

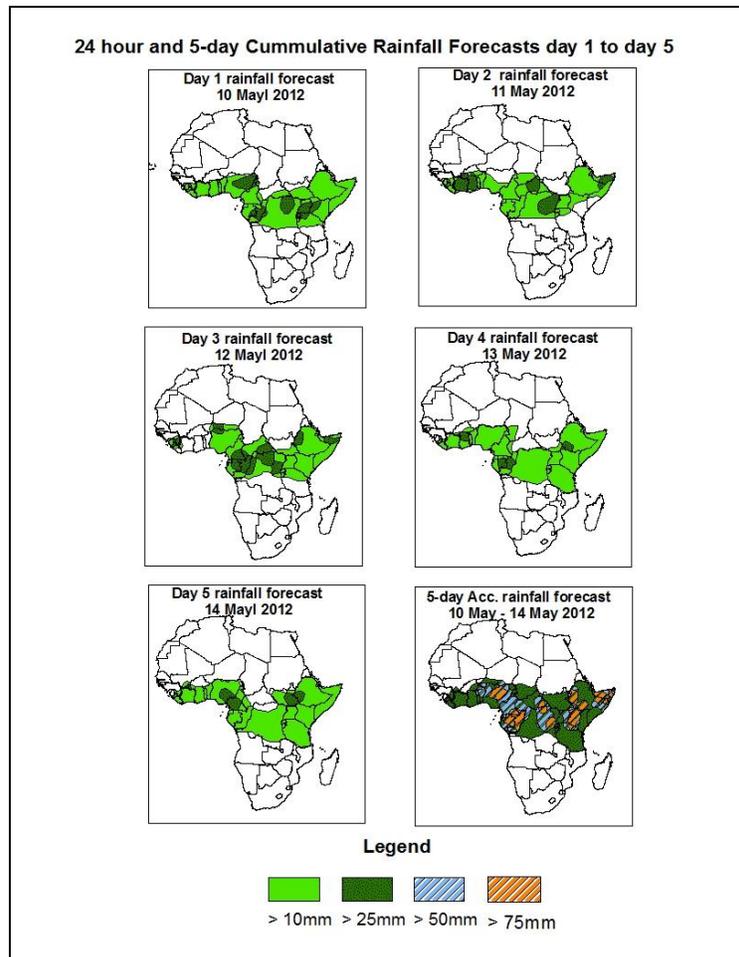


NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 10 May – 06Z of 14 May 2012, (Issued at 16:00Z of 9 May 2012)

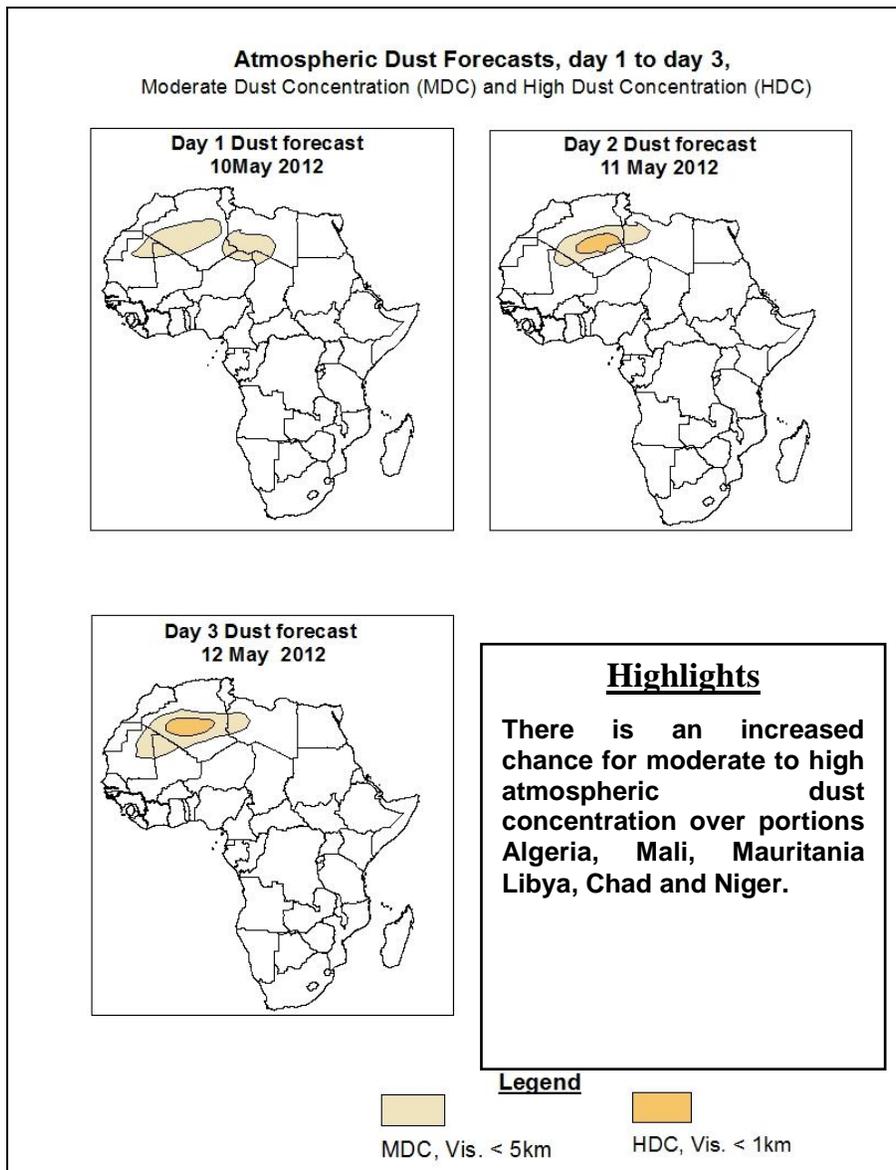
1.1. Twenty Four Hour Cumulative Rainfall Forecasts

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 Ethiopia, Uganda, Kenya, portions of Tanzania, Somalia, Nigeria, CAR, DRC, Congo, Gabon and Cameroon.



1.3. Model Discussion: Valid from 00Z of 9 May 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 Burkina Faso, Niger, Benin and Northern Nigeria is expected to shift toward the border between Mali and across Niger; with its central pressure value tends to increase from 1003hpa to 1006hpa through 24 hours to 72 hours. The central pressure value of a low over Chad, Cameroon and Northeastern Nigeria tends to increase from 1003hpa to 1004hpa through 24 to 48 hours. The central pressure value tends to be

constant at 1005hpa through 72 to 96 hours. The central pressure value tends to decrease to 1004hpa in 120 hours. The low across Ethiopia, Sudan and South Sudan Republic is also expected to deepen; with its central pressure value tends to increase from 1005hpa in 72 hours. The central pressure value tends to be constant at 1004hpa through 96 hours to 120 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 be 1021hpa in 24 hours. The central pressure value tends to increase from 1023hpa to 1027hpa through 72 to 96 hours. The central pressure value tends to decrease to 1026hpa in 120 hours. According to the ECMWF model, the central pressure value tends to be 1020hpa in 24 hours. The central pressure value tends to increase to 1024hpa in 72 hours. The central pressure value tends to decrease 1022hpa in 120 hours. Lastly, Accordingly to GFS model, the central pressure value tends to be 1020hpa in 24 hours and the central pressure value tends to increase to 1025hp in 120 hours.

According to GFS model, the Mascarene high pressure system over southwestern Indian Ocean is expected to shift eastwards (about 45°E to 55°E), while giving way to the interactions between mid-latitude and tropical systems through 24 to 48 hours with its central pressure value is expected to decrease from about 1026hpa to 1025hpa. The central pressure value of this high tends to be constant at about 1019hpa, by shifting from about 56°E to 72°E through 72 hours to 96 hours. The central pressure value of this high tends to increase to about 1027hpa, by shifting at about 69°E in 120 hours. According to the ECMWF model, the central pressure value of this high tends to be constant at about 1025hpa, by shifting from about 48°E to 53°E through 24 hours to 48 hours. The central pressure value tends to decrease to about 1022hpa, by shifting at about 86°E in 72 hours. The central pressure value of this high tends to increase to about 1026hpa, by shifting at about 70°E in 120 hours. Lastly, Accordingly to UKMET model of the Mascarene high pressure system over southwestern Indian Ocean is expected to shift eastwards (about 48°E to 56°E), while giving way to the interactions between mid-latitude and tropical systems through 24 to 48 hours with its central pressure value is expected to be constant at about 1026hpa. The central pressure

value tends to increase from about 1021hpa to 1029hpa, by shifting from about 59°E to 69°E through 72 hours to 120 hours.

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, Mauritania, Libya, Algeria, Niger, Morocco, Tunisia 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 Mali, Guinea, Northern Nigeria and Niger tend to shift toward Niger through 24 hours to 120 hours. Then, the convergence is expected to extend towards Chad, Northeastern Nigeria, Cameroon and Sudan by the end of forecasting period. Seasonal lower level convergences are expected to remain active over Southern Sudan and Ethiopia throughout the forecast period. 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, Mali, Western Sahara, Morocco and Northern Mauritania 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, Mali, Chad and Libya, is expected to exceed 110kts during 24 to 48 hours, and it tends to shift northwards through 72 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 Ethiopia, Uganda, Kenya, portions of Tanzania, Somalia, Nigeria, CAR, DRC, Congo, Gabon and Cameroon.

There is an increased chance for moderate to high atmospheric dust concentration over portions Algeria, Mali, Mauritania Libya, Chad and Niger.

2.0. Previous and Current Day Weather Discussion over Africa

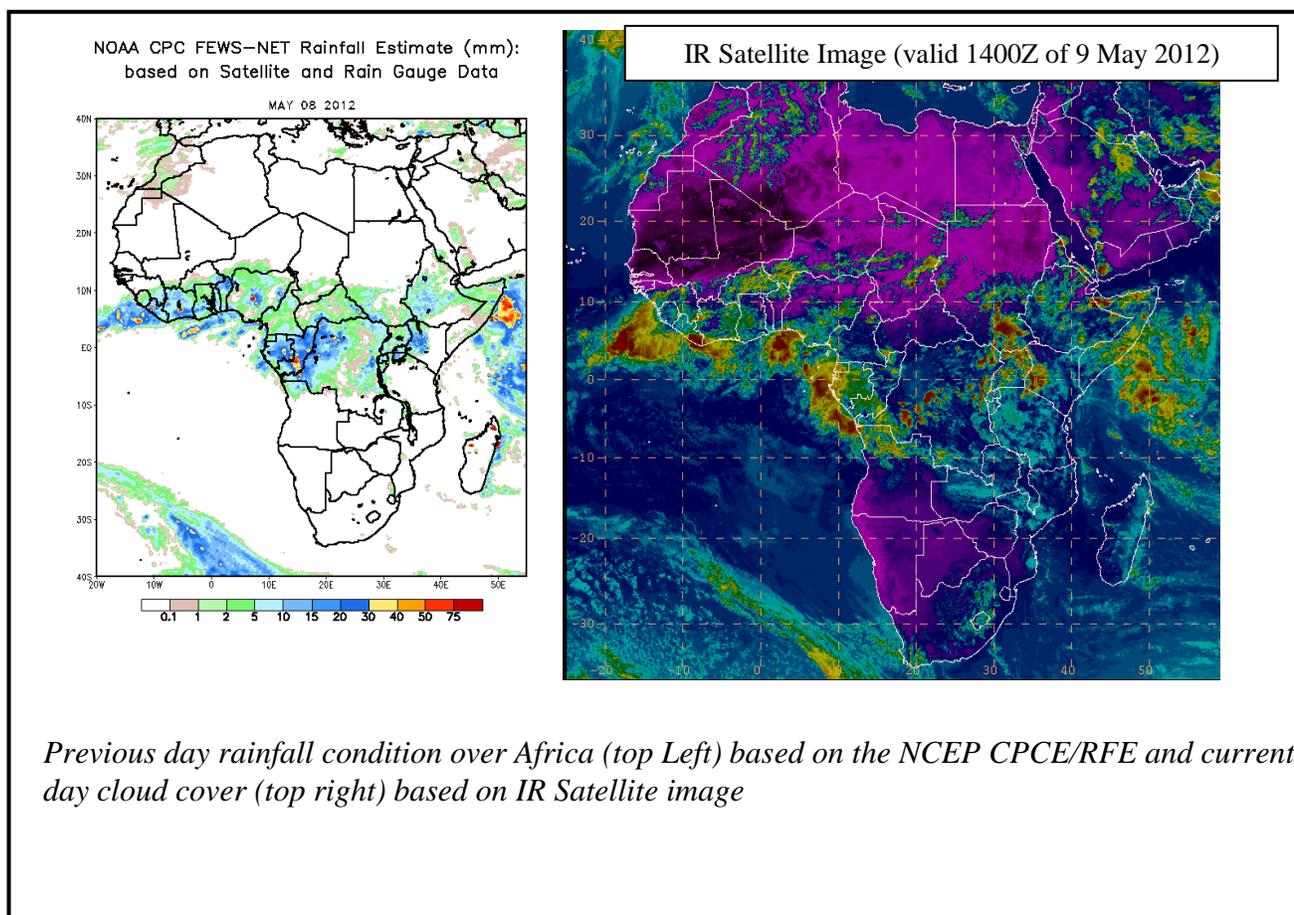
(8 May – 9 May 2012)

2.1. Weather assessment for the previous day (8 May 2012)

During the previous day, moderate to locally heavy rainfall was observed across portions of Liberia, Ivory Coast, Ghana, Benin, Burkina Faso, Nigeria, Cameroon, CAR, DRC, Gabon, Congo, Southern Ethiopia, Southern Sudan, Northern Tanzania, Western Kenya and Burundi

2.2. Weather assessment for the current day (9 May 2012)

Intense clouds are observed across Sierra Leone, Guinea, Liberia, Ivory Coast, Nigeria, Gabon, DRC, Kenya, Somalia, Southern Sudan Republic, Ethiopia, Uganda and Northern Angola.



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

Authors: Eugene V. S. Gar-Glahn, (Liberia Meteorological Service / CPC-African Desk); eugene.gar-glahn@noaa.gov
Ezekiel Njoroge, (Kenyan Meteorological Department / CPC-African Desk); ezekiel.njoroge@noaa.gov