

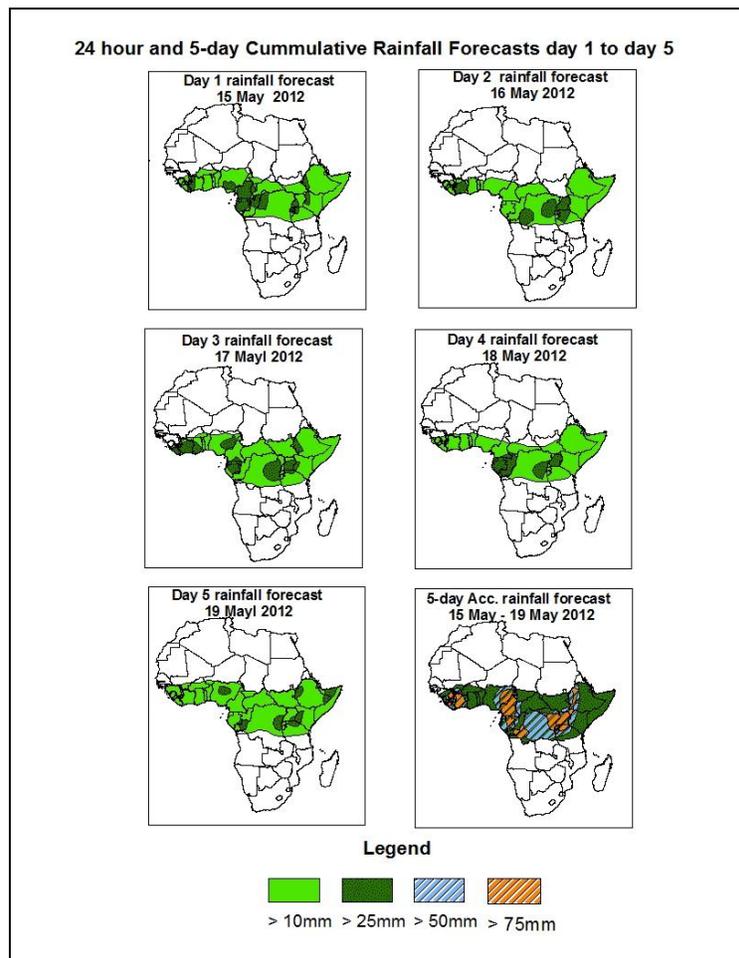


NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 15 May – 06Z of 19 May 2012, (Issued at 16:00Z of 14 May 2012)

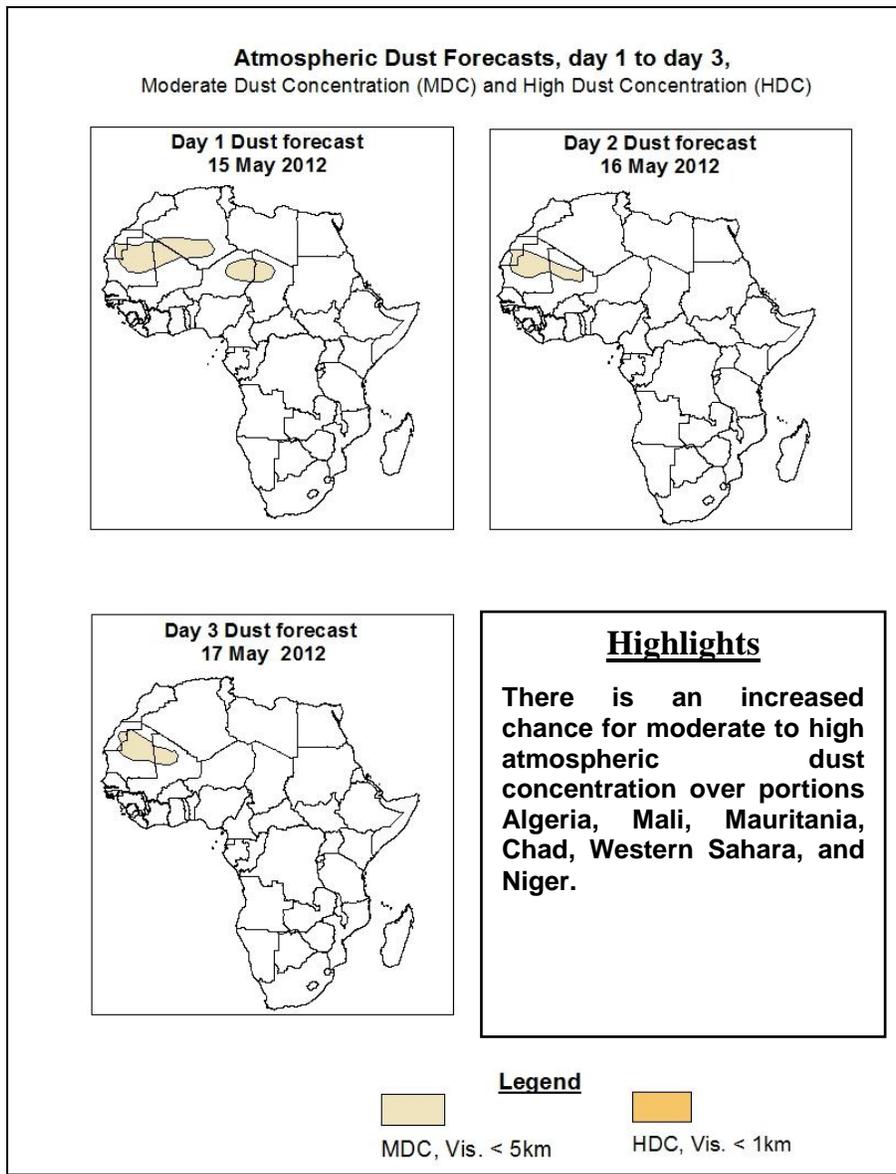
1.1. Twenty Four Hour Cumulative Rainfall Forecasts

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 Liberia, Ivory Coast, Guinea, Nigeria, Cameroon, DRC, Gabon, Congo, Ethiopia, Uganda, Kenya, portions of Tanzania, Rwanda and Burundi.



1.3. Model Discussion: Valid from 00Z of 14 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 Northern Nigeria and Mali is expected to shift toward the border between Mali and across Niger; with its central pressure value tends to decrease from 1007hpa to 1003hpa through 72 hours to 120 hours. The central pressure value of a low over Chad, Northeastern Nigeria and Cameron tends to

decrease from 1006hpa to 1005hpa through 24 to 48 hours. The central pressure value tends to slightly decrease from 1003hpa to 1002hpa through 72 to 96 hours. The central pressure value tends to increase to 1003hpa 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 constant at 1004hpa through 24 to 72 hours. The central pressure value tends to decrease from 1005hpa to 1003hpa 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 increase from 1023hpa to 1022hpa through 48 to 72 hours. According to the ECMWF model, the central pressure value tends to be 1022hpa in 48 hours. Lastly, according to the GFS model, the central pressure value tends to decrease from 1025hpa to 1021hpa through 24 to 72 hours.

According to the GFS model, the Mascarene high pressure system over southwestern Indian Ocean is expected to shift eastwards (about 77°E to 60°E), while giving way to the interactions between mid-latitude and tropical systems through 24 to 96 hours with its central pressure value is expected to decrease from about 1026hpa to 1019hpa. The central pressure value of this high tends to slightly increase to about 1024hpa, by shifting at about 73°E in 120 hours. According to the ECMWF model, the central pressure value of this high tends to decrease from about 1026hpa to 1025hpa, by shifting from about 72°E to 80°E through 24 to 48 hours. The central pressure value tends to increase from about 1019hpa to 1024hpa, by shifting at about 54°E to 65°E through 96 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 80°E to 55°E), while giving way to the interactions between mid-latitude and tropical systems through 48 to 96 hours with its central pressure value is expected to decrease from about 1027hpa to 1019hpa. The central pressure value tends to slightly increase to about 1025hpa, by shifting at about 65°E 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 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 and Burkina Faso tend to shift toward Niger through 72 hours to 120 hours and the convergence tends to become a cyclonic circulation over the Gulf of Guinea during 24 hours. Then, the convergence is expected to extend towards Chad, Cameroon, Northeastern Nigeria and Sudan through 48 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 Sudan, Algeria, Libya, Egypt, Mali, Western Sahara, Niger, 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, Morocco and Libya, 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, Ivory Coast, Guinea, Nigeria,

Cameron, DRC, Gabon, Congo, Ethiopia, Uganda, Kenya, portions of Tanzania, Rwanda and Burundi.

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

2.0. Previous and Current Day Weather Discussion over Africa

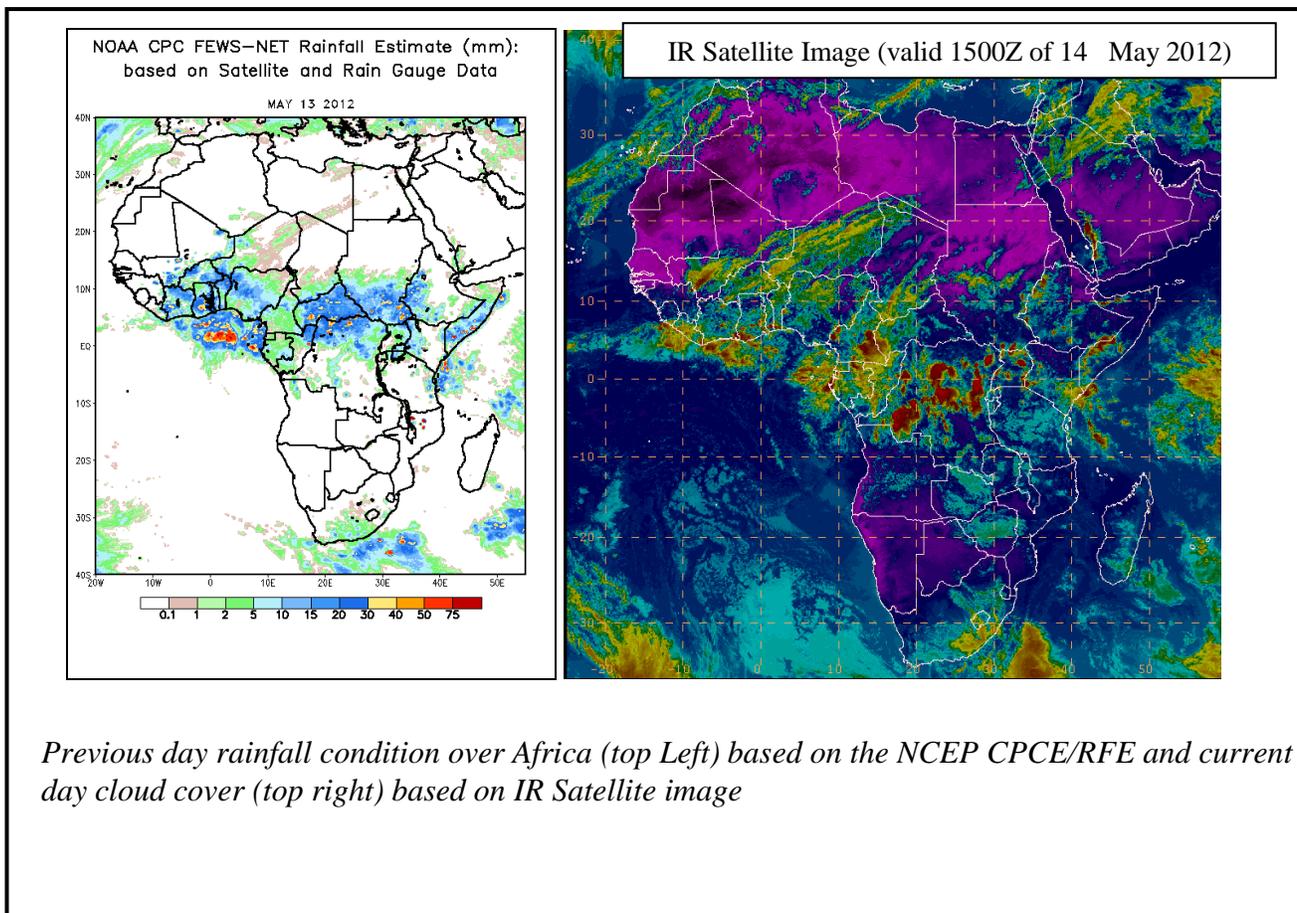
(13 May – 14 May 2012)

2.1. Weather assessment for the previous day (13 May 2012)

During the previous day, moderate to locally heavy rainfall was observed across portions of Liberia, Guinea, Ivory Coast, Mali, Burkina Faso, Ghana, Togo, Benin, Nigeria, Niger, Cameroon, Chad, CAR, DRC, Congo, Southern Ethiopia, Southern Sudan Republic, Tanzania, Kenya, Uganda, Somalia and Northern Angola.

2.2. Weather assessment for the current day (14 May 2012)

Intense clouds are observed across Liberia, Sierra Leone, Guinea, Mali, Ivory Coast, Burkina Faso, Ghana, Nigeria, Togo, Benin, Niger, Cameroon, Gabon, Congo, DRC, CAR, Ethiopia, Somalia, Southern Sudan Republic, Uganda and Kenya.



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