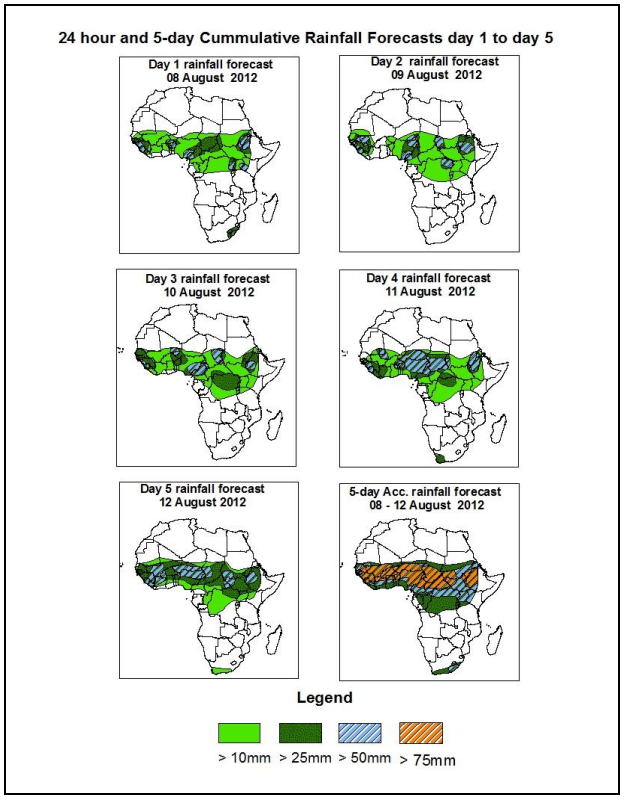
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of August 08th – 06Z of August, 12th 2012. (Issued at 13:00Z of August, 07th 2012)

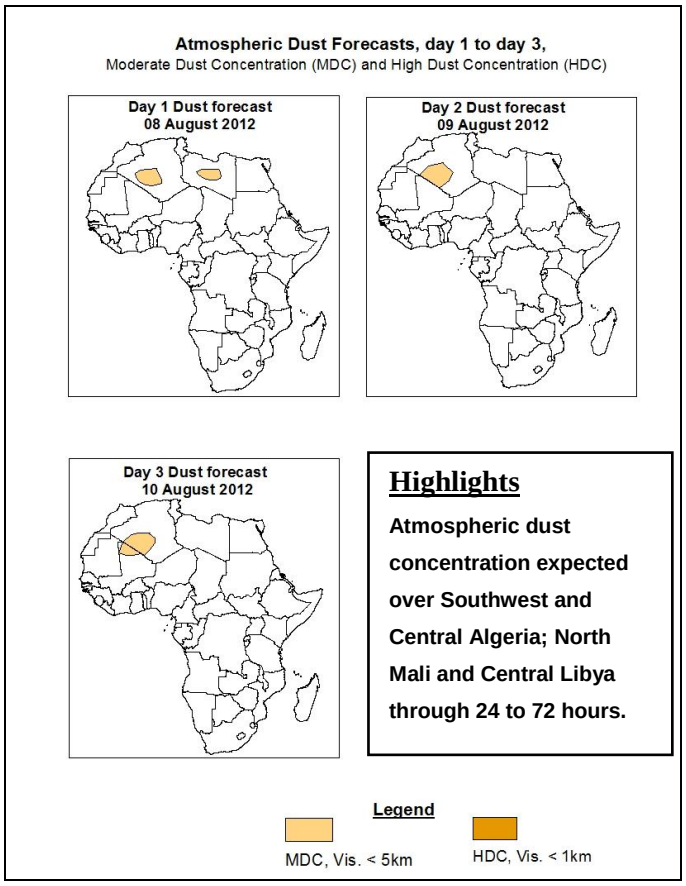
1.1. Twenty Four Hour Cumulative Rainfall Forecasts

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 18°E and 23°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 portion South Sudan Republic, Cameroon and Nigeria; South Chad and South Sudan; portion of Sahel Region, Sierra Leone and Guinea Conakry; Northern Guinea Gulf Countries; part of Central African Republic; West and North Ethiopia.



1.3. Model Discussion: Valid from 00Z of August, 07th 2012.

According to the GFS, ECMWF and UKMET models the heat lows are expected to deepen, remain quasi-stationary, and then fill up and vice versa through 24 to 120 hours over Mauritania, Mali, Algeria, Niger, Chad and Sudan.

According to GFS model, a thermal low over East, North, Central and West Mauritania (1006hpa) in 24 hours is expected to decrease its core value to 1004hpa in 48 hours, and tends to increase from 1006hpa to 1010hpa within 72 to 96 hours, thereafter decrease to 1008hpa in 120 hours. The second low over South Algeria; North and Central Mali (1007hpa) in 24 hours is expected to decrease its core value to 1005hpa through 48 to 72 hours, then slightly increase to 1006hpa in 96 hours, and finally decrease to 1004hpa in 120 hours. The third low over North Chad and Niger (1005hpa) within 24 to 72 hours is expected to decrease its core value to 1003hpa in 96 hours, and tends to increase to 1005hpa in 120 hours; while the low over North Sudan (1004hpa) in 24 hours is expected to increase to 1006hpa through 48 to 72 hours, thereafter decrease to 1004hpa within 96 to 120 hours.

The ECMWF model shows a thermal low over East, North, Central and West Mauritania (1008hpa) in 24 hours is expected to slightly decrease its core value to 1007hpa in 48 hours, and tends to increase from 1008hpa to 1010hpa through 72 to 96 hours, thereafter decrease to 1007hpa in 120 hours. The second low over South Algeria; North and Central Mali (1010hpa) in 24 hours is expected to decrease its core value to 1007hpa in 48 hours, and then gradually increase from 1008hpa to 1010hpa within 72 to 120 hours. The third low over North Chad and Niger (1007hpa) through 24 to 48 hours is also expected to gradually increase its core value from 1008hpa to 1010hpa within 72 to 120 hours; while the low over North Sudan (1006hpa) in 24 hours is expected to maintain almost the same core value through 48 to 120 hours.

The UKMET model shows a thermal low over East, North, Central and West Mauritania (1004hpa) in 24 hours is expected to slightly decrease its core value to 1003hpa in 48 hours, and tends to increase from 1005hpa to 1006hpa within 72 to 96 hours, thereafter slightly decrease to 1005hpa in 120 hours. The second low over South Algeria; North and Central Mali (1005hpa) in 24 hours is expected to decrease its core value to 1004hpa through 48 to 72 hours, thereafter increase to 1006hpa within 96 to 120 hours. The third low over North Chad and Niger (1005hpa) in 24 hours is expected to decrease its core value to 1004hpa in 48 hours, and tends to increase from 1005hpa to 1006hpa through 72 to 120 hours; while the low over North Sudan (1004hpa) in 24 hours is expected to gradually increase from 1005hpa to 1006hpa within 48 to 72 hours, thereafter decrease to 1004hpa through 96 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 35^{o}S is expected to increase its core value to 1034hpa by maintaining almost the same position around latitude 35^{o}S in 48 hours, and tends to gradually decrease its cores value from 1032 to 1031hpa by moving northwards from latitude 35^{o}S to 30^{o}S within 72 to 120 hours.

According to the ECMWF model, the central pressure value of 1030hpa in 24 hours locates at latitude 35^{o}S is expected to increase its core value to 1033hpa by maintaining almost the same position around latitude 35^{o}S in 48 hours, and tends to gradually

decrease its cores value from 1032 to 1031hpa by moving northwards from latitude 35°S to 30°S within 72 to 96 hours and southwards from latitude 30°S to 45°S in 120 hours.

Lastly, according to the GFS model, the central pressure value of 1034hpa in 24 hours locates at latitude 35°S is expected to gradually decrease its core value from 1033hpa to 1030hpa by shifting northwards from latitude 35°S to 30°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 1026hpa in 24 hours and locates at longitude 40°W is expected to gradually decrease its core value from 1025hpa to 1023hpa by shifting westwards from longitude 40°W to 50°W within 48 to 72 hours, tends to increase from 1025hpa to 1027hpa by moving to the east from longitude 50°W to 40°W through 96 to 120 hours.

According to the ECMWF model, the central pressure value of 1025hpa in 24 hours and locates at longitude 40°W is expected to gradually decrease its core value from 1024 to 1023hpa by shifting westwards from longitude 40°W to 50°W within 48 to 72 hours, thereafter increase from 1024hpa to 1025hpa by moving to the east from longitude 50°W to 35°W through 96 to 120 hours.

Lastly, according to the UKMET model, the central pressure value of 1025hpa within 24 to 48 hours and locates between longitude 40°W to 50°W is expected to decrease its core value to 1022hpa by maintaining almost the same position around longitude 50°W in 72 hours, and tends to increase from 1024hpa to 1026hpa by moving to the east from longitude 50°W to 30°W within 96 to 120 hours.

At 925hpa level, zone of moderate dry northerly and northeasterly winds (20 to 50kts) are expected to prevail over Southwest and Central Algeria; North Mali and Central Libya through 24 to 72 hours.

At the 850hpa level, a lower tropospheric wind convergence associated with strong and significant West African Monsoon inflow and depth between latitude 16°N and 21°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 South and West Mali; West Senegal; portion of Niger; East, Northeast and West Chad; Northwest, West and Northeast Sudan; South Chad; North Cameroon and Central African Republic. The convergence associated with the meridional arm of the ITCZ is expected to oscillate between portion of South Sudan Republic; North and East, North and Central Democratic Republic of Congo; West and North Uganda; South and East Central African Republic; Great Lake Countries through 24 hours to 120 hours.

At 700hpa level, the AEJ with a core value between 30 and 60 knots is expected to affect South and West Mali and Mauritania; portion of Senegal. The African Easterly Waves (AEW) is also expected to propagate westwards waves to affect North Nigeria; portion of Niger, Burkina Faso, Mali, Mauritania, Senegal, East and west Chad; West and South Sudan within 24 to 120 hours.

At 500hpa level, a wave is expected to affect portion of Niger, Burkina Faso, Mali, Mauritania, Senegal, Chad, and Sudan through 24 to 120 hours.

At 150mb, the Tropical Easterly Jet with a maximum core of 35 to 70 Knots will affect portion of South Sudan Republic and South Guinea Gulf Countries; Part of Ethiopia and Central African Republic; Easterly winds flow will also continue to affect most part of West Africa, Chad, Cameroon and Sudan through 24 to 120 Hours.

In the next five days, ITD is expected to fluctuate between 18^{o}E and 23^{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 portion South Sudan Republic, Cameroon and Nigeria; South Chad and South Sudan; portion of Sahel Region, Sierra Leone and Guinea Conakry; Northern Guinea Gulf Countries; part of Central African Republic; West and North Ethiopia.

Atmospheric dust concentration expected over Southwest and Central Algeria; North Mali and Central Libya through 24 to 72 hours.

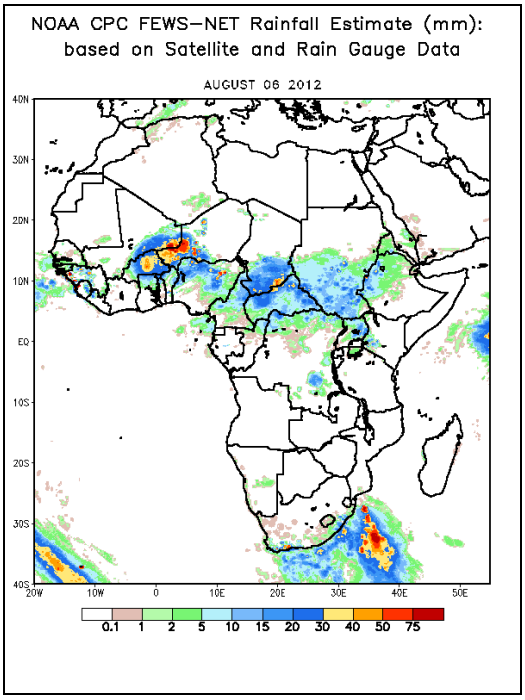
2.0. Previous and Current Day Weather Discussion over Africa (August, 06th 2012– August, 07th 2012)

2.1. Weather assessment for the previous day (August, 06th 2012)

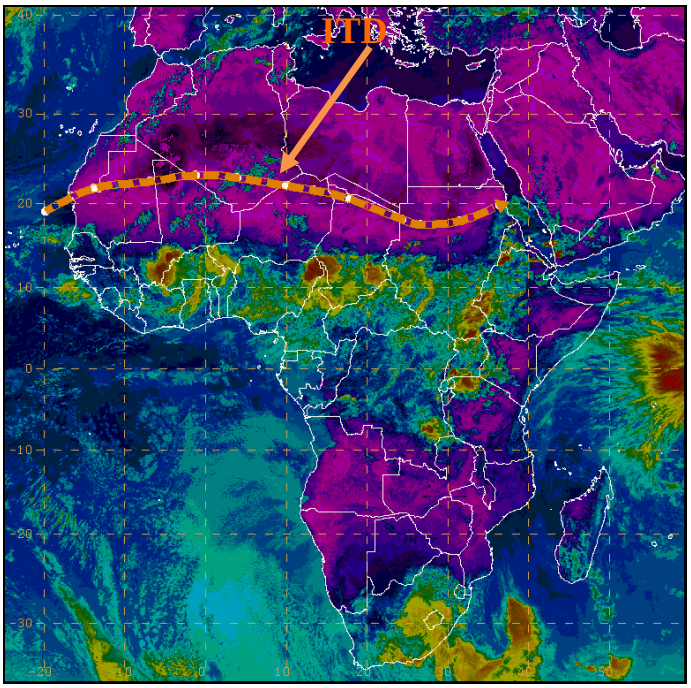
During the previous day, moderate to heavy rainfall was observed over North and West Guinea Conakry; portion of Burkina Faso and Niger; South Chad; North and East Nigeria; North Cameroon; North and South Democratic Republic of Congo; portion Central African Republic and South Sudan Republic; West Ethiopia; South Sudan; East Uganda; South and East Coast of South Africa.

2.2. Weather assessment for the current day (August, 07th 2012)

Convective activities observed across West Mali; West Niger; East and West Burkina Faso; Northeast Nigeria; South Chad; Southeast Democratic Republic of Congo; North Cameroon; East South Sudan Republic; Southwest and Northwest Ethiopia; South Uganda; Northwest Tanzania; Central, South and East South Africa; Portion of Lesotho.



ITD Position and IR Satellite Image (valid 1200Z of August, 07th 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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