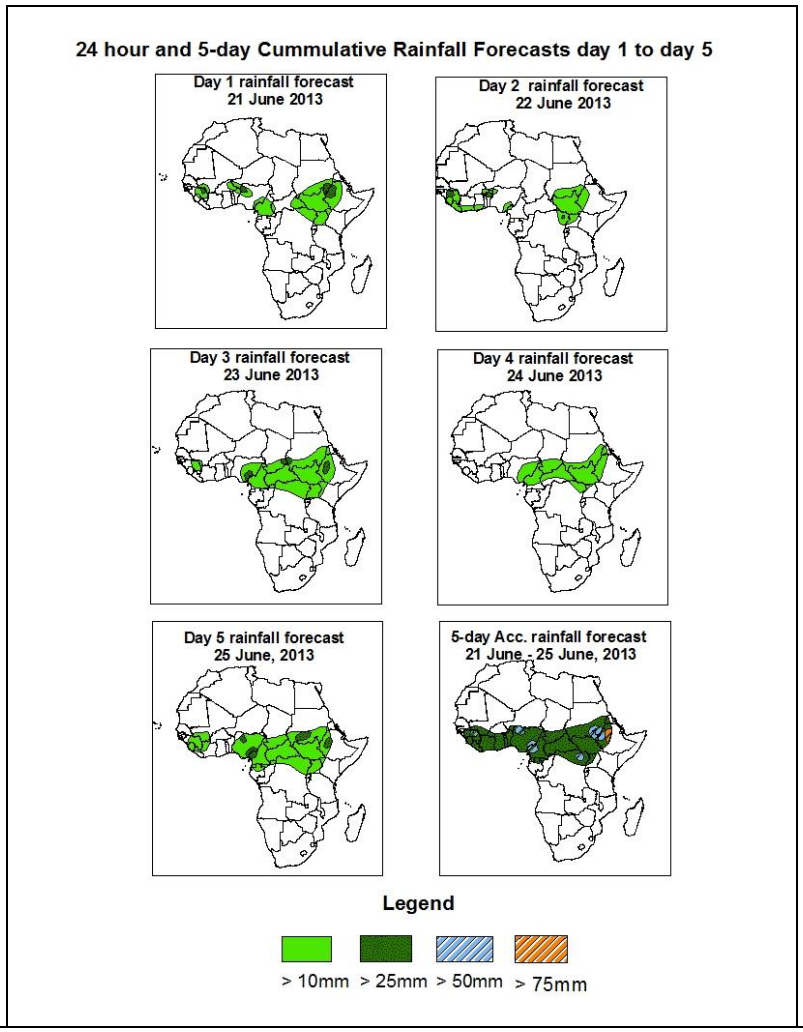
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 21 June – 06Z of 25 June, 2013. (Issued at 1630Z of 20 June 2013)

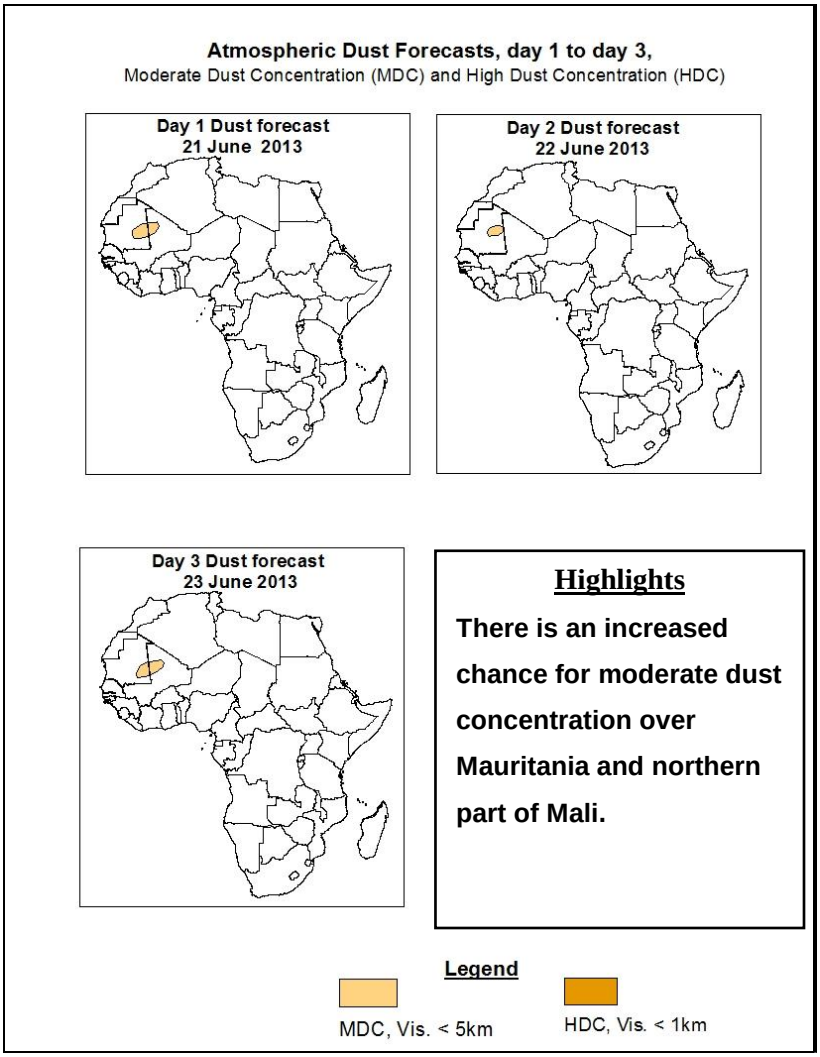
1.1. Twenty Four Hour Cumulative Rainfall Forecasts

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, a persistent weakness of the African and tropical easterly jets, slightly improved monsoon flow across West Africa, Central Africa regions and moderate seasonal wind convergence in Congo Air Boundary (CAB) region is generally expected to modulate weather in these regions. However, strong cross equatorial flow, with its associated convergence over the Horn of Africa is expected to shift rainfall activities slightly northwards over East Africa and enhance precipitation in some regions. There is an increased chance for moderate to heavy rainfall over Guinea Conakry, Sierra Leone, Liberia, Burkina Faso, Nigeria, Cameroun, northern Gabon, eastern CAR, southern Sudan, northern DRC and western Ethiopia.



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

Model comparison (Valid from 00Z;19 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 weaken slightly during the forecast period. Its central pressure value is expected to decrease from 1034hpa to 1031hpa through 24 to 120 hours according to the GFS model, maintain average of 1033hpa according to the ECMWF model and decrease from 1034hpa to 1032 according to UKMET model during the forecast period.

The St. Helena High Pressure System over southeast Atlantic Ocean is expected to increase through 24 to 120 hours. Its central pressure values are expected to increase from 1022hpa to 1023hpa according to the GFS models, 1021hpa to 1028hpa according to ECMWF model, 1022hpa to 1032hpa according to the UKMET model.

The Mascarene high pressure system over southwestern Indian Ocean is also expected to decrease slightly during the forecast period. Its central value is expected to decrease from 1027hpa to 1023hpa according to the GFS model, 1031hpa to 1026hpa according to the ECMWF model and 1034hpa to 1026hpa according to the UKMET model during the forecast period.

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 vary between 1003 and 1005hpa during the forecast period according to the GFS model, 1003hpa to 1006hpa according to the ECMWF model and 1003hpa to 1005hpa according to the UKMET model. The seasonal lows across Sudan and the neighboring areas are expected to deepen slightly with values varying from 1005hpa to 1009hpa according to the GFS model, and maintain average value 1008hpa according to ECMWF and UKMET models.

At the 850hpa level, zonal monsoon wind convergence is expected to dominate the flow across western and central parts of the Sahel South of latitude 16^{o}N, while meridional wind convergence will dominate flow across Sudan, eastern DRC and Ethiopia. A broad anticyclone over the coast of Nigeria during 24 to 48 hours period is expected to reduce coastal rainfall activities over the area until 72 to 120 hours when conditions are expected to improve. The predominant 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 anticyclones located at about Latitude 25^{o}N in the Northern hemisphere is expected to maintain weak jets with northeasterly to easterly flow over West and central Africa during the period.

At 500hpa level, wind speed associated with mid-tropospheric easterly jets are still generally very weak and show common speeds of 30kts only around Mali, Burkina Faso, Cote d'Ivoire and Sierra Leon during 24 to 48 hours.

The zone of maximum wind is expected to gradually shift westwards during the forecast period.

In the next five days, a persistent weakness of the African and tropical easterly jets, slightly improved monsoon flow across West Africa, Central Africa regions and moderate seasonal wind convergence in Congo Air Boundary (CAB) region is generally expected to modulate weather in these regions. However, strong cross equatorial flow, with its associated convergence over the Horn of Africa is expected to shift rainfall activities slightly northwards over East Africa and enhance precipitation in some regions. There is an increased chance for moderate to heavy rainfall over Guinea Conakry, Sierra Leone, Liberia, Burkina Faso, Nigeria, Cameroun, northern Gabon, eastern CAR, southern Sudan, northern DRC,and western Ethiopia .

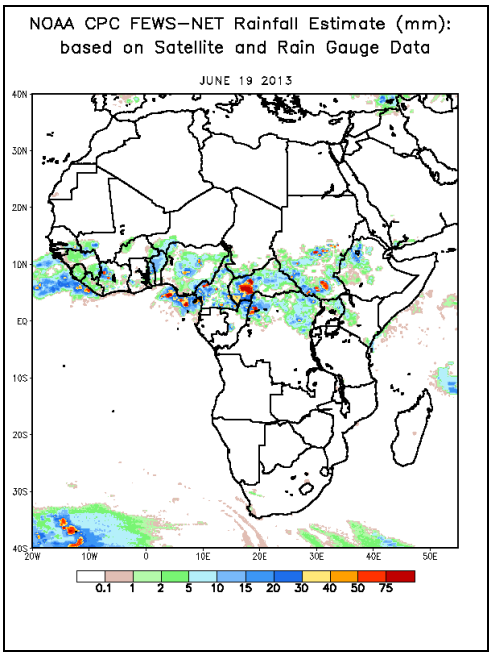
2.0. Previous and Current Day Weather Discussion over Africa (19 June 2013 – 20 June 2013)

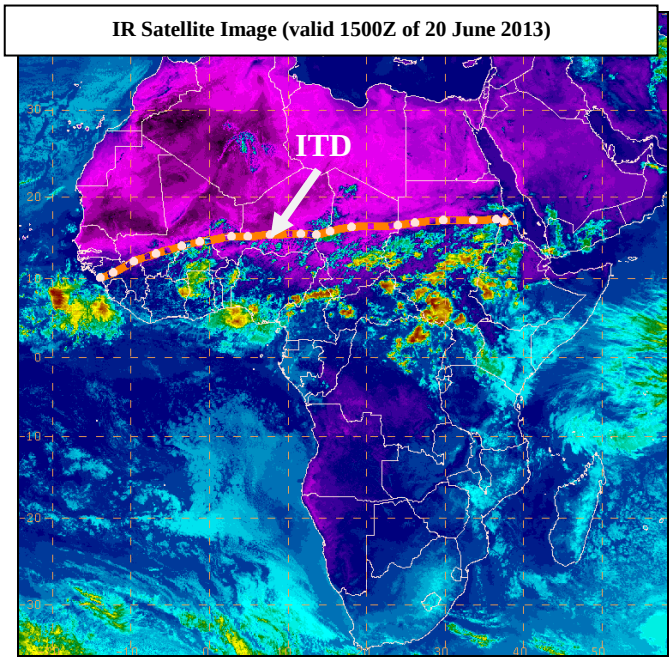
2.1. Weather assessment for the previous day (19 June 2013)

During the previous day, moderate to locally heavy rainfall was observed over western Ethiopia, southern Sudan, CAR, northwestern DRC, Cameroun, Nigeria and Cote d'Ivoire,

2.2. Weather assessment for the current day (20 June, 2013)

Intense clouds were observed over Ethiopia, Sudan, CAR, northeastern DRC, Cameroun, Nigeria, southern Chad, Ghana, Burkina Faso and Cote d'Ivoire. The ITD is located at an average position of latitude 16^{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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