

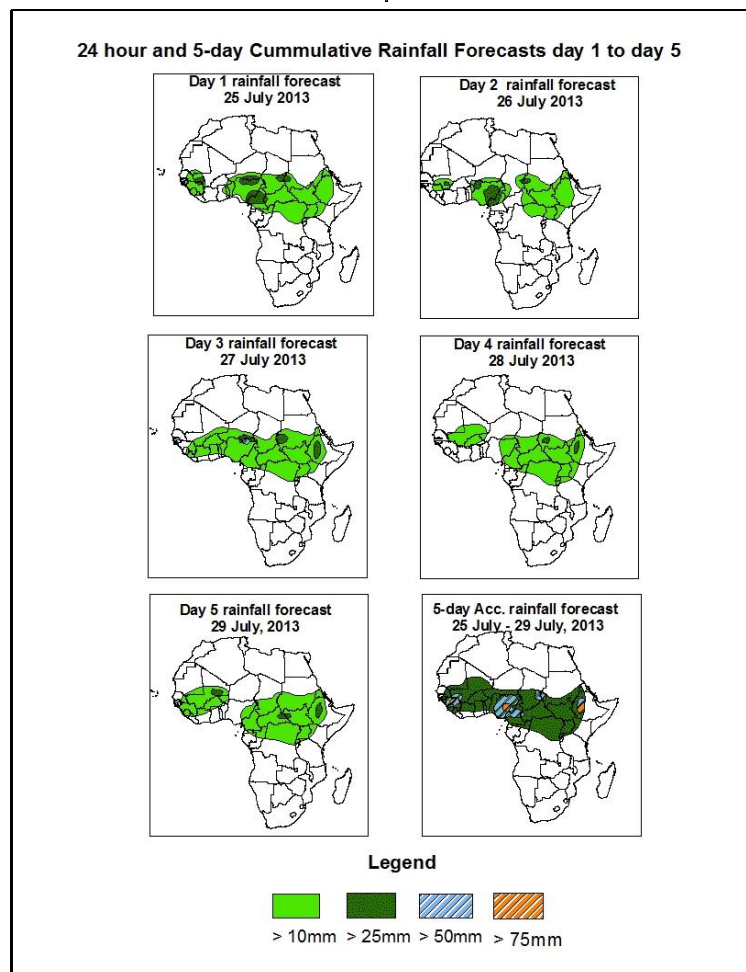


NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 25 July – 06Z of 29 July, 2013. (Issued at 1700Z of 24 July, 2013)

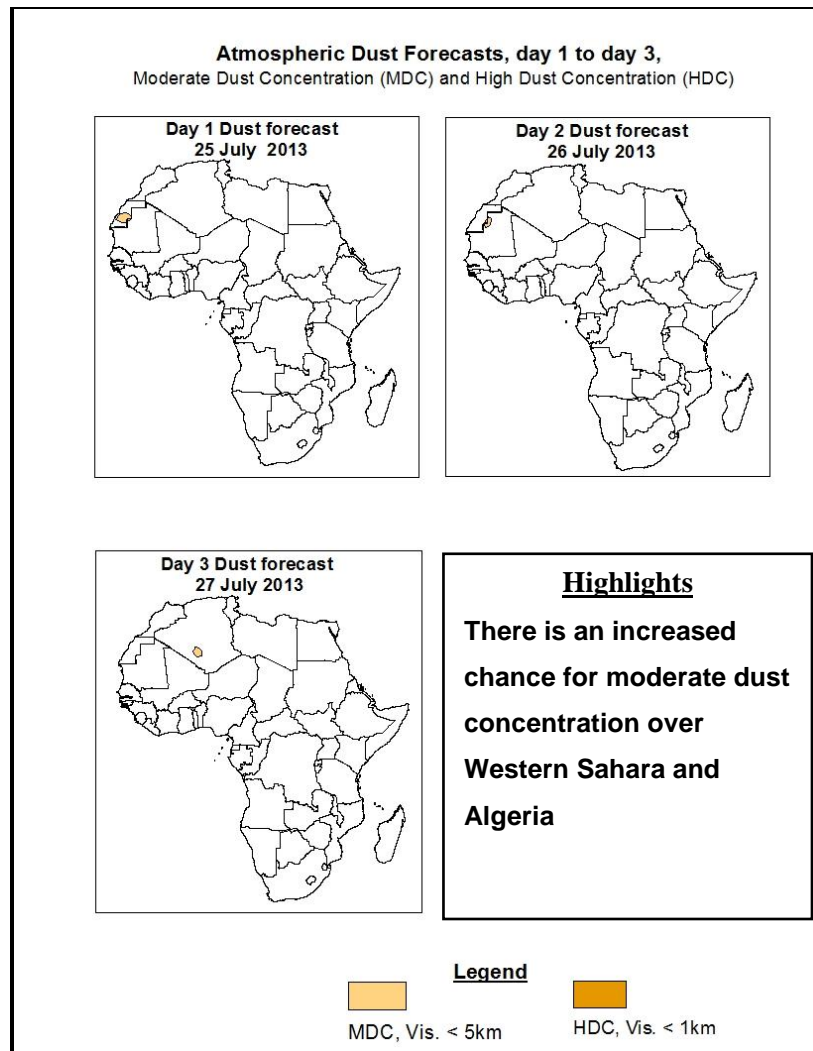
1.1. Twenty Four Hour Cumulative Rainfall Forecasts

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, persistent colder than normal sea surface temperatures over the Gulf of Guinea coastline and the intensification of the St. Helena high pressure system in the southern hemisphere is expected to suppress rainfall along the coastal areas of West Africa especially from Cote d'Ivoire to southwest Nigeria. However, seasonal wind convergence will modulate rainfall in other areas of West and central Africa while strong cross equatorial flow, with its associated convergence over the Horn of Africa is expected to enhance precipitation over East Africa. Thus, there is an increased chance for moderate to heavy rainfall over Nigeria, Niger, Guinea, Sierra Leone, Mali, Burkina Faso, northern Ghana, CIV, Cameroun, southern Chad, CAR, Gabon, Sudan, northern DRC, Uganda, Eritrea and Ethiopia.



1.2. Model Discussion: Valid from 00Z of 24 July 2013

Model comparison (Valid from 00Z;24 July, 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 intensify through 24 to 48 hours and weaken thereafter. Its central pressure value is expected to increase from 1031hPa to 1033hPa through 24 to 48 hours according to the GFS model, 1030hPa to 1034hPa according to the ECMWF model, 1031hPa to 1034hPa according to UKMET model.

The St. Helena High Pressure System over southeast Atlantic Ocean is expected to intensify through 24 to 72 hours and weaken thereafter. Its central pressure value is expected to increase from 1031hPa to 1038hPa through 24 to 72 hours according to the GFS and ECMWF models, 1031hPa to 1039hPa according to the UKMET model.

The Mascarene high pressure system over southwestern Indian Ocean is expected to weaken through 24 to 72 hours and intensify thereafter. Its central value is expected to decrease from 1030hPa to 1020hPa through 24 to 72 hours according to the GFS model, 1030hPa to 1025hPa according to the ECMWF model, 1031hPa to 1025hPa according to UKMET model and an increase thereafter.

The heat lows over the central Sahel and neighboring areas are expected to deepen during the forecast period particularly over Mali and Chad. The lowest central pressure value is expected to vary between 1000hPa to 1007hPa according to the GFS model, 1004hPa to 1007hPa according to ECMWF model and 1000hPa to 1007hPa according to the UKMET model. The seasonal lows across the Red sea and its neighboring areas are expected to deepen slightly through 24 to 72 hours with values likely to vary from 999hPa to 1003hPa according to the GFS model, 1003hPa to 1006hPa according to ECMWF model and 1002hPa to 1004hPa according to UKMET model.

At the 850hPa level, monsoon wind flow is expected to dominate flow across West Africa and penetrate further inland and northwards. Zonal monsoon wind convergence is also expected to dominate the flow across central parts of the Sahel South of latitude 18°N, while meridional wind convergence will dominate flow across Sudan, eastern DRC and Ethiopia. Rainfall along the coast of Togo, Ghana, Cote d'Ivoire, southwest Nigeria, is therefore expected to decrease as winds diverge from these areas and converge over the inland areas during the forecast period. The slight increase in number of vortices at this level and wind convergence over Africa is expected to maintain moderate to heavy rainfall over the region and the highest rainfall likely over Mali, Nigeria, Sudan and Ethiopia.

At 700hPa level, intensification of the subtropical anticyclone in the northern and southern hemispheres is expected to maintain northeasterly to easterly flow over West and central Africa during the period.

At 500hpa level, wind speed associated with mid-tropospheric easterly jet show common speeds of 30kts over isolated places in Nigeria, Mali, Burkina Faso northern Algeria and Mauritania during the forecast period.

At 150hPa level, tropical easterly jets are now stronger over Nigeria and most places along the Gulf of Guinea coast. Speeds of 30 to 60kts are common over West and East Africa but speeds exceeding 70kts are observed over Ethiopia, Kenya, coast of Nigeria, eastern Sudan and Somalia through 48 to 96 hours.

In the next five days, persistent colder than normal sea surface temperatures over the Gulf of Guinea coastline and the intensification of the St. Helena high pressure system in the southern hemisphere is expected to suppress rainfall along the coastal areas of West Africa especially from Cote d'Ivoire to southwest Nigeria. However, seasonal wind convergence will modulate rainfall in other areas of West and central Africa while strong cross equatorial flow, with its associated convergence over the Horn of Africa is expected to enhance precipitation over East Africa. Thus, there is an increased chance for moderate to heavy rainfall over Nigeria, Niger, Guinea, Sierra Leone, Mali, Burkina Faso, northern Ghana, CIV, Cameroun, southern Chad, CAR, Gabon, Sudan, northern DRC, Uganda, Eritrea and Ethiopia.

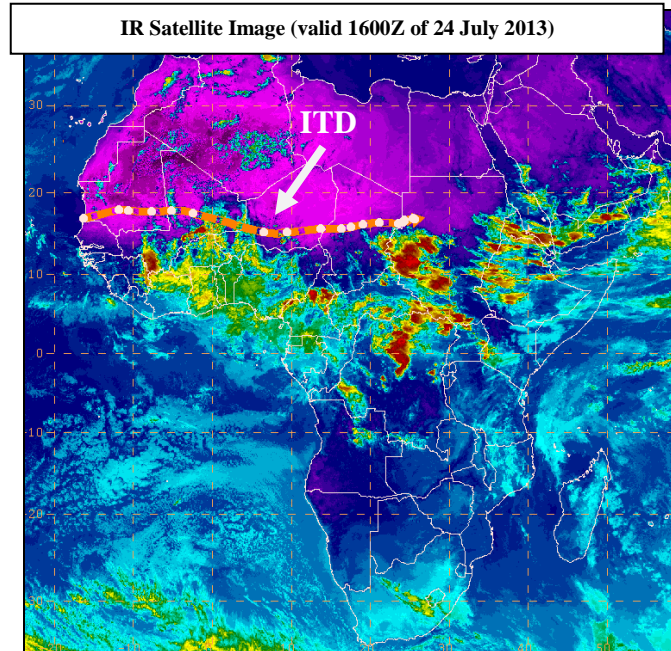
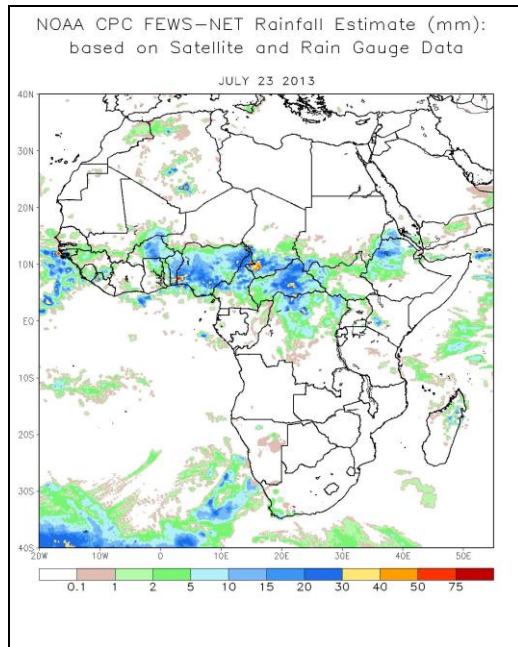
2.0. Previous and Current Day Weather Discussion over Africa (22 July 2013 – 23 July 2013)

2.1. Weather assessment for the previous day (23 July 2013)

During the previous day, moderate to locally heavy rainfall was observed over Ethiopia, Eritrea, South Sudan, Kenya, CAR, northern DRC, southern Chad, Mali, Burkina Faso, Guinea and Algeria.

2.2. Weather assessment for the current day (24 July, 2013)

Intense clouds were observed over Ethiopia, Eritrea, Sudan, CAR, DRC, Uganda, Kenya, Cameroun, southern Chad, Nigeria, northern CIV, Ghana, Mali and northern Algeria. The ITD is located at an average position of latitude 17°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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