

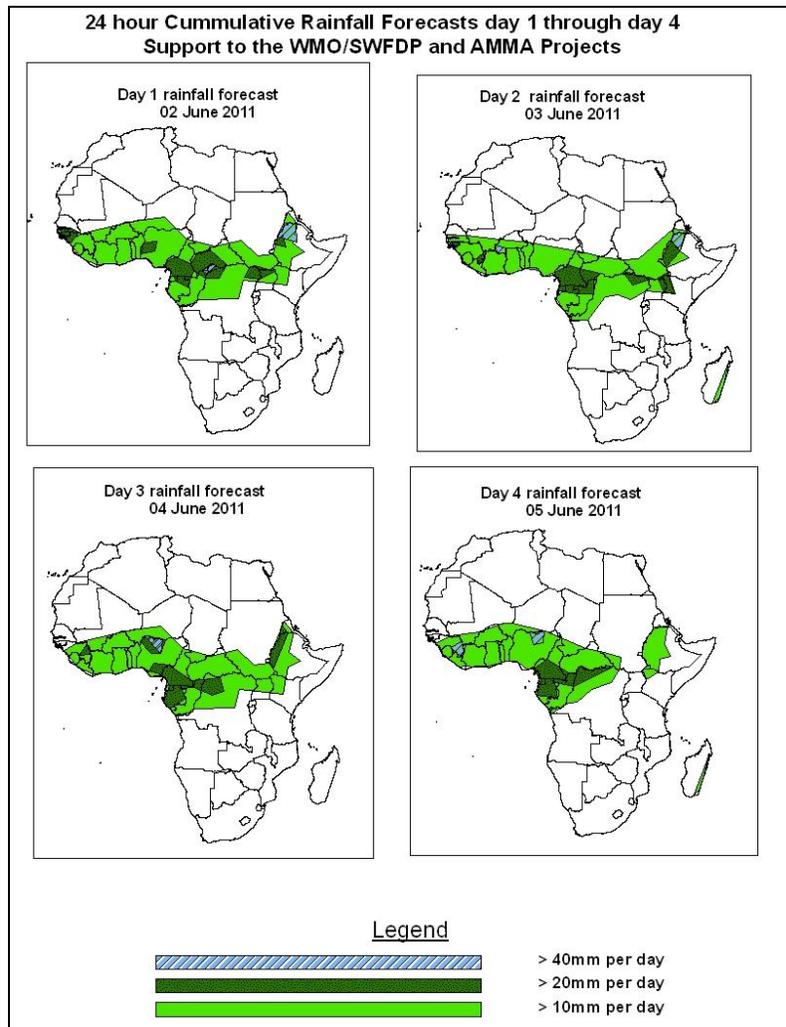


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid 06Z of 02 June May – 06Z of 05 June 2011, (Issued at 10:00 Z of 01 June 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 strong cross equatorial flow across East Africa and the easterly flow expected to persist in the region between Sudan and western equatorial Africa is expected continue enhancing rainfall over Cameroon, Gabon, Congo, CAR and northern DRC. Moreover, the moisture convergence in the GHA region is expected to maintain heavy rainfall over western Ethiopia throughout the forecast period. Moderate to heavy rainfall is also expected over local areas of West Africa and Lake Victoria region.

## **1.2. Models Comparison and Discussion-Valid from 00Z of 01 June May 2011**

According to the GFS, ECMWF and UKMET models, the east-west oriented trough, associated with heat lows across the Sahel region and Sudan is expected to have pressure values varying from 1004 and 1006hpa during the forecast period. On the other hand, the northern extent of the East African ridge is expected to reach the latitudes of Ethiopia, with no significant change in its intensity during the forecast period.

The St. Helena High pressure system over southeast Atlantic Ocean is expected to maintain a central pressure value of 1024hpa during the forecast period. The Mascarene high pressure system over the southwest Indian Ocean is expected to maintain central pressure value of 1020hpa in 24 to 96 hours.

At the 850hpa level, the GFS model shows moist cross-equatorial flow across East Africa, which is expected to converge over central and western parts of equatorial Africa. Part of this moist equatorial flow is also expected to converge across western Ethiopia. On the other hand, dry northeasterly winds are expected to dominate the flow over Sudan. The seasonal convergence between moist winds from the Atlantic Ocean and dry winds from northern Africa is expected to be more active over central and eastern parts of the Gulf of Guinea. The north-south oriented convergence in the CAB region is expected to remain active in the vicinity of Lake Victoria during the forecast period.

At the 700hPa level, Strong northeasterly to easterly winds are expected to dominate the flow between Sudan and coastal West Africa across the Gulf of Guinea region, with zone of strong easterlies is expected to propagate across West Africa during the first half of the forecast period and expected to leave the coast of West Africa by 72 hours..

At 500hpa, easterly winds with moderate intensity (10 to 20knots) are expected to dominate the flow over Sudan, central African and the Gulf of Guinea and southern Sahel region, with the stronger winds associated with the African easterly Jet are expected over localized areas of Guinea, Southern Mali 24 to 48 hours.

A zone of strong wind (>70Kts) at 200hpa level associated with the Sub Tropical westerly Jet is expected to propagate eastwards across Morocco, Algeria and mid-east during the forecast period. On the other hand, strong winds (>130Kts) associated with

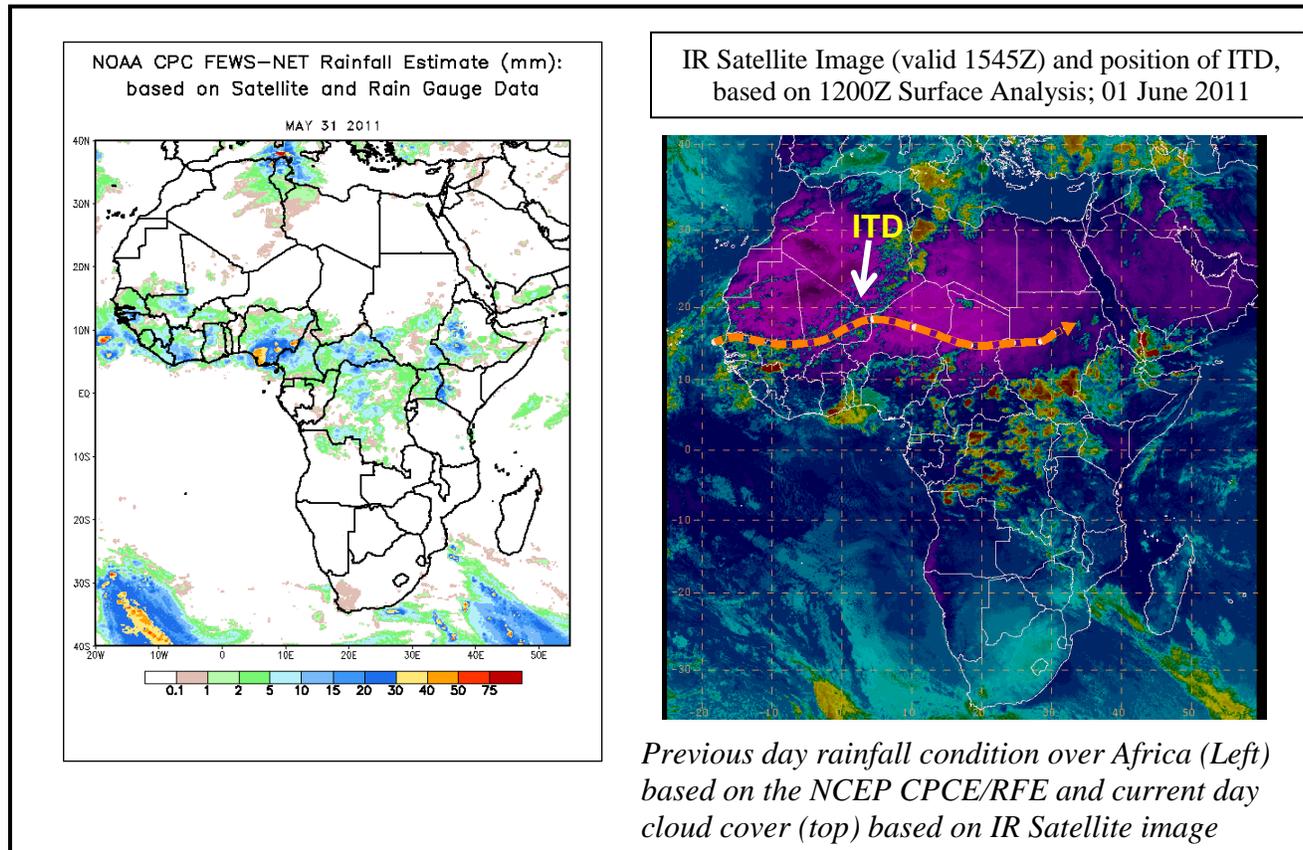
the Sub-Tropical Westerly Jet is expected in the southern hemisphere across Atlantic and Indian Ocean through 24 to 48 hours and tends to weakens to (>110Kts) in 72 and back to(>130Kts) to 96 hours.

In the next four days, the strong cross equatorial flow across East Africa and the easterly flow expected to persist in the region between Sudan and western equatorial Africa is expected continue enhancing rainfall over Cameroon, Gabon, Congo, CAR and northern DRC. Moreover, the moisture convergence in the GHA region is expected to maintain heavy rainfall over western Ethiopia throughout the forecast period. Moderate to heavy rainfall is also expected over local areas of West Africa and Lake Victoria region.

## 2.0. Previous and Current Day Weather Discussion over Africa (31 May –01 June 2011)

**2.1. Weather assessment for the previous day (31 May 2011):** During the previous day, a combination of moderate and heavy rainfall was observed over many places of the Gulf of Guinea, CAR, western Ethiopia and western Kenya.

**2.2. Weather assessment for the current day (01 June 2011):** Intense clouds are observed over parts of the Gulf of Guinea, central African countries and parts of Ethiopia.



*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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