

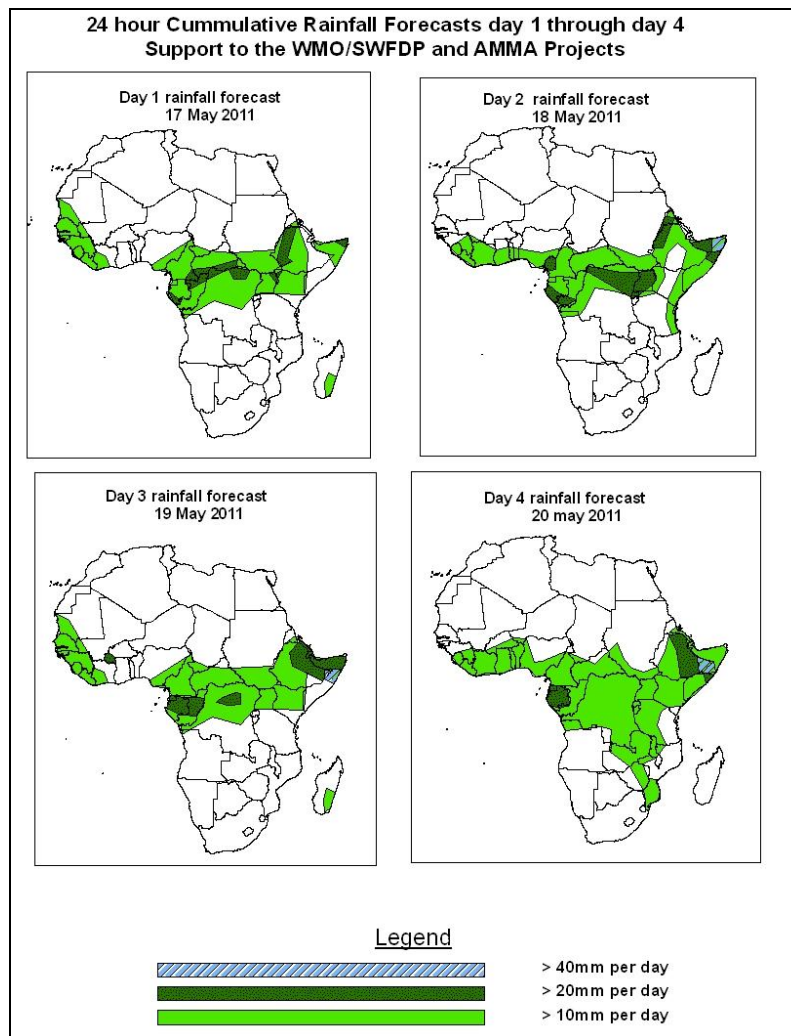


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid 06Z of 17 May – 06Z of 20 May 2011, (Issued at 10:45Z of 16 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 lower and mid-tropospheric easterly winds that the dominate the flow between western GHA and the Gulf of Guinea across central African region are expected to continue enhancing westward propagation of thunderstorms into the western equatorial Africa, parts of central Africa and the Gulf of Guinea countries. Moreover, the seasonal lower tropospheric convergence in the Congo Air Boundary Region and the strong easterly winds from western Indian Ocean, converging into eastern GHA are expected to increase rainfall in their respective regions. In general, there is an increased chance for rainfall to exceed 20mm per day over part of CAR, parts of Cameroon, DRC, portions of Burkina Faso, western Ethiopia, Somalia, Uganda, Gabon, and Congo.

## **1.2. Models Comparison and Discussion-Valid from 00Z of 16 May 2011**

According to the GFS, ECMWF and UKMET models, the Saharan High and its associated ridge is expected to be dominant over northern Africa, in the region between Algeria and Egypt through 24 to 96 hours. The east-west oriented trough, associated with heat lows across the Sahel region, Sudan, DRC and Iberian Peninsula is expected to have pressure values varying from 1003 and 1008hpa during the forecast period. On the other hand, the East African ridge, associated with the Mascarene high pressure system is expected to extend up to the latitudes of southern Ethiopia through 24 hours and it tends to weaken gradually during the rest of the forecast period.

The St. Helena High pressure system over the southeast Atlantic Ocean is expected to maintain a central pressure value of 1020hpa during the forecast period. The Mascarene high pressure system over the southwest Indian Ocean is expected to maintain a central pressure value of 1020hpa in 24 at 72 hours and weakens to 1016hpa by 96 hours.

At the 850hpa level, the GFS model maintains the east-west oriented convergence line in the region between West Africa and Sudan across the central African region. This convergence is expected to remain active during the forecast period. The north-south oriented convergence in the CAB region is expected to remain active in the vicinity of its climatological position during the forecast period, while the easterly to southeasterly winds from the western Indian Ocean are expected to continue forming a strong convergence over the eastern parts of the GHA region during the forecast period.

At the 700hPa level, a trough in the westerlies is expected to propagate across eastern Libya, Sudan, Chad, Egypt, and the Red Sea, while weakening towards the end of the forecast period. The persistent northeasterly to easterly winds in the central African region and the Gulf of Guinea are expected to attain a wavy pattern that propagates across the region through 24 to 96 hours.

At 500hpa, easterly winds with moderate intensity (5 to 20knots) are expected to dominate the flow over Sudan, central Africa and the Gulf of Guinea region. A mid-latitude trough is expected to propagate across Egypt, Chad, Libya, and Sudan gradually weakens during the forecast period.

A zone of strong wind (>110Kts) at 200hpa level associated with the Sub Tropical westerly Jet is expected to propagate eastwards across Morocco, Tunisia, Algeria,

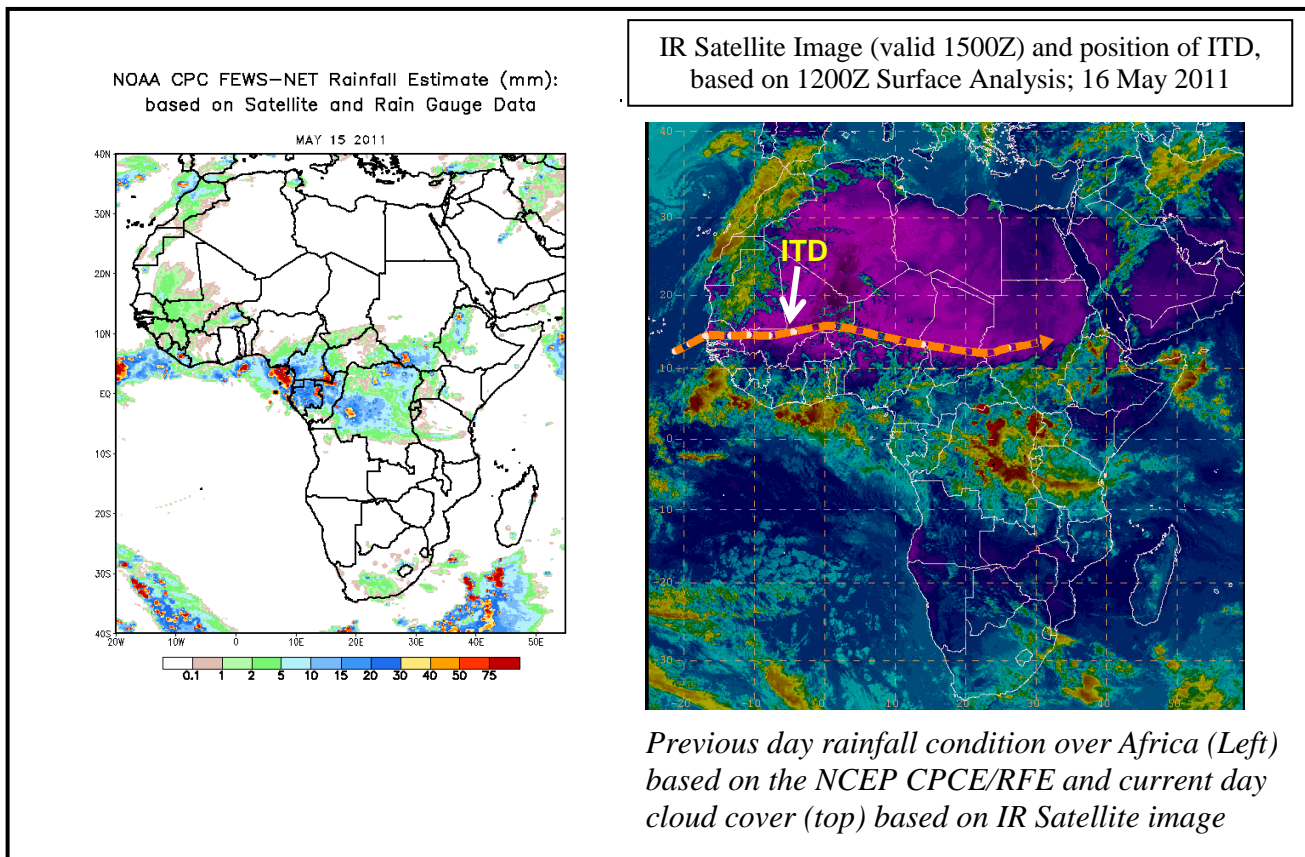
Libya, Egypt and mid-east through 24 and 48 hours and weaken to (>90kts) in 72 and 96 hours. On the other hand, strong winds (>130Kts) associated with the Sub-Tropical Westerly Jet is expected in the southern hemisphere across Atlantic, Southern Africa, Botswana and Zimbabwe through 24hours and tend to weaken to (>110Kts) at 48 hours and back to (>130Kts) by 72 and 96 hours.

In the next four days, the lower and mid-tropospheric easterly winds that dominate the flow between western GHA and the Gulf of Guinea across central African region are expected to continue enhancing westward propagation of thunderstorms into the western equatorial Africa, parts of central Africa and the Gulf of Guinea countries. Moreover, the seasonal lower tropospheric convergence in the Congo Air Boundary Region and the strong easterly winds from western Indian Ocean, converging into eastern GHA are expected to increase rainfall in their respective regions. In general, there is an increased chance for rainfall to exceed 20mm per day over part of CAR, parts of Cameroon, DRC, portions of Burkina Faso, western Ethiopia, Somalia, Uganda, Gabon, and Congo.

## 2.0. Previous and Current Day Weather Discussion over Africa (15 May – 16 May 2011)

**2.1. Weather assessment for the previous day (15 May 2011):** During the previous day, a combination of moderate and heavy rainfall was observed over southwestern Liberia, Gabon, Cameroon, northern and western DRC, southern Sudan, CAR, and north western Ethiopia.

**2.2. Weather assessment for the current day (16 May 2011):** Intense clouds are observed over southwestern Guinea, southern Liberia, Cote D'Ivoire, Togo and Benin; Rwanda, DRC, Tanzania, Burundi, Southern Sudan, and north eastern Somalia.



**Author(s):** Orlando Mendes (Direcção Geral da Meteorologia Nacional da Guiné-Bissau) / CPC-African Desk), [orlando.mendes@noaa.gov](mailto:orlando.mendes@noaa.gov) and

**Albert M. Sherman (Liberian Meteorological Agency) / CPC-African Desk),**  
[albert.sherman@noaa.gov](mailto:albert.sherman@noaa.gov)

-----  
**Disclaimer:** This bulletin is for training purposes only and should be used as guidance. NOAA does not make forecasts for areas outside of the United States.