

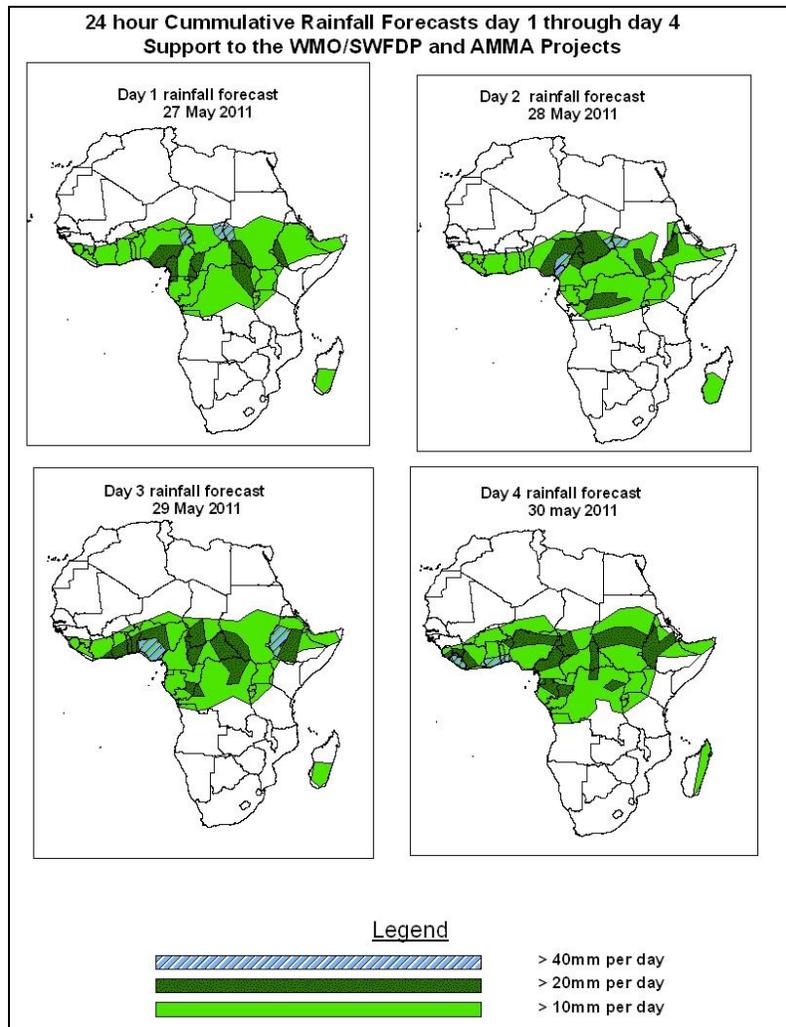


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid 06Z of 27 May – 06Z of 30 May 2011, (Issued at 10:00 Z of 26 May 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 its associated convergence over western Ethiopia, Sudan and central Africa are expected to enhance rainfall in western Ethiopia, Sudan and CAR. Moreover, the strong southwesterly flow from the Atlantic Ocean towards eastern parts of the Gulf of Guinea and parts of central African region and the localized convergences in the vicinity of Lake Victoria are expected to maintain moderate to heavy rainfall in their respective regions. In general, there is an increased chance for enhanced rainfall over eastern parts of the Gulf of Guinea, central African region and portions of the GHA region, with the heaviest rainfall event expected to occur over portions of Nigeria, Chad, Sudan and western Ethiopia.

## **1.2. Models Comparison and Discussion-Valid from 00Z of 26 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 1002 and 1007hpa 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 and tends to weaken to 1016hpa through 48 to 96 hours.

At the 850hpa level, the GFS model shows strong southwesterly to westerly winds to dominate the flow over eastern parts of the Gulf of Guinea, while western parts of the Gulf of Guinea are expected to be influenced by more of dry northeasterly winds during the forecast period. Moist cross equatorial flow is expected to extend up to the latitudes of Sudan and western Ethiopia. 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, southeasterly winds from western Indian ocean across Tanzania, Uganda and Kenya are expected to turn into a southwesterly flow after crossing the equator and tends to form a cyclonic turning over Sudan and western Chad through 24 to 72 hours, and this cross equatorial flow tends to extend towards central and western parts of equatorial Africa by 96 hours.

At 500hpa, easterly winds with moderate intensity (10 to 15knots) are expected to dominate the flow over Sudan, central African and the Gulf of Guinea and southern Sahel region, with the stronger winds associated to African easterly Jet are expected over localized areas of Nigeria, Ghana, Southern Burkina Faso and southeast Guinea through 48 to 96 hours. A mid-latitude westerly trough is expected to propagate across Algeria, Tunisia, Libya and Egypt and while weakening during the forecast period.

A zone of strong wind (>90Kts) at 200hpa level associated with the Sub Tropical westerly Jet is expected to propagate eastwards across the Atlantic Ocean, Mauritania, Morocco, Algeria and Egypt through 24 and tends to weaken to (>70kts) in 48 and back (>90Kts) in 72 hours and weakens to (>70Kts) by 96 hours. On the other hand, strong

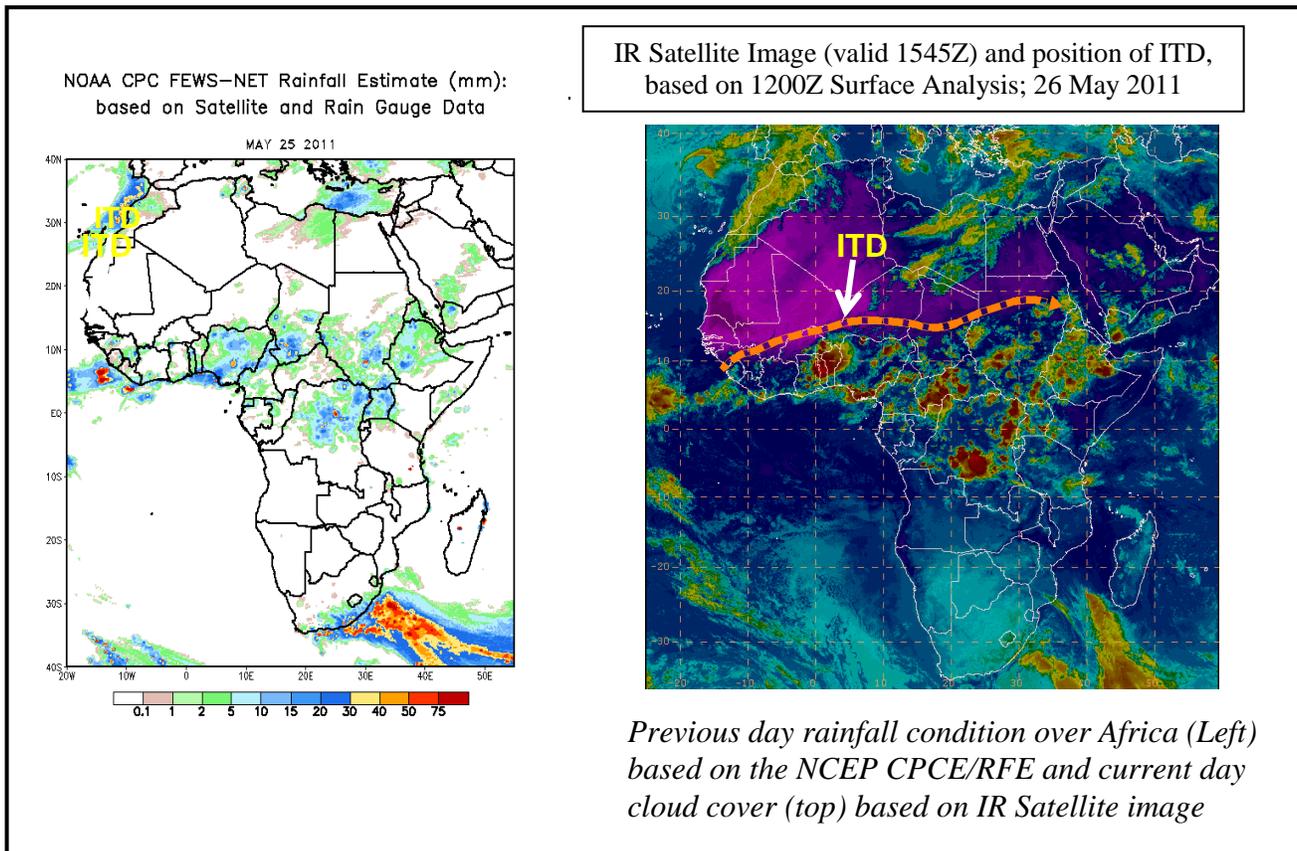
winds (>110Kts) associated with the Sub-Tropical Westerly Jet is expected in the southern hemisphere across Atlantic and Indian Ocean, Southern Africa, Namibia, Mozambique and Botswana through 24 to 48 hours and tends to weaken to (>90Kts) in 72 hours and back to (>110Kts) by 96 hours.

In the next four days, the strong cross equatorial flow across East Africa and its associated convergence over western Ethiopia, Sudan and central Africa are expected to enhance rainfall in western Ethiopia, Sudan and CAR. Moreover, the strong southwesterly flow from the Atlantic Ocean towards eastern parts of the Gulf of Guinea and parts of central African region and the localized convergences in the vicinity of Lake Victoria are expected to maintain moderate to heavy rainfall in their respective regions. In general, there is an increased chance for enhanced rainfall over eastern parts of the Gulf of Guinea, central African region and portions of the GHA region, with the heaviest rainfall event expected to occur over portions of Nigeria, Chad, Sudan and western Ethiopia.

## 2.0. Previous and Current Day Weather Discussion over Africa (25 May –26 May 2011)

**2.1. Weather assessment for the previous day (25 May 2011):** During the previous day, a combination of moderate and heavy rainfall was observed over Nigeria, southern Chad, parts of Cameroon, portions of DRC, Sudan, Uganda and Ethiopia.

**2.2. Weather assessment for the current day (26 May 2011):** Intense clouds are observed over eastern parts of the Gulf of Guinea, central African countries and parts of the GHA region.



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