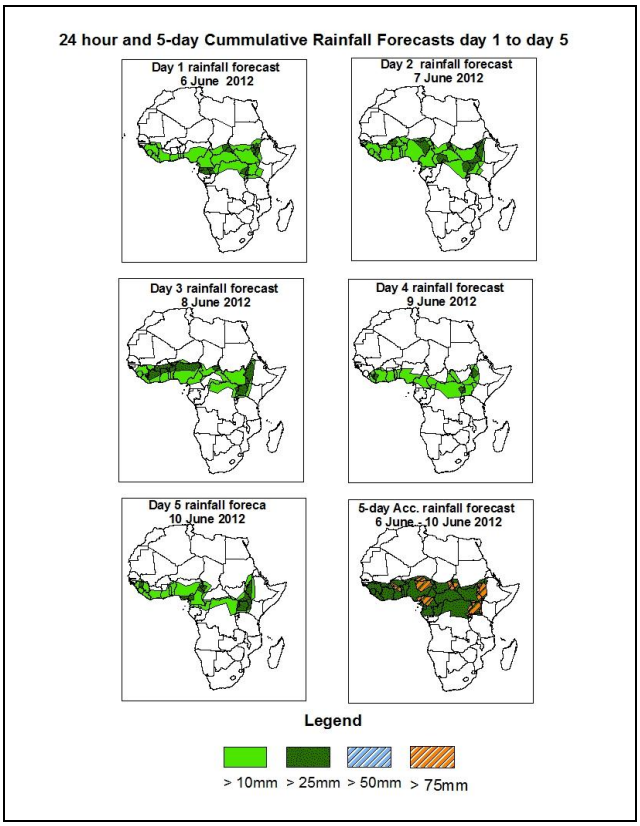
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 6 June – 06Z of 10 June 2012, (Issued at 18:00Z of 5 June 2012)

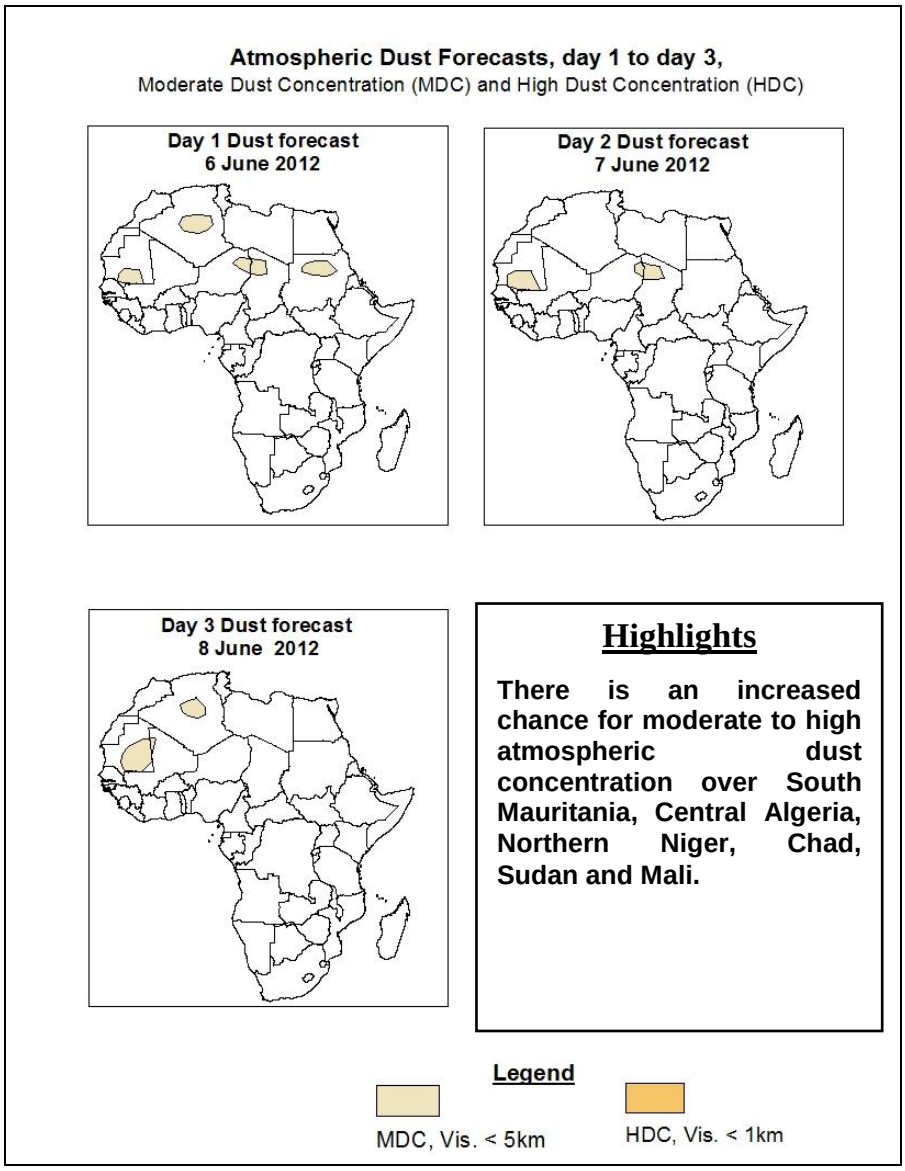
1.1. Twenty Four Hour Cumulative Rainfall Forecasts

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 will shift northwards associated with Deep monsoon inflow depth. Also the TEJ, AEW, AEJ are expected to enhance rainfall over Guinea Gulf Countries, Part of Sahel region and horn of Africa, Uganda and Central Africa.



1.3. Model Discussion: Valid from 00Z of 5 June 2012

According to the GFS, ECMWF and UKMET models an east-west oriented trough and its associated heat lows are expected to shift northward in the region between southern Algeria, Northern Mali, Niger and Chad.

According to GFS model, a thermal low is expected over Western Algeria (1007hpa) through 24 to 72 hours and over East and North Senegal, South Mauritania, West Mali (1008hpa) through 96 to 120 hours. The second low is expected over South Niger (1006hpa) in 24 hours; then slightly increase to 1007hpa over South and West Niger in 48hours; slightly decrease to 1006hpa over North Mali and Niger in 72 hours; slightly increase to 1007hpa over North Mali in 96 hours and slightly decrease to 1006hpa over Central Niger in 120 hours. The last low is expected over Central and West Chad tends

to slightly increase from 1005hpa to 1006hpa through 24 to 48 hours; slightly decrease to 1005hpa over West chad, East Niger within 72 hours; slightly increase to 1008hpa over North Niger in 96 hours and slightly decrease to 1004hpa in 120 hours.

The ECMWF model shows thermal low over Western Algeria (1008hpa) in 24 hours; over Central and North Mali (1007hpa) through 48 to 72 hours and slightly increase to 1008hpa over North Mali in 96 hours. The second low tends to slightly decrease from 1008hpa to 1006hpa through 24 to 120 hours over West Chad, East and North Niger.

The UKMET model shows thermal low over Western Algeria and North Mauritania (1006hpa) through 24 to 48 hours and tends to slightly increase over West Algeria (1007hpa) in 72 hours. The second low over Northwest Niger and East Mali (1007hpa) through 24 to 48 hours; tends to slightly decrease to 1005hpa over East Niger and West Chad through 72 to 96 hours and tends to slightly decrease to 1003hpa over South Algeria, East Mali and Northwest Niger in 120 hours.

According to UKMET and ECMWF models, the UKMET model of the St. Helena High pressure system over South Atlantic Ocean is expected to slightly deepen with its central pressure value tends to slightly decrease from 1032hpa to 1029hpa through 24 to 72 hours and tends to slightly increase from 1032hpa to 1035hpa through 96 to 120 hours. According to the ECMWF model, the central pressure value tends to slightly decrease from 1031hpa to 1029hpa through 24 to 72 hours and tends to slightly increase from 1030hpa to 1032hpa through 96 to 120 hours. Lastly, according to the GFS model, the central pressure value tends to slightly decrease from 1032hpa to 1029hpa through 24 to 72 hours and tends to slightly increase from 1032hpa to 1034hpa through 96 to 120 hours.

According to the GFS model, the Mascarene high pressure system over South Indian Ocean is expected to shift Eastwards (about 54^{o}E to 64^{o}E) through 24 to 48 hours with its central pressure value is expected to slightly decrease from about 1028hpa to 1027hpa and tends to increase from 1028hpa to 1034hpa, by maintaining its position about 70^{o}E through 72 to 120 hours. According to the ECMWF model, the central pressure value is expected to shift Eastwards (about 52^{o}E to 70^{o}E) through 24 to 72 hours with its central pressure value is expected to slightly decrease from about 1028hpa to 1027hpa and tends to increase from 1030hpa to 1032hpa, by shifting

Westwards through 96 to 120 hours. Lastly, according to the UKMET model of the Mascarene high pressure system over South Indian Ocean is expected to shift Eastwards (about 55^{o}E to 64^{o}E) through 24 to 48 hours with its central pressure value is expected to slightly decrease from about 1028hpa to 1027hpa and tends to increase from 1028hpa to 1032hpa, by shifting Eastwards from about 68^{o}E to 70^{o}E through 72 to 96 hours and westwards at 68^{o}E in 120 hours.

At 925hpa level, zone of moderate and dry northerly and easterly winds (35kts) are expected to prevail over North Mauritania, Mali, Chad, Niger and Sudan; parts of Western Sahara, Algeria, Libya, and Egypt through 24 to 120 hours.

At the 850hpa level, a lower tropospheric wind convergence associated with deep West African Monsoon depth is expected to prevail over parts of Western Africa about latitude 18^{o}N to 20^{o}N through 24 hours to 120 hours. The convergence associated with the meridional arm of the ITCZ is expected remain active across part of Uganda and Southern Sudan, North Tanzania, Western and Kenya during 24 hours to 120 hours.

At 700hpa level, Establishment of the AEJ with a core of 35 to 50 knots and associated with African Easterly Waves over Niger, Burkina Faso, Benin, Togo, Nigeria, Ghana, Cote d`Ivoire, Mali, Guinea Gulf Countries from 24 to 120 hours.

At 500hpa level, 30 Knots winds appear over North Nigeria, South and West Niger, East Burkina Faso, West Mali, Guinea Conakry, South Senegal and Guinea Gulf Countries within the next 24 to 120 hours.

At 150mb, the Sub-Tropical Westerly Jet still is prevailing over North Mali, Mauritania, Niger, Chad, Sudan and most Part of Algeria, Libya and Egypt with a maximum core of 90 Knots. However, the Tropical Easterly Jet with a maximum core of 50 Knots will be observed over South Chad and Guinea Gulf Countries, Cameroon, Central African Republic, South Sudan through 24 to 120 hours.

In the next five days, ITD will shift northwards associated with Deep monsoon inflow depth. Also the TEJ, AEW, AEJ are expected to enhance rainfall over Guinea Gulf Countries, Part of Sahel region and horn of Africa, Uganda and Central Africa.

There is an increased chance for moderate to high atmospheric dust concentration over South Mauritania, Central Algeria, Northern Niger, Chad, Sudan and Mali.

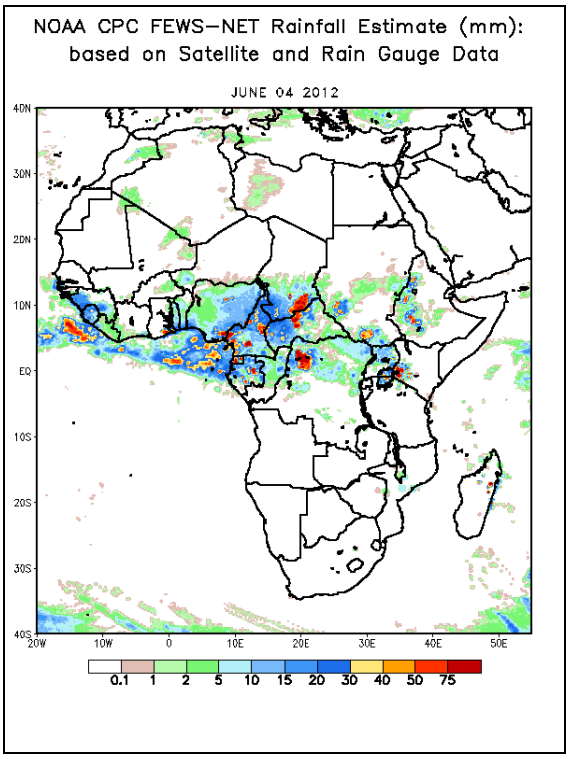
2.0. Previous and Current Day Weather Discussion over Africa (4 June – 5 June 2012)

2.1. Weather assessment for the previous day (4 June 2012)

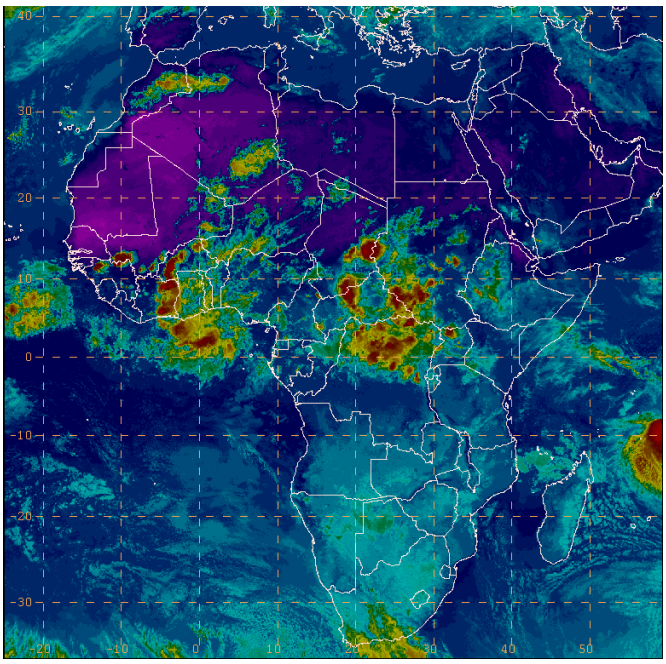
During the previous day, moderate to heavy rainfall was observed across South and Coastal Guinea Conakry, Part of Sierra Leone, South Ghana, Togo, and Benin, Part of Nigeria, Cameroon, Gabon and CAR, South Chad, North DRC and Congo, South Sudan Republic, North Tanzania, Southwest Kenya, West Ethiopia, East Madagascar and part of Uganda.

2.2. Weather assessment for the current day (5 June 2012)

Convective activities observed across West Mali, North Guinea Conakry, North, Central and West Burkina Faso, West and South Ghana, East Cote d`Ivoire, South Niger, East and south Chad, Part of CAR, North DRC, South and West South Sudan Republic, North Uganda, West Ethiopia, South and West Sudan, North Morrocco.



IR Satellite Image (valid 1800Z of 5 June 2012)



Previous day rainfall condition over Africa (top Left) based on the NCEP CPCE/RFE and current day cloud cover (top right) based on IR Satellite image

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