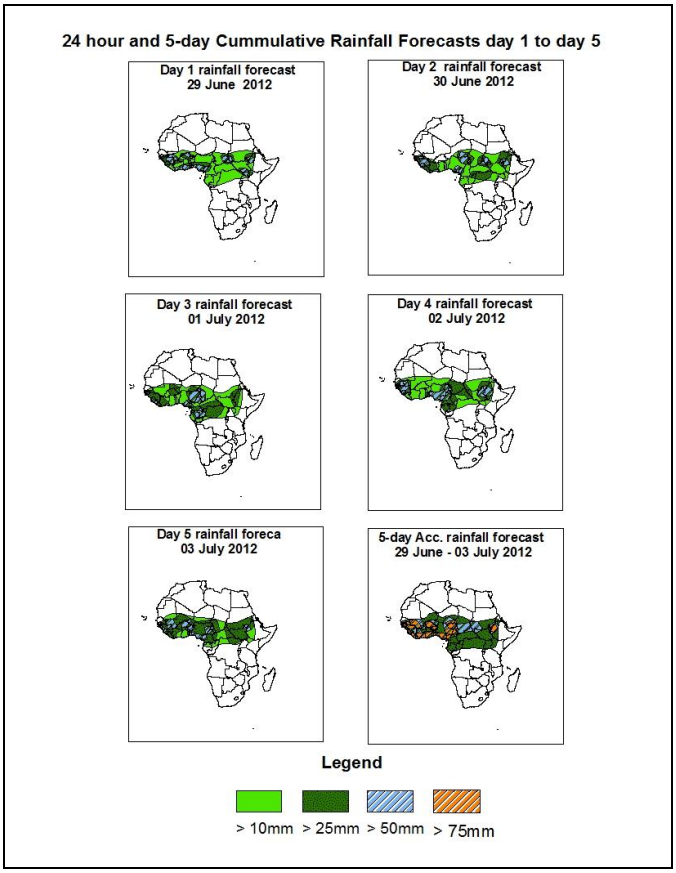
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of June, 29th – 06Z of July, 03rd 2012. (Issued at 12:00Z of June, 28th 2012)

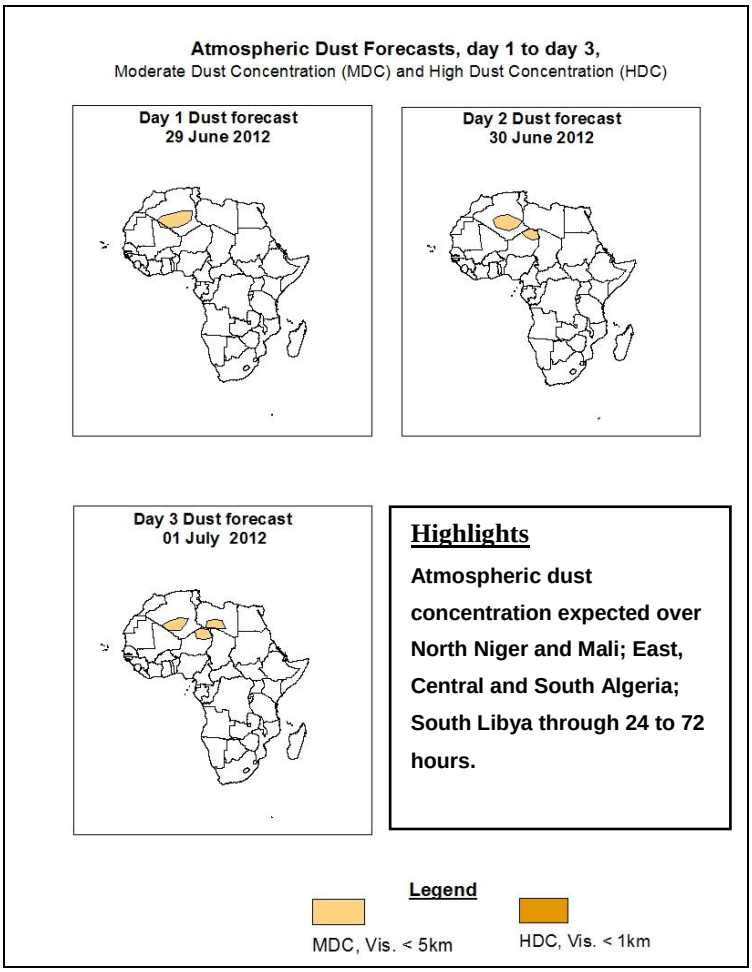
1.1. Twenty Four Hour Cumulative Rainfall Forecasts

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 and 850 to 700hpa vortices are expected to 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, 28th 2012.

According to the GFS, ECMWF and UKMET models the heat lows are expected to deepen through 72 to 120 hours over Algeria, Mali, Niger, and Chad, then maintains almost its core value through 24 to 120 hours over Mauritania and Sudan.

According to GFS model, a thermal low over West, Central and North Mauritania (1006hpa) in 24 hours is expected to maintain almost its core value through 48 to 120 hours. The second low over North Mali and South Algeria (1004hpa) within 24 to 72 hours is expected to decrease to 1002hpa through 96 to 120 hours. The third low over North Chad and Niger (1005hpa) within 24 to 48 hours is expected to decrease to 1003hpa through 72 to 120 hours; while the low over North Sudan (1004hpa) in 24 hours is expected to is expected to maintain almost its core value a through 48 to 120 hours.

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

The UKMET model shows a thermal low over West, Central and North Mauritania (1006hpa) in 24 hours is expected to maintain almost its core value within 48 to 120 hours. The second low over South Algeria and North Mali (1004hpa) through 24 to 48 hours is also expected to decrease from 1001hpa to 1000hpa through 72 to 120 hours. The third low over North Niger and Chad (1006hpa) in 24 hours is expected to decrease from 1004hpa to 1002hpa within 48 to 72 hours and tends to increase from 1004hpa to 1006hpa through 96 to 120 hours; while the low over North Sudan (1006hpa) 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 1029hpa in 24 hours locates at latitude 30^{o}S is expected to decrease its core value from 1026hpa to 1025hpa within 48 to 72 hours by maintaining almost the same position at latitude 30^{o}S and tends to increase its core value from 1028hpa to 1030hpa through 96 to 120 hours by shifting northwards (from 40^{o}S to 35^{o}S). According to the ECMWF model, the central pressure value of 1029hpa in 24 hours and locate at latitude 30^{o}S is also is expected to decrease its core value from 1026hpa to 1024hpa through 48 to 120 hours by shifting northwards (from 30^{o}S to 25^{o}S). Lastly, according to the GFS model, the central pressure value of 1029hpa in 24 hours and locates at latitude 30^{o}S is expected to decrease its core value from 1027hpa to 1026hpa within 48 to 72 hours by maintaining almost the same position at latitude 30^{o}S and tends to increase its core value from 1027hpa to 1029hpa through 96 to 120 hours by shifting southwards (from 30^{o}S to 40^{o}S).

According to the GFS model, the Azores high pressure system over North Atlantic Ocean with its central pressure value of 1030hpa in 24 hours and locates at longitude

40°W is expected to slightly decrease its core value to 1029hpa in 48 hours by maintaining almost the same position at longitude 40°W, then increase its core value to 1031hpa in 72 hours by shifting eastwards (from 40°W to 35°W) and tends to decrease its core value from 1030hpa to 1028hpa through 96 to 120 hours shifting eastwards (from 35°W to 30°W). According to the ECMWF model, the central pressure value of 1030hpa in 24 hours and locates at longitude 40°W is expected to slightly decrease its core value to 1029hpa in 48 hours by shifting eastwards (from 40°W to 35°W), then increase its core value to 1031hpa in 72 hours and tends to decrease its core value to 1030hpa through 96 to 120 hours by maintaining almost the same position at longitude 35°W. Lastly, according to the UKMET model, the central pressure value of 1031hpa in 24 hours and locates at longitude 40°W is expected to slightly decrease its core value to 1030hpa in 48 hours by shifting eastwards (from 40°W to 35°W), then increase its core value to 1032hpa in 72 hours by shifting eastwards (from 35°W to 30°W) and tends to decrease its core value to 1031hpa through 96 to 120 hours by shifting westwards (from 30°W to 35°W) and eastwards (from 35°W to 30°W) respectively.

At 925hpa level, zone of moderate dry Northerly and Northeasterly winds (20 to 50kts) are expected to prevail over North Niger and Mali; East, Central and South Algeria; South Libya 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°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. Vortices are expected over Central Niger and Mali; North and Central Nigeria; West Sudan and East Chad. 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 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 West Mali; North Guinea Conakry, Cote d`Ivoire and Ghana; South and West Burkina Faso. Also a very pronounce African Easterly Waves propagating westwards is expect to affect most part of Guinea Gulf Countries; portion of Central African Republic and Sahel Region 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; portion of Central African Republic and 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 and 850 to 700hpa vortices are expected to 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 Niger and Mali; East, Central and South Algeria; South Libya through 24 to 72 hours.

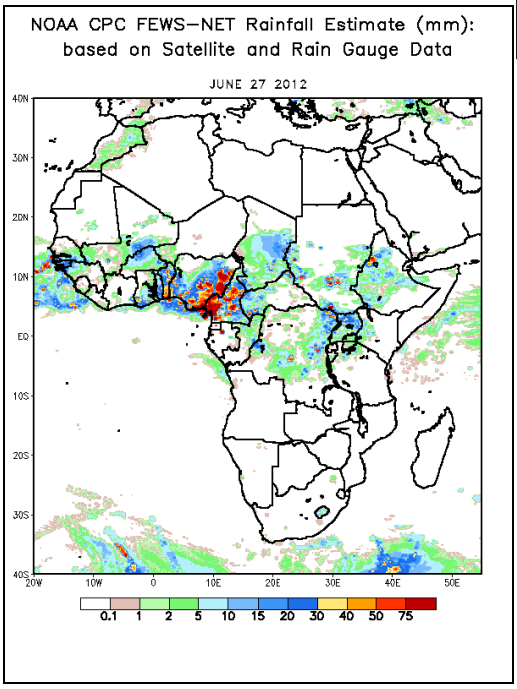
2.0. Previous and Current Day Weather Discussion over Africa (June, 27th 2012– June, 28th 2012)

2.1. Weather assessment for the previous day (June, 27th 2012)

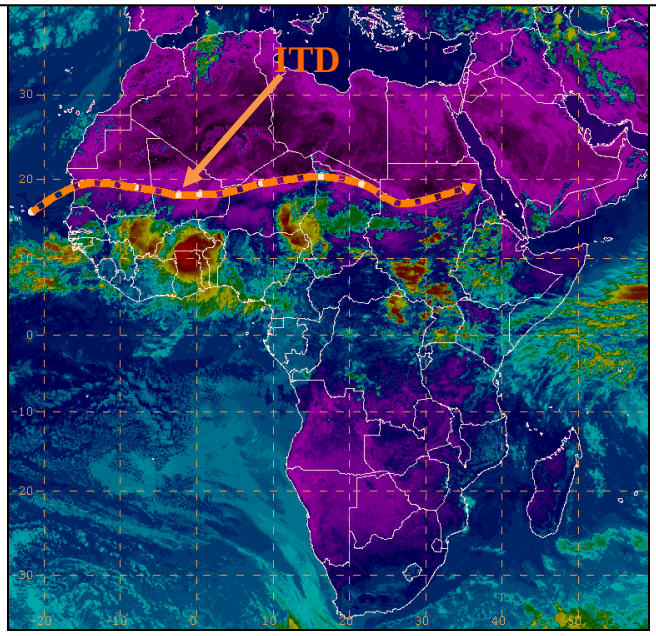
During the previous day, moderate to heavy rainfall was observed over South Senegal; part of Guinea Bissau; North Guinea Conakry; South Mali, Togo and Ghana; North and Southeast Burkina Faso; part of Benin, Nigeria and Cameroon; South and East Chad; West and North Central African Republic; South, North and West South Sudan Republic; North, East, Central and Northeast Democratic Republic of Congo; South and West Sudan; North Uganda and Northwest Ethiopia.

2.2. Weather assessment for the current day (June, 28th 2012)

Convective activities observed across South and Central Sudan; part of South Sudan Republic; South Uganda; North Democratic Republic; Southeast Central African Republic; West Chad; South Sudan; Southeast, Southwest and Central East Niger; North Cameroon; Northeast Nigeria; Part of Burkina Faso, Togo, Ghana and Benin; Northeast Cote d`Ivoire and West Mali.



ITD Position and IR Satellite Image (valid 1200Z of June, 28th 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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