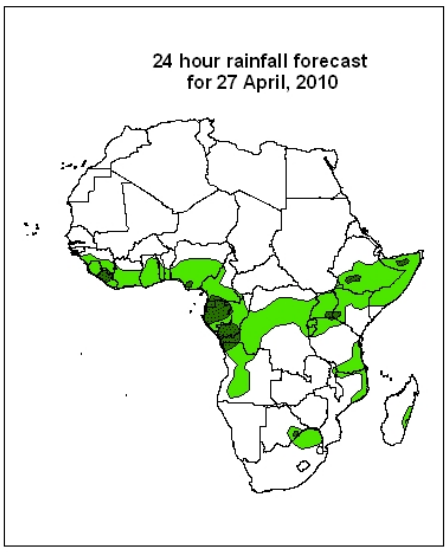
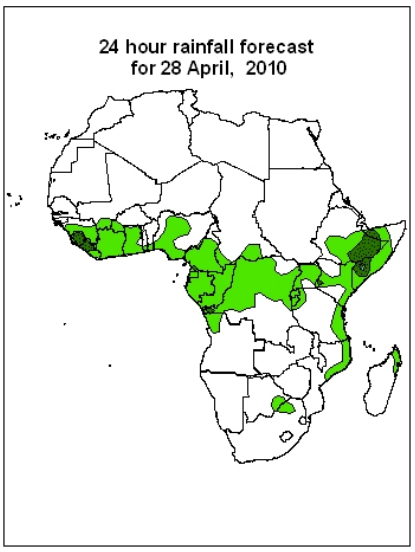
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid, 06Z of 27 April –06Z of 29 April 2010, (Issued at 14:00EST of 26 April 2010)

1.1. Twenty Four Hour Cumulative Rainfall Forecasts

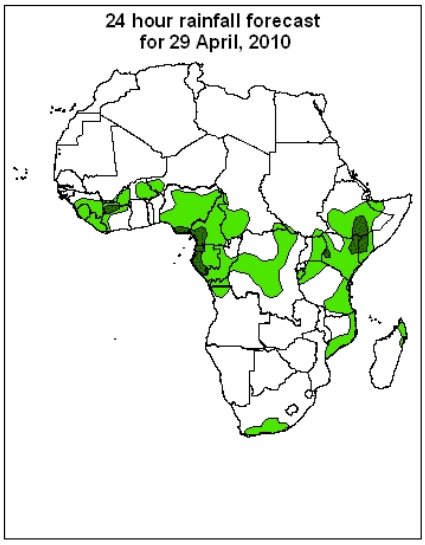
The forecasts are expressed in terms of probability of precipitation (POP) exceedence based on the NCEP, UK Met Office and the ECMWF NWP outputs, the NCEP global ensemble forecasts system (GEFS) and expert assessment.





Legend

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



Summary

The onshore winds from the Atlantic Ocean and their associated strong convergence in western parts of equatorial Africa are expected to continue increasing daily rainfall to 10mm and above in many place of Sera Leone, Liberia, Gabon and Equatorial Guinea through 24 to 72 hours. Meanwhile, the abundant moisture from northern Indian Ocean and the persistence lower level convergence in the Horn of Africa is expected to continue enhancing rainfall in the region. Hence, many places in southern half of Ethiopia and the adjacent areas of Somalia and northern Kenya are expected to receive moderate to heavy rainfall through 24 to 72 hours. The active lower level convergence in the Congo Air Boundary (CAB) region is also expected to maintain the light to moderate in the region. Besides, coastal areas of southern part of South Africa and eastern Madagascar are highly likely to get moderate to heavy rainfall in 24 to 72 hours.

1.2. Models Comparison and Discussion - Valid from 00Z of 26 April 2010

Localized low pressure systems, with central pressure values of 1006mb and 1009mb located in the Red Sea and Gulf of Aden respectively are is expected to maintain their position with slight change in central pressure value through 24 to 72 hours. On the other hand, high pressure systems with central pressure values of 1025mb and 1024mb located over coast of northwest Africa and northern Algeria are expected to develop in 24 hours while replace by ridge in the next to 48 hours onwards. The ridge extended from these high pressures is expected to reach up to Libya. A high pressure with central pressure value of 1022mb located over central part of South Africa is expected to strengthen while maintaining its position through 24 to 72 hours. The Mascarene high pressure system with central pressure value of 1029 located over southern Indian Ocean is expected to move slightly eastwards in 24 to 48 hours. Another high pressure system with central pressure value of 1022mb is expected to persist with slight change in pressure value in 48 to 72 hours. A low pressure system with central pressure value of 1010mb located off the coast of Somalia is expected to maintain its position through 24 to 72 hours. A localized low pressure system with central pressure value of 1009mb located over northwest of DRC is expected maintain its position through 24 to 72 hours. Low pressure with central pressure value of 1010mb located along the coast of Gabon is expected to maintain its position through 24 to 72 hours. The equatorial trough is expected to maintain its position with central pressure values of 1005mb each located over Guinea, Central Africa and southern Sudan with slight change through 24 to 72 hours. Another localized low pressure with central pressure value of 1005mb located over western part of Sudan is expected to deepen while maintaining its position through 24 to 72 hours.

At 850mb level, a mid-latitude frontal system is expected to move from central to eastern Mediterranean Sea through 24 to 48 hours. This trough is expected to move further east up to Arabian Peninsula in 72 hours. Despite being not well organized the Saharan anticyclone is expected to build up over northern Africa through 48 to 72 hours. The southeasterly winds from the periphery of the anticyclone in the Indian Ocean are expected to continue carrying moisture towards a strong lower level convergence in East Africa through 24 to 72 hours. Mid latitude frontal system located near 15^0E longitude is expected to weaken in 24 hours, while shifting eastwards in the next 48 hours.

At 500mb level, consistent with the lower tropospheric flow, a back hanged mid tropospheric westerly trough located near 20^0W is expected to extend its axis towards coast of western Africa in 24 to 48 hours, while slightly retreat back westwards by the localized high pressure system developed between 10^0W and 0^0 longitudes in 72 hours. On the other hand, a westerly wind flows in the southern hemisphere are expected to approach the coast of southern Africa in 48 to 72 hours, enhancing wet weather activity across the South Africa coastal area through 24 to 72 hours.

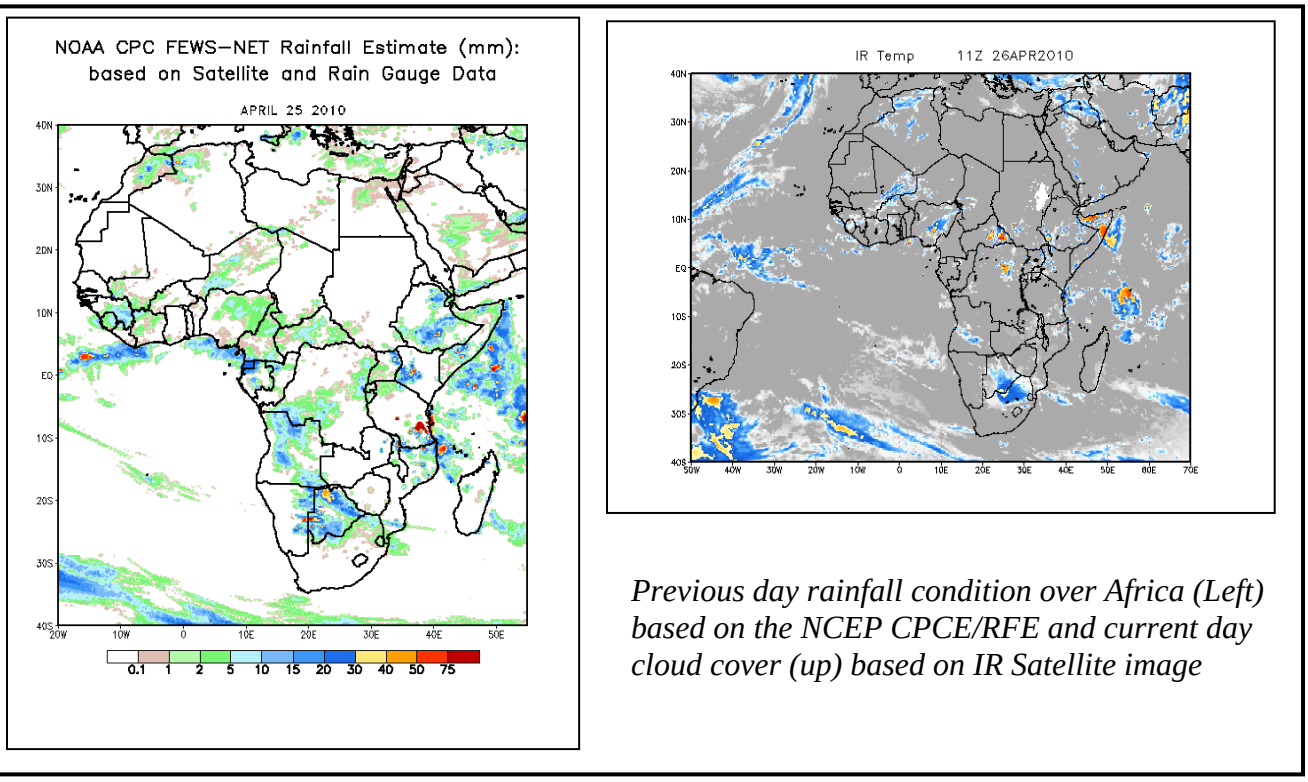
At 200mb, the persistent wavy pattern in the subtropical areas of the northern hemisphere is expected to continue across the western Africa regions through 24 to 72 hours. As a result of this, the influence of the mid-latitude westerly troughs is expected to be limited in the areas north of Eritrea. On the other hand, a southeast-northwest oriented trough between the Indian and Atlantic Oceans across southern parts of South Africa is expected to continue dominating the flow in the region through 24 to 48 hours, while system is tending to weaken through 48 to 72hours. In the northern hemisphere, the maximum wind speed associated with this flow is expected to exceed 110 knots across west of Libya to west of Egypt and central part of Libya to Red Sea, while exceed 90 knots across west of Libya to east of Egypt and Arabian Peninsula. The speed of the jet wind is expected to weaken in 48 to 72 hours in association with an east ward propagating the westerly wave.

The onshore winds from the Atlantic Ocean and their associated strong convergence in western parts of equatorial Africa are expected to continue increasing daily rainfall to 10mm and above in many place of Sera Leone, Liberia, Gabon and Equatorial Guinea through 24 to 72 hours. Meanwhile, the abundant moisture from northern Indian Ocean and the persistence lower level convergence in the Horn of Africa is expected to continue enhancing rainfall in the region. Hence, many places in southern half of Ethiopia and the adjacent areas of Somalia and northern Kenya are expected to receive moderate to heavy rainfall through 24 to 72 hours. The active lower level convergence in the Congo Air Boundary (CAB) region is also expected to maintain the light to moderate in the region. Besides, coastal areas of southern part of South Africa and eastern Madagascar are highly likely to get moderate to heavy rainfall in 24 to 72 hours.

2.0. Previous and Current Day Weather Discussion over Africa (25 April 2010 – 26 April 2010)

2.1. Weather assessment for the previous day (25 April 2010): During the previous day, moderate to heavy rains was observed over Equatorial Guinea, central and northern parts of Angola, Botswana and adjacent areas, eastern part of Namibia, northern part of Mozambique, southern Tanzania, and southwestern part of Kenya, northeastern Uganda and southern, eastern and northeastern Ethiopia.

2.2. Weather assessment for the current day (26 April 2010): Isolated intense clouds are observed over southeastern Nigeria, eastern half of Central African Republic, northeastern DRC, and southwestern Angola, Botswana and northern part of South Africa as well as eastern and northern Somalia and few places of southern half of Ethiopia.



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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