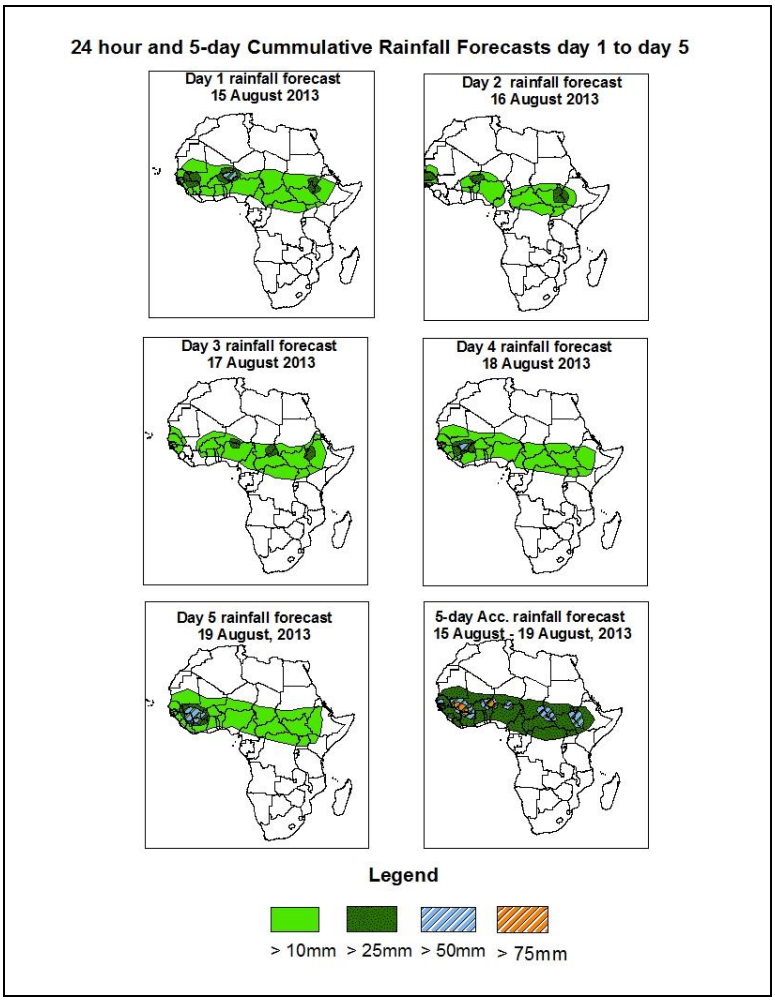
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 15 August – 06Z of 19 August, 2013. (Issued at 1700Z of 14 August 2013)

1.1. Twenty Four Hour Cumulative Rainfall Forecasts

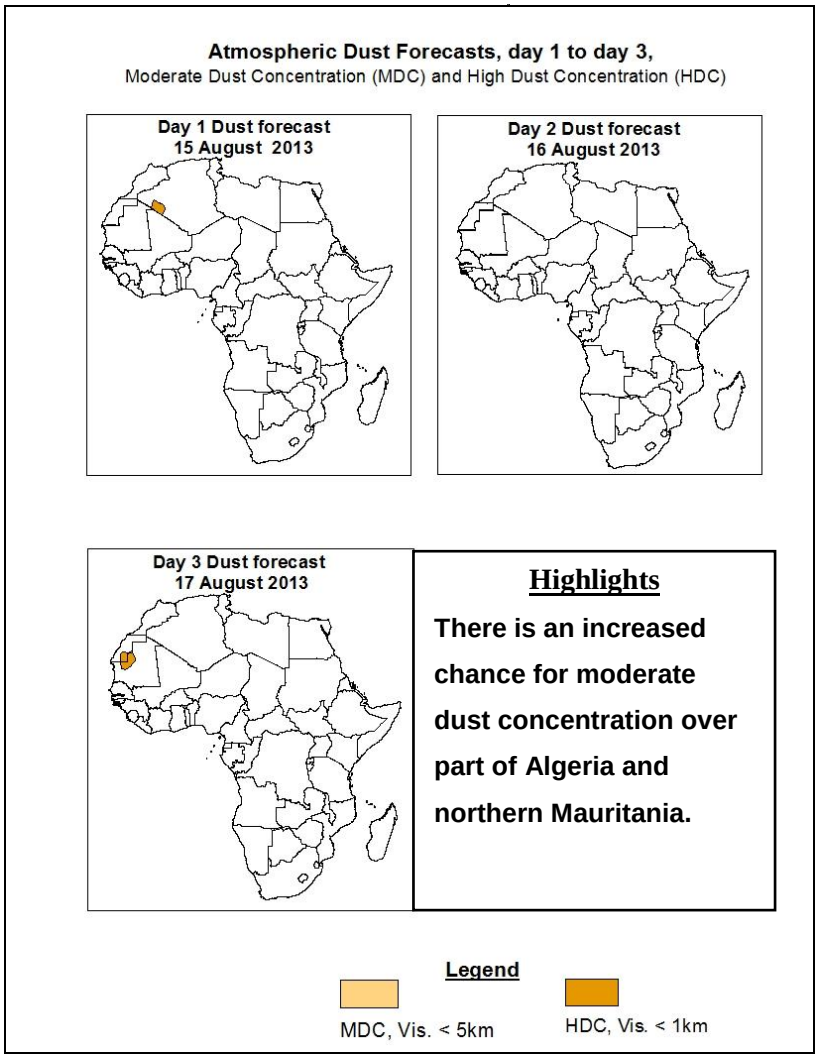
The forecasts are expressed in terms of 75% probability of precipitation (POP) exceeded, based on the NCEP, UK Met Office and the ECMWF NWP outputs, the NCEP global ensemble forecasts system (GEFS) and expert assessment.



Summary

In the next five days, favorable conditions are expected to be stronger and increase frequency of rainfall activities over West Africa. Suppressed rainfall is 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 South West Mali, Senegal*, Niger, South Chad, Sudan, West Ethiopia, Conakry Guinea, Gambia and Bissau Guinea*

1.2. Atmospheric Dust Forecasts: Valid 15 - 17 August 2012



1.2. Model Discussion: Valid from 00Z of 14 August 2013

Model comparison (Valid from 00Z;14 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 the forecast period. Its central pressure value is expected to decrease from about 1026hpa to 1023hpa according to the GFS model and ECMWF models and from about 1027hpa to 1022hpa according to the UKMET model.

The St. Helena High Pressure System over southeast Atlantic Ocean is expected to weaken from 24 to 96 Hours. Its central pressure value is expected to decrease from about 1028hpa to 1024hpa according to GFS, 1028hpa to 1026hpa according to the ECMWF model and from 1029hpa to 1026hpa according UKMET model.

The Mascarene high pressure system over southwestern Indian Ocean is expected to weaken significantly during the forecast period. Its central pressure value is expected to decrease from 1028hpa to 1020hpa according both models.

The heat lows over the central Sahel and neighboring areas are expected to slightly deepening from 24 to 96 hours especially over Mali and Mauritania according to the three models. Its lowest values are expected to vary from 1005hpa to 1004hpa according to the GFS, 1007hpa to 1005hpa according to the ECMWF model, 1005hpa to 1002hpa 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 1000hpa according to the GFS model, 1002hpa according to the ECMWF and according to UKMET model.

At the 850hPa level, monsoon wind flow continues to dominate flow across West Africa. The inter-tropical front is also expected to maintain its northwards position is expected to have an average position of latitude 22^{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 increase rainfall over the region with higher rainfall amounts likely 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 24 to 48 hours and during 96 hours period.

In the next five days, favorable conditions are expected to be stronger and increase frequency of rainfall activities over West Africa. Suppressed rainfall is 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 South West Mali, Senegal, Niger, South Chad, Sudan, West Ethiopia, Conakry Guinea, Gambia and Bissau Guinea

2.0. Previous and Current Day Weather Discussion over Africa

(13 August 2013 – 14 August 2013)

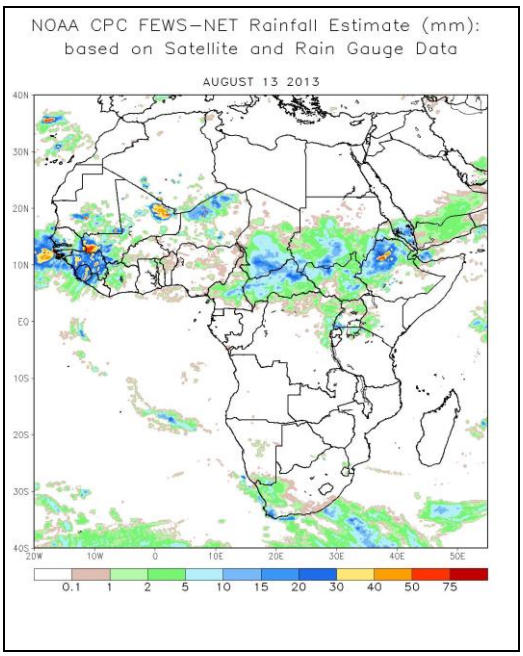
2.1. Weather assessment for the previous day (13 August 2013)

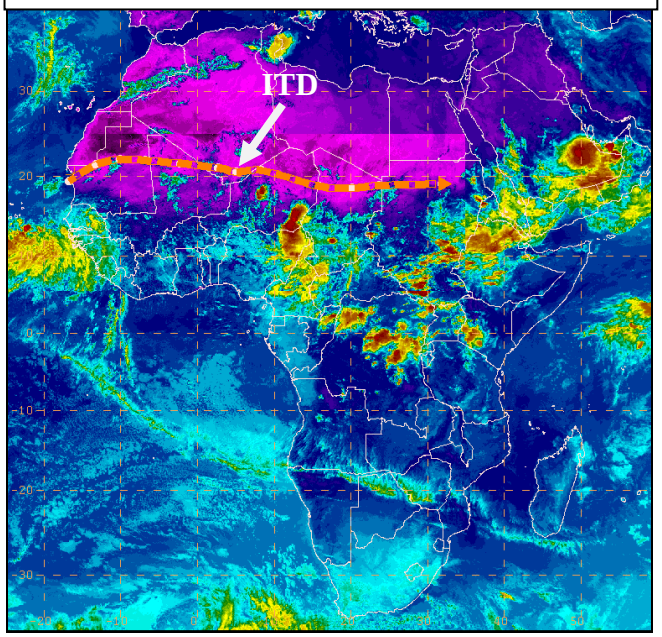
During the previous day, moderate to locally heavy rainfall was observed over North west Niger, Mali, northern Cote d'Ivoire, Conakry Guinea, Gambia, Sierra Leone, Sudan, Chad, Liberia and Ethiopia.

2.2. Weather assessment for the current day (14 August 2013)

Intense clouds were observed over North Ethiopia, Sudan, Cameroun, Nigeria, Chad, Niger, Senegal, and Eritrea.

The ITD is located at an average position of latitude 22^{o}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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