

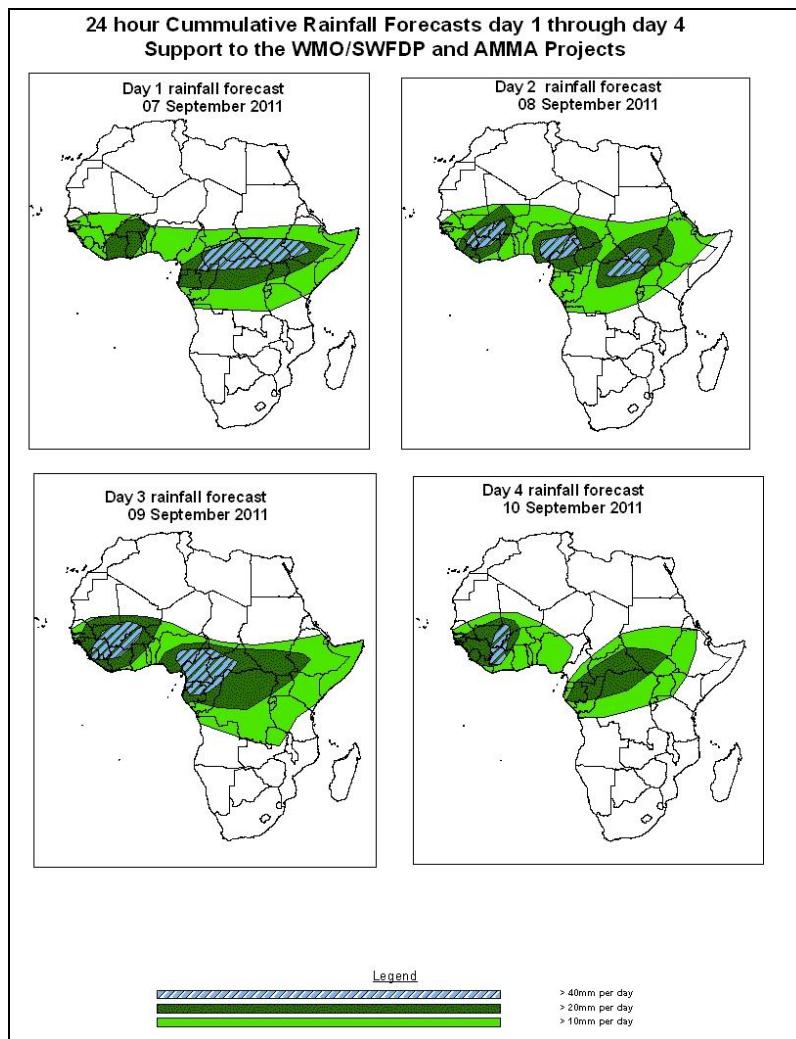


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid 06Z of 07 September – 06Z of 10 September 2011, (Issued at 10:15Z of 06 September 2011)

### 1.1. Twenty Four Hour Cumulative Rainfall Forecasts

The forecasts are expressed in terms of high 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, westward propagating waves and seasonal wind convergences with their associated convective activities are expected to enhance rainfall over portions of central and western African countries. In general, there is an increased chance for moderate to heavy rainfall over eastern Senegal, Guinea, northern Mali, Liberia, Sierra Leone, Cote d'Ivoire, Nigeria, Ghana, Cameroon, Gabon, northern Congo, CAR, South Sudan, southern Chad, northern DRC, parts of Uganda and Ethiopia.

## **1.2. Models Comparison and Discussion-Valid from 00Z of 06 September 2011**

According to the NCEP/WRF, GFS, ECMWF and UKMET models, the monsoon trough with its associated heat lows across the Sahel region is expected to maintain its east-west orientation during the forecast period. The heat low along its western end (near Mali and Mauritania borders) tends to deepen, with its central pressure value decreasing from 1010mb to 1007mb, according to the ECMWF model and from 1009mb to 1007mb according to the GFS model and from 1010mb to 1007mb, according to UKMET model during the forecast period. The heat low over central Africa region tends to deepen, with its mean sea level pressure value decreasing from 1010mb to 1008mb according to the ECMWF model through 24 to 72 hours and it tends to fill up MSLP value of 1009mb by 96 hours. This low is expected to deepen from MSLP value of 1009mb to 1007mb and 1009mb to 1007mb, according to GFS and UKMET models, respectively during the forecast period. On the other hand, the heat low over eastern Arabian Peninsula is expected to fill up from 997mb to 1000mb, according to the ECMWF model during the forecast period. This low is expected to deepen from 996mb to 995mb, according to the GFS model through 24 to 48 hours and it tends to fill up MSLP value of 999mb by 96hours. This same low tends to deepen, with its mean sea level pressure value decreasing from 996mb to 995mb, according to the UKMET model through 24 to 72 hours and it tends to fill up from MSLP value to 999mb towards end of forecast period. The East African ridge across southeast and East Africa is expected to remain weak during the forecast period.

The St. Helena High pressure system over southeast Atlantic Ocean is expected to intensify from 1025mb to 1030mb during the forecast period. In contrast, the Mascarene high pressure system over southwest Indian Ocean is expected to weaken from 1026mb to 1019mb through 24 to 96 hours.

At the 850hpa level, a cyclonic circulation is expected to dominate the flow over Cote d'Ivoire while moving westwards through 24 to 48 hours. Localized wind convergences are expected to prevail across CAR, southern Sudan and Cameroon through 24 to 72 hours. The monsoon flow from the Atlantic Ocean and the moist equatorial flow from the Indian Ocean are expected to continue providing abundant moisture to the lower

tropospheric convergences in western and central African region and the northern parts of the GHA region.

At 700mb level, an easterly wave near Nigeria and CAR borders is expected to propagate westwards across central and western African countries during the forecast period. This wave with its associated convective activity is expected to reach near Burkina Faso and Mali by 96 hours. A west-east oriented wind convergence is expected to prevail across southern CAR and southern Sudan through 48 to 72 hours.

At 500hpa, easterly winds associated with the African Easterly Jet (AEJ), are expected to remain weak during the forecast period.

At 150mb, zone of strong winds associated with Tropical Easterly Jet (TEJ) is expected to prevail over South Sudan and Ethiopia towards beginning of forecast period.

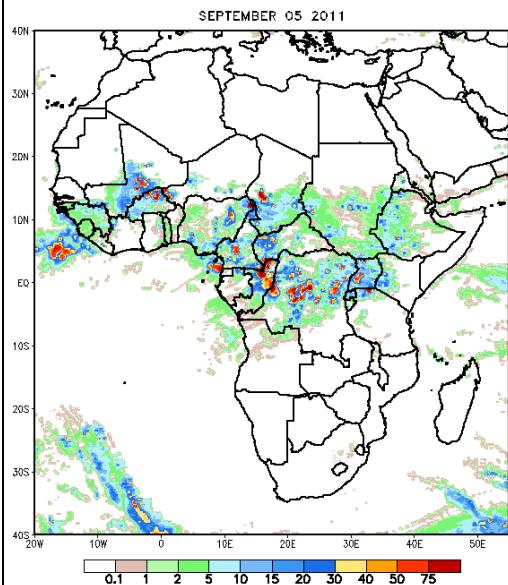
In the next four days, westward propagating waves and seasonal wind convergences with their associated convective activities are expected to enhance rainfall over portions of central and western African countries. In general, there is an increased chance for moderate to heavy rainfall over eastern Senegal, Guinea, northern Mali, Liberia, Sierra Leone, Cote d'Ivoire, Nigeria, Ghana, Cameroon, Gabon, northern Congo, CAR, South Sudan, southern Chad, northern DRC, parts of Uganda and Ethiopia.

## **2.0. Previous and Current Day Weather Discussion over Africa (05 September – 06 September 2011)**

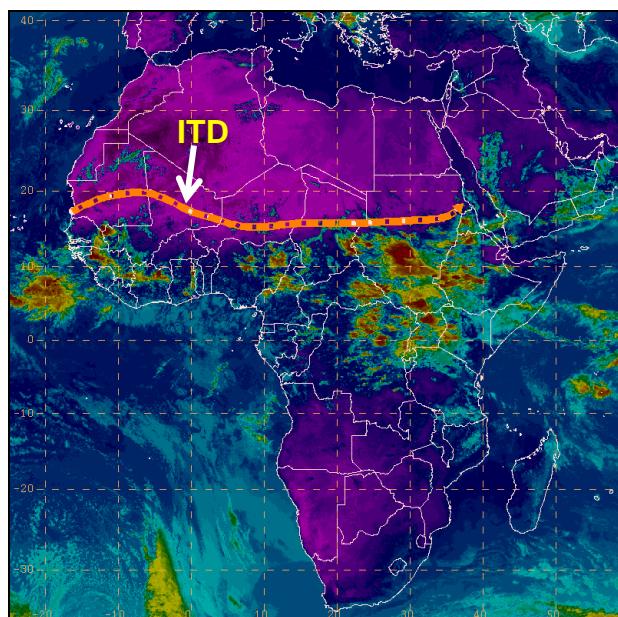
**2.1. Weather assessment for the previous day (05 September 2011):** During the previous day, locally moderate to heavy rainfall was observed over central Mali, northern Burkina Faso, southern Chad, Cameroon, and parts of Nigeria, CAR, Congo, DRC, South Sudan, Uganda and Ethiopia.

**2.2. Weather assessment for the current day (06 September 2011):** Intense clouds are observed over eastern Senegal, Guinea, southern Chad, portions of Cote d'Ivoire, Nigeria, northern Cameroon, Sudan, CAR, DRC, Uganda and Ethiopia.

NOAA CPC FEWS-NET Rainfall Estimate (mm):  
based on Satellite and Rain Gauge Data



IR Satellite Image (valid 1500Z) and position of ITD,  
based on 1200Z Surface Analysis; 06 September 2011



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

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