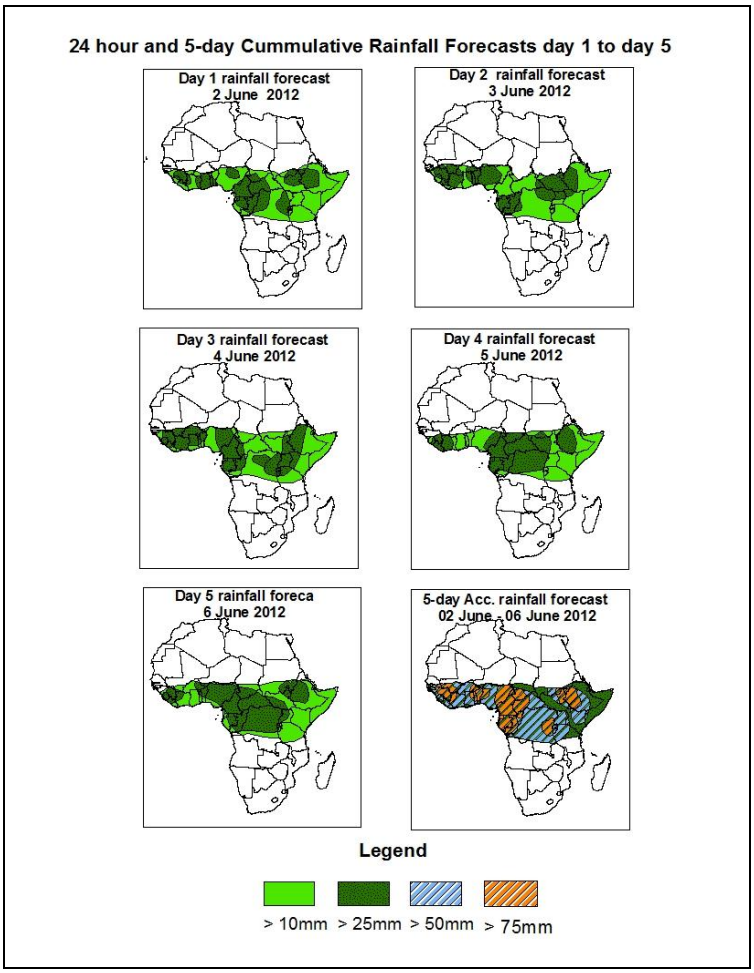
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 2 June – 06Z of 6 June 2012, (Issued at 16:00Z of 1 June 2012)

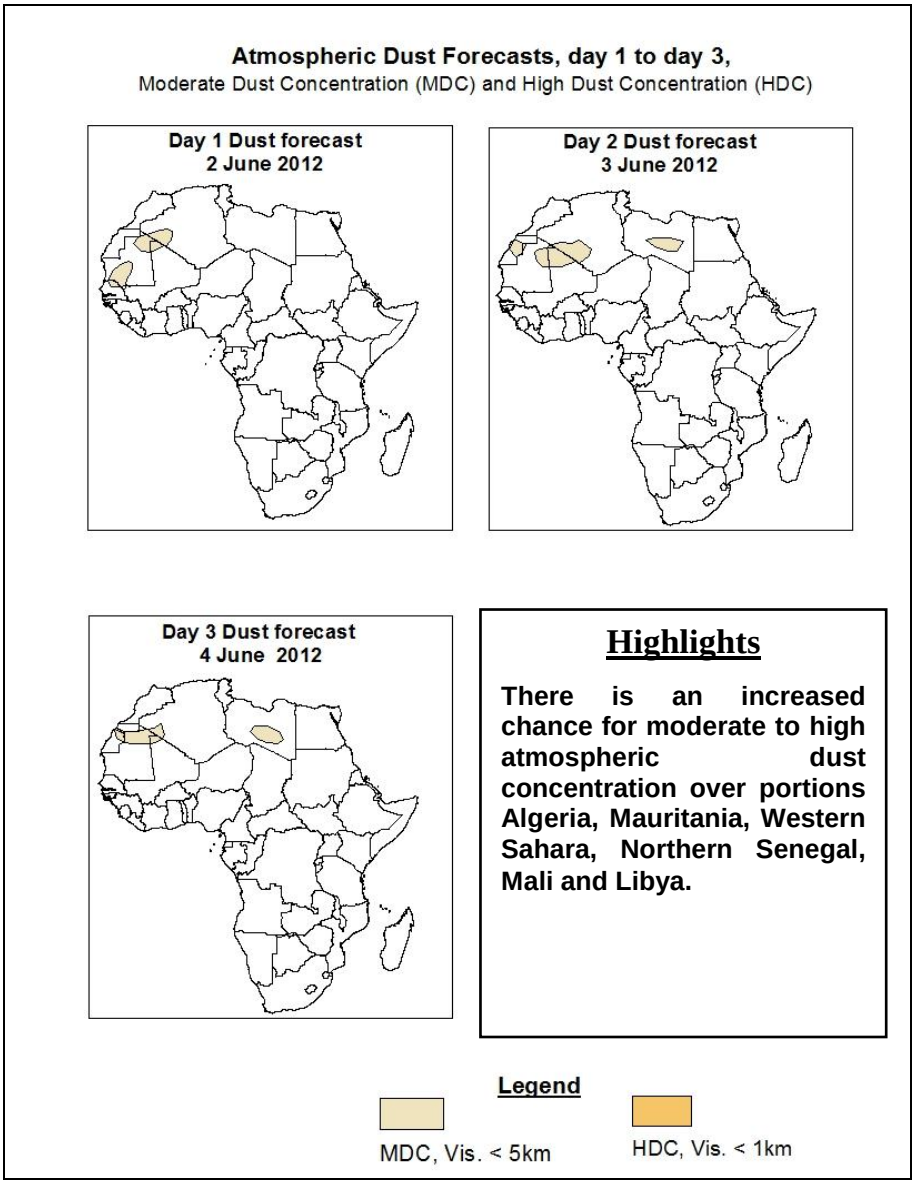
1.1. Twenty Four Hour Cumulative Rainfall Forecasts

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, seasonal wind convergences in the Gulf of Guinea, convergence over central Africa and western equatorial Africa regions, convergences associated with Congo Air Mass, seasonal wind convergences in southern Ethiopia, Southern Sudan and Somalia, and cyclonic circulation off the coast of East Africa are expected to enhance rainfall across their respective regions. In general, there is an increased chance for heavy rainfall over portions of Liberia, Guinea, Sierra Leone, Ivory Coast, Burkina Faso, Eastern Senegal, Mali, Ghana, Togo, Benin, Nigeria, Cameron, Chad, CAR, Gabon, Congo, DRC, Ethiopia, South Sudan Republic, portion of Sudan.



1.3. Model Discussion: Valid from 00Z of 1 June 2012

According to the GFS, ECMWF and UKMET models an east-west oriented trough and its associated heat lows are expected to prevail in the region between southern Mali and Sudan.

A low near Niger and Mali is expected to shift toward the border between Mali and across Niger; with its central pressure value tends to slightly decrease from 1008hpa to 1006hpa through 24 to 48 hours. The central pressure value tends to slightly increase from 1007hpa to 1008hpa through 72 to 96 hours. The central pressure value of a low over Chad, Cameron and Northeastern Nigeria tends to slightly decrease from 1006hpa

to 1004hpa through 24 to 96 hours. The central pressure value tends to slightly increase to 1005hpa in 120 hours. The low across Ethiopia, Sudan and South Sudan Republic is also expected to deepen; with its central pressure value tends to be 1004hpa through 24 to 48 hours. The central pressure value tends to slightly decrease to 1002hpa in 96 hours.

According to UKMET and ECMWF models, the UKMET model of the St. Helena High pressure system over southeast Atlantic Ocean is expected to deepen; with its central pressure value tends to slightly decrease from 1033hpa to 1027hpa through 24 to 72 hours. The central pressure value tends to slightly increase to 1030hpa through 96 to 120 hours. According to the ECMWF model, the central pressure value tends to be 1032hpa through 24 to 48 hours. The central pressure value tends to slightly increase from 1031hpa to 1032hpa through 96 to 120 hours. Lastly, according to the GFS model, the central pressure value tends to slightly decrease from 1033hpa to 1028hpa through 24 to 72 hours. The central pressure value tends to slightly increase to 1031hpa through 96 to 120 hours.

According to the GFS model, the Mascarene high pressure system over southwestern Indian Ocean is expected to shift eastwards (about 60^{o}E to 80^{o}E), while giving way to the interactions between mid-latitude and tropical systems through 24 to 72 hours with its central pressure value is expected to slightly decrease from about 1023hpa to 1021hpa. The central pressure value of this high tends to slightly increase from about 1024hpa to1026hpa, by shifting from about 45^{o}E to 66^{o}E through 96 to 120 hours. According to the ECMWF model, the central pressure value of this high tends to slightly decrease from about 1023hpa to1022hpa, by shifting from about 63^{o}E to 76^{o}E through 24 to 48 hours. The central pressure value of this high tends to slightly increase from about 1024hpa 1029hpa, by shifting to about 80^{o}E to 55^{o}E through 72 to 120 hours. Lastly, according to the UKMET model of the Mascarene high pressure system over southwestern Indian Ocean is expected to shift eastwards (about 65^{o}E to 55^{o}E), while giving way to the interactions between mid-latitude and tropical systems 24 to 120 hours with its central pressure value is expected to slightly increase from about 1023hpa to 1028hpa.

At 925hpa level, zone of moderate and dry northerly and easterly winds (25 to 35kts) are expected to prevail over parts of Sudan, Egypt, Chad, Mali, Morocco, Libya, Algeria, Northern Senegal, Niger, Tunisia, Mauritania and Western Sahara through 24 to 120 hours.

At the 850hpa level, a lower tropospheric wind convergence associated with the West African Monsoon is expected to prevail over parts of Northern Nigeria, Mali, Burkina Faso, Guinea, Benin, Ivory Coast and Niger tend to shift toward Niger through 24 hours to 120 hours. Then, the convergence is expected to extend towards Chad, Cameron, Northeastern Nigeria and Sudan through 24 to 120 hours. Seasonal lower level convergences are expected to remain active over Southern Sudan Republic and Ethiopia through 24 to 120 hours. The convergence associated with the meridional arm of the ITCZ is expected remain active across Tanzania, Kenya and Somalia during 24 hours to 120 hours and the convergence tends to become a cyclonic circulation over Coast of Kenya, Somalia and Tanzania.

At 500hpa level, a mid-latitude trough across Northern Africa and the neighboring areas is expected to deepen gradually, with its axis over Algeria, Libya, Egypt, Western Sahara, Tunisia and Morocco through 24 to 120 hours. A mid-latitude frontal trough is also expected propagate across South Africa Republic during 24 to 120 hours.

At 200mb, the Sub-Tropical Westerly Jet across northeastern Atlantic Ocean, North Africa and Eastern Egypt is expected to have a wavy pattern, with cores over Northwest and Northeast Africa. The core speed over Algeria, Morocco, Libya, Tunisia, and Western Sahara is expected to exceed 110kts during 24 to 72 hours, and it tends to shift northwards through 96 to 120 hours. The winds speed across the core over Egypt, Sudan and the Red Sea is expected to exceed 90kts during 24 to 72 hours, and then it tends to weaken the wind speed values of below 70knts towards end of the forecast period.

In the next five days, seasonal wind convergences in the Gulf of Guinea, convergence over central Africa and western equatorial Africa regions, convergences associated with Congo Air Mass, seasonal wind convergences in southern Ethiopia, Southern Sudan and Somalia, and cyclonic circulation off the coast of East Africa are expected to enhance rainfall across their respective regions. In general, there is an increased chance for heavy rainfall over portions of Liberia, Guinea, Sierra Leone, Ivory Coast, Burkina Faso, Eastern Senegal, Mali, Ghana, Togo, Benin, Nigeria, Cameron, Chad, CAR, Gabon, Congo, DRC, Ethiopia, South Sudan Republic, portion of Sudan.

There is an increased chance for moderate to high atmospheric dust concentration over portions Algeria, Mauritania, Western Sahara, Northern Senegal, Mali and Libya.

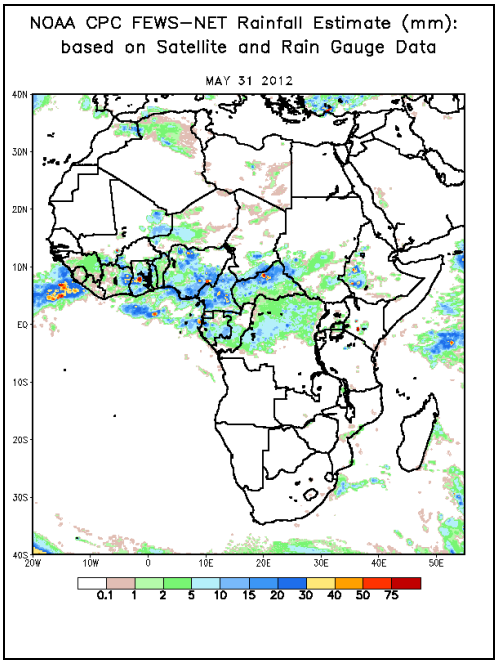
2.0. Previous and Current Day Weather Discussion over Africa (31 May – 1 June 2012)

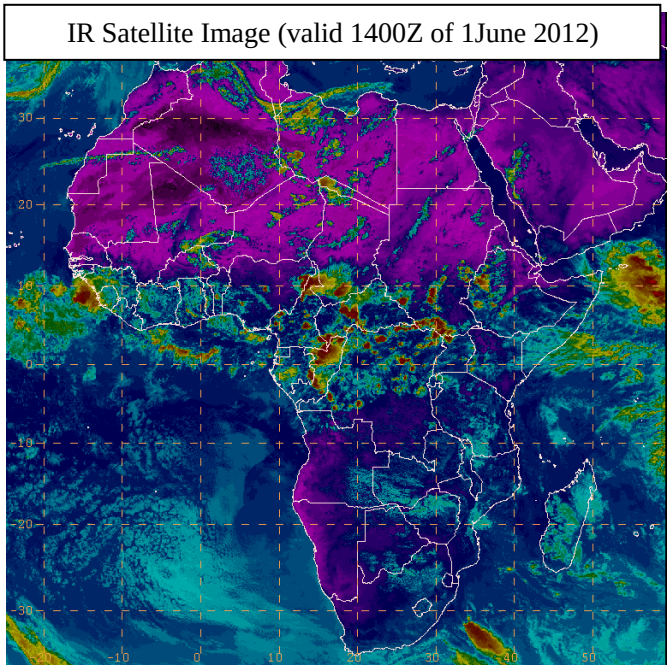
2.1. Weather assessment for the previous day (31 May 2012)

During the previous day, moderate to locally heavy rainfall was observed across portions of Mali, Ivory Coast, Burkina Faso, Ghana, Togo, Niger, Nigeria, Cameron, Chad, Gabon, CAR, DRC, Ethiopia, South Sudan Republic, Tanzania, Kenya, Algeria, Morocco and Libya.

2.2. Weather assessment for the current day (1 June 2012)

Intense clouds are observed across Sierra Leone, Guinea, Ghana, Togo, Benin, Nigeria, Niger, Cameron, Chad, CAR, DRC, Gabon, Congo, Southern Sudan Republic, Ethiopia, Libya and Algeria.





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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