

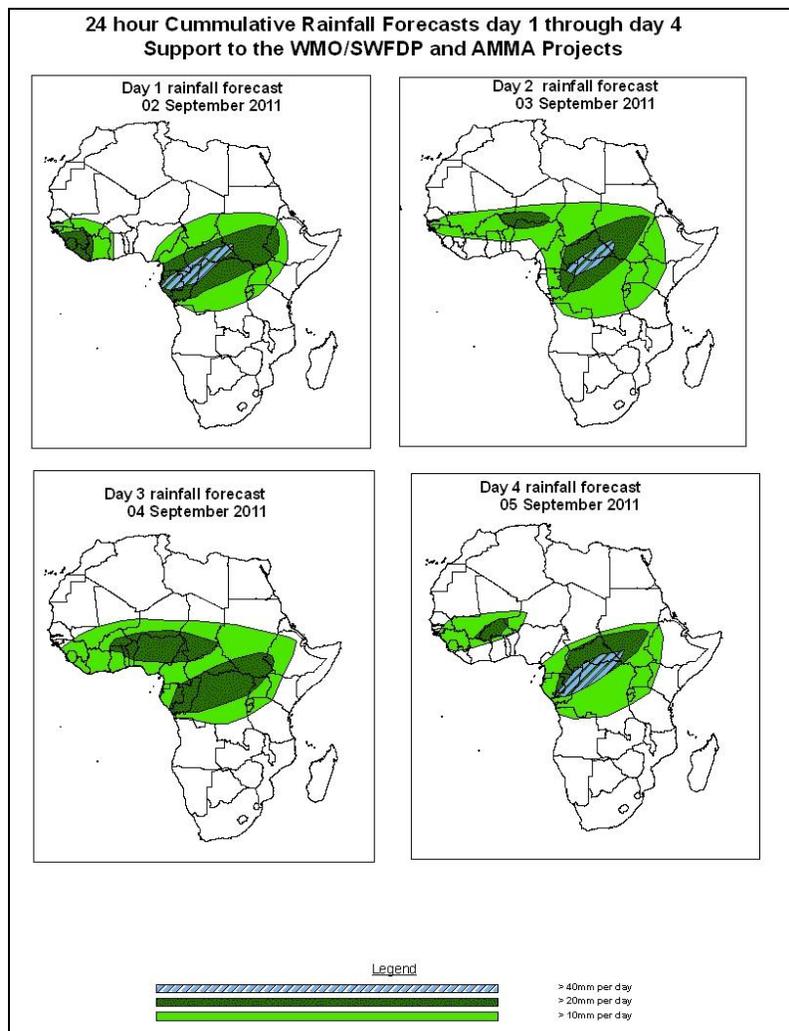


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid 06Z of 02 September – 06Z of 05 September 2011, (Issued at 10:15Z of 01 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, localized cyclonic circulations and wind convergences 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 Guinea, Liberia, Sierra Leone, Nigeria, northern Benin, Ghana, southern Niger, western and southern Chad, eastern Gabon, northern Cameroon, CAR, Congo parts of DRC and southern Sudan.

## **1.2. Models Comparison and Discussion-Valid from 00Z of 01 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 1008mb to 1006mb, according to the ECMWF model and from 1009mb to 1008mb according to the GFS model during the forecast period. This low is expected to deepen from MSLP value of 1007mb to 1006mb according to the UKMET model during the forecast period. This low tends also to deepen from MSLP value of 1009mb to 1005mb, according to the GFS model and from 1008mb to 1004mb, according to the UKMET model through 24 to 72 hours. It tends to fill up MSLP value to 1006mb and 1005mb, according to GFS and UKMET models, respectively towards end of forecast period. The heat low over central Africa region tends to deepen, with its mean sea level pressure value decreasing from 1008mb to 1007mb according to the ECMWF model, from 1008mb to 1005mb according to the GFS model and from 1008mb to 1006mb according to the UKMET model through 24 to 72 hours. This same low is expected to fill up to MSLP values of 1008mb, 1006mb and 1007mb, according to ECMWF, GFS and UKMET models, respectively, by 96 hours. 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, from 995mb to 998mb, according to the GFS model and from 996mb to 999mb, according to the UKMET model through 24 to 96 hours. 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 1027mb to 1032mb through 24 to 48 hours and it tends to weaken to MSLP value to 1024mb towards end of the forecast period. In contrast, the Mascarene high pressure system over southwest Indian Ocean is expected to weaken from 1028mb to 1020mb through 24 to 48 hours and its mean sea level pressure value tends to increase to 1023mb by 96 hours.

At the 850hpa level, a cyclonic circulation is expected to dominate the flow over northern Mauritania through 24 to 48 hours. Another cyclonic circulation near Mali and

Niger borders is expected to propagate westwards across Mali by extending towards western Chad through 48 to 96 hours. Localized wind convergences are expected to prevail across Guinea and Mali through 24 to 48 hours. East-west oriented wind convergences are expected to dominate the flow across Gabon, CAR and southern Sudan through 48 to 96 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, west-east oriented wind convergence is expected to prevail over Congo, CAR and Sudan during the forecast period. A cyclonic circulation is expected to dominate the flow over Cameroon and western CAR through 24 to 48 hours.

At 500hpa, zone of strong easterly winds, which is associated with the African Easterly Jet (AEJ), is expected to prevail over Niger, Mali, Chad, and northern Nigeria through 24 to 96 hours.

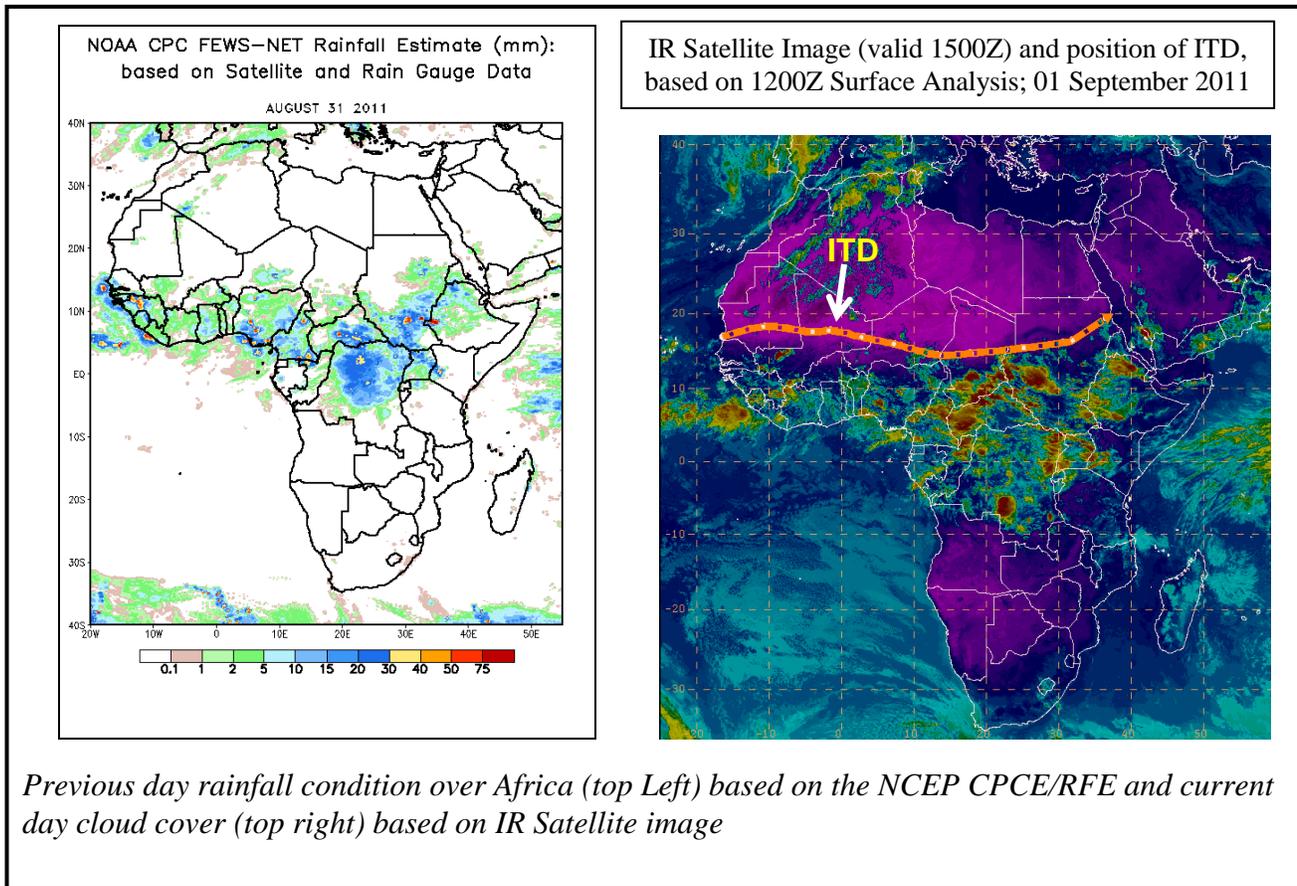
At 150mb, strong winds associated with Tropical Easterly Jet (TEJ) are expected to remain weak during the forecast period.

In the next four days, localized cyclonic circulations and wind convergences 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 Guinea, Liberia, Sierra Leone, Nigeria, northern Benin, Ghana, southern Niger, western and southern Chad, eastern Gabon, northern Cameroon, CAR, Congo parts of DRC and southern Sudan.

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

**2.1. Weather assessment for the previous day (31 August 2011):** During the previous day, moderate to heavy rainfall was observed over Guinea, southern Nigeria, Cameroon, CAR, DRC, and parts of Uganda and South Sudan Republic.

**2.2. Weather assessment for the current day (01 September 2011):** Intense clouds are observed over southern Chad, South Sudan Republic, portions of Sudan and DRC, Uganda and Ethiopia.



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