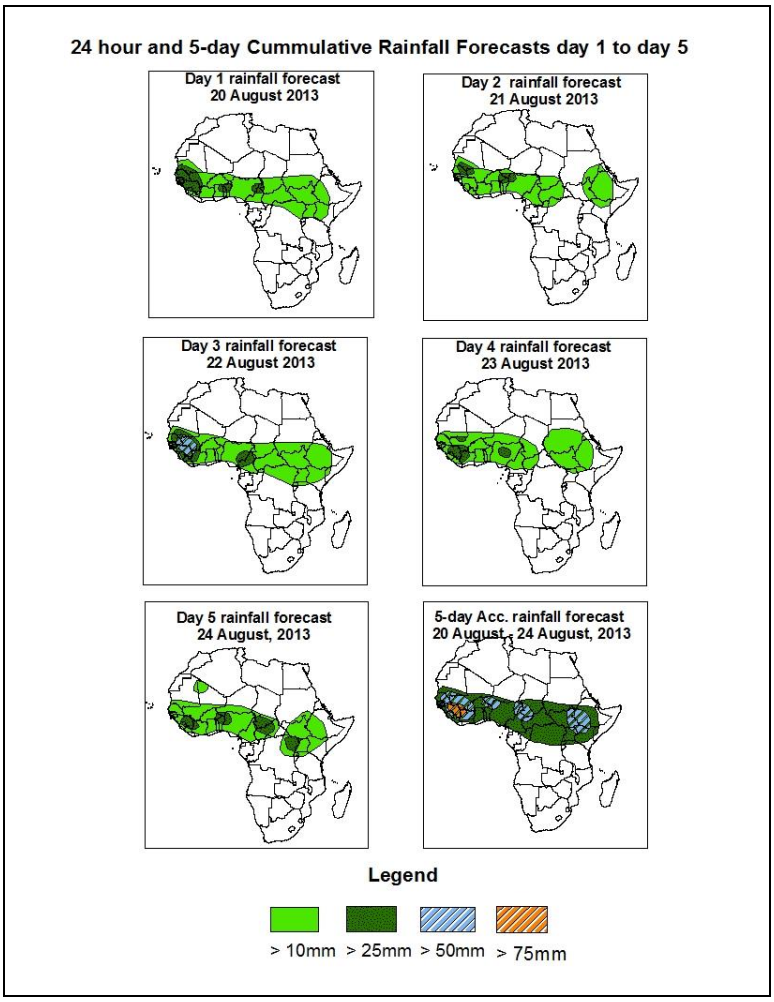
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 20 August – 06Z of 24 August, 2013. (Issued at 1700Z of 19 August 2013)

1.1. Twenty Four Hour Cumulative Rainfall Forecasts

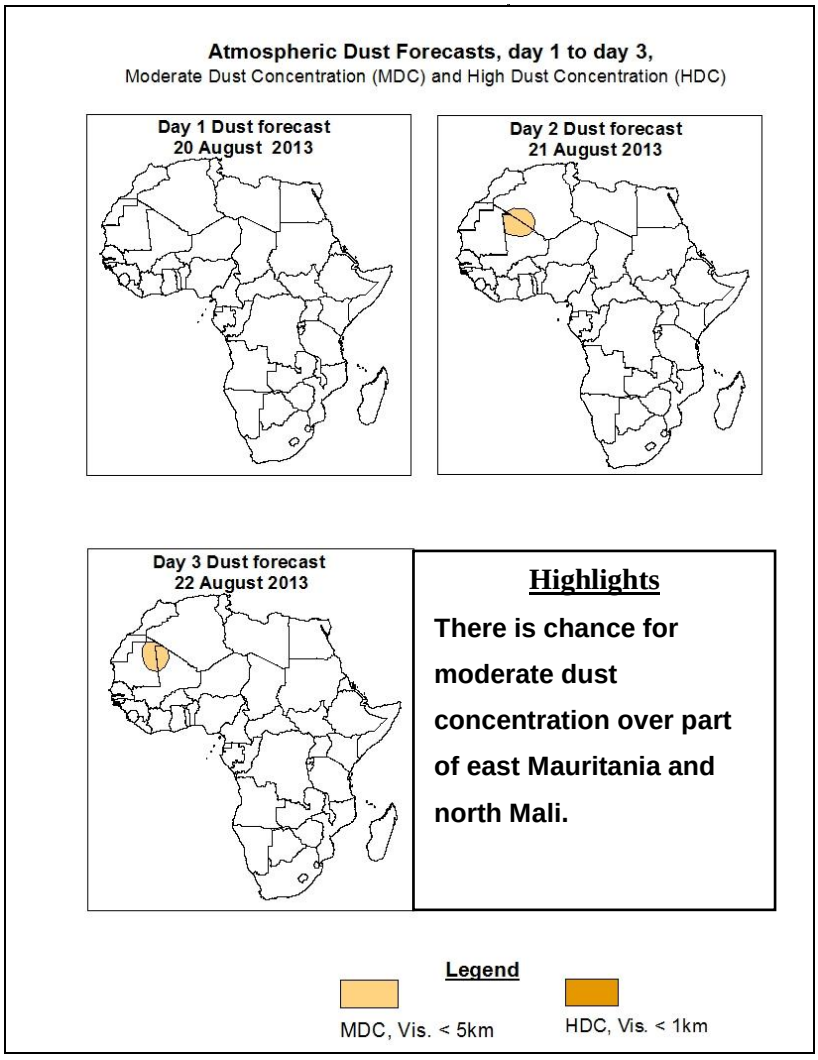
The forecasts are expressed in terms of 75% probability of precipitation (POP) exceeded, based on the NCEP, UK Met Office and the ECMWF NWP outputs, the NCEP global ensemble forecasts system (GEFS) and expert assessment.



Summary

In the next five days, favorable conditions are expected to continue modulating rainfall activities over eastern and West Africa while suppressed conditions are also expected to continue along the Gulf of Guinea coast. 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, and West Ethiopia.*

1.2. Atmospheric Dust Forecasts: Valid 20 - 22 August 2012



1.2. Model Discussion: Valid from 00Z of 19 August 2013

Model comparison (Valid from 00Z;19 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 slightly weaken during 24 to 72 hours. Its central pressure value is expected to decrease from about 1028hpa to 1024hpa according to the GFS model, from about 1028hpa to 1023hpa according ECMWF models and the UKMET model.

The St. Helena High Pressure System over southeast Atlantic Ocean is expected to weaken during the forecast period; its central pressure value is expected to increase from about 1036hpa to 1030hpa according to GFS models, about 1036hpa to 1028hpa according to the ECMWF and from about 1037hpa to 1028hpa according UKMET model.

The Mascarene high pressure system over southwestern Indian Ocean is expected to weaken slightly during 24 to 72 hours. Its central pressure value is expected to decrease from 1028hpa to 1027hpa according to GFS model and according ECMWF model and from about 1028hpa to 1025hpa according UKMET model.

The heat lows over the central Sahel and neighboring areas are expected to deepen during the forecast period especially over Mali and Mauritania according to GFS, ECMWF and UKMET models. Its value is expected to decrease from about 1007hpa to 1004hpa according GFS model, from about 1008hpa to 1006hpa according to ECMWF model, from about 1006hpa to 1004hpa according to UKMET model. The seasonal lows across the red sea and its neighboring areas are expected to maintain its positions during the forecast period. The pressure values are likely to be around 1002hpa according to the GFS model and UKMET model.

At the 850hPa level, monsoon wind flow continues to dominate flow across West Africa. The inter-tropical front is also expected to shift slightly to the south to have an average position of latitude 20^{o}N, while meridional wind convergence will dominate flow across East Africa. Suppressed rainfall along Guinea Gulf coast is expected to persist 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 be maintained over the region with high to moderate rainfall over Western Sahel.

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 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 generally weak with common speeds of 30kts over Sahel.
At 150hPa level, tropical easterly jets are stronger over East Africa than over Sahel during forecast period. Speeds of 30 to 65kts are common over West and East Africa. However, speeds exceeding 70kts are observed over Ethiopia, eastern Sudan and Somalia during the forecast period.

In the next five days, favorable conditions are expected to continue modulating rainfall activities over eastern and West Africa while suppressed conditions are also expected to continue along the Gulf of Guinea coast. 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, and West Ethiopia

2.0. Previous and Current Day Weather Discussion over Africa

(18 August 2013 – 19 August 2013)

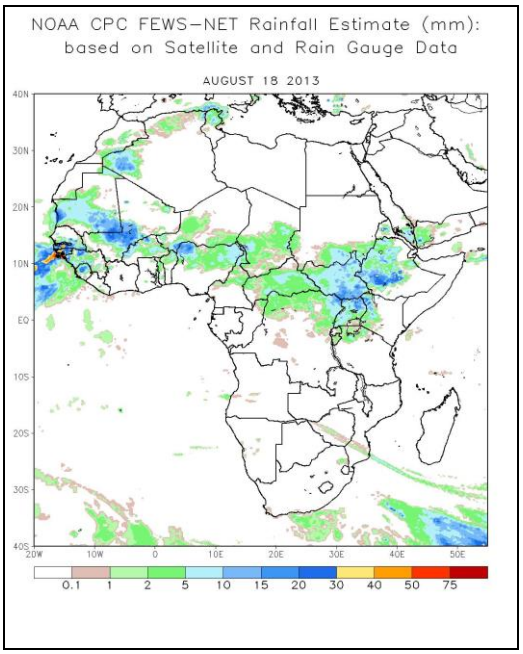
2.1. Weather assessment for the previous day (18 August 2013)

During the previous day, moderate to locally heavy rainfall was observed over south West Niger, Mali, Conakry Guinea, Bissau Guinea, South Mauritania, North West Algeria, Sudan and Ethiopia.

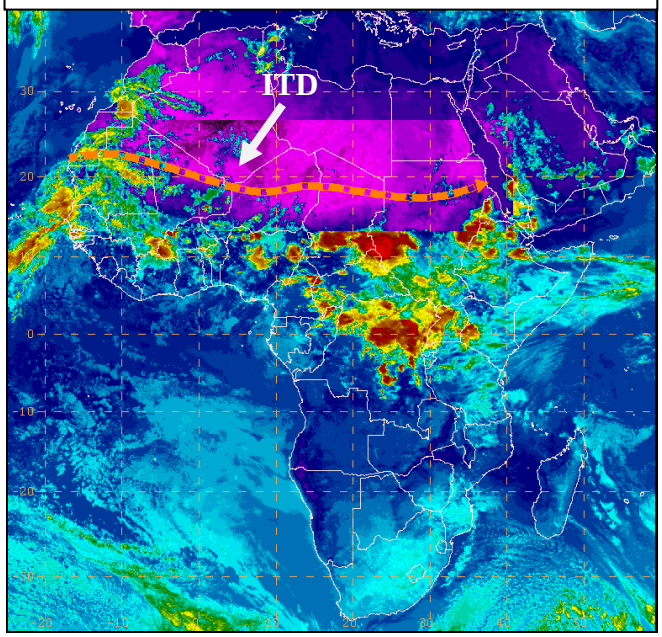
2.2. Weather assessment for the current day (19 August 2013)

Intense clouds were observed over Ethiopia, Sudan, north Cameroun, DRC, CAR, North Nigeria, Chad, West Burkina Faso, and Bissau Guinea.

The ITD is located at an average position of latitude 20^{o}N over Africa.



IR Satellite Image (valid 1630Z of 19 August 2013)



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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