

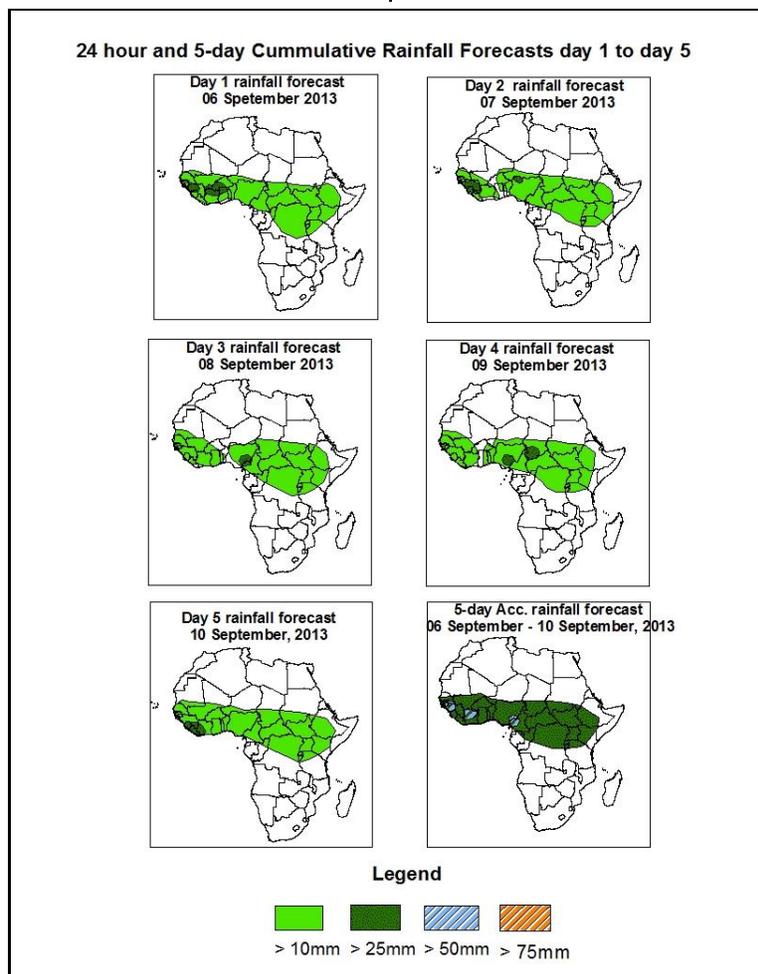


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid 06Z of 06 September – 06Z of 10 September, 2013. (Issued at 1530Z of 05 September 2013)

### 1.1. Twenty Four Hour Cumulative Rainfall Forecasts

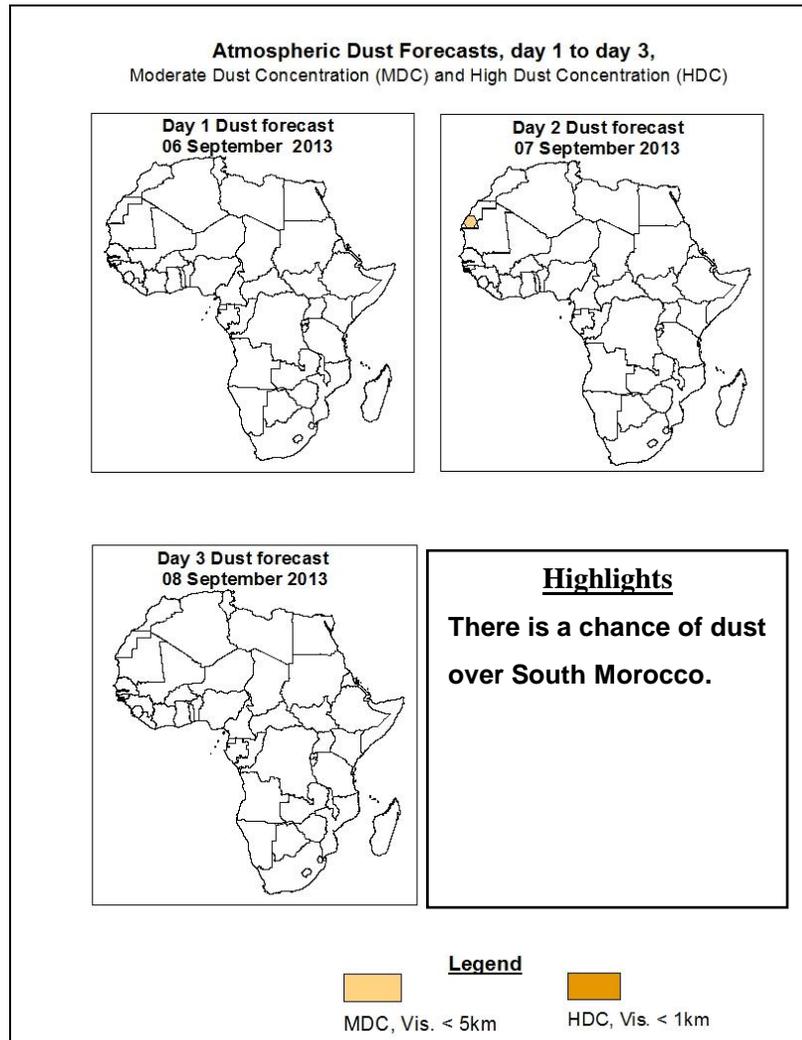
The forecasts are expressed in terms of 75% probability of precipitation (POP) exceeded, based on the NCEP, UK Met Office and the ECMWF NWP outputs, the NCEP global ensemble forecasts system (GEFS) and expert assessment.



### Summary

In the next five days, the *ITD* is expected to fluctuate between 18 and 20 degree north. Favorable conditions are expected to modulate rainfall activities over South Sahel and North of Guinea Gulf Countries, while suppressed conditions along the Gulf of Guinea coast are expected, to slightly improve. 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 North Togo, North Benin, North and South Nigeria, North Ghana, North Cote d Ivoire, Conakry Guinea.

## 1.2. Atmospheric Dust Forecasts: Valid 06 - 08 September 2013



### 1.2. Model Discussion: Valid from 00Z of 05 September 2013

*Model comparison (Valid from 00Z;05 September 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 24 to 72 hours period, before increasing. Its central pressure value is expected to decrease from about 1030hpa to 1028hpa according to GFS, from about

1030hpa to 1027hpa according to ECMWF model, from about 1030hpa to 1027hpa according to. UKMET model

The St. Helena High Pressure System over southeast Atlantic Ocean is expected to intensify during 24 to 72 hours; its central pressure value is expected to increase from about 1036hpa to 1041hpa according to GFS model, from about 1036hpa to 1040hpa according to ECMWF model, from about 1037hpa to 1041hpa according to UKMET model.

The Mascarene high pressure system over southwestern Indian Ocean is expected to intensify slightly during 24 to 96. Its central pressure value is expected to increase from about 1022hpa to 1027hpa according to GFS model, from about 1023hpa to 1027hpa according to ECMWF model, from about 1023hpa to 1028hpa according to UKMET model.

The heat lows over the central Sahel and neighboring areas are expected to deepen slightly during forecast period especially over Chad and Mauritania according to ECMWF and UKMET models. Its value is expected to decrease from about 1007hpa to 1006hpa according to ECMWF model and from about 1008hpa to 1003hpa according to UK model, the seasonal lows across the red sea and its neighboring areas are expected to weaken its positions during the 24 to 72 hours period according to both models, Its value is expected to increase from about 1002hpa to 1004hpa according GFS model from about 1004hpa to 1006hpa and from about 1002hpa to 1006hpa according to 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 slightly improve 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 north Guinea Gulf Countries.

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 about 25 to 30kts over Sahel.

150mb, the Tropical Easterly Jet with a maximum core of 35 to 65 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 are observed over Ethiopia, eastern Sudan and Somalia during the forecast period.

In the next five days, the ITD is expected to fluctuate between 18 and 20 degree north. Favorable conditions are expected to modulate rainfall activities over South Sahel and North of Guinea Gulf Countries, while suppressed conditions along the Gulf of Guinea coast are expected, to slightly improve. 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 North Togo, North Benin, North and South Nigeria, North Ghana, North Cote d Ivoire, Conakry Guinea.

## 2.0. Previous and Current Day Weather Discussion over Africa

(04 September 2013 – 05 September 2013)

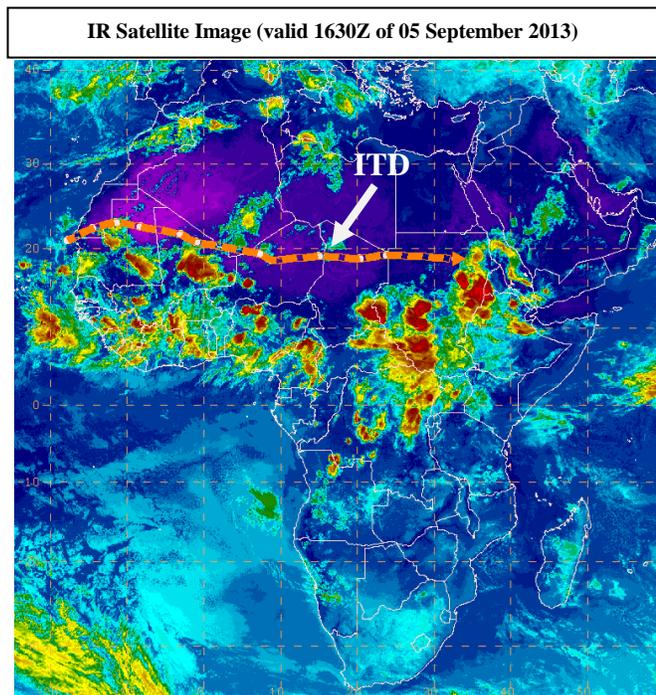
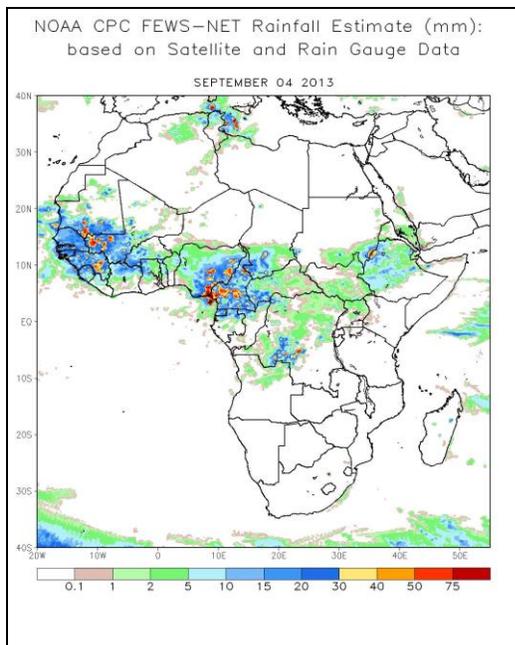
### 2.1. Weather assessment for the previous day (04 September 2013)

During the previous day, moderate to heavy rainfall was observed over South Mauritania, South West Mali, North Conakry Guinea, South West Cameroon, South East Nigeria, West CAR, West Ethiopia, South West DRC, West Burkina Faso, South Chad, North Cote d Ivoire.

### 2.2. Weather assessment for the current day (05 September 2013)

Intense clouds were observed over Niger, South Mauritania, over Conakry Guinea, South West Sudan, North Ethiopia, East Mali, East CAR, north East DRC, north Cote d Ivoir, and North Ghana.

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 day cloud cover (top right) based on IR Satellite image*

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