

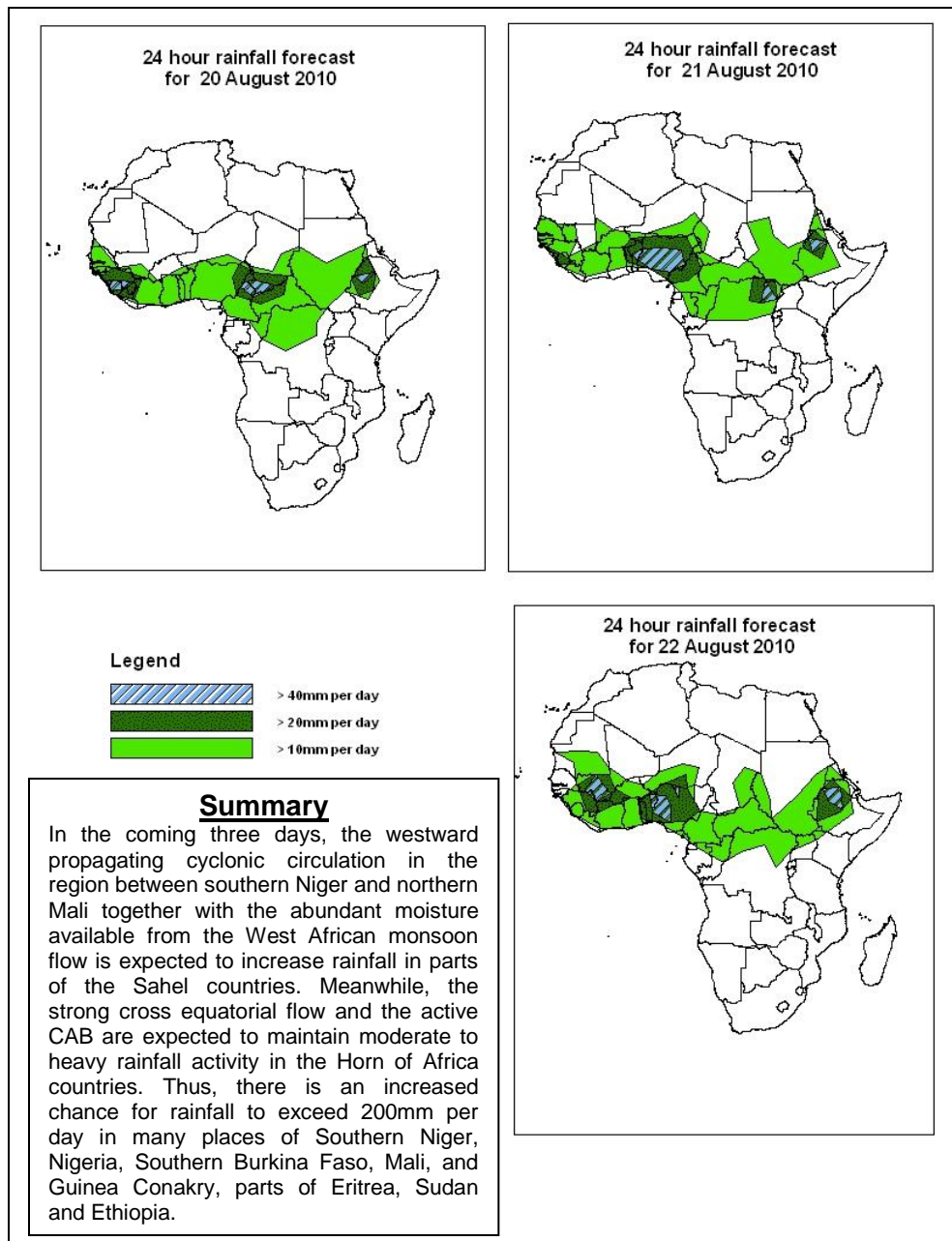


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid, 06Z of 20 August – 06Z of 22 August 2010, (Issued at 14:00EST of 19 August 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.



## **1.2. Models Comparison and Discussion - Valid from 00Z of 19 August 2010**

A low pressure system over Southern Algeria is expected to fill up slightly from central pressure value of 1006 to 1007mb through 24 to 48 hours on the UKMET model. Another low pressure system located on Central western Mauritania is expected to move towards Atlantic Ocean in 48 hours, while its central pressure value changing from 1008mb to 10011mb on the GFS and UKMET models through 24 to 72 hours. A low pressure system located over western Niger expected to move towards southern Mali while maintaining its central pressure value of 1007mb through 48 to 72 hours. Another low pressure system located over southern Chad is expected to move towards southern Niger through 48 to 72 hours, while its central pressure value is expected to change from 1005mb to 1006mb on the GFS and UKMET models. The GFS model tends to maintain central pressure value of 1007mb through 24 to 72 hours. A low pressure system located over northern Sudan with its central pressure value of 1002mb is expected to move towards southern Chad in 48 to 72 hours. Another weak low pressure located over southern DRC is expected to weaken further from central pressure values of 1008mb to 1009mb on the UKMET model and 1009mb to 1010mb on the ECMWF mode through 24 to 72 hours.

The Azores high pressure system is expected to intensify from central pressure value of 1020mb in 24 hours to value of 1026mb in 72 hours, while its ridge expanding across the northern African countries.

The St. Helena high, situated over southeast Atlantic Ocean off the coast of South Africa, is expected to intensify from central pressure values of 1028mb to 1031mb through 24 to 72 hours.

The Mascarene high pressure system is expected to intensify slightly from central pressure value of 1035mb to 1036mb through 24 to 72 hours.

**At 850mb**, a lower tropospheric cyclonic circulation situated in the area bordering northeastern Nigeria and Niger is expected to move towards northern Mali while deepening through 24 to 72 hours. The Congo Air Boundary (CAB) is expected to remain active in the region between southwest DRC and Ethiopia through 24 to 72 hours. Localized wind convergences are also expected across Central African Republic, parts of Cameroon, Ghana, Chad and Cote d'Ivoire during 24 to 72 hours.

**At 700hPa**, a weak trough associated with the African Easterly Wave is expected to move across the longitudinal positions of Sudan, Chad and Nigeria through 24 to 72 hours. Other localized troughs in the easterlies are also expected over Sudan, Central African Republic, Ethiopia and southern Mali through 24 to 72 hours.

At **500hPa**, Zones of strong wind in excess of 30Kts, which are associated with the African Easterly Jet, are expected in the vicinity of Sudan, Chad, Nigeria, Burkina, Mali and Mauritania and through 24 to 72 hours.

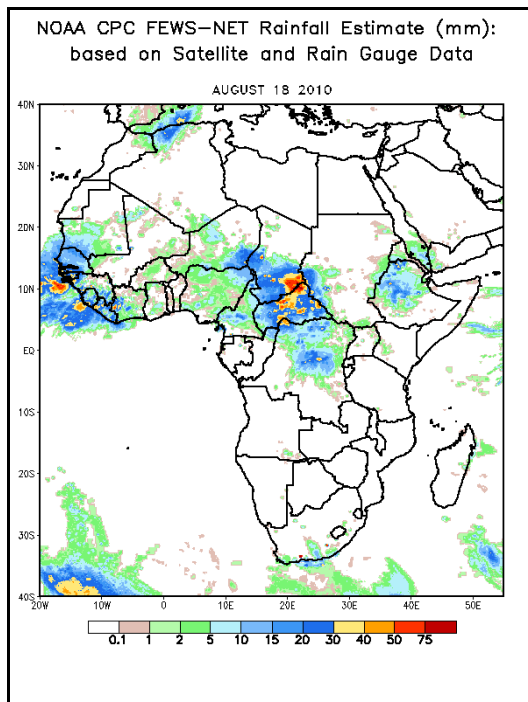
**At 200hPa**, a strong wind in excess of 50kts, which is associated with the Subtropical westerly Jet, is expected to dominate the flow over parts of northern Algeria and the adjoining areas of Mediterranean. Zones of strong wind in excess of 35kts, which is associated with the Tropical Easterly Jet, are expected in the vicinity of Sudan, northern DRC and parts of Central African Republic, Ghana, Cote-d'Ivoire and southern Mali.

In the coming three days, the westward propagating cyclonic circulation in the region between southern Niger and northern Mali together with the abundant moisture available from the West African monsoon flow is expected to increase rainfall in parts of the Sahel countries. Meanwhile, the strong cross equatorial flow and the active CAB are expected to maintain moderate to heavy rainfall activity in the Horn of Africa countries. Thus, there is an increased chance for rainfall to exceed 200mm per day in many places of Southern Niger, Nigeria, Southern Burkina Faso, Mali, and Guinea Conakry, parts of Eritrea, Sudan and Ethiopia.

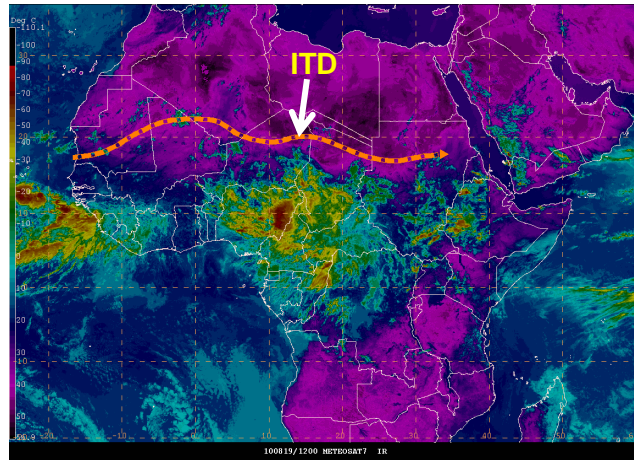
## 2.0. Previous and Current Day Weather Discussion over Africa (18 August 2010 – 19 August 2010)

**2.1. Weather assessment for the previous day (18 August 2010):** During the previous day, moderate to heavy rainfall was observed over parts of western Senegal, southern Chad, Central African Republic, northern DRC and Ethiopia.

**2.2. Weather assessment for the current day (19 August 2010):** Intense clouds are observed over Nigeria, Central Africa Republic, northern DRC and Ethiopia.



IR Satellite Image, Valid 1200Z, August 19, 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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