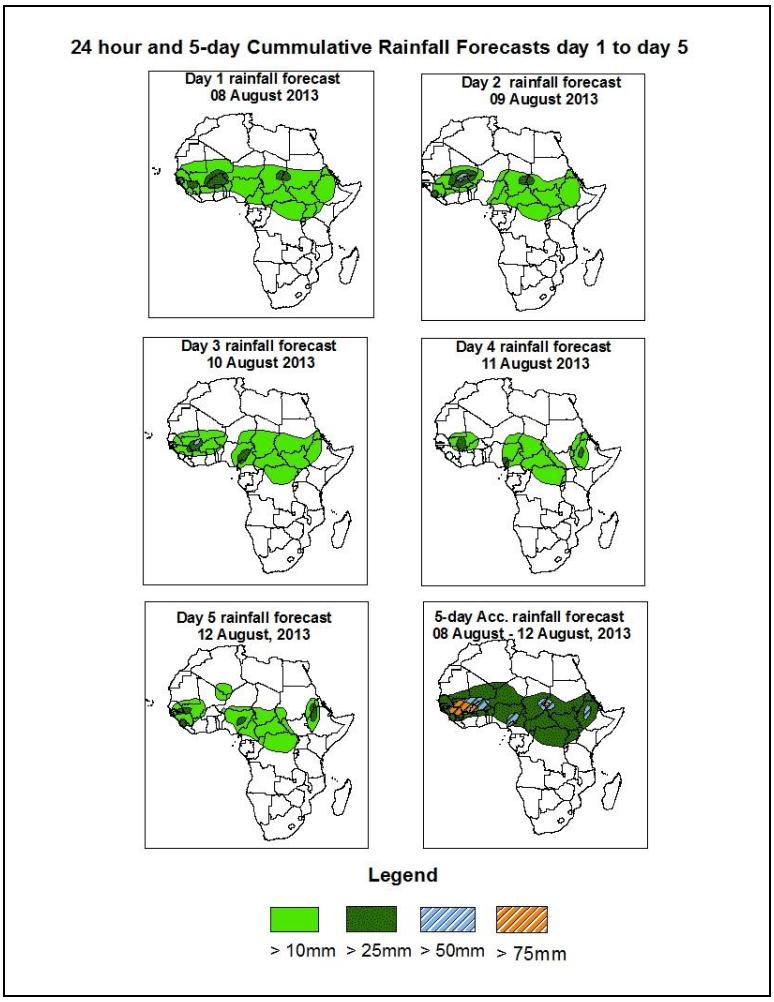
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 08 August – 06Z of 12 August, 2013. (Issued at 1730Z of 07 August 2013)

1.1. Twenty Four Hour Cumulative Rainfall Forecasts

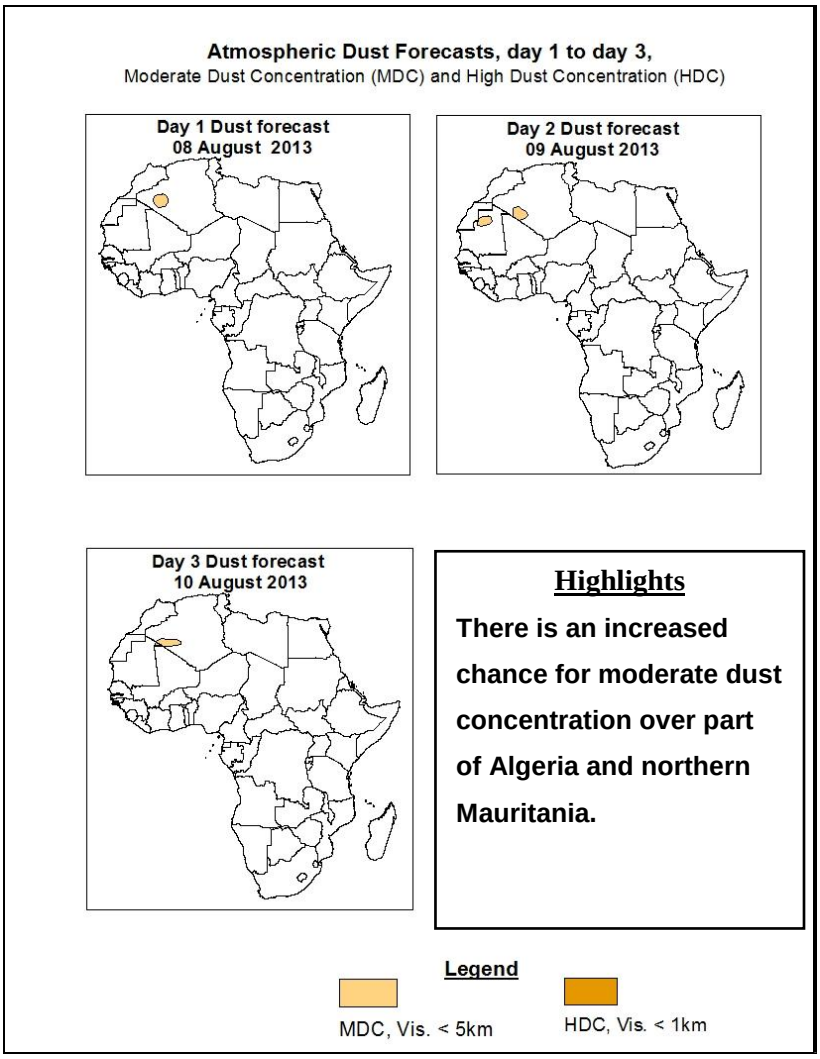
The forecasts are expressed in terms of 75% probability of precipitation (POP) exceeded, based on the NCEP, UK Met Office and the ECMWF NWP outputs, the NCEP global ensemble forecasts system (GEFS) and expert assessment.



Summary

In the next five days, strong zonal and monsoon wind convergence is expected to increase frequency of rainfall activities in the region with high chances of deep convective and organized thunderstorms. Over West Africa. Suppressed rainfall is still likely along the Gulf of Guinea coast while strong cross equatorial flow, with its associated convergence over the Horn of Africa is expected to modulate rainfall over East Africa. Thus, there an increased chance for moderate to heavy rainfall over Niger, Mali, Burkina Faso, Chad, Guinea, Sierra Leone, Mauritania, Senegal, northern Ghana, CIV, Cameroun, CAR, Gabon, Sudan, northern DRC, Uganda, Kenya, Eritrea and Ethiopia.

1.2. Atmospheric Dust Forecasts: Valid 8 - 10 May 2012



1.2. Model Discussion: Valid from 00Z of 07 August 2013

Model comparison (Valid from 00Z;07 August, 2013) shows all the three models are in general agreement in terms of depicting positions of the 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 intensify during the forecast period. Its central pressure value is expected to increase from about 1027hpa to 1032hpa according to the GFS model, 1027hpa to 1030hpa according to the ECMWF model, 1028hpa to 1030hpa according to 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 decrease from about 1030hpa to 1026hpa according to the GFS, 1030hPa to 1025Pa according to ECMWF model, 1031hpa 1026hpa according to the UKMET model.

The Mascarene high pressure system over southwestern Indian Ocean is expected to weaken during the forecast period. Its central pressure value is expected to decrease from 1030hpa to 1026hpa according to the GFS model, 1033hpa 1030hpa according to the ECMWF and UKMET models.

The heat lows over the central Sahel and neighboring areas are expected to deepen during the forecast period. Its lowest values are expected to vary from 1001hpa to 1004hpa according to the GFS model, 1004hpa to 1007hpa according to the ECMWF model, 1001hpa to 1007hpa according to the UKMET model. The seasonal lows across the red sea and its neighboring areas are expected to deepen during the forecast period. The pressure values are likely to vary from 1000hpa to 1003hpa according to the GFS model, 1004hpa to 1006hpa according to the ECMWF, 1002hpa to 1004hpa according UKMET model.

At the 850hPa level, monsoon wind flow is expected to dominate flow across West Africa. Zonal monsoon wind convergence is also expected to dominate the flow across central parts of the Sahel South of latitude 20^{o}N, while meridional wind convergence will dominate flow across East Africa. Rainfall along Guinea Gulf coast is expected to remain low as winds diverge from these areas during the forecast period. The slight increase 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 is wavy and northeasterly. Broad propagating vortices and extensive northeasterly trough lines from Mali to Senegal during the period are expected to facilitate deep convection and westward propagation of potential organized thunderstorms 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 Niger, Mali, Chad and Mauritania.

At 150hPa level, tropical easterly jets are strong over West and East Africa. Speeds of 40 to 60kts are common West and East Africa. However, speeds exceeding 70kts are observed over Ethiopia, northeastern Sudan, Eritrea and Somalia during 72 to 96 hours period.

In the next five days, strong zonal and monsoon wind convergence is expected to increase frequency of rainfall activities in the region with high chances of deep convective and organized thunderstorms. Over West Africa. Suppressed rainfall is still likely along the Gulf of Guinea coast while strong cross equatorial flow, with its associated convergence over the Horn of Africa is expected to modulate rainfall over East Africa. Thus, there an increased chance for moderate to heavy rainfall over Niger, Mali, Burkina Faso, Chad, Guinea, Sierra Leone, Mauritania, Senegal, northern Ghana, CIV, Cameroun, CAR, Gabon, Sudan, northern DRC, Uganda, Kenya, Eritrea and Ethiopia.

2.0. Previous and Current Day Weather Discussion over Africa

(06 August 2013 – 07 August 2013)

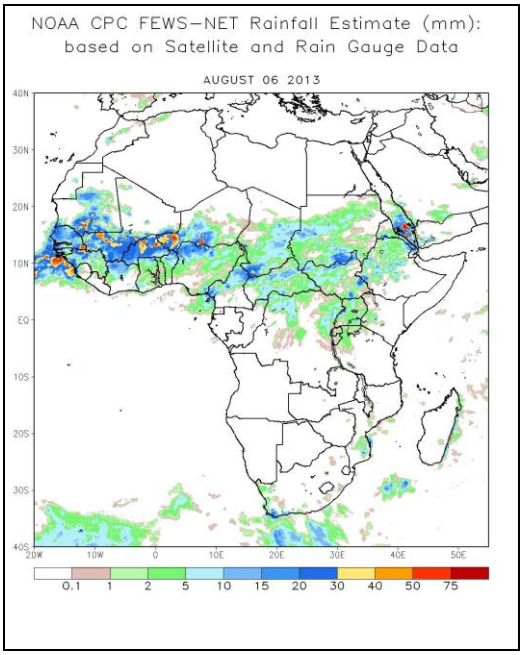
2.1. Weather assessment for the previous day (06 August 2013)

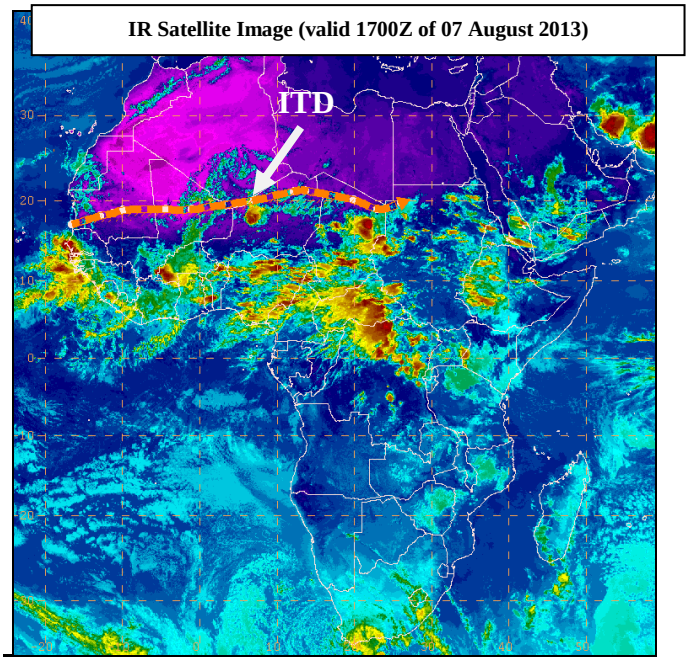
During the previous day, moderate to locally heavy rainfall was observed over Ethiopia, Sudan, Chad, Cameroun, Niger, Nigeria, Burkina Faso, Guinea, Mali, northern Cote d'Ivoire, Mauritania, Senegal and Gambia

2.2. Weather assessment for the current day (07 August 2013)

Intense clouds were observed over Ethiopia, Uganda, Kenya, Sudan, CAR, DRC, Cameroun, Nigeria, Chad, Niger Republic, Burkina Faso, Senegal, Gambia, Guinea Bissau and Sierra Leone.

The ITD is located at an average position of latitude 20^{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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