

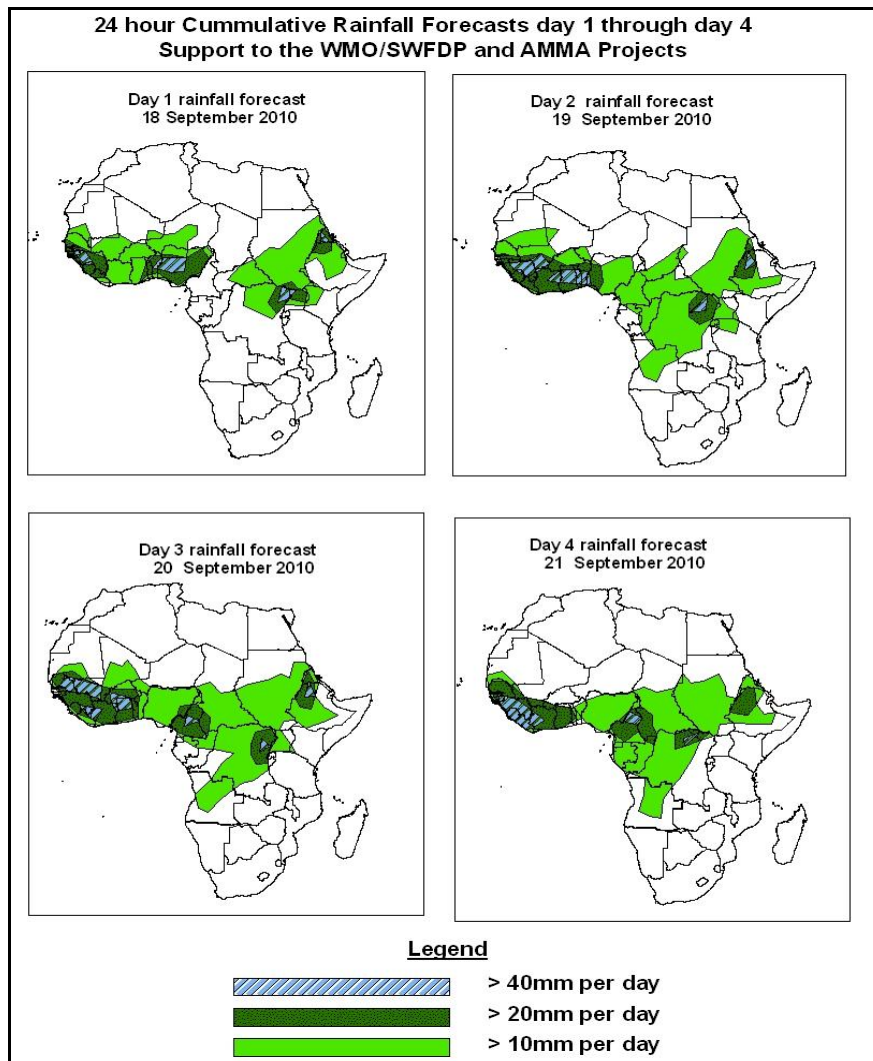


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid, 06Z of 18 SEPTEMBER – 06Z of 21 SEPTEMBER 2010, (Issued at 14:00EST of 17 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.



### Summary

In the coming four days, the zone of maximum rainfall in West Africa is expected to shift towards southern parts of the Gulf of Guinea countries and the western coastal regions of West Africa. Especially, there is an increased chance for the rainfall to exceed 20mm per day in parts of southern Mauritania, Senegal, Guinea, Mali, Cote-d'Ivoire, Burkina Faso, Ghana, Togo, Benin and Nigeria. Western and central parts of Ethiopia, DRC, parts of Cameroon, CAR and southern Sudan and southern Chad are also expected to receive moderate to heavy rainfall due to localized and seasonal convergence areas in the vicinity of the respective regions.

## **1.2. Models Comparison and Discussion-Valid from 00Z of 17 September 2010**

A low pressure system situated over central Mauritania is expected to shift towards western Mauritania. Its central pressure value is expected to change from 1008 to 1009hPa through 24 to 96hours. A low pressure system located over western Niger is expected to move towards eastern Mali, while deepening. Its central pressure value is expected to change from 1009 to 1004hPa through 48 to 96hours according to the GFS model and 1005 to 1004hPa according to the UKMET model. Another low pressure system located over central Chad is expected to move towards eastern Niger while deepening. Its central pressure value is expected to change between 1008 to 1005hPa through 24 to 96hours according to the GFS model, 1010 to 1007hPa on the ECMWF model and 1008 to 1005hPa according to the UKMET model. A low pressure system located over southern Sudan is expected to shift towards western Sudan, while deepening. Its central pressure value is expected to change from 1010 to 1006hPa on the GFS model through 24 to 96hours and 1005 to 1003hPa according to the UKMET model through 24 to 72hours. A weak high pressure system expected to form over central Libya. Its central pressure value is expected to change from 1017 to 1018hPa through 72 to 96hours. The seasonal low pressure system located over southern DRC is expected to change from central pressure value of 1009 to 1006hPa according to the GFS model, 1011 to 1007hPa according to the ECMWF model and 1007 to 1004hPa according to the UKMET model. A weak high pressure system situated in the area bordering Cote-d'Ivoire and Cameroun is expected to maintain its position and its central pressure value of 1014hpa through 24 to 48hours and 1015hPa through 24 to 48hours.

In general, the Inter-Tropical Front (ITF) is expected to remain between 19°N and 22°N latitudes across West African countries (west of the Prime Meridian) through 24 to 48, while it is expected to stay between 18°N and 20°N latitudes east of the Prime Meridian.

The Azores high-pressure system is expected to relax from central pressure value of 1028 to 1022hPa through 24 to 96hours, while maintaining its ridge across northern African countries. The St. Helena high, situated over southern Atlantic Ocean is expected to relax slightly from central pressure values of 1035 to 1032hPa through 24 to 72hours. On the other hand, the Mascarene high pressure system is expected to intensify from central pressure value of 1040 to 1041hPa through 24 to 48hours.

At 850hpa, a cyclonic circulation situated over central Mauritania is expected to shift towards western Mauritania through 24 to 72hours. Another cyclonic circulation located over central Nigeria is expected to move towards Guinea and continue moving towards central Senegal through 24 to 72hours. A cyclonic circulation situated over eastern Niger is expected to shift towards western Niger through 72 to 96hours. Another cyclonic circulation over eastern Sudan is expected to move towards eastern Chad, while slightly weakening. The convergence associated with the CAB is expected to remain active across eastern Namibia, Angola, DRC, southwest Sudan, Kenya and southwest Ethiopia through 24 to 96 hours.

At 700Hpa, a trough associated with the African Easterly wave is expected to propagate across the longitudes of Nigeria through 24 to 48hours. This trough is expected to further across the longitudes of RCI/Burkina Faso through 48hours and continue to move towards the longitudes of Guinea/Senegal/ western Mali through 72 to 96hours.

At 500hpa, higher 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 72 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 Tropical Easterly Jet (>35Kts) is expected to dominate the flow across southern Ethiopia, southern Sudan through 24 to 48hours.

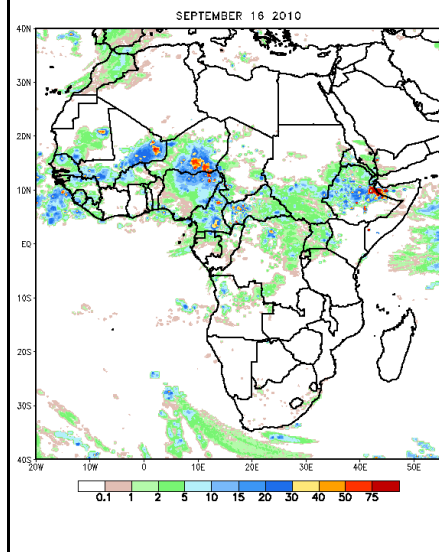
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## 2.0. Previous and Current Day Weather Discussion over Africa (16 - 17 September 2010)

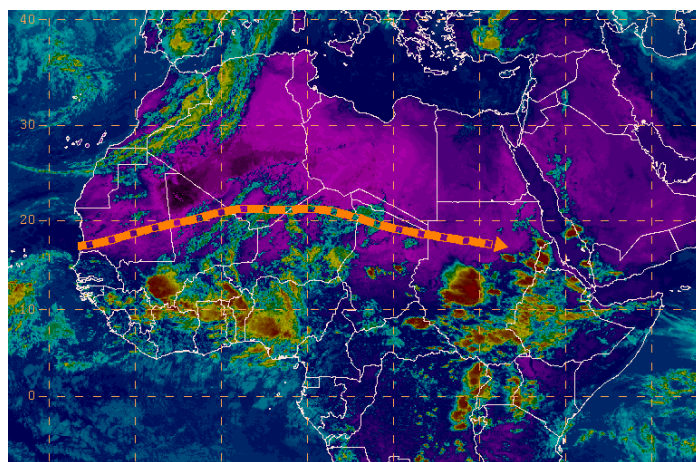
**2.1. Weather assessment for the previous day (16 September 2010):** During the previous day, moderate to heavy rainfall was observed over Mauritania, Mali, Niger, Nigeria, Cameroun, CAR and parts of Ethiopia.

**2.2. Weather assessment for the current day (17 September 2010):** Intense clouds are observed over much of the Gulf of Mali, Guinea, Cote-d'Ivoire, and Burkina Faso, Nigeria and eastern African countries, including parts of DRC, CAR, Southern Sudan, eastern Kenya, Uganda and Ethiopia.

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



IR Satellite Image, Valid 1422Z, September 17, 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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**Disclaimer:** This bulletin is for training purposes only and should be used as guidance. NOAA does not make forecasts for areas outside of the United States.