



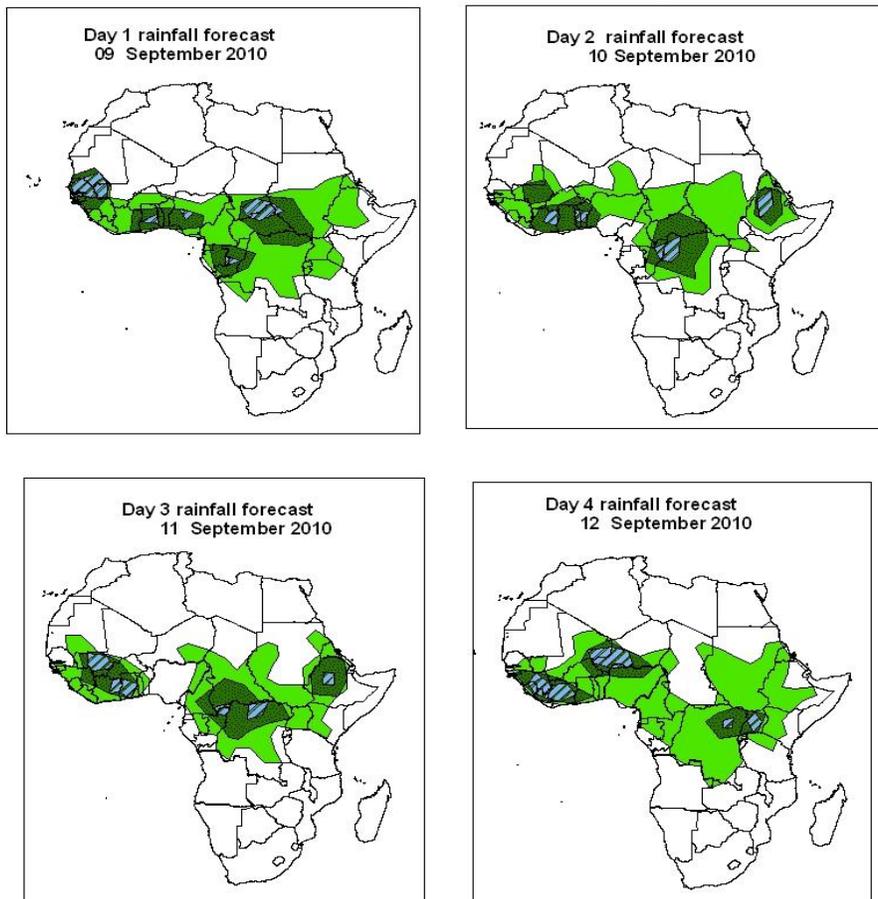
# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid, 06Z of 09 SEPTEMBER – 06Z of 12 SEPTEMBER 2010, (Issued at 14:00EST of 08 SEPTEMBER 2010)

### 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.

24 hour Cummulative Rainfall Forecasts day 1 through day 4  
Support to the WMO/SWFDP and AMMA Projects



#### Legend



#### Summary

In the coming four days, the westward propagating convection systems across parts of the Sahel countries and the active monsoon flow from the Atlantic Ocean are expected to maintain the moderate to heavy rainfall in the region. Especially, there is an increased chance for rainfall to exceed 20mm per day in parts of Senegal, southern Mali, Burkina Faso, Nigeria and parts of southern Niger. Meanwhile, parts of Ethiopia, southern Sudan, Uganda, parts of western Kenya and northeast DRC are expected to receive moderate to heavy rainfall due to active CAB in the region.

## **1.2. Models Comparison and Discussion-Valid from 00Z of 08 September 2010**

A low pressure system situated over northern Niger is expected to move westward while slightly deepening. Its central pressure value is expected to change from 1007 to 1006hPa according to the GFS model, 1008 to 1006 on the ECMWF model through 24 to 72hours. A second low pressure system located over central Chad is expected to move towards western Niger while deepening. Its central pressure value is expected to change between 1008 to 1006hPa according to the GFS model and between 1007 and 1004 according to the UKMET model. A low pressure system situated over northern Sudan is expected to move towards western Chad while deepening. Its central pressure value is expected to change from 1005 to 1004hPa on the GFS model. Another low pressure system situated over northern Mali is expected to maintain its position, while its central pressure value is expected to change from 1010 to 1008hPa through 24 to 72hours according to the ECMWF model. The seasonal low pressure system located over southern DRC is expected to change from central pressure value of 1010 to 1008hPa according to the GFS model, 1011 to 1010hPa according to the ECMWF model and 1009 to 1006hPa according to the UKMET models. In general the Inter-Tropical Front (ITF) is expected to remain between 17°N and 21°N latitudes across West African countries west of the Prime Meridian, while it is expected to stay between 16°N and 19°N latitudes east of the Prime Meridian.

The Azores high-pressure system is expected to intensify from central pressure value of 1023hPa in 24 hours to a value of 1032hPa in 96hour, while extending its ridge towards northern African countries. The St. Helena high, situated over southern Atlantic Ocean is expected to intensify from central pressure values of 1030 to 1032hPa through 24 to 72hours. The Mascarene high pressure system is also expected to relax through 24 to 72hours. Its central pressure value is expected to change from 1031 to 1028hPa through 24 to 72hours.

At 850hpa, a cyclonic circulation situated over Ghana is expected to move towards southern Cote-d'Ivoire through 24 to 48hours and continue moving towards southern Mali and Guinea through 48 to 96hours. Another cyclonic circulation over central Sudan is expected to move towards northern CAR, Cameroun and Nigeria, while slightly weakening. Another cyclonic circulation is expected to shift between eastern Sudan and Chad and weaken gradually through 24 to 96 hours.

The convergence associated with the CAB is expected to remain active in the region between eastern Namibia, Angola, DRC, Uganda and southwest Ethiopia through 24 to 96 hours.

At 700hpa, a trough associated with the African easterly wave is expected leave the western coastal regions of West Africa and propagate into the Atlantic Ocean, while another deep trough is moving across the longitudes of Nigeria, Togo and Burkina Faso and continue to propagate across Guinea and southern Mali through 24 to 96 hours. A cyclonic vortex situated over southern Sudan is expected to move towards southern Nigeria trough 24 to 96hours.

At 500hpa, wind speeds associated with the African Easterly Jet are expected to exceed 30Kts in the vicinity of southern Niger, Burkina Faso and southern Mali while the core of the jet is propagating westwards through 24 to 96 hours.

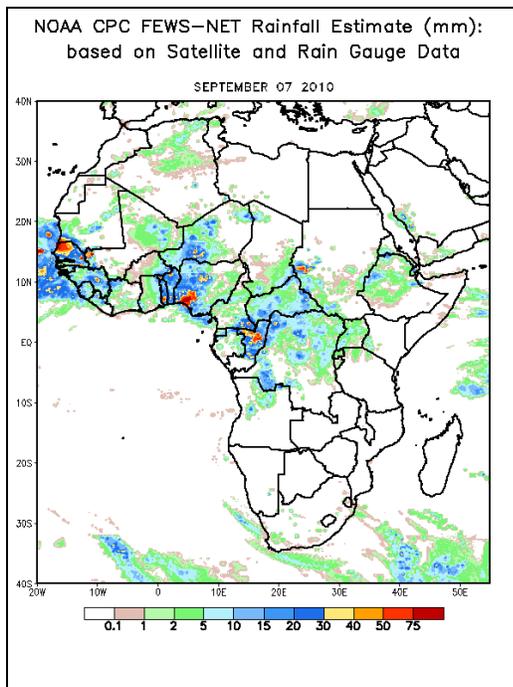
At 200hPa, zone of strong wind (>50Kts) is expected to dominate the flow in the vicinity of central and eastern Mediterranean Sea and the adjoining areas of northern Africa. Meanwhile, strong upper tropospheric easterly wind (>35Kts) is expected to dominate the flow across northern southern Ethiopia, parts of Sudan and Egypt through 24 to 48hours.

In the coming four days, the westward propagating convection systems across parts of the Sahel countries and the active monsoon flow from the Atlantic Ocean are expected to maintain the moderate to heavy rainfall in the region. Especially, there is an increased chance for rainfall to exceed 20mm per day in parts of Senegal, southern Mali, Burkina Faso, Nigeria and parts of southern Niger. Meanwhile, parts of Ethiopia, southern Sudan, Uganda, parts of western Kenya and northeast DRC are expected to receive moderate to heavy rainfall due to active CAB in the region.

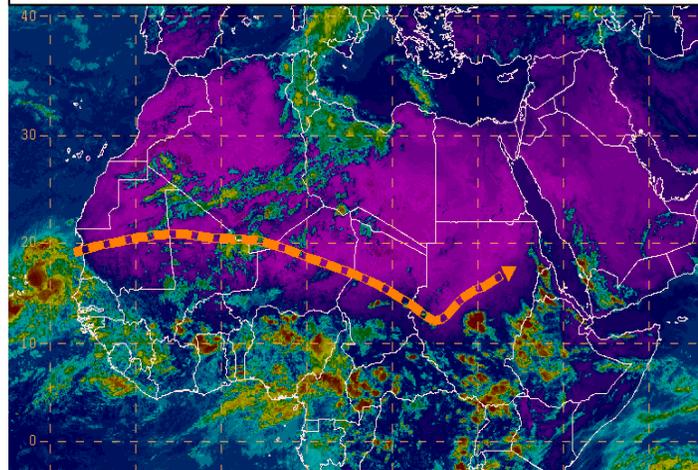
## 2.0. Previous and Current Day Weather Discussion over Africa (07 - 08 September 2010)

**2.1. Weather assessment for the previous day (07 September 2010):** During the previous day, moderate to heavy rainfall was observed over Senegal, Gambia, Guinea, Mali, southern Niger, Togo, Benin, parts of Nigeria, Congo, parts of western Sudan and DRC.

**2.2. Weather assessment for the current day (08 September 2010):** Intense clouds are observed over Senegal, Burkina Faso, Ghana, Nigeria, Cameroun, Central African Republic and DRC, parts of Sudan, Ethiopia and Uganda.



IR Satellite Image, Valid 1422Z, September 8, 2010  
and position of ITD (based on 1200Z observation)



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

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