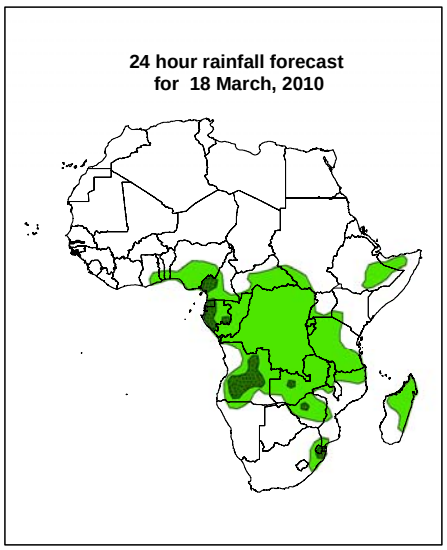
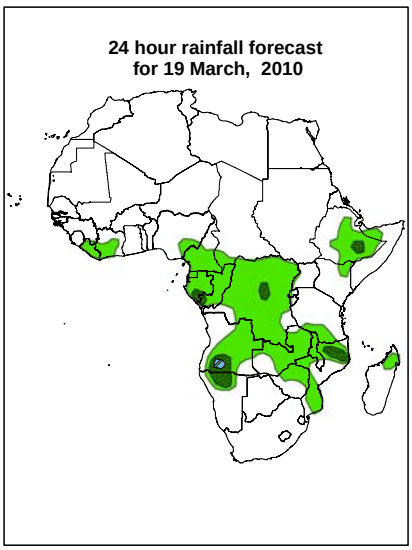
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid, 06Z of 18 March –06Z of 20 March 2010, (Issued at 14:00EST of 17 March 2010)

1.1. Twenty Four Hour Cumulative Rainfall Forecasts

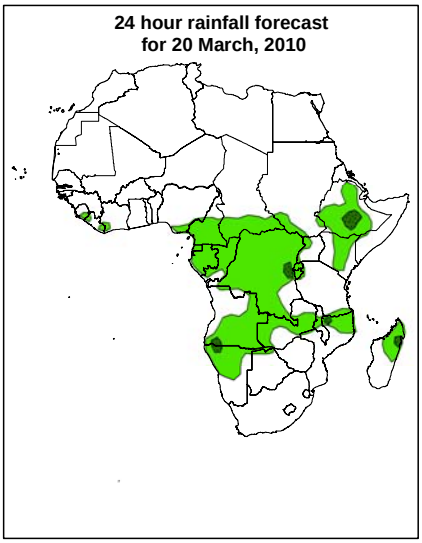
The forecasts are expressed in terms of probability of precipitation (POP) exceedence based on the NCEP, UK Met Office and the ECMWF NWP outputs, the NCEP global ensemble forecasts system (GEFS) and expert assessment.





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, with maximum rainfall event expected to occur over southeast Ethiopia. The active lower level convergence over the Congo Air Boundary (CAB) region is expected to continue maintaining light to moderate rainfall in the region through 24 to 72 hours. The interaction between mid-latitude and tropical systems is also expected to maintain moderate rainfall activity over Madagascar and parts of Mozambique through 24 to 72 hours. On the other hand, the persistent lower level convergence over western parts of southern and equatorial Africa will maintain the light to moderate rainfall in the regions. Especially, the daily rainfall amount is expected to exceed 20mm over parts of the Gulf of Guinea countries, parts of Angola and pocket areas of Zambia through 24 to 72 hours.

1.2. Models Comparison and Discussion - Valid from 00Z of 17 March 2010

The northern hemisphere sub tropical high pressure system with a central pressure value of 1036mb 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 Mauritania and Sudan in 24 to 72 hours. In the southern hemisphere, a ridge that extends from the St. Helena high pressure system towards central and southern Mozambique across South Africa, Botswana and Zimbabwe is expected to weaken slightly through 24 to 72 hours. On the other hand, a low pressure system with central pressure value of 1011mb is expected to maintain its position over southwest Africa through 24 to 72 hours. Another low pressure system west of the coast of Madagascar, with central pressure value of 1011mb is expected to persist through 24 to 72 hours, while slight filling up through 24 to 48 and then attaining its intensity through 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 while slightly filling up over central Africa and southern Sudan through 24 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. Moreover, the deep mid-latitude trough extending towards the Mozambique Channel is expected to enhance interaction between the mid-latitude and tropical systems across parts of southeast Africa.

At 500mb level, a trough in the mid-latitude westerly flow is expected to move from about 20^{o}E to about 30^{o}E longitudes while deepening and extending southwards up to 10^{o}N latitudes through 24 to 72hours. On the other hand, the persistent trough in the vicinity of the Mozambique Channel is expected to weaken gradually through 24 to 72 hours and the associated winds are expected to assume zonal flow through 48 to 72hours.

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

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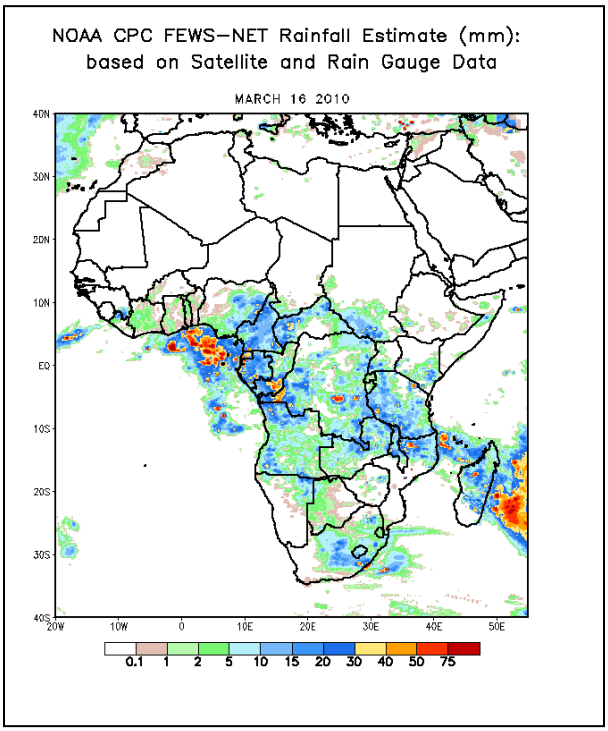
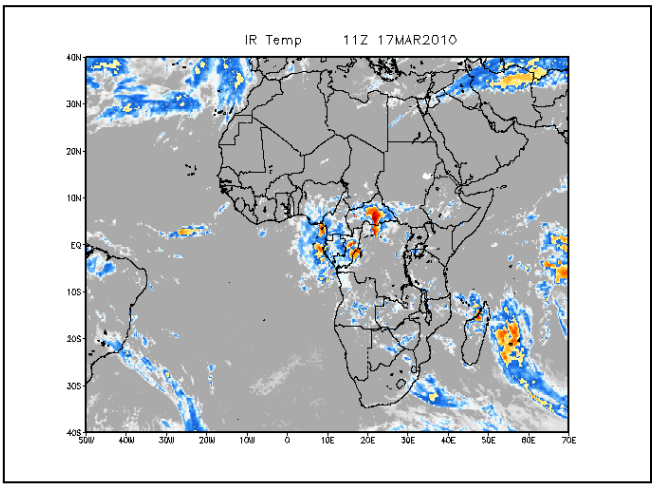
2.0. Previous and Current Day Weather Discussion over Africa (16-17 March 2010)

2.1. Weather assessment for the previous day (16 March 2010): During the previous day, moderate to heavy rainfall events were observed over most places of Equatorial Guinea, Togo, Gabon and Congo, some places of Central African Republic, DRC, Tanzania, Angola, Zambia, South Africa, northern Mozambique, southern Sudan and Malawi.

2.2. Weather assessment for the current day (17 March 2010): isolated patches of intense clouds are observed over Central African Republic, Gabon, Congo and northern Madagascar as well as some places of Angola and Botswana.





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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