

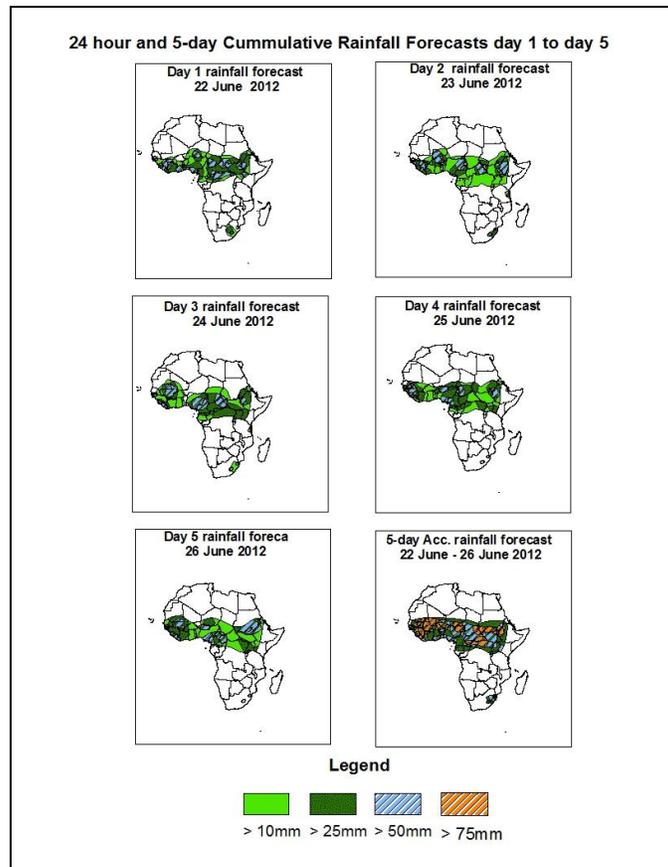


NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 22 June – 06Z of 26 June 2012, (Issued at 13:00Z of 21st June 2012)

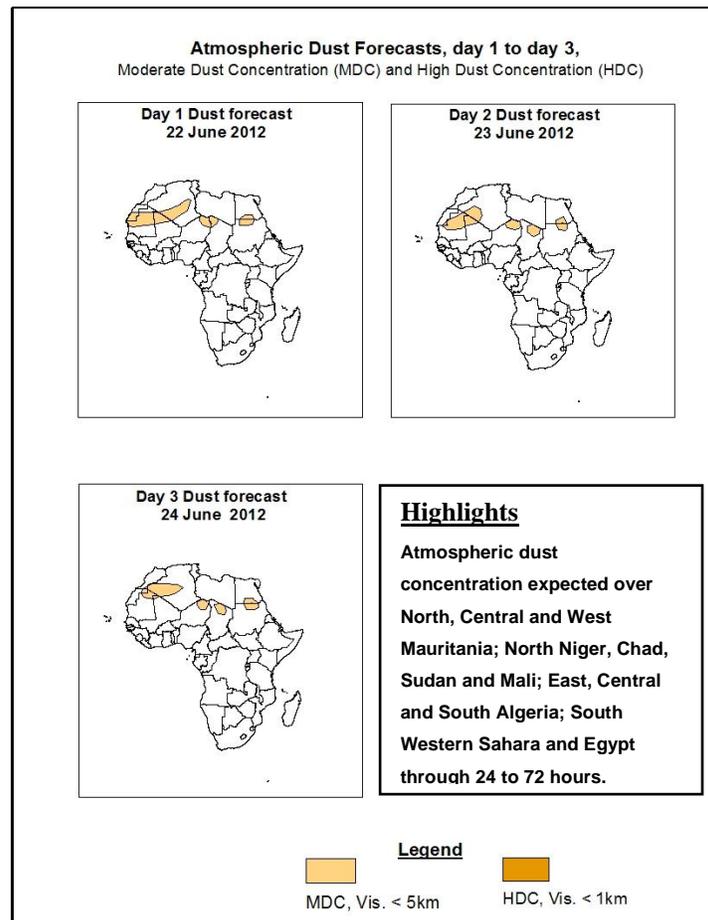
1.1. Twenty Four Hour Cumulative Rainfall Forecasts

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 is expected to maintain its northwards position up to 22°N with significant monsoon inflow and depth within 24 to 120 hours; Also the active TEJ and the relative very weak AEJ associated with pronounced AEW propagation, will enhance rainfall activities over Western Ethiopia; Southern Part of Guinea Gulf Countries; Part of Sahel region and Central Africa.



1.3. Model Discussion: Valid from 00Z of June, 21st 2012.

According to the GFS, ECMWF and UKMET models the heat lows are expected to deepen through 24 to 120 hours over Mauritania, Algeria, Mali, Niger and Chad; then fill up over Sudan within 24 to 120 hours.

According to GFS model, a thermal low over West, Central and North Mauritania (1010hpa) in 24 hours is expected to decrease from 1008hpa to 1006hpa through 48 to 96 hours and tends to increase to 1008hpa in 120 hours. The second low over North Mali and South Algeria (1004hpa) in 24 hours is expected to gradually increase from 1005hpa to 1010hpa through 48 to 72 hours and tends to decrease from 1008hpa to 1006hpa within 96 to 120 hours. Third low over North Chad and Niger (1004hpa) in 24 hours is expected to gradually increase from 1005hpa to 1006hpa through 48 to 96 hours and tends to slightly decrease to 1005hpa in 120 hours; while the low over North Sudan (1003hpa) in 24 hours is expected to slightly increase to 1004hpa within 48 to 72 hours, then decreases to 1003hpa through 96 to 120 hours.

The ECMWF model shows a thermal low over West, Central and North Mauritania (1010hpa) through 24 to 72 hours is expected to increase to 1012hpa within 96 to 120 hours. The second low over South Algeria and North Mali (1005hpa) in 24 hours is expected to gradually increase from 1007hpa to 1010hpa through 48 to 72 hours and tends to decrease from 1008hpa to 1006hpa within 96 to 120 hours. The third low over North Niger and Chad (1007hpa) through 24 to 96 hours is expected to slightly increase to 1008hpa in 120 hours; while the low over North Sudan (1004hpa) in 24 hours is expected to gradually increase from 1006hpa to 1008hpa through 48 to 120 hours.

The UKMET model shows a thermal low over West, Central and North Mauritania (1010hpa) in 24 hours is expected to gradually decrease from 1008hpa to 1005hpa through 48 to 120 hours. The second low over North Mali, West and South Algeria (1003hpa) in 24 hours is expected to increase from 1004hpa to 1008hpa through 48 to 72 hours and then decreases from 1006hpa to 1005hpa within 96 to 120 hours. Third low over North Chad and Niger (1006hpa) is expected to maintain almost its core value within 24 to 120 hours; while the low over North Sudan (1004hpa) through 24 to 48 hours is expected to gradually increase to 1006hpa within 72 to 120 hours.

According to the UKMET model, the St. Helena High pressure system over South Atlantic Ocean with a core value of 1029hpa through 24 to 48 hours locate at latitude 30°S is expected to decrease its core value 1027hpa by shifting northwards (from 30°S to 25°S) in 72 hours and tends to increase to 1030hpa by shifting southwards around latitude 30°S within 96 to 120 hours. According to the ECMWF model, the central pressure value of 1029hpa in 24 hours and locate at latitude 30°S is expected to gradually decrease its core value from 1028hpa to 1022hpa by shifting from latitude 30°S to 25°S and vice versa through 48 to 120 hours. Lastly, according to the GFS model, the central pressure value of 1029hpa in 24 hours and locates at latitude 30°S is expected to gradually decrease its core value from 1028hpa to 1023hpa by shifting from latitude 30°S to 25°S and vice versa through 48 to 120 hours.

According to the GFS model, the Azores high pressure system over North Atlantic Ocean with its central pressure value of 1029hpa in 24 hours locates at longitude 15°W is expected to gradually decrease its core value from 1028hpa to 1023hpa by maintaining almost the same position through 48 to 120 hours. According to the ECMWF

model, the central pressure value of 1025hpa in 24 hours locates at longitude 15°W is expected to increase its core value to 1027hpa within 48 to 72 hours by maintaining almost the same position and tends to decrease from 1024 to 1022hpa by shifting from latitude 20°W to 15°W and vice versa through 96 to 120hours. Lastly, according to the UKMET model, the central pressure value of 1026hpa in 24 hours locate at longitude 50°W is expected to gradually increase its core value from 1027hpa to 1028hpa within 48 to 72 hours by maintaining almost the same position and decreases from 1025hpa to 1023hpa by shifting westwards (from 35°W to 45°W) through 96 to 120 hours.

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

At the 850hpa level, a lower tropospheric wind convergence associated with significant West African Monsoon inflow and depth between latitude 13°N 20°N is expected to prevail over parts of Sudan, Cameroon, Chad, Central African Republic and Western Africa through 24 hours to 120 hours. The convergence associated with the meridional arm of the ITCZ is located over Southern and Western a part of South Sudan Republic; Central, East and South Central African Republic and North Democratic Republic of Congo within 24 hours to 120 hours.

At 700hpa level will be associated with very weak African Easterly Jet (AEJ) with a core of 20 to 25 knots over West Africa; however an African Easterly Waves propagating westwards will be affecting part of Guinea Gulf Countries, Central Africa and Sahel Region through 24 to 120 hours.

At 500hpa level, a wave is expected to affect part of Guinea Gulf Countries, Central Africa and Sahel Region.

At 150mb, the Tropical Easterly Jet with a maximum core of 30 to 60 Knots will affect Southern Chad and Sudan; Part of Guinea Gulf Countries and Central African Republic through 24 to 120 Hours. Easterly winds flow will also affect part of Sahel Region.

In the next five days, ITD is expected to maintain its northwards position up to 22°N with significant monsoon inflow and depth within 24 to 120 hours; Also the active TEJ and the relative very weak AEJ associated with pronounced AEW propagation, will enhance rainfall activities over Western Ethiopia; Southern Part of Guinea Gulf Countries; Part of Sahel region and Central Africa.

Atmospheric dust concentration expected over North, Central and West Mauritania; North Niger, Chad, Sudan and Mali; East, Central and South Algeria; South Western Sahara and Egypt through 24 to 72 hours.

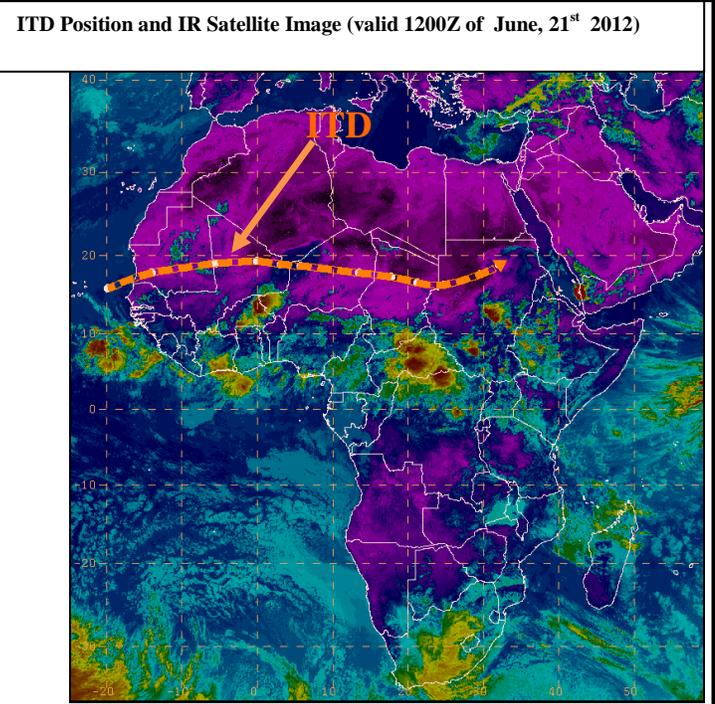
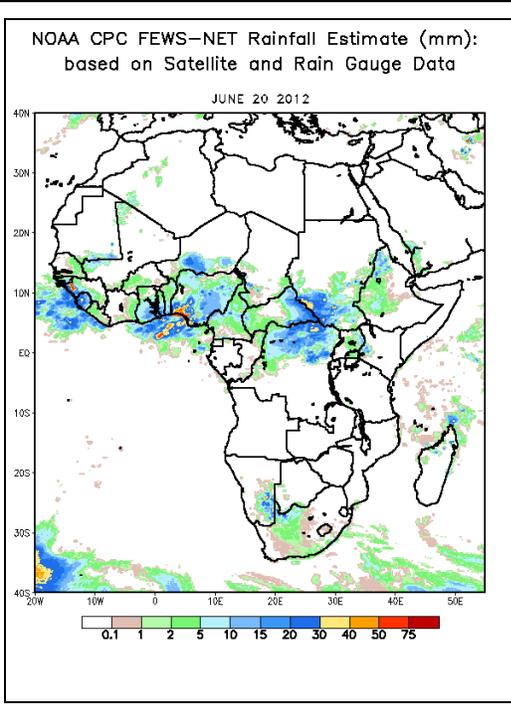
2.0. Previous and Current Day Weather Discussion over Africa (June, 20th 2012– June, 21st 2012)

2.1. Weather assessment for the previous day (June, 20th 2012)

During the previous day, moderate to heavy rainfall was observed over West Guinea Conakry; part of Sierra Leone; Coastal Liberia; South Ghana, Benin, Togo and Niger; Part of Nigeria; East, Central and West Cameroon; South Chad and Sudan; East, West and South Central African Republic; part of South Sudan Republic; Northwest Ethiopia; North Democratic Republic of Congo and South Namibia.

2.2. Weather assessment for the current day (June, 21st 2012)

Convective activities observed across South Cote d'Ivoire; East, Central and South Burkina Faso; Southeast Mali; West Niger, South Chad and Sudan; North Democratic Republic of Congo; part of Central African Republic; West of South Sudan Republic; West Ethiopia and part South Africa.



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

Authors: Abdou Adam Abdoul-Aziz Abebe, (Direction de la Meteorologie Nationale du Niger/ACMAD / CPC-African Desk); abdoul.adam@noaa.gov
Eugene V. S. Gar-Glahn, (Liberia Meteorological Service / CPC-African Desk); eugene.gar-glahn@noaa.gov