

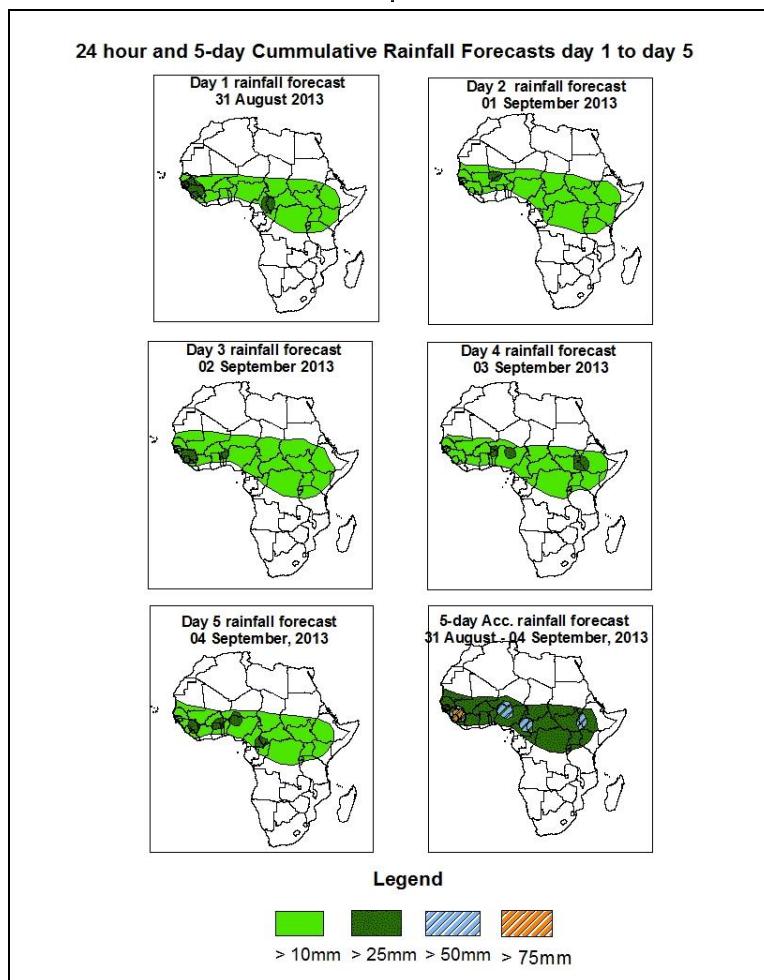


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid 06Z of 30 August – 06Z of 04 September, 2013. (Issued at 1530Z of 30 August 2013)

### 1.1. Twenty Four Hour Cumulative Rainfall Forecasts

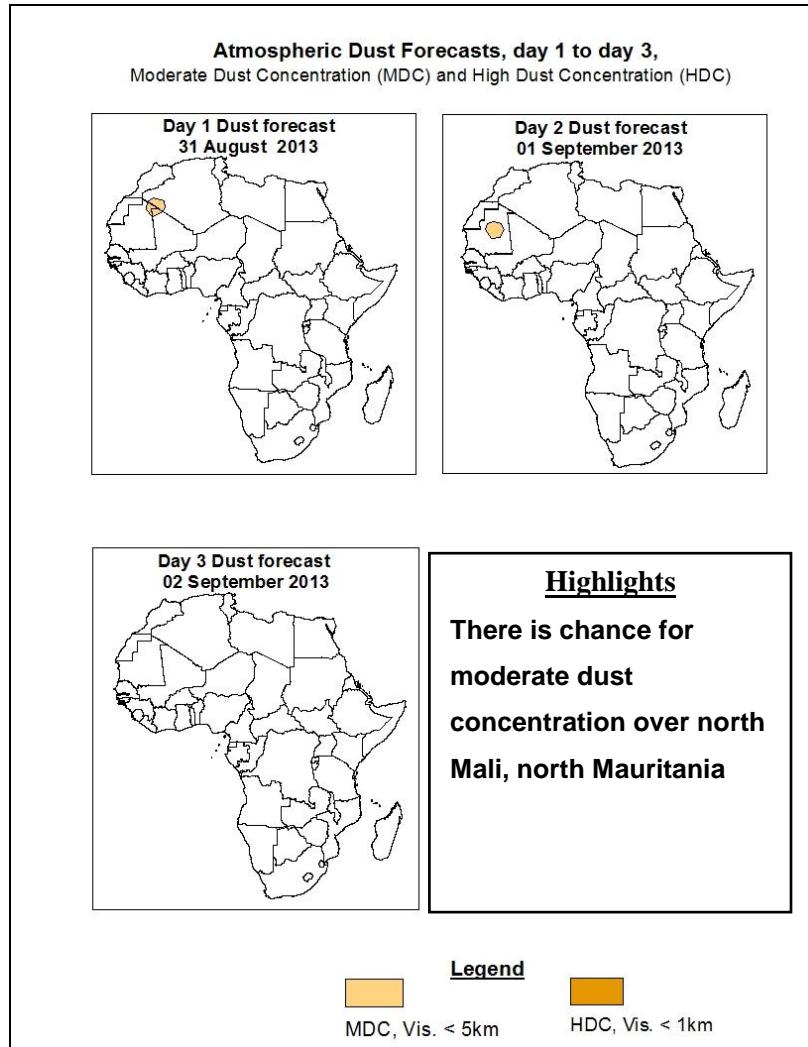
The forecasts are expressed in terms of 75% probability of precipitation (POP) exceeded, based on the NCEP, UK Met Office and the ECMWF NWP outputs, the NCEP global ensemble forecasts system (GEFS) and expert assessment.



#### Summary

In the next five days, the *ITD* is expected to fluctuate between 19 and 20 degree north. Favorable conditions are expected to modulate rainfall activities over central and South Sahel while suppressed conditions are also expected to continue along the Gulf of Guinea coast, with slight improvement. Strong cross equatorial flow, with its associated convergence over the Horn of Africa is expected to increase rainfall over East Africa. Thus, there is an increased chance for moderate to heavy rainfall over Conakry, Guinea, Bissau Guinea, Sierra Leone, Liberia, south west Niger, South Chad, Sudan, West Ethiopia and north and central Nigeria.

## 1.2. Atmospheric Dust Forecasts: Valid 31 - 02 September 2013



## 1.2. Model Discussion: Valid from 00Z of 30 August 2013

*Model comparison (Valid from 00Z; 27 August, 2013) shows all the three models are in general agreement in terms of depicting positions of the northern and southern hemisphere sub-tropical highs, while they showed slight differences in depicting their intensity.*

The Azores High Pressure System over Northeast Atlantic Ocean is expected to weaken during the forecast period. Its central pressure value is expected to decrease from about 1034hpa to 1025hpa according to GFS, from about 1034hpa to 1027hpa

according to ECMWF model, from about 1035hpa to 1024hpa according to UKMET model

The St. Helena High Pressure System over southeast Atlantic Ocean is expected to intensify during the forecast period; its central pressure value is expected to increase from about 1028hpa to 1032hpa according to GFS model, from about 1027hpa to 1030hpa according to ECMWF model, from about 1029hpa to 1033hpa according to UKMET model.

The Mascarene high pressure system over southwestern Indian Ocean is expected to decrease during the forecast period. Its central pressure value is expected to decrease from about 1028hpa to 1021hpa according to GFS model, from about 1028hpa to 1024hpa according to ECMWF model, from about 1029hpa to 1025hpa according to UKMET model.

The heat lows over the central Sahel and neighboring areas are expected to deepen slightly during 24 to 72 hours period especially over Mali and Mauritania according to GFS, ECMWF and UKMET models. Its value is expected to increase from about 1005hpa to 1003hpa according GFS model and UKMet Model, from about 1007hpa to 1005hpa according to UK model, the seasonal lows across the red sea and its neighboring areas are expected to maintain its positions during the forecast period according ECMWF and UKMET models, it's expected to be around 1004hpa according both ECMWF and UKMET models.

At the 850hPa level, monsoon wind flow continues to dominate flow across West Africa and the Horn of Africa. The inter-tropical front is also expected to fluctuate between 18 and 20 degree north, while meridional wind convergence will dominate flow across East Africa. Suppressed rainfall along Guinea Gulf coast is expected to continue with slight improvement as wind and surface pressure conditions gradually improve over the area during the forecast period. The frequency in number of vortices at this level and wind convergence over the region is expected to reduce over West Africa with high to moderate rainfall over south and central of Sahel.

The African Easterly Waves (AEW) is also expected to propagate westwards waves to affect part of Guinea Gulf Countries, south Sahel and portion of Central Africa within 24 to 120 hours

At 700hpa level, wind flow maintains northeasterly to easterly flow pattern between few vortices and trough lines also are expected to occur from East to west with less intensification compare to the last week and likely to facilitate westward propagation of systems across the region during the period.

At 500hpa level, winds associated with mid-tropospheric easterly jet are expected to have common speeds of 30kts over Sahel.

150mb, the Tropical Easterly Jet with a maximum core of 35 to 70 Knots will affect Southern Chad and South Sudan; Part of Ethiopia, Guinea Gulf Countries and Central African Republic through 24 to 120 Hours period. Speeds exceeding 60kts and above are observed over Ethiopia, eastern Sudan and Somalia during the forecast period.

In the next five days, the ITD is expected to fluctuate between 19 and 20 degree north. Favorable conditions are expected to modulate rainfall activities over central and South Sahel while suppressed conditions are also expected to continue along the Gulf of Guinea coast, with slight improvement. Strong cross equatorial flow, with its associated convergence over the Horn of Africa is expected to increase rainfall over East Africa. Thus, there is an increased chance for moderate to heavy rainfall over Conakry Guinea, Bissau Guinea, Sierra Leone, Liberia, south west Niger, South Chad, Sudan, West Ethiopia and north and central Nigeria

## **2.0. Previous and Current Day Weather Discussion over Africa (29 August 2013 – 30 August 2013)**

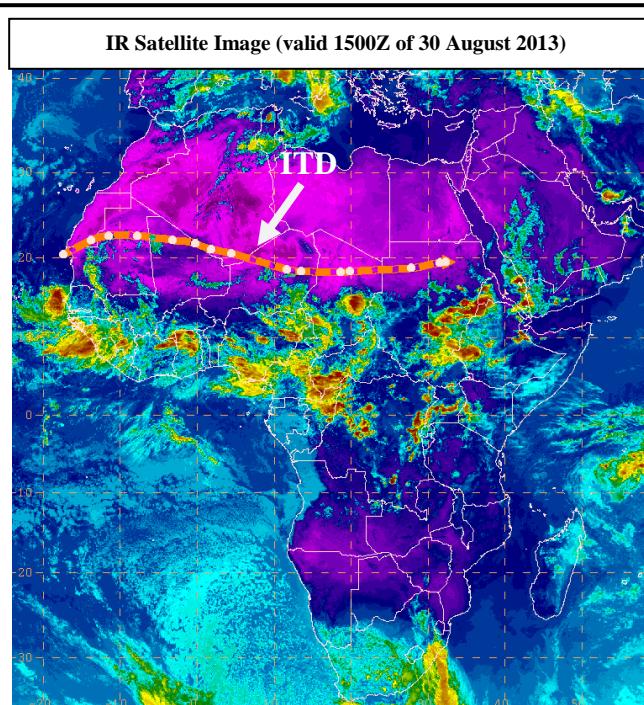
### **2.1. Weather assessment for the previous day (29 August 2013)**

Not Available

### **2.2. Weather assessment for the current day (30 August 2013)**

Intense clouds were observed over South Chad, Cameroon, and North Cote d Ivoire, Conakry Guinea, CAR, Ethiopia, Sudan, and North Uganda.

The ITD is located at an average position of latitude 20°N over Africa.



*Previous day rainfall condition over Africa (top Left) based on the NCEP CPCE/RFE and current*

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