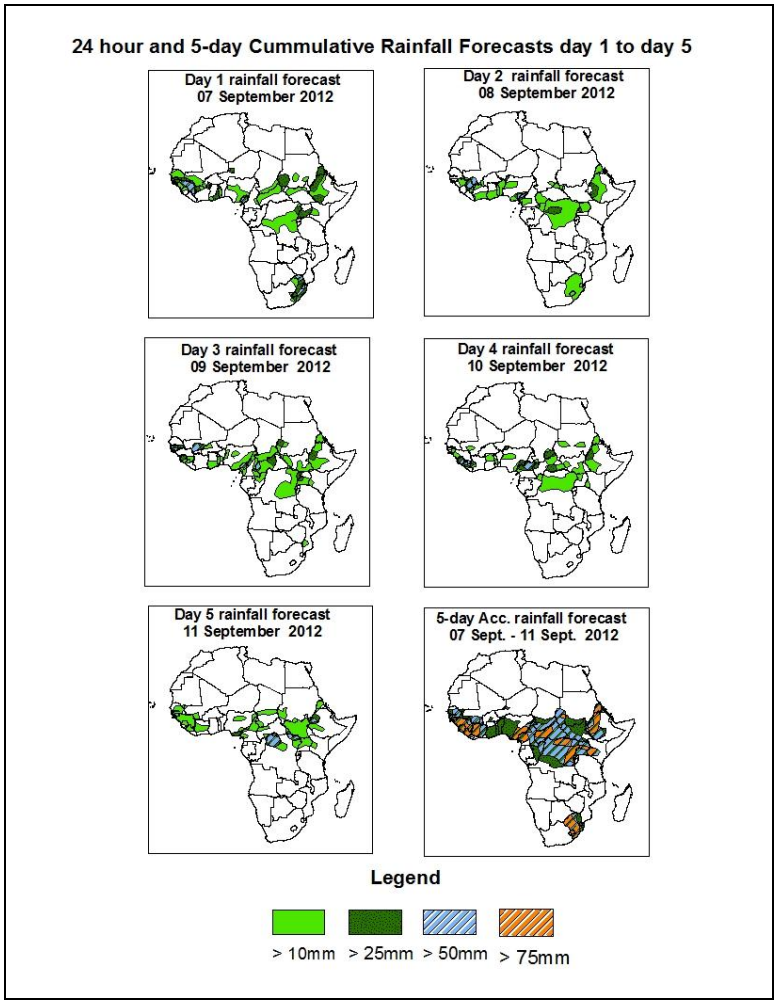
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of September 07th – 06Z of September, 11th 2012. (Issued at 13:00Z of September 06th 2012)

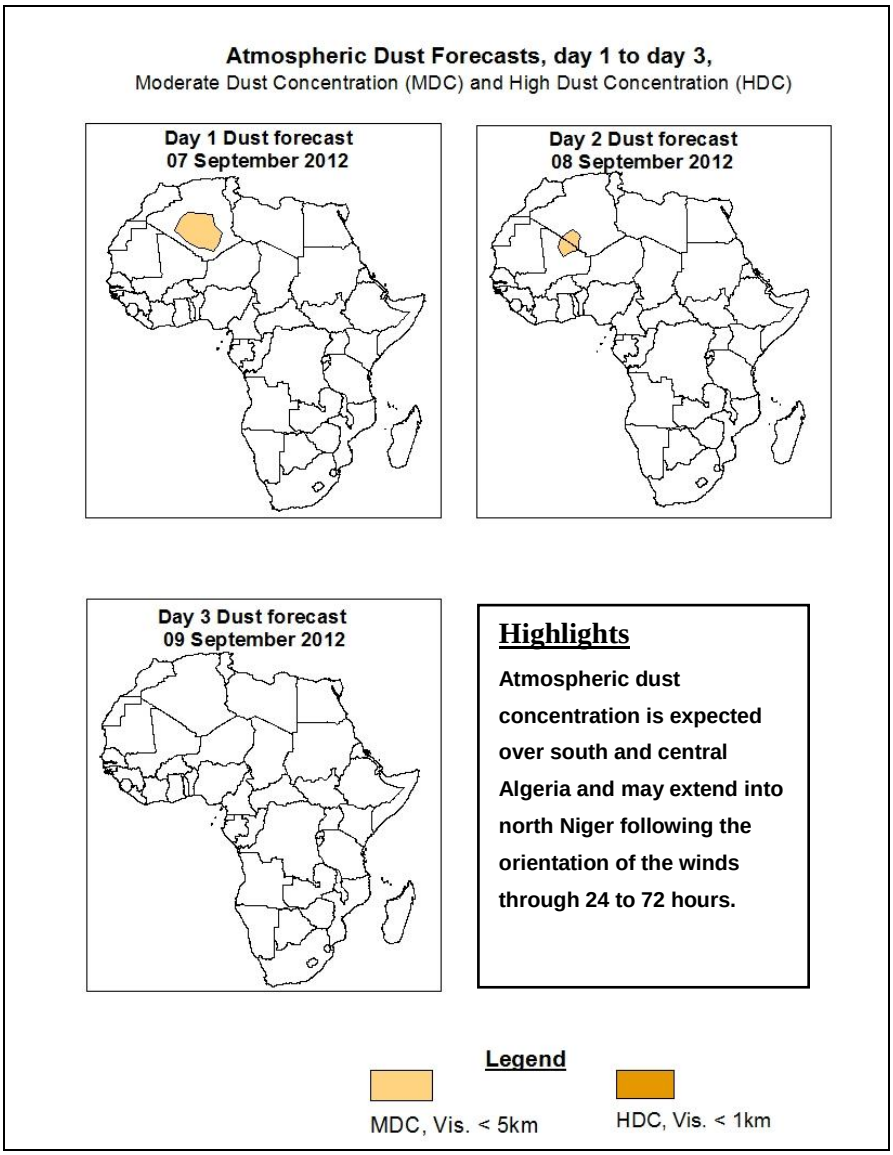
1.1. Twenty Four Hour Cumulative Rainfall Forecasts

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 08°N and 18°N with moderate to strong monsoon depth within 24 to 120 hours; also the TEJ, AEJ and the AEW propagation with vortices within the 850 to 700hpa pressure level fields are expected to enhance rainfall activities over parts of South Sudan Republic, Cameroon, Nigeria, South Chad, the Sahel Region, Sierra Leone, Guinea Conakry, the Northern Guinea Gulf Countries, Central African Republic and Ethiopia.



1.3. Model Discussion: Valid from 00Z of September 06th 2012.

The heat lows over Mauritania, Mali, Algeria, Niger, Chad and Sudan are expected to fluctuate in their positions while deepening and filling up and vice versa, through 24 to 120 hours, according to the GFS model.

According to the GFS model, a thermal low over coastal Mauritania (1010hpa) in 24 hours is expected to increase to 1012hpa in 48 hours over the coastal areas before a decrease to 1010hpa in 72 hours and tends to maintain this central value from 72 to 120 hours. The second low over south Algeria and north Mali (1010hpa) in 24 hours is expected to increase to 1012hpa in 48 hours before a decrease to 1010hpa in 72 hours

and tends to decrease further to 1008hpa in 120 hours. The third low over north Niger and central Chad (1010hpa) in 24 hours is expected to maintain this core value up to 72 hours before a decrease to 1008hpa through 96 to 120 hours; while the low over North Sudan (1008hpa) in 24 hours is expected to decrease to 1006hpa in 72 hours and tends to maintain this central value through 96 to 120 hours.

According to the GFS model, the St. Helena High pressure system over the South Atlantic Ocean with a central value of 1028hpa in 24 hours located at latitude 28^{o}S is expected to gradually increase to 1030hpa in 72 hours while shifting to latitude 30^{o}S, before a gradual decrease in its core value to 1024hpa through 96 to 120 hours while remaining quasi-stationary at latitude 30^{o}S.

According to the GFS model, the Azores high pressure system over the North Atlantic Ocean with its central pressure value of 1026hpa in 24 hours and locates at longitude 05^{o}W is expected to gradually decrease its core value to 1020hpa while fluctuating between longitudes 05^{o}W and 30^{o}W through 48 to 120 hours.

At 925hpa level, a zone of moderate dry northerly and northeasterly winds (15 to 35kts) is expected to prevail over Libya, Mali, south Algeria, north Niger, Mauritania and north Chad 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 08^{o}N and 18^{o}N is expected to prevail over parts of Mauritania, Mali, Niger, Sudan, Cameroon, Central African Republic, Chad and Western Africa through 24 hours to 120 hours. Vortices are expected over Central African Republic, Guinea-Bissau, Niger and Chad. The convergence associated with the meridional arm of the ITCZ is expected to oscillate between portions of South Sudan Republic; North and Central Democratic Republic of Congo; West and North Uganda; South and East Central African Republic and the Great Lake Countries through 24 hours to 120 hours.

At 700hpa level, the AEJ with a core value between 15 and over 35 knots is expected to affect parts of Mali, Niger, Nigeria, Sudan, Chad, and Mauritania. Vortices are expected over parts of Guinea-Bissau, South Sudan Republic, Chad, Democratic

Republic of Congo and Central African Republic. The African Easterly Waves (AEW) is also expected to propagate westwards affecting parts of Chad, Mauritania, Sudan, Ghana, Democratic Republic of Congo, Guinea-Conakry, Nigeria, Cote d'Ivoire, and Cameroon within 24 to 120 hours.

At 500hpa level, a wave is expected to affect parts of Sudan, Mali, Nigeria, Ghana, Democratic Republic of Congo, Chad, Niger, Cote d'Ivoire, Cameroon and Central African Republic, through 24 to 120 hours with no noticeable vortices expected during the forecast period.

At 200mb, the Tropical Easterly Jet with a maximum core of 40 to 60 Knots will affect portions of South Sudan Republic and the South Guinea Gulf Countries; parts of Ethiopia, Cameroon and Central African Republic; a slight easterly wind flow will also continue to affect most parts of West Africa, Chad, Cameroon and Sudan through 24 to 120 Hours.

In the next five days, ITD is expected to fluctuate between 08^{o}N and 18^{o}N with moderate to strong monsoon depth within 24 to 120 hours; also the TEJ, AEJ and the AEW propagation with vortices within the 850 to 700hpa pressure level fields are expected to enhance rainfall activities over parts of South Sudan Republic, Cameroon and Nigeria; South Chad; portions of the Sahel Region, Sierra Leone and Guinea Conakry; Northern Guinea Gulf Countries; part of Central African Republic; West and North Ethiopia.

Atmospheric dust concentration is expected over south and central Algeria and may extend into north Niger following the orientation of the winds through 24 to 72 hours.

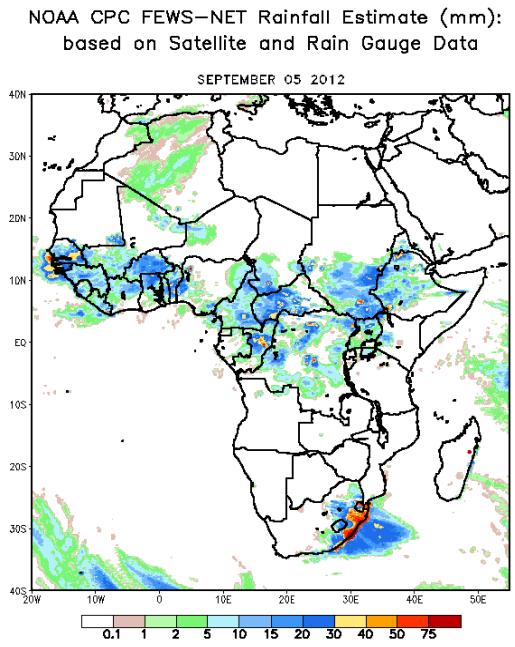
2.0. Previous and Current Day Weather Discussion over Africa (September 05th 2012– September 06th 2012)

2.1. Weather assessment for the previous day (September 05th 2012)

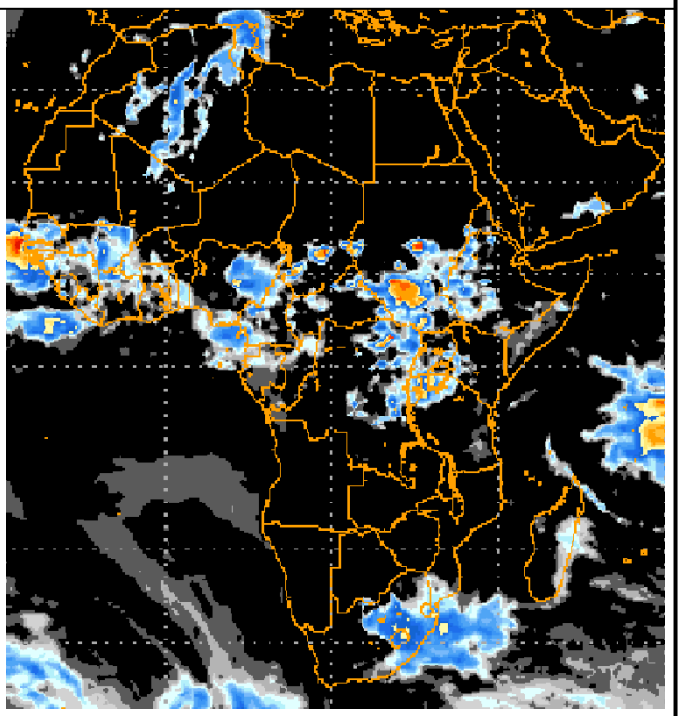
During the previous day, moderate to heavy rainfall was observed over parts of Algeria; south-east Mauritania; north and south Mali; western Niger; Nigeria; south Chad; Guinea Conakry; Senegal; Burkina Faso; Cameroon; Democratic Republic of Congo; Central African Republic and South Sudan Republic, Kenya, South Africa, Lesotho, Swaziland and West Ethiopia.

2.2. Weather assessment for the current day (September 06th 2012)

Convective activities observed across parts of Algeria; Mali; Nigeria; south Chad; Central African Republic; Cameroon; Democratic Republic of Congo; Sudan and South Sudan Republic; Burkina Faso; Ethiopia; Togo; Mauritania; South Africa, Lesotho, Swaziland, Mozambique and Guinea-Conakry.



ITD Position and IR Satellite Image (valid 1200Z of September 06th 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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