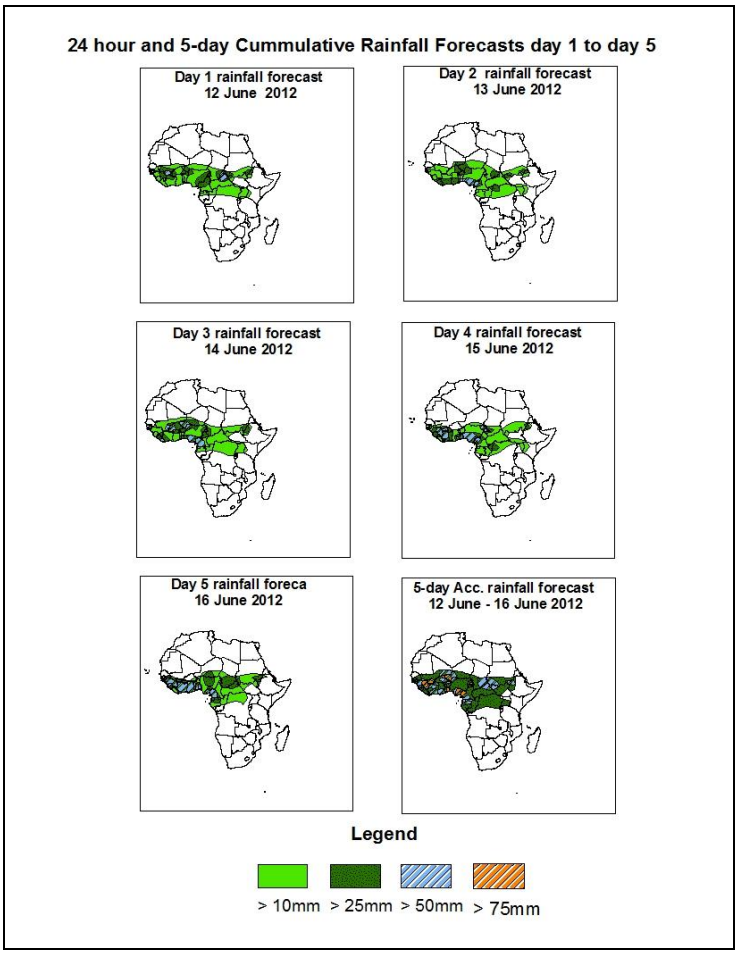
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 12 June – 06Z of 16 June 2012, (Issued at 13:00Z of 11 June 2012)

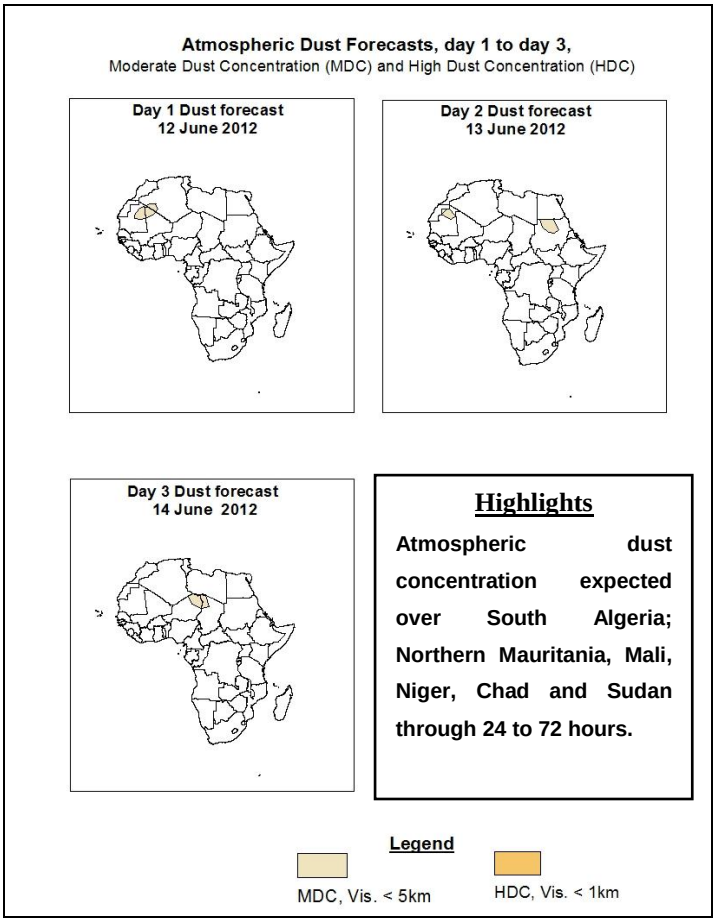
1.1. Twenty Four Hour Cumulative Rainfall Forecasts

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, ITD will continue its fluctuation between latitude 16^{o}N and 20^{o}N; with significant monsoon inflow and depth within 24 to 120 hours; Also the TEJ, AEW, AEJ associated deep monsoon inflow will enhance rainfall activities over Guinea Gulf Countries, Part of Sahel region and Central Africa.



1.3. Model Discussion: Valid from 00Z of June, 11th 2012.

According to the GFS, ECMWF and UKMET models the heat lows are expected to slightly fill up and to shift Northward within the region between West, Central and North Mauritania; Northern Mali, Niger, Sudan and Chad through 24 to 120 hours.

According to GFS model, a thermal low over West and North Mauritania (1005hpa) in 24 hours is expected to slightly increase to 1006hpa in 48 hours, and slightly decrease to 1005hpa over East Mauritania in 72 hours, then tends to slightly increase to 1006hpa through 96 to 120 hours over West, Central and North Mauritania. The second low over North Mali, Niger and Chad with a core value of 1005hpa through 24 to 48 hours is expected to increase to 1007hpa in 72hours, and then tends to maintain its core to 1007hpa through 96 to 120 hours.

The ECMWF model shows a thermal low over East Mauritania (1005hpa) through 24 to 72 hours is expected to slightly increase to 1006hpa within 96 to 120 hours. The second

low over South Algeria, North Mali, Niger and Chad (1005hpa) through 24 to 72 hours is expected to slightly increase to 1006hpa within 96 to 120 hours.
The UKMET model shows a thermal low over South Mauritania (1005hpa) in 24 hours is expected to slightly decrease to 1004hpa through to 48 to 72 hours over East and North Mauritania and tends to slightly increase to 1005hpa within 96 to 120 hours. The second low over South Algeria, North Mali, Niger and Chad with a core value of 1005hpa in 24 hours is expected to slightly decrease to 1004hpa through 48 to 120 hours.

According to the UKMET model, the St. Helena High pressure system over South Atlantic Ocean with a core value of 1035hpa in 24 hours is expected to slightly increase to 1036hpa in 48 hours and decrease to 1030hpa in 72 hours; then tends to increase to 1035hpa in 96 hours and finally decrease to 1031hpa in 120 hours. According to the ECMWF model, the central pressure value of 1033hpa in 24 hours tends to increase to 1035hpa in 48 hours and decrease to 1032hpa in 72 hours, then tends to slightly increase to 1033hpa in 96 hours, and decrease to 1032hpa in 120 hours. According to the GFS model, the central pressure value of 1034hpa in 24 hours tends to slightly increase to 1035hpa in 48hours and decrease to 1029hpa in 72 hours; then tends to increase from 1031hpa to 1032hpa through 96 to 120 hours.

According to the GFS model, the Mascarene high pressure system over South Indian Ocean with its central pressure value of 1027hpa in 24 hours locate at longitude 80^{o}E is expected to slightly decrease to 1026hpa in 48 hours by maintaining its position and increase from 1033hpa to 1035hpa through 72 to 96 hours by shifting Eastwards (from 32^{o}E to 45^{o}E) and tends to slightly decrease to 1034hpa in 120 hours by shifting Eastwards to 50^{o}E. According to the ECMWF model, the central pressure value of 1026hpa through 24 to 48 hours locates around longitude 80^{o}E is expected to increase its core value from 1030hpa to 1031hpa through 72 to 120 hours by shifting eastwards (from 30^{o}E to 50^{o}E). Lastly, according to the UKMET model of the Mascarene high pressure system over South Indian Ocean with its central pressure value of 1026hpa through 24 to 48 hours locate around longitude 80^{o}E is expected to increase its core value from 1032hpa to 1033hpa within 72 to 120 hours by shifting Eastwards (from 30^{o}E to 55^{o}E).

At 925hpa level, zone of moderate dry Northerly and Northeasterly winds (20 to 50kts) are expected to prevail over North Mauritania, Mali, Niger and Sudan; South Algeria and Libya through 24 to 120 hours.

At the 850hpa level, a lower tropospheric wind convergence associated with significant West African Monsoon inflow and depth is expected to prevail over most parts of Western Africa up latitude 20^{o}N through 24 hours to 120 hours. The convergence associated with the meridional arm of the ITCZ is located over Western Uganda and Northeast Democratic Republic of Congo 24 hours to 120 hours.

At 700hpa level, the African Easterly Jet (AEJ) with a core of 30 knots through is expected to strength and locates over Between Southern Sahel and Northern part of Guinea Gulf Countries within 24 to 120 hours with an African Easterly Waves propagating westwards and affecting part of Sahel and Guinea Gulf Countries through 24 to 120 hours.

At 500hpa level, a wave is expected to affect part of Sahel and Guinea Gulf Countries through 24 to 120 hours.

At 150mb, the Sub-Tropical Westerly Jet is expected to weakens and shift Northwards l over South Algeria, East Libya and West Egypt with a maximum core of 60 Knots. However, the Tropical Easterly Jet with a maximum core of 30 Knots appears from 48 to 120 hours and will affect Southern Chad and Guinea Gulf Countries, Part of Central African Republic.

In the next five days, ITD will continue its fluctuation between latitude 16^{o}N and 20^{o}N; with significant monsoon inflow and depth within 24 to 120 hours; Also the TEJ, AEW, AEJ associated deep monsoon inflow will enhance rainfall activities over Guinea Gulf Countries, Part of Sahel region and Central Africa.

Atmospheric dust concentration expected over South Algeria; Northern Mauritania, Mali, Niger, Chad and Sudan through 24 to 72 hours.

2.0. Previous and Current Day Weather Discussion over Africa (June, 10th 2012– June, 11th 2012)

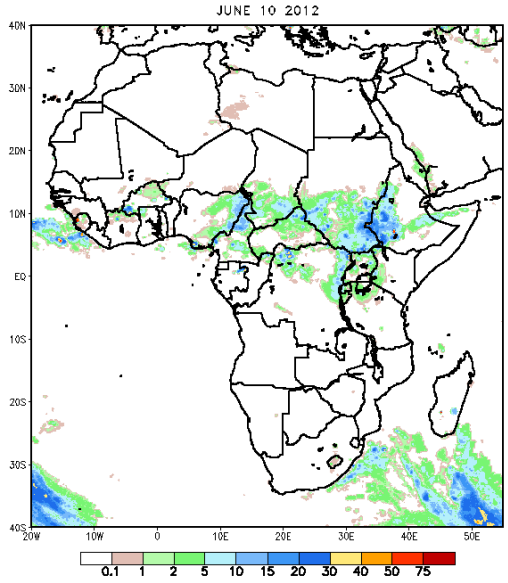
2.1. Weather assessment for the previous day (June, 10th 2012)

During the previous day, moderate to heavy rainfall was observed across Coastal and North Sierra Leone; Southwest and Southeast Burkina Faso; North Cote d`Ivoire; South Chad; Northeast, South and East Nigeria; North and West Cameroon; East, South and West South Sudan Republic; Northeast and Northwest Democratic Republic of Congo; Northeast Central African Republic; West Ethiopia.

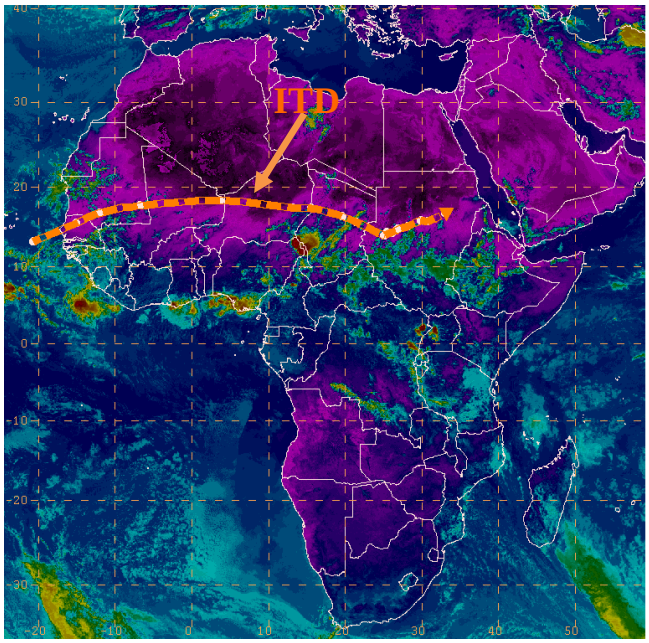
2.2. Weather assessment for the current day (June, 11th 2012)

Convective activities observed across Southeast Cote d`Ivoire; South Ghana, and Benin; Northeast and South Nigeria; Southwest Chad; North Cameroon; Southeast Niger; West Uganda and Northeast Democratic Republic of Congo.

NOAA CPC FEWS–NET Rainfall Estimate (mm): based on Satellite and Rain Gauge Data



ITD Position and IR Satellite Image (valid 1200Z of June, 11th 2012)



Previous day rainfall condition over Africa (top Left) based on the NCEP CPCE/RFE and current day ITD Position and cloud cover (top right) based on IR Satellite image and Synoptic Plotting

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