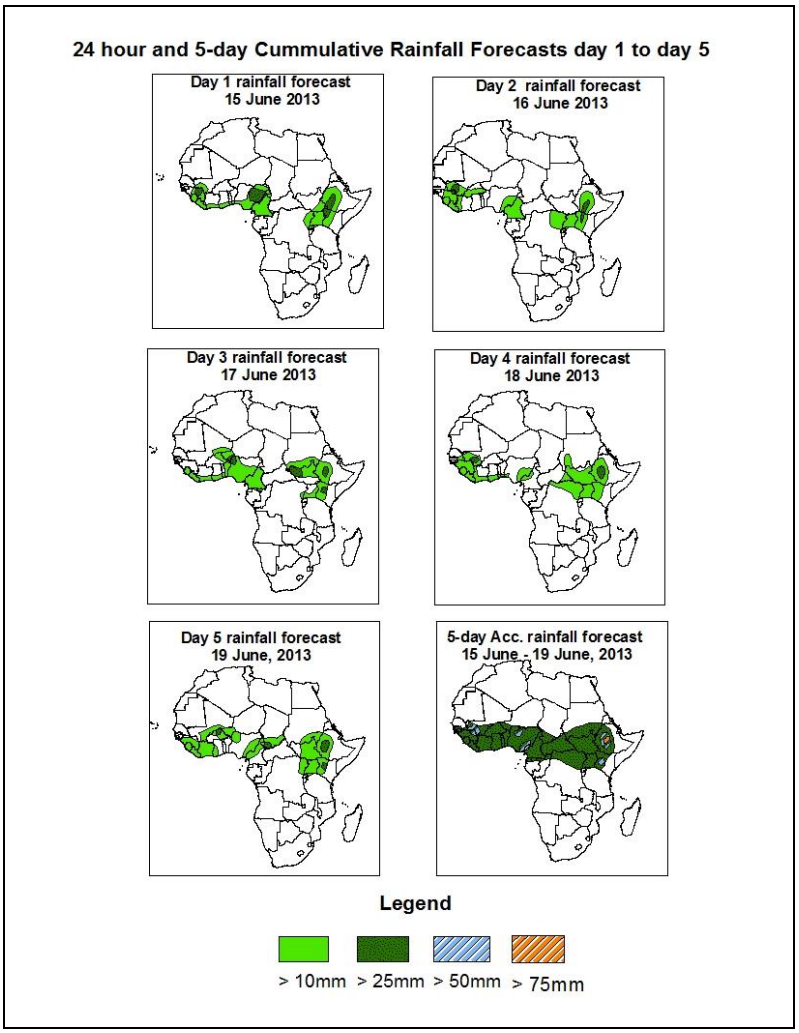
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 15 June – 06Z of 19 June, 2013. (Issued at 1830Z of 14 June 2013)

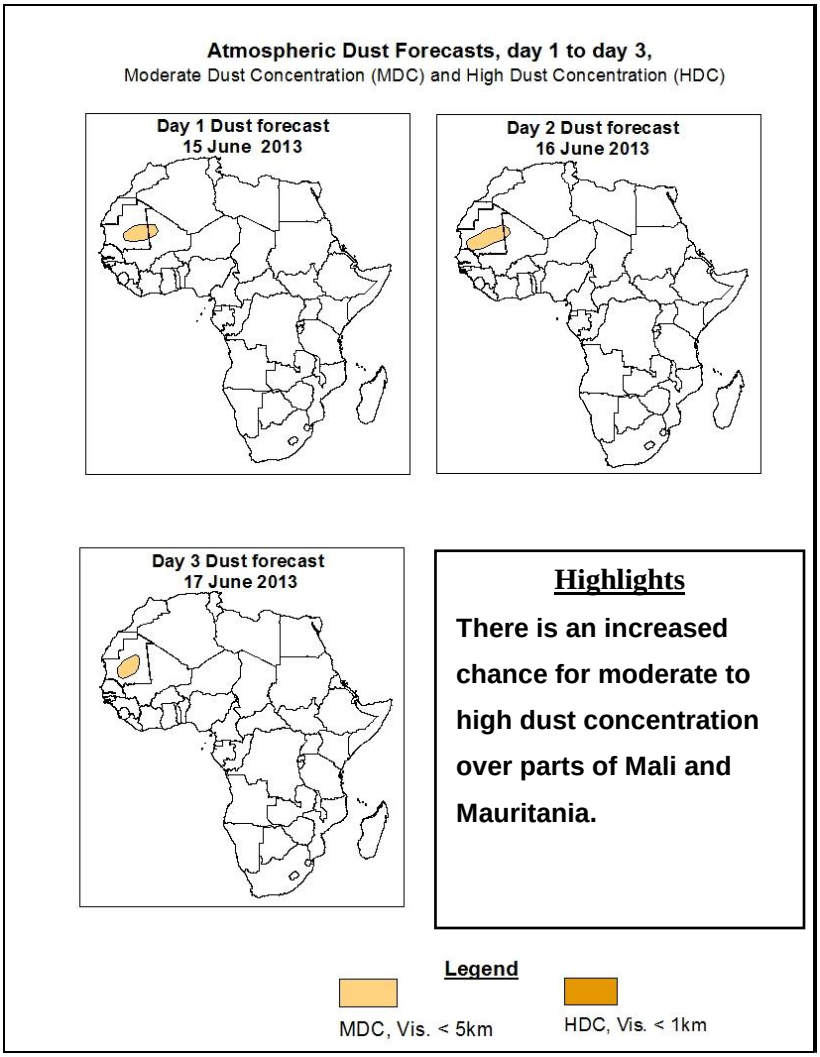
1.1. Twenty Four Hour Cumulative Rainfall Forecasts

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 monsoon flow across West Africa and the adjacent Central Africa regions, the seasonal wind convergence in Congo Air Boundary (CAB) region, and strong cross equatorial flow, with its associated convergence over the Horn Africa are expected to enhance rainfall in their respective regions. Thus, there is an increased chance for moderate to heavy rainfall over southeastern part of Mali, Guinea Bissau, Guinea Conakry, Sierra Leone, northwest and southeast Nigeria, western Ethiopia and western Kenya.



1.2. Model Discussion: Valid from 00Z of 13 June 2013

Model comparison (Valid from 00Z;13 June, 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.

Central pressure value associated with the Azores High Pressure System over Northeast Atlantic Ocean is expected to increase slightly through 24 to 96 hours and decrease thereafter. Its central pressure value is expected to increase from 1027hpa to 1034hpa through 24 to 96 hours according to the GFS, 1027hpa to 1032hpa according to the ECMWF and from 1027hpa to 1033 according to UKMET model through the same period.

The St. Helena High Pressure System over southeast Atlantic Ocean is expected to decrease through the forecast period. Its central pressure values are expected to decrease from 1030hpa to 1027hpa through 24 to 120 hours according to the GFS model, 1030hpa to 1027 according to ECMWF model and 1030hpa to 1027hpa according to UKMET models.

The Mascarene high pressure system over southwestern Indian Ocean is also expected to intensify through 24 to 96 hours. Its central value is expected to decrease from 1027hpa to 1030hpa through 24 to 96 hours according to the GFS model, 1024hpa to 1029hpa according to the ECMWF model and 1024hpa to 1029hpa according to the UKMET model during the 24 to 96 hours period before increasing slightly from 96 to 120 hours as depicted by all the models.

The heat lows over the central Sahel and neighboring areas are expected to deepen slightly through the forecast period. The lowest central pressure value is expected to decrease from 1005hpa to 1003hpa through 24 to 120 hours according to the GFS model, 1007hpa to 1004hpa according to the ECMWF model and 1006hpa to 1003 according to the UKMET model. The seasonal lows across Sudan and the neighboring areas are also expected to remain weak and maintain central average pressure value of 1008hpa according to all the models. However, slight decrease in the central value is likely.

At the 850hpa level, broad zonal wind convergence is expected to dominate the flow across central parts of the Sahel South of latitude 16^{o}N, and Meridional wind convergence over Sudan, eastern DRC and Ethiopia. Moist southwesterly to southerly flow over places along the Gulf of Guinea and its associated convergence over western Ethiopia is expected to maintain moderate to heavy rainfall over the region.

At 700hpa level, a slight weakening of the broad subtropical anticyclone located at about Latitude 25^{o}N in the Northern and Southern hemispheres are expected to favor northeasterly flow over the northern parts and easterly flow over the coastal areas during the forecast period.

At 500hpa level, wind speed associated with mid-tropospheric easterly jets are still generally weak and show common speeds of 30kts over West and East Africa only through 24 hours period and weaken therafter. The zone of maximum wind is expected to gradually shift westwards during the forecast period.

In the next five days, the monsoon flow across West Africa and the adjacent Central Africa regions, the seasonal wind convergence in Congo Air Boundary (CAB) region, and strong cross equatorial flow, with its associated convergence over the Horn Africa are expected to enhance rainfall in their respective regions. Thus, there is an increased chance for moderate to heavy rainfall over southeastern part of Mali, Guinea Bissau, Guinea Conakry, Sierra Leone, northwest and southeast Nigeria, western Ethiopia and western Kenya.

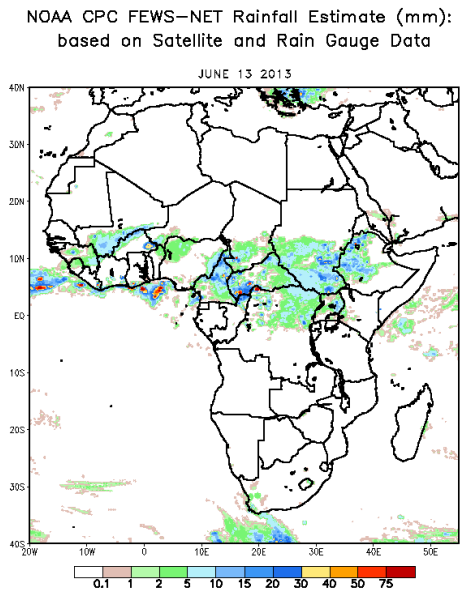
2.0. Previous and Current Day Weather Discussion over Africa
(13 June 2013 – 14 June 2013)

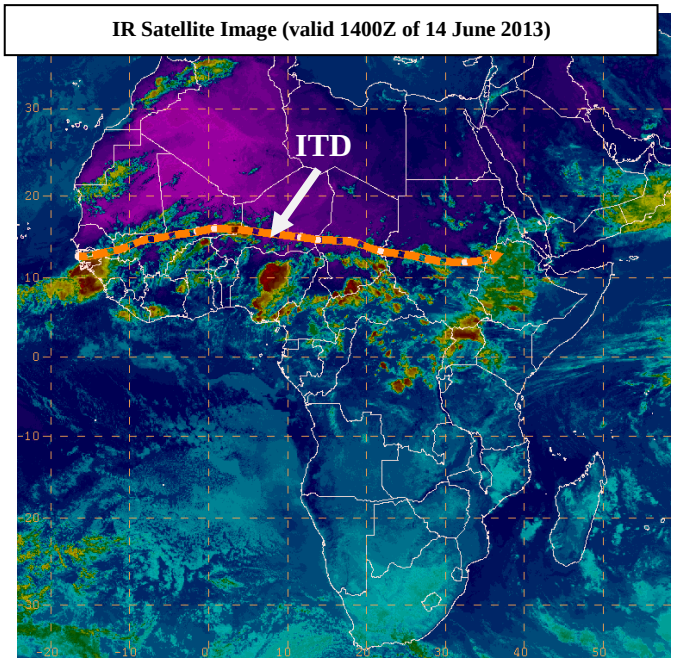
2.1. Weather assessment for the previous day (13 June 2013)

During the previous day, moderate to locally heavy rainfall was observed over western Ethiopia, eastern Sudan, western CAR, northern Cameroun and places along the Gulf of Guinea.

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

Intense clouds were observed over western Ethiopia, northern Uganda, CAR, southern Chad, Nigeria, isolated areas in Burkina Faso, Guinea Bissau and Guinea Conakry. The ITD is located at an average position of latitude 16^{o}N extending from Senegal to Sudan.





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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