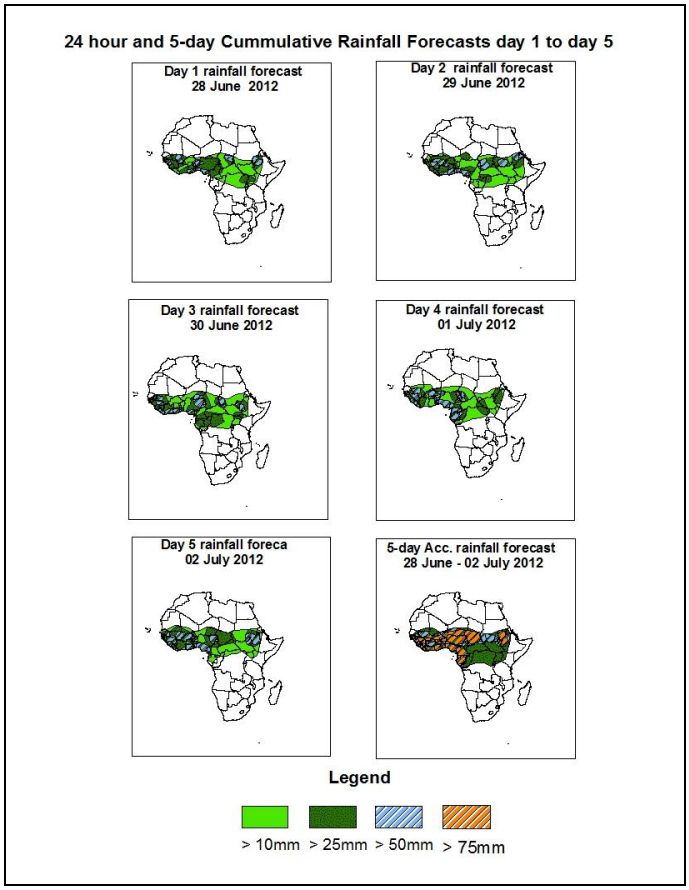
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of June, 28th – 06Z of July, 02nd 2012. (Issued at 13:00Z of June, 27th 2012)

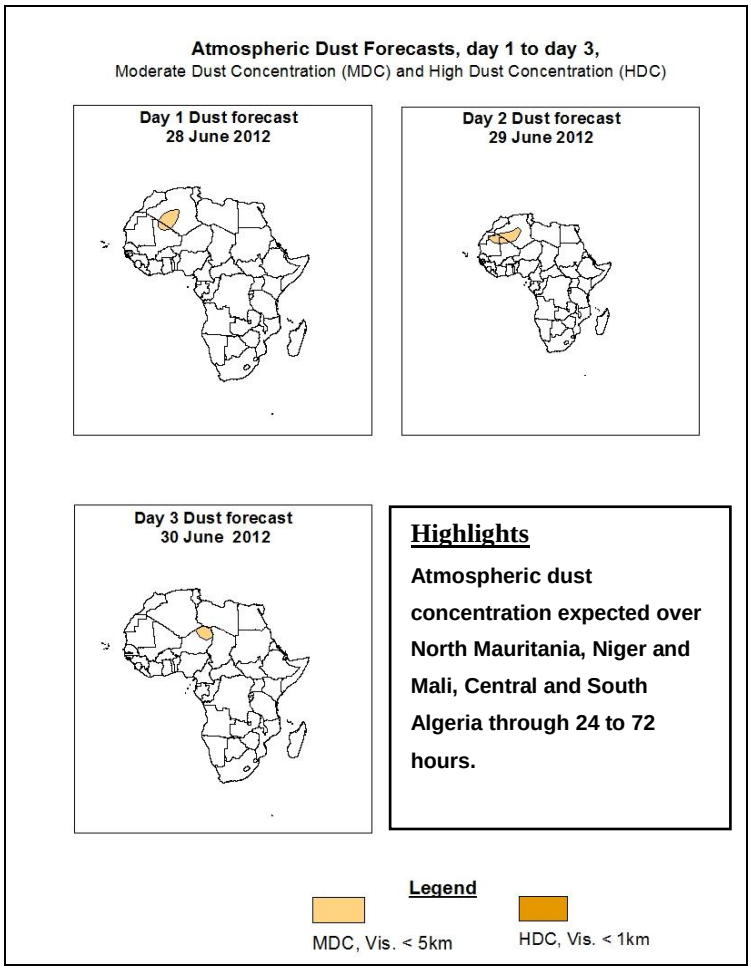
1.1. Twenty Four Hour Cumulative Rainfall Forecasts

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 fluctuate between 16°E and 22°N with moderate to strong monsoon depth within 24 to 120 hours; Also the very active TEJ and the pronounced AEW propagation will enhance rainfall activities over portion of East, West and South Sahel Region; Most part of Guinea Gulf Countries and portion of Central Africa.



1.3. Model Discussion: Valid from 00Z of June, 27th 2012.

According to the GFS, ECMWF and UKMET models the heat lows are expected to deepen through 48 to 120 hours over Mauritania, Algeria, Mali, Niger Chad and Sudan.

According to GFS model, a thermal low over West, Central and North Mauritania (1008hpa) within 24 to 48 hours is expected to gradually decrease from 1005hpa to 1002hpa through 72 to 120 hours. The second low over North Mali and South Algeria (1005hpa) in 24 hours is expected to decrease to 1003hpa in 48 hours and tends to increase to 1006hpa in 72 hours, then decreases from 1003hpa to 1002hpa through 96 to 120 hours. The third low over North Chad and Niger (1006hpa) in 24 hours is expected to decrease from 1005hpa to 1003hpa within 48 to 96 hours and tends to increase to 1005hpa in 120 hours; while the low over North Sudan (1006hpa) in 24 hours is expected to decrease to 1004hpa through 48 to 120 hours.

The ECMWF model shows a thermal low over West, Central and North Mauritania (1010hpa) in 24 hours is expected to decrease to 1008hpa through 48 to 120 hours. The second low over South Algeria and North Mali (1008hpa) in 24 hours is expected to gradually decrease from 1008hpa to 1003hpa within 48 to 120 hours. The third low over North Niger and Chad (1008hpa) through 24 to 48 hours is also expected to gradually decrease from 1006hpa to 1005hpa through 72 to 120 hours; while the low over North Sudan (1008hpa) within 24 to 48 hours is expected to decrease to 1006hpa through 72 to 120 hours.

The UKMET model shows a thermal low over West, Central and North Mauritania (1007hpa) in 24 hours is expected to gradually decrease from 1006hpa to 1004hpa within 48 to 120 hours. The second low over South Algeria and North Mali (1007hpa) in 24 hours is also expected to gradually decrease from 1004hpa to 1000hpa through 48 to 120 hours. The third low over North Niger and Chad (1007hpa) in 24 hours is expected to decrease from 1005hpa to 1002hpa within 48 to 96 hours and tends to increase to 1006hpa in 120 hours; while the low over North Sudan (1007hpa) in 24 hours is expected to 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 1031hpa in 24 hours locates at latitude 30^{o}S is expected to decrease its core value from 1029hpa to 1024hpa within 48 to 120 hours by maintaining almost the same position at latitude 30^{o}S. According to the ECMWF model, the central pressure value of 1030hpa in 24 hours and locate at latitude 30^{o}S is also is expected to decrease its core value from 1028hpa to 1024hpa through 48 to 120 hours by maintaining almost the same position at latitude 30^{o}S. Lastly, according to the GFS model, the central pressure value of 1030hpa in 24 hours and locates at latitude 30^{o}S is expected to decrease its core value from 1029hpa to 1025hpa within 48 to 120 hours by maintaining almost the same position at latitude 30^{o}S.

According to the GFS model, the Azores high pressure system over North Atlantic Ocean with its central pressure value of 1029hpa through 24 to 72 hours and locates between longitude 45^{o}W and 40^{o}W is expected to increase its core value to 1031hpa by shifting eastwards (from 45^{o}W to 30^{o}W). According to the ECMWF model, the central pressure value of 1029hpa within 24 to 72 hours and locates between longitude 40^{o}W

and 35^{o}W is expected to increase its core value to 1031hpa in 96 hours and tends to decrease its core value to 1029hpa in 120 hours by maintaining almost the same position at longitude 35^{o}W. Lastly, according to the UKMET model, the central pressure value of 1030hpa through 24 to 72 hours locates between longitude 45^{o}W to 35^{o}W is expected to slightly increase its core value to 1031hpa in 96 hours, then decreases its core value to 1030hpa in 120 hours by maintaining almost the same position at longitude 30^{o}W.

At 925hpa level, zone of moderate dry Northerly and Northeasterly winds (20 to 35kts) are expected to prevail over North Mauritania, Niger, Chad, Sudan and Mali; Central and South Algeria 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 14^{o}N 20^{o}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 part of South Sudan Republic; North Democratic Republic of Congo, East and South Central African Republic and West Uganda within 24 hours to 120 hours.

At 700hpa level, the African Easterly Jet (AEJ) with a core of 20 to 40 knots is expected over Northwest Nigeria; North Benin, Ghana and Togo; part of Burkina Faso; West Mali and Niger; Coastal Guinea Conakry. Also a very pronounce African Easterly Waves propagating westwards is expect to affect most part of Guinea Gulf Countries; West and North Central African Republic; South and West Mali and Niger; part of Burkina Faso and Senegal; South Mauritania and Chad through 24 to 120 hours.

At 500hpa level, a wave is expected to affect most part of Guinea Gulf Countries; South Chad; South and West Niger and Mali; East, South and West Burkina Faso through 24 to 120 hours.

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 most part of Sahel Region.

In the next five days, ITD is expected to fluctuate between 16^{o}E and 22^{o}N with moderate to strong monsoon depth within 24 to 120 hours; Also the very active TEJ and the pronounced AEW propagation will enhance rainfall activities over portion of East, West and South Sahel Region; Most part of Guinea Gulf Countries and portion of Central Africa.

Atmospheric dust concentration expected over North Mauritania, Niger and Mali, Central and South Algeria through 24 to 72 hours.

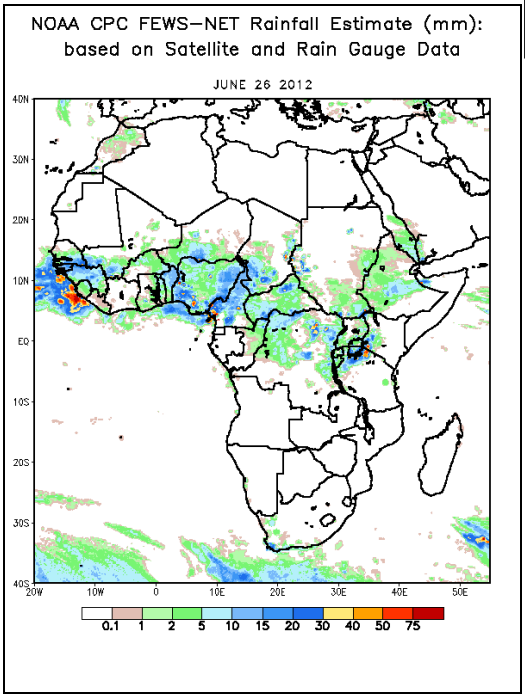
2.0. Previous and Current Day Weather Discussion over Africa (June, 26th 2012– June, 27th 2012)

2.1. Weather assessment for the previous day (June, 26th 2012)

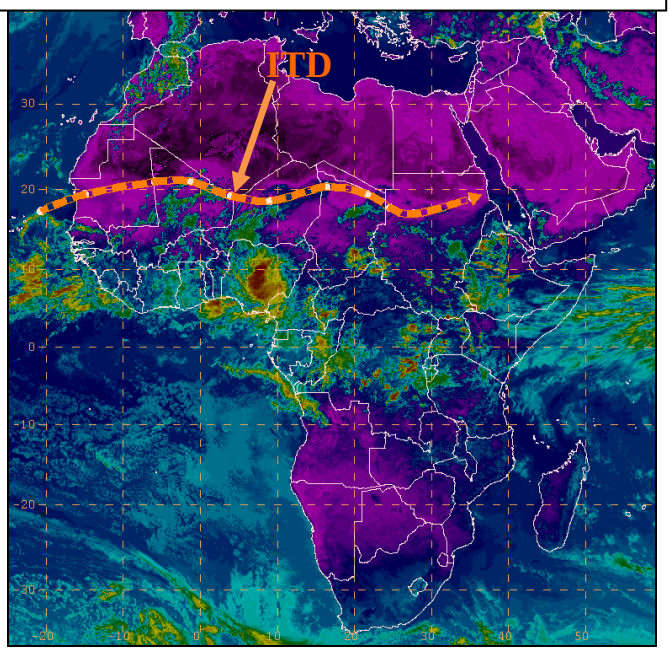
During the previous day, moderate to heavy rainfall was observed over South Senegal; part of Guinea Bissau; East, North and Coastal Guinea Conakry; Coastal Sierra Leone; West Mali; North and East Benin; South Niger; North, East, West and South Nigeria; South and East Chad; Part of Cameroon; North and South Central African Republic; South and West Sudan; North, East and North Democratic Republic of Congo; Southwest Kenya; North Tanzania and Central Ethiopia.

2.2. Weather assessment for the current day (June, 27th 2012)

Convective activities observed across Coastal Togo and Benin; Part of Nigeria; South Cameroon and Chad; Northeast and West Central African Republic; North, Central and East Democratic Republic of Congo; Northeast and South Uganda; North Congo and West Ethiopia.



ITD Position and IR Satellite Image (valid 1200Z of June, 27th 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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