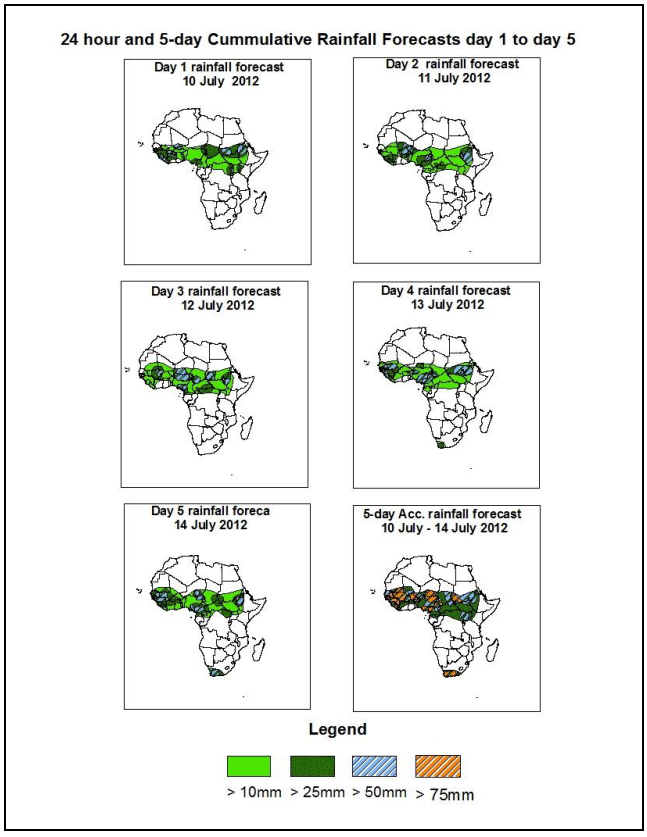
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of July, 10th – 06Z of July, 14th 2012. (Issued at 13:00Z of July, 09th 2012)

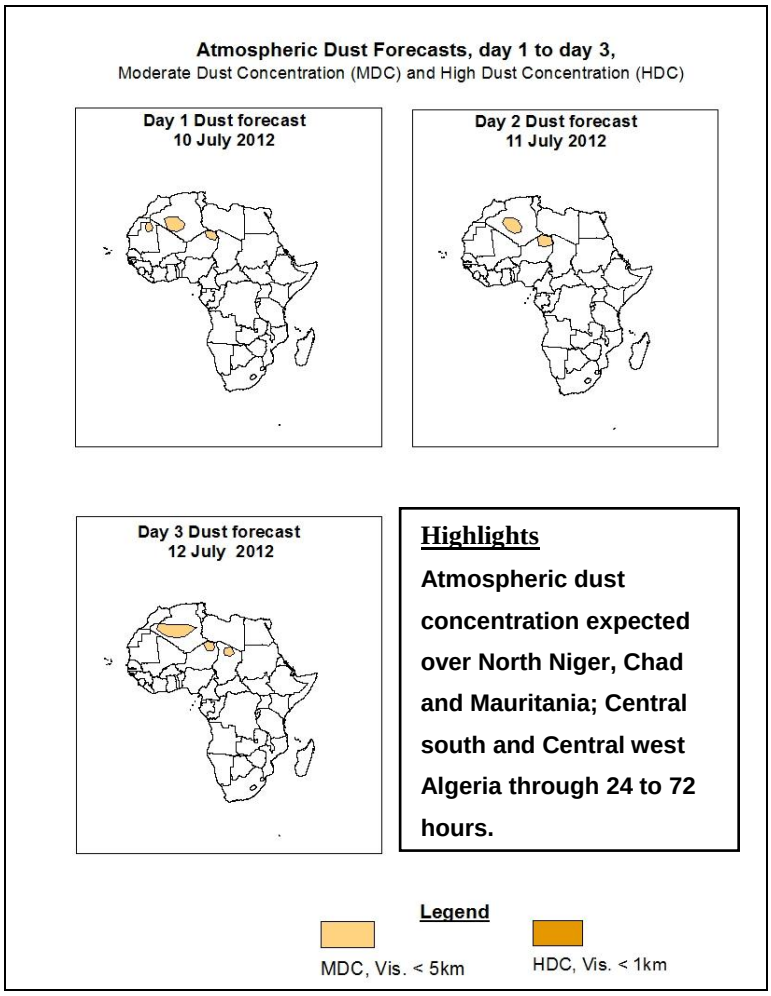
1.1. Twenty Four Hour Cumulative Rainfall Forecasts

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 TEJ, AEJ and the AEW propagation with 850 to 700hpa vortices are expected to enhance rainfall activities over part of Liberia, Sierra Leone Senegal, Gambia, Guinea Bissau and Conakry; West Ethiopia and Sudan; East and South Chad; A small portion of Sahel Region, Central Africa and Guinea Gulf Countries.



1.3. Model Discussion: Valid from 00Z of July, 09th 2012.

According to the GFS, ECMWF and UKMET models the heat lows are expected to fill up through 24 to 120 hours over Mauritania, Algeria, Mali, Niger, and Chad; while maintaining almost its core value over Sudan.

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

The ECMWF model shows a thermal low over West, Central and North Mauritania (1004hpa) in 24 hours is expected to increase its core value from 1005hpa to 1007hpa within 48 to 120 hours. The second low over North Mali and South Algeria (1004hpa) in 24 hours is also expected to increase its core value from 1005hpa to 1007hpa through 48 to 120 hours. The third low over North Chad and Niger (1006hpa) within 24 to 48 hours is expected to slightly increase to 1007hpa through 72 to 120 hours; while the low over North Sudan (1006hpa) in 24 hours is expected to maintain almost its core value through 48 to 120 hours.

The UKMET model shows a thermal low over West, Central and North Mauritania (1003hpa) within 24 to 48 hours is expected to increase its core value to 1005hpa in 72 hours and tends decrease it from 1004hpa to 1003hpa through 96 to 120 hours. The second low over North Mali and South Algeria (1003hpa) in 24 hours is also expected to increase its core value to 1006hpa within 48 to 72 hours, and then decrease it to 1004hpa through 96 to 120 hours. The third low over North Chad and Niger (1005hpa) in 24 hours is expected to slightly increase to 1006hpa within 48 to 120 hours; while the low over North Sudan (1004hpa) in 24 hours is expected to maintain almost its core value 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 1027hpa in 24 hours locates at latitude 30^{o}S is expected to gradually increase from 1034hpa to 1046hpa by shifting southwards to latitude 40^{o}S through 48 to 120 hours.

According to the ECMWF model, the central pressure value of 1030hpa in 24 hours locates at latitude 40^{o}S is also expected to gradually increase from 1034hpa to 1042hpa by shifting southwards to latitude 40^{o}S by maintaining almost its position around within 48 to 96 hours and northwards (from latitude 40^{o}S to 35^{o}S) in 120 hours

Lastly, according to the GFS model, the central pressure value of 1027hpa in 24 hours locates at latitude 30^{o}S is expected to gradually increase from 1034hpa to 1042hpa by shifting southwards to latitude 40^{o}S 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 1030hpa in 24 hours and locates at longitude 35^{o}W is expected to increase its core value from 1032hpa to 1033hpa by maintaining almost its position within 48 to 72 hours and shifting westwards to longitude 40^{o}W through 96 to 120 hours.

According to the ECMWF model, the central pressure value of 1030hpa in 24 hours and locates at longitude 35^{o}W is expected to increase its core value from 1031hpa to 1032hpa by shifting westwards to longitude 40^{o}W within 48 to 120 hours.

Lastly, according to the UKMET model, the central pressure value of 1031hpa in 24 hours and locates at longitude 35^{o}W is expected to slightly increase its core value to 1032hpa by moving westwards to longitude 40^{o}Wthrough 48 to 120 hours.

At 925hpa level, zone of moderate dry Northerly and Northeasterly winds (20 to 50kts) are expected to prevail over North Niger, Chad and Mauritania; Central south and Central west 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 13^{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. Vortices are expected over Central, Southeast Niger; South Mauritania; East and South Chad; part of Central African Republic; West Sudan; East Senegal; Coastal Guinea Bissau, Gambia, Sierra Leone and Guinea Conakry. The convergence associated with the meridional arm of the ITCZ is located over part of South Sudan Republic; North Democratic Republic of Congo; West Uganda; East and South Central African Republic through 24 hours to 120 hours.

At 700hpa level, the African Easterly Jet (AEJ) is associated with a westwards waves propagation are expected to affect portion of Central Africa and Sahel Region; part of Guinea Gulf Countries within 24 to 120 hours.

At 500hpa level, a wave is expected to affect South Chad and Sudan; South and West; part of Central African Republic, Benin, Togo, Sierra Leone and Cote d`Ivoire; West Mali; North and West Nigeria through 24 to 120 hours.

At 150mb, the Tropical Easterly Jet with a maximum core of 30 to 55 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 continue to affect 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 TEJ, AEJ and the AEW propagation with 850 to 700hpa vortices are expected to enhance rainfall activities over part of Liberia, Sierra Leone Senegal, Gambia, Guinea Bissau and Conakry; West Ethiopia and Sudan; East and South Chad; A small portion of Sahel Region, Central Africa and Guinea Gulf Countries.

Atmospheric dust concentration expected over North Niger, Chad and Mauritania; Central south and Central west Algeria through 24 to 72 hours.

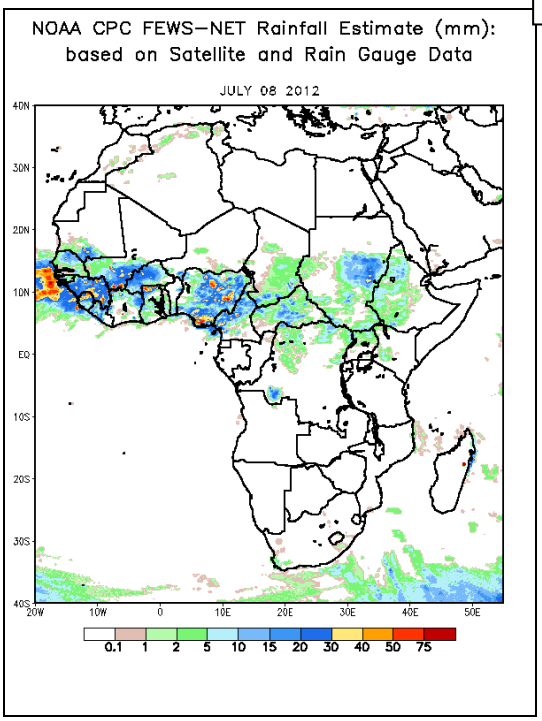
2.0. Previous and Current Day Weather Discussion over Africa (July, 08th 2012– July, 09th 2012)

2.1. Weather assessment for the previous day (July, 08th 2012)

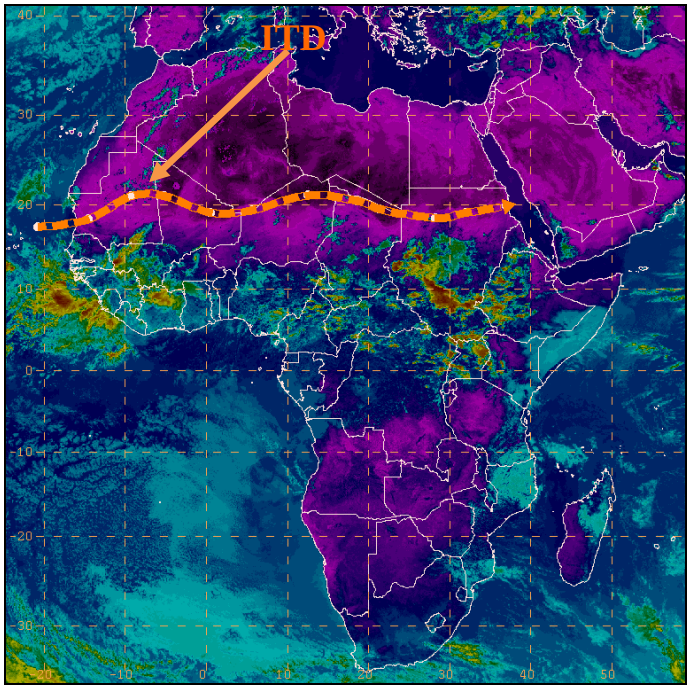
During the previous day, moderate to heavy rainfall was observed over South Mauritania; North and South Senegal, part of Gambia, Sierra Leone and Guinea Conakry and the Gambia; Coast and North Liberia; West Mali; East Cote d`Ivoire; part of Burkina Faso; North Ghana; Southwest Niger; Part of Nigeria; Central, North and West Burkina Faso; South Chad; North, West and Central Cameroon; Central, South and North Central African Republic; East and South Sudan; North and West Democratic Republic of Congo; Northwest Ethiopia.

2.2. Weather assessment for the current day (July, 09th 2012)

Convective activities observed across South Mauritania; West Mali; Coastal Sierra Leone; North Cote d`Ivoire; South and North South Sudan Republic; West and South and West Sudan; West Sudan; Northeast Democratic Republic of Congo; West Ethiopia; East, North and West Uganda.



ITD Position and IR Satellite Image (valid 1200Z of July, 09th 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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