

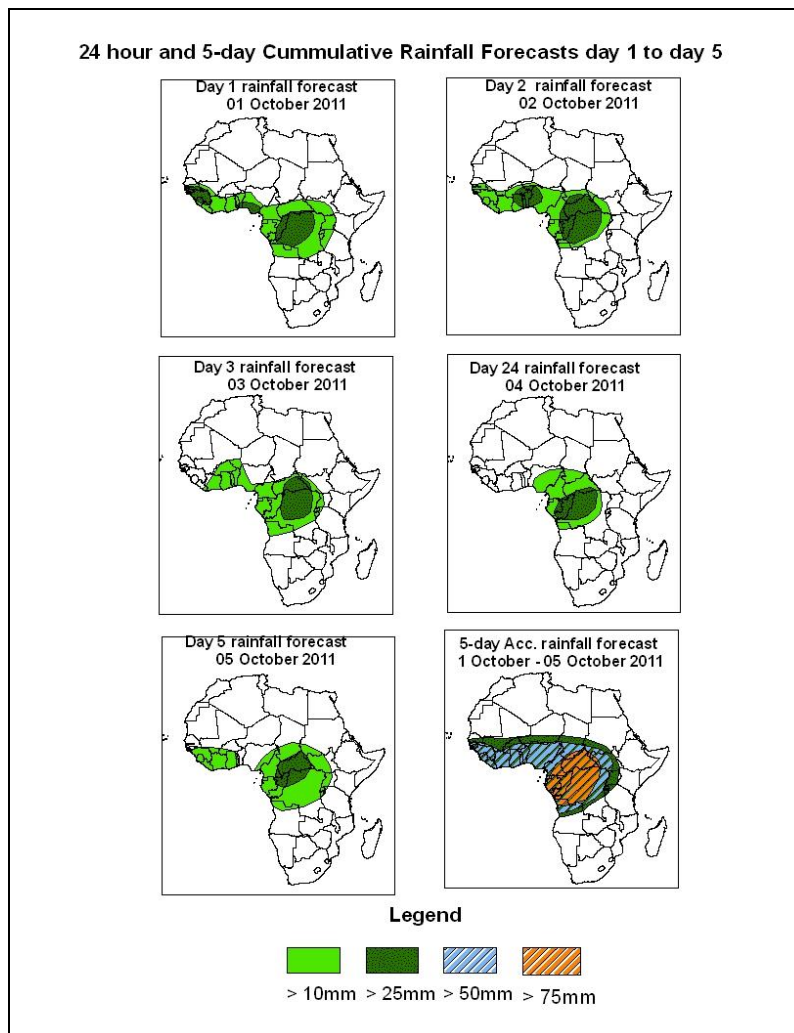


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid 06Z of 01 October – 06Z of 05 October 2011, (Issued at 10:15Z of 30 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 five days, westward propagating waves and seasonal wind convergences with their associated convective activities are expected to enhance rainfall over portions of western, central and eastern African countries. Hence, there is an increased chance for moderate to locally heavy rainfall over southern Senegal, Guinea, southern Mali, southern Niger, Liberia, Sierra Leone, Cote d'Ivoire, Burkina Faso, Ghana, southern Chad, Benin, Togo, Nigeria, Cameroon, Gabon, Congo, CAR, South Sudan, DRC, and parts of Burundi, Rwanda, Uganda and northern Angola.

## **1.2. Models Comparison and Discussion-Valid from 00Z of 30 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 Niger border) tends to deepen, with its central pressure value decreasing from 1010mb to 1008mb, according to the ECMWF model, from 1009mb to 1006mb, according to the GFS model, during the forecast period. This same low is expected to fill up to MSPL value up to 1009mb, according to the UKMET model through 24 to 120 hours. The heat low over central Africa region tends to deepen from MSLP value of 1010mb to 1009mb, according to the ECMWF model, from 1008mb to 1007mb, according to the GFS model, and from 1008mb to 1007mb, according to the UKMET model during the forecast period. On the other hand, the heat low over eastern Arabian Peninsula is expected to deepen from MSLP of 1006mb to 1005mb, according to ECMWF and GFS models during the forecast period. This same heat low is expected to deepen from MSLP value of 1007mb to 1003mb, according to the GFS model, and it tends to fill up to MSLP of 1005mb by 120 hours. The East African ridge across southeast and East Africa is expected to slightly strengthen during the forecast period.

The St. Helena High pressure system over southeast Atlantic Ocean is expected to intensify from MSLP value of 1024mb to 1028mb during forecast period. The Mascarene high pressure system over southwest Indian Ocean is expected to intensify from 1022mb to 1028mb through 24 to 96 hours, and it tends to weaken to MSLP value of 1020mb towards end of forecast period.

At the 850hpa level, a cyclonic circulation is expected to prevail over DRC and CAR through 24 to 96 hours. Localized wind convergences are expected to prevail over DRC, CAR, Cameroon and eastern Nigeria, during the forecast period. 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 GHA region.

At 700mb level, a wave in the easterlies is expected to propagate between Guinea and southern Senegal through 24 to 48 hours. A second wave is expected to dominate the

flow across Nigeria, Ghana and Cote d'Ivoire through 24 to 72 hours. East-West oriented wind convergences are expected to prevail over DRC and CAR through 24 to 72 hours.

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

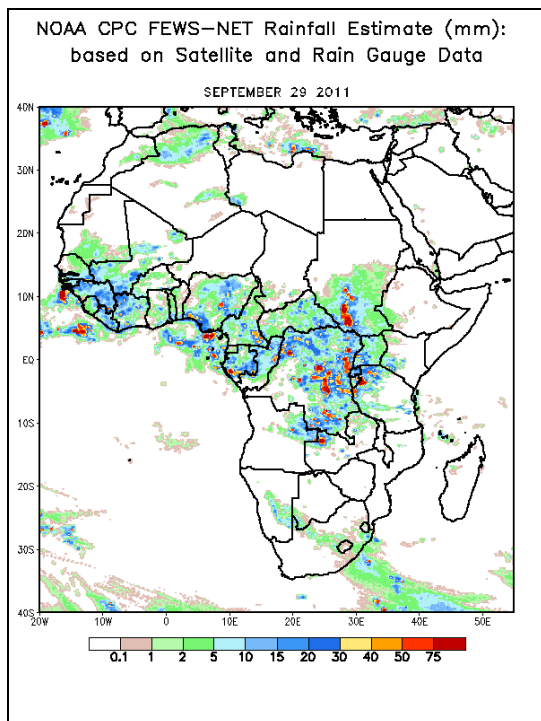
At 150mb, strong winds associated with Tropical Easterly Jet (TEJ) are expected to remain weak through 24 to 120 hours.

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

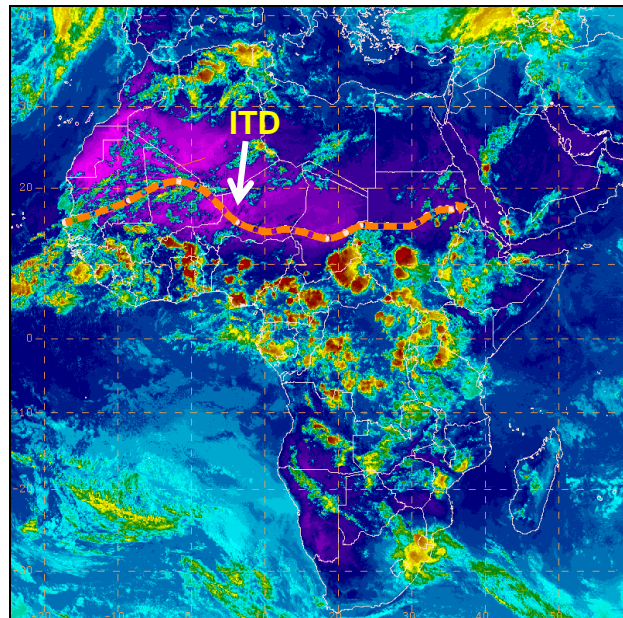
## 2.0. Previous and Current Day Weather Discussion over Africa (29 September – 30 September 2011)

**2.1. Weather assessment for the previous day (29 September 2011):** During the previous day, locally moderate to heavy rainfall was observed over Guinea, Liberia, Cote d'Ivoire, Nigeria, Cameroon, Gabon, Congo, CAR, DRC, South Sudan, northern Angola, Uganda, and western Kenya.

**2.2. Weather assessment for the current day (30 September 2011):** Intense clouds are observed over Guinea, Burkina Faso, Ghana, Nigeria, Cameroon, southern Chad, CAR, South Sudan, DRC, and parts of Gabon, Congo, Uganda, Angola and Kenya.



IR Satellite Image (valid 1622Z) and position of ITD,  
based on 1200Z Surface Analysis; 30 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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