

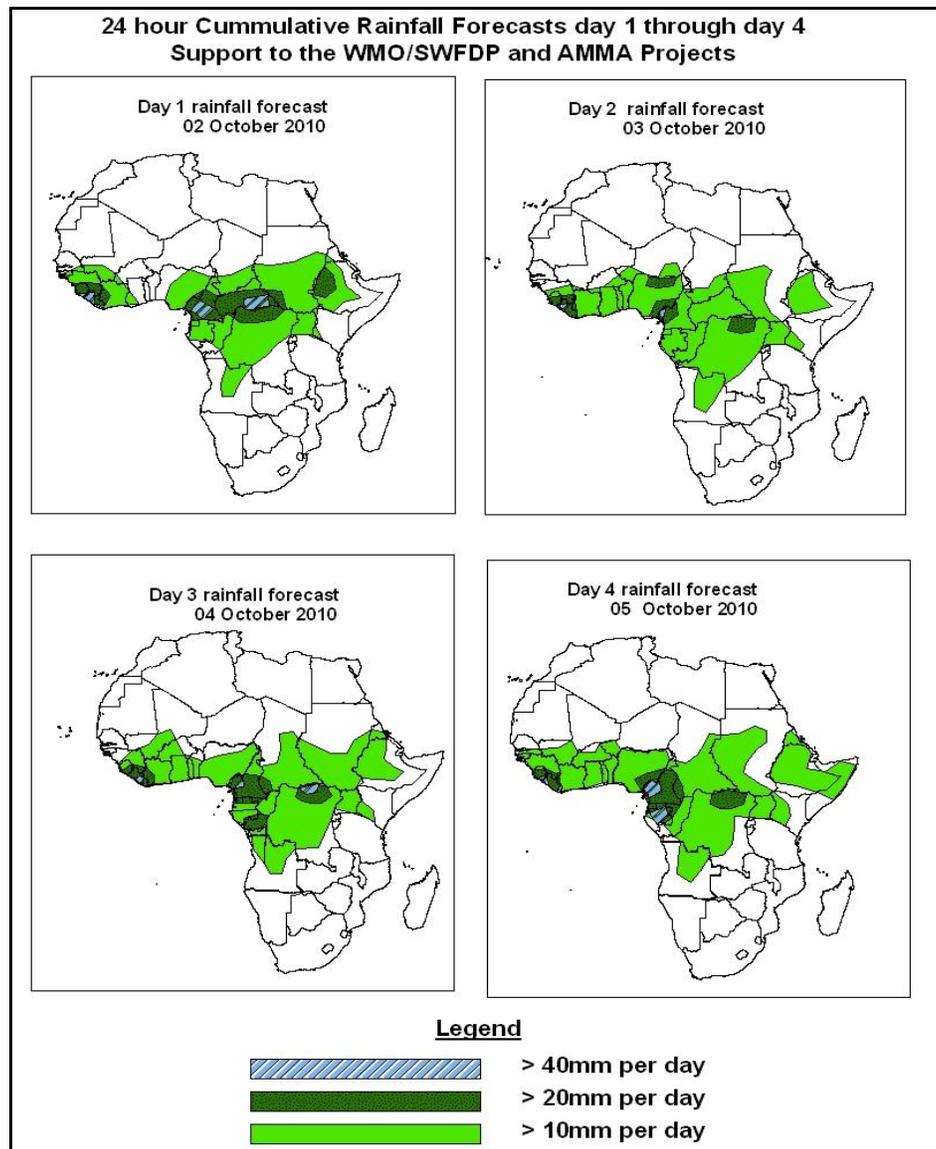


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid, 06Z of 02 OCTOBER – 06Z of 05 OCTOBER 2010, (Issued at 14:00Z of 01 OCTOBER 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.



### Summary

In the coming four days, there is an increased chance for rainfall to exceed 20mm per day over Guinea, Sera Leone, Liberia, Nigeria and parts of Cameroon, Gabon, CAR due to localized convergences and westward propagating meso-scale convection systems. Moderate to heavy rainfall is also expected over the northern parts of DRC and western Ethiopia.

## **1.2. Models Comparison and Discussion-Valid from 00Z of 01 OCTOBER 2010**

A low pressure system situated over eastern Mali is expected to move towards western Mauritania. Its central pressure value is expected to change from 1005 to 1010hPa according to the ECMWF model and maintain its central pressure value of 1005hPa through 24 to 48hours on the GFS and UKMET models. A low pressure system situated over eastern Niger is expected to shift towards central Mali while filling up. Its central pressure value is expected to change from 1005 to 1006hPa through 24 to 96hours on the GFS model, 1006 to 1007hPa according to the UKMET model. Another low pressure system situated over central Chad is expected to move slightly to the west while filling up. Its central pressure value is expected to change from 1004 to 1005hPa on the GFS model through 24 to 96hours, 1005 to 1009hPa on the ECMWF model through 24 to 72hours and 1005 to 1006hPa through 24 to 72hours on the UKMET model. Another low pressure system located over eastern Sudan is expected to maintain its position while filling up. Its central pressure is expected to change from 1005 to 1007hPa through 24 to 96hours according to the GFS model, 1006 to 1007hPa on the ECMWF model and 1004 to 1005hPa on the UKMET model through 24 to 96hours. Another low pressure system located over southern Sudan is expected to maintain its position, while filling up. Its central pressure value is expected to change from 1007 to 1008hPa through 24 to 48hours on the GFS model. The seasonal low pressure system located over southern DRC is expected to change its central pressure value from 1006 to 1009hPa through 24 to 72 hours according to the GFS model, 1007 to 1008hPa according to the ECMWF model and maintain its central pressure value of 1006hPa through 24 to 96hours according to the UKMET model. The two localized high pressure systems are expected to maintain their positions and central pressure values in the vicinity of Cote-d'Ivoire (1013hPa) and Central African Republic (1014hPa), respectively, through 48 to 96hours according to the ECMWF model. In general, the Inter-Tropical Front (ITF) is expected to remain between 15°N to 17°N latitudes across West African countries (west of the Prime Meridian) while it is expected to stay between 14°N and 16°N latitudes east of the Prime Meridian.

The Azores high-pressure system situated over northern Atlantic Ocean is expected to relax through 24 to 48hours and to regain its intensity, while its central pressure changing from 1025 to 1027hPa through 48 to 72hours. The St. Helena high, situated over southern Atlantic Ocean is expected to relax from central pressure value from 1026 to 1025hPa through 24 to 48hours and from central pressure values of 1025 to 1023hPa

through 48 to 96 hours. On the other hand, the Mascarene high pressure system is expected to relax from central pressure values of 1033 to 1030hPa through 48 to 96 hours.

At 850hpa, the cyclonic circulation in the vicinity of eastern Mali is expected to shift slightly to the west through 24 to 72hours. A cyclonic circulation in the vicinity of eastern Niger is expected to shift slightly to the west through 24 to 96hours. Another cyclonic circulation located over central Chad is expected to move toward eastern Nigeria through 24 to 96hours. A cyclonic circulation situated over central Sudan is expected to move towards central Chad through 24 to 72hours. A cyclonic circulation located over southern Sudan is expected to maintain its position through 72 to 96 hours. The convergence associated with the CAB is expected to weaken slightly across the CAB region.

At 700Hpa, the African Easterly wave is expected to remain weak across the West African countries. However, weak trough in the easterlies is expected to dominate the flow across the coastal areas of the Gulf of Guinea countries.

At 500hpa, the African Easterly Jet is expected to remain weak with its associated wind speeds remaining below 25Kts in many areas of western and central African regions.

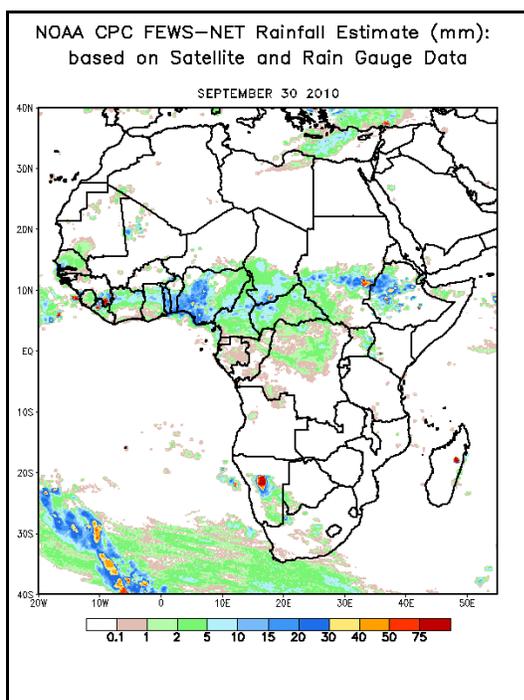
At 200hPa, zone of strong wind (>50Kts) is expected to dominate the flow in the vicinity of northern Algeria and eastern Mediterranean Sea and parts of Morocco and northern Mauritania. Meanwhile, the TEJ related strong winds are expected to weaken gradually across much of the tropical African region.

In the coming four days, there is an increased chance for rainfall to exceed 20mm per day over Guinea, Sera Leone, Liberia, Nigeria and parts of Cameroon, Gabon, CAR due to localized convergences and westward propagating meso-scale convection systems. Moderate to heavy rainfall is also expected over the northern parts of DRC and western Ethiopia.

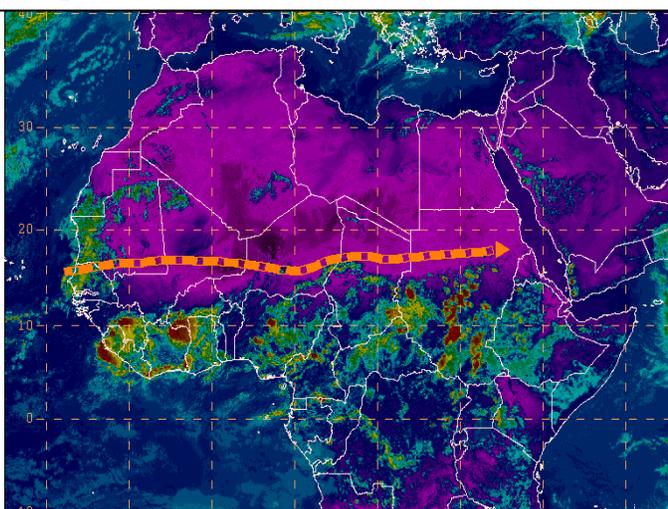
## 2.0. Previous and Current Day Weather Discussion over Africa (30 September – 01 October 2010)

**2.1. Weather assessment for the previous day (30 September 2010):** During the previous day, moderate to heavy rainfall was observed over parts Guinea, southern Togo, southern Benin, southern Nigeria, eastern Sudan and parts of Ethiopia.

**2.2. Weather assessment for the current day (01 October 2010):** Moderate to intense clouds are observed over Guinea, Sierra Leone, Liberia, Cote-d'Ivoire, Nigeria, Ghana, Cameroon, southern Chad, CAR, Congo, DRC, southern Sudan and Ethiopia.



IR Satellite Image, Valid 1352Z, October 01, 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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