persistent lower level convergence over parts of the Gulf of Guinea, western parts of southern and equatorial Africa will maintain the light to moderate rainfall in coming three days. Parts of northern Mozambique and Madagascar will continue receiving light to moderate rainfall due to the persistent onshore winds from the Indian Ocean.

2.0. Previous and Current Day Weather Discussion over Africa (17-18 March 2010)

2.1. Weather assessment for the previous day (17 March 2010): During the previous day, moderate to heavy rainfall events were observed over much of Gabon, and some places of Ivory Coast, Cameroon, Congo, Central African Republic, northern parts of DRC and adjacent areas of southern Sudan, east and southwest Zambia and adjoining areas as well as few places of eastern part of Ethiopia.

2.2. Weather assessment for the current day (18 March 2010): isolated patches of intense clouds are observed over Central African Republic, DRC, eastern Ethiopia, Zimbabwe, western half of Zambia, Gabon, Cameroon, Congo, Angola and southern and northern extremes of Madagascar.





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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