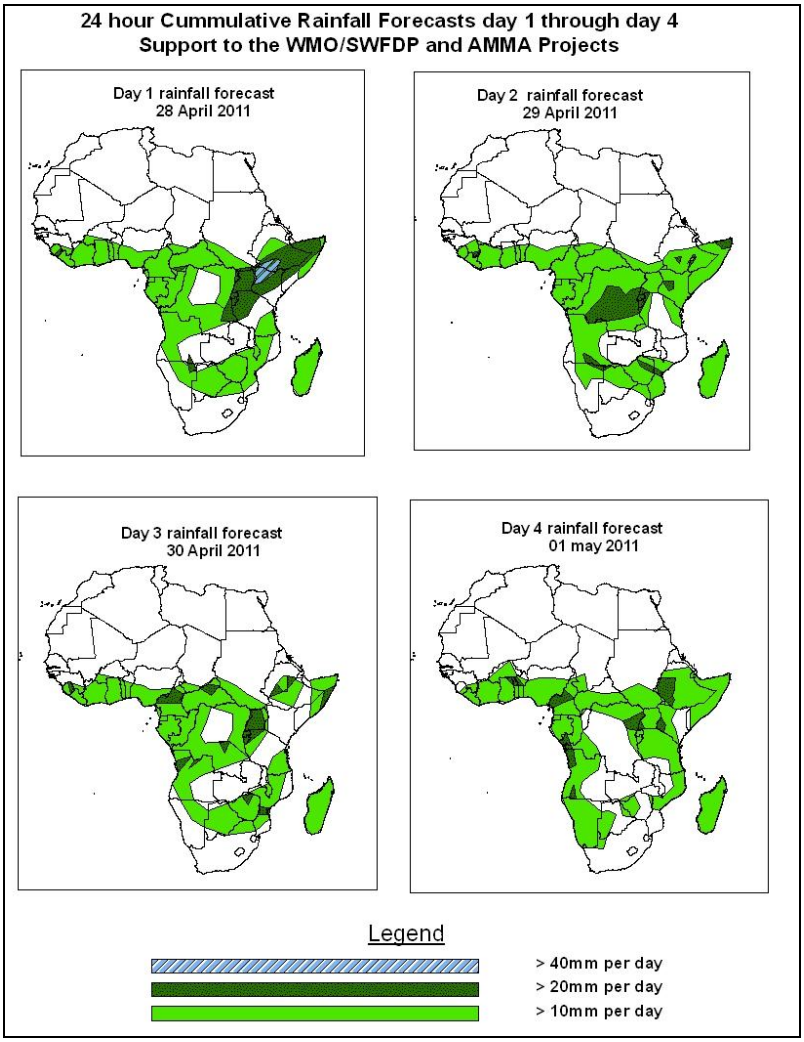
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 28 April – 06Z of 01 May 2011, (Issued at 11:10Z of 27 April 2011)

1.1. Twenty Four Hour Cumulative Rainfall Forecasts

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



Summary

In the next four days, the seasonal lower tropospheric convergence in the Congo Air Boundary Region, moist flow from the Indian Ocean and its associated convergence across the Horn of Africa region as well as the localized convergences across western equatorial region and the westward propagating storms between central African region and the Gulf of Guinea coast are expected to enhance rainfall in their respective areas. In general, there is an increased chance for moderate to heavy rainfall over parts of the Great Horn of Africa, the Lake Victoria region and western parts of equatorial Africa.

1.2. Models Comparison and Discussion-Valid from 00Z of 27 April 2011

According the GFS, ECMWF and UKMET models, the ridge associated with the St Helena high pressure system is expected to remain strong through 24 to 48 hours, while extending northwards up to the coastal areas of Cote d'Ivoire and Ghana. However the ridge is expected to retreat back to the Atlantic Ocean through 72 to 96 hours. On the other hand, the East African ridge, associated with the Mascarene high pressure system is expected to remain strong across southeast and East Africa during the forecast period,. The Saharan high is expected to shift eastwards between Algeria and eastern Libya, while weakening during the forecast period.

The St. Helena High pressure system over southeast Atlantic Ocean is expected to maintain a central pressure value of 1032hpa in 24hrs and is expected to weaken to values of 1028hpa in 48hrs and 1024hpa in 72 and 96 hours, respectively. The Mascarene high pressure system over southwest Indian Ocean is expected to assume a central pressure value of 1016hpa through 24 to 72 hours and intensifying to 1020hpa through 96hours.

At the 850hpa level, the GFS model maintains the east-west oriented convergence line in the region between the western parts of the Gulf of Guinea and Sudan. This convergence is expected to remain active during forecast period. On the other hand, the wind convergence associated with the meridonal arm of the ITCZ is expected remain active in the Congo Air Boundary (CAB) region through 24 to 96 hours. Southwesterly winds from the Atlantic Ocean into the Gulf of Guinea region are expected to persist through 24 hours, and then to weaken slightly through 48 to 96 hours. The moist easterly to southeasterly flow from the Indian Ocean into the Greater Horn of Africa (GHA) is expected to persist through 24 to 96 hours.

At the 700hPa level, a trough in the westerlies in the subtropical region of northern Africa is expected to propagate between Libya and the Persian Gulf through24 to 96 hours. Persistent northeasterly to easterly winds are expected to dominate the flow in the region between southern Sudan to western equatorial Africa and the northern Congo through 24 to 96 hours.

At 500hpa, easterly winds with moderate intensity (10 to 15knots) are expected to dominate the flow between the Horn of Africa and Cameroon through 24 to 96 hours. Locally strong winds (>30kts) associated with the Sub Tropical Easterly Jet is expected

to are also expected to Western CAR AND Southeasterly Nigeria through 96 hours. Two mid-latitude troughs are expected to propagate across the sub-tropical regions of northern Africa, with one of the troughs is expected to move across Algeria, Libya, Sudan, Egypt and Red sea through 24 to 96 hours, while the other trough is expected to dominate the flow in the vicinity of Morocco and Mauritania through 48 and 72 hours. Similarly, mid-latitude frontal systems are expected to propagate between southeast Atlantic Ocean and southwest Indian Ocean across southern Africa through 24 to 96 hours.

A zone of strong wind (>130Kts) at 200hpa level associated with the Sub Tropical westerly Jet is expected to propagate eastwards across Atlantic Ocean, Northern Mauritania, Algeria and Libya through 24 and 48 hours and then to weaken to (>110kts) though 72 and 96 hours. On the other hand, strong winds (>110Kts) associated with the Sub-Tropical Westerly Jet is expected in the southern hemisphere across southern Africa, Lesotho and Atlantic and Indian Ocean through 24 and 72hours and Weakens to (>90Kts) in 96hours.

In the next four days, the seasonal lower tropospheric convergence in the Congo Air Boundary Region, moist flow from the Indian Ocean and its associated convergence across the Horn of Africa region as well as the localized convergences across western equatorial region and the westward propagating storms between central African region and the Gulf of Guinea coast are expected to enhance rainfall in their respective areas. In general, there is an increased chance for moderate to heavy rainfall over parts of the Great Horn of Africa, the Lake Victoria region and western parts of equatorial Africa.

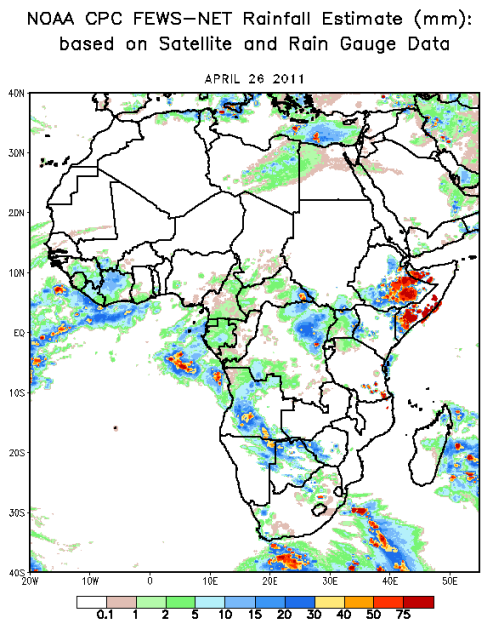
2.0. Previous and Current Day Weather Discussion over Africa (26 April – 27 April 2011)

2.1. Weather assessment for the previous day (26 April 2011):

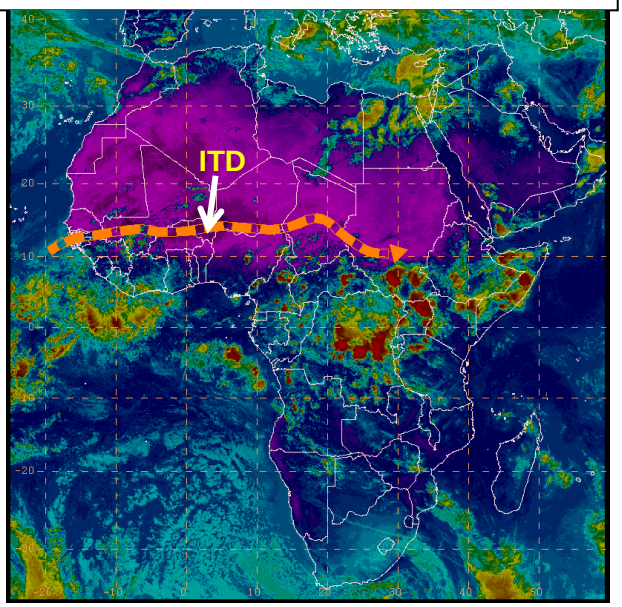
During the previous day, a combination of moderate and heavy rainfall was observed over Southern Angola, Ethiopia, Somalia and Easterly Madagascar.

2.2. Weather assessment for the current day (27 April 2011):

Intense clouds are observed over parts of Cameroon, CAR, Southern Sudan, Somalia, Ethiopia, parts of Kenya, Uganda and parts of Tanzania.



IR Satellite Image (valid 1622Z) and position of ITD, based on 1200Z Surface Analysis; 27 April 2011



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

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