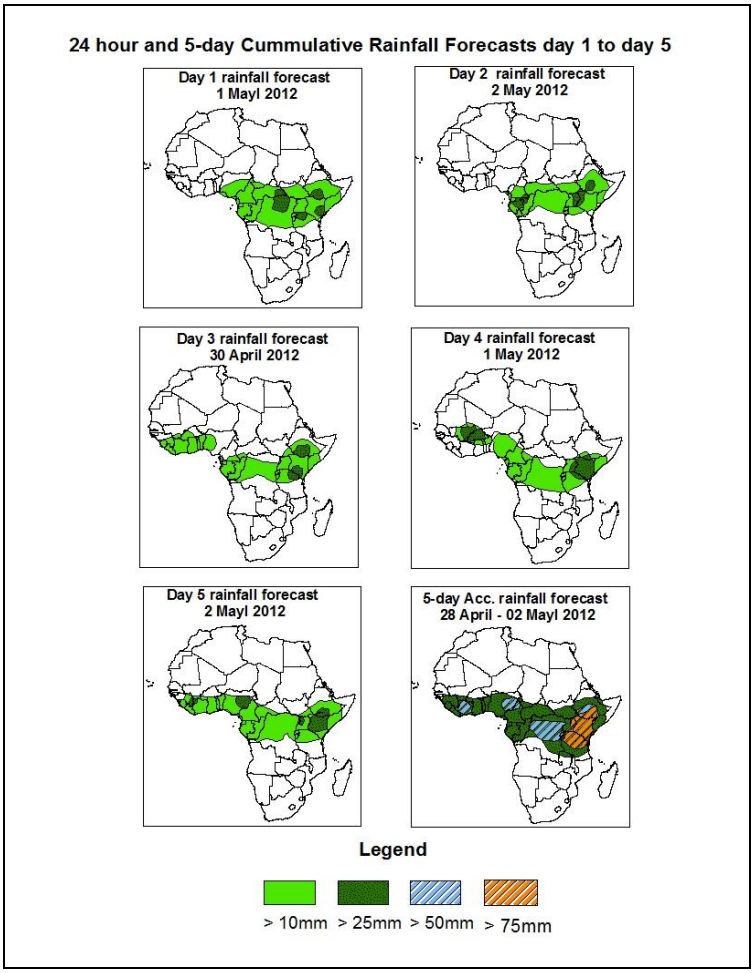
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 1 May – 06Z of 5 May 2012, (Issued at 16:30Z of 30 April 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.

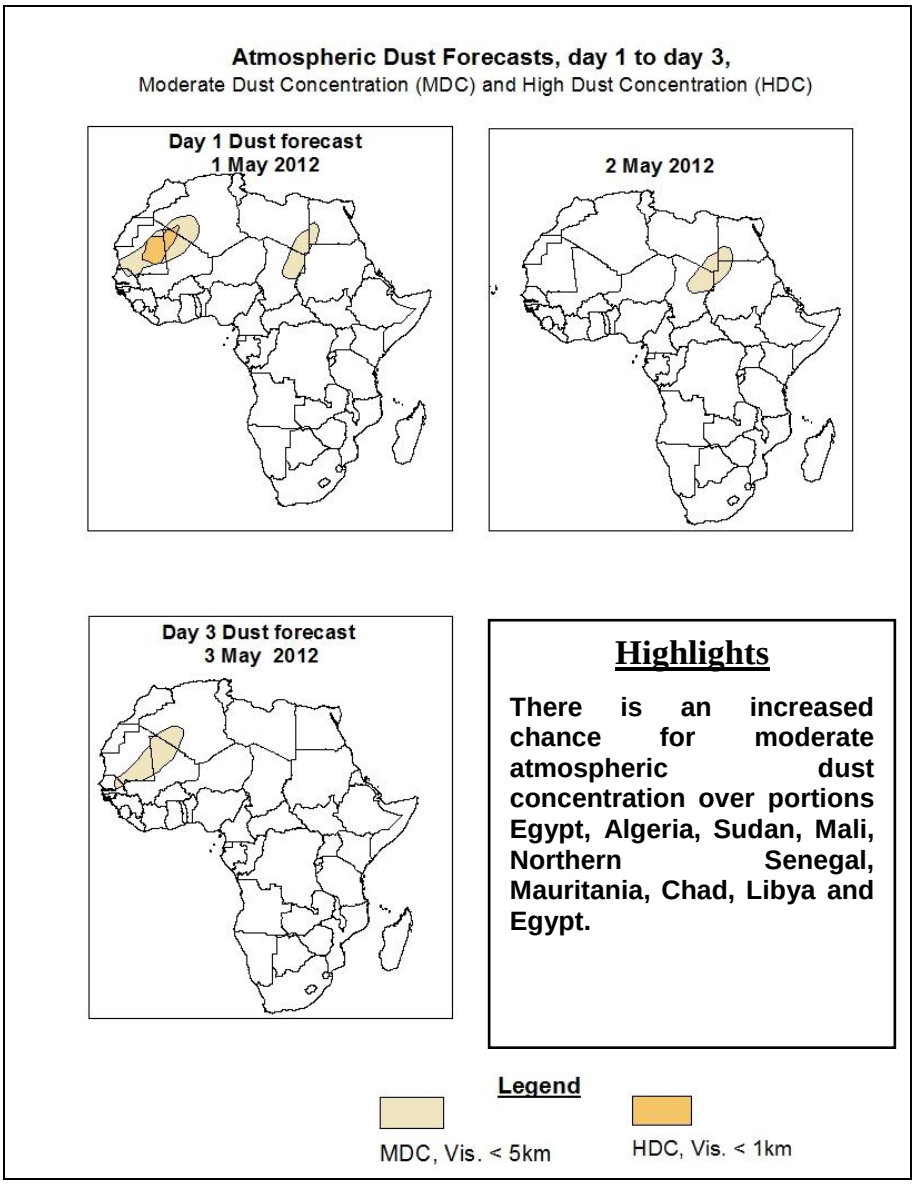


Summary

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 southern Ethiopia, eastern DRC, Uganda, Kenya portions of Tanzania, Rwanda and Burundi.

1.2. Atmospheric Dust Forecasts: Valid 1 - 3 May 2012

The NCEP/GFS, the UK Met Office, the ECMWF and the NCEP/WRF outputs are used to identify areas with high probability of dust concentration.



1.3. Model Discussion: Valid from 00Z of 30 April 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 and Mali is expected to shift toward the border between Guinea and Senegal across Niger, with its central pressure value decreasing from 1004hpa in 24 hours to 1003hpa in 72 hours. The central pressure value tends to increase from 1002hpa to 1006hpa through 96 hours to 120 hours. The central pressure value of a low over Chad, Central African Republic, western Sudan and Cameron tends to decrease from 1004hpa to 1003hpa through 24 hours to 120 hours. The low across Ethiopia, Sudan and South Sudan Republic is also expected to deepen, with its central pressure value decreasing from 1004hpa to 1003hpa through 24 to 72 hours. And the central pressure value tends to be constant at 1004hpa through 96 hours to 120 hours.

According to GFS and ECMWF models, the GFS model of the St. Helena High pressure system over southeast Atlantic Ocean is expected to deepen, with its central pressure value increasing from 1020hpa to 1021hpa through 24 hours to 72 hours. Lastly, according to the UKMET model, the central pressure value tends to increase from 1020hpa to 1021hpa through 24 hours to 72 hours.

According to ECMWF and UKMET models, ECMWF model of the Mascarene high pressure system over southwestern Indian Ocean is expected to shift eastwards (from about 64^{o}E to 72^{o}E, while giving way to the interactions between mid-latitude and tropical systems during 24 hours to 120 hours. Its central pressure value is expected to increase from about 1025hpa to about 1033hpa through 24 hours to 120 hours. Lastly, according to the UKMET model, the central pressure value of this high tends to increase from1025hpa to 1033hpa, by shifting from about 65^{o} E to 73^{o} E through 24 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 Egypt, Algeria, Sudan, Mali, Northern Senegal, Mauritania, Chad, Libya and Egypt through 24 to 72 hours.

At the 850hpa level, a lower tropospheric wind convergence associated with the West African Monsoon is expected to prevail over parts of Mali, Nigeria and Niger tend to shift toward Burkina Faso and Guinea and Ivory Coast from 24 hours to 120 hours Then, the convergence is expected to extend towards Chad, Northeastern Nigeria, Cameron, Central African Republic, Niger DRC and Sudan by the end of forecasting period. Seasonal lower level convergences are expected to remain active over Southern Sudan, Somalia and Ethiopia throughout the forecast period. The convergence associated with the meridional arm of the ITCZ is expected remain active across North Tanzania, Kenya and over Uganda during 24 hours to 48 hours. During 72 hours, the convergence tends to become a cyclonic circulation over Coast of Kenya, Somalia and Tanzania. And 96 hours to 120 hours, it is expected to prevail over Uganda and Kenya.

At 500hpa level, a mid-latitude trough across northern Africa and the neighboring areas is expected to deepen gradually, with its axis over Western Sahara, Algeria, Libya and Northern Mauritania through 24 to 96 hours. A mid-latitude frontal trough is also expected propagate across South Africa Republic during 24 to 48 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 Western Sahara and Morocco is expected to exceed 130kts during 48 hours, and it tends to shift northwards through 72 to 120 hours. The winds speed across the core over Egypt and the Red Sea is expected to exceed 110kts 48 to 72 hours, and then it tends to weaken to 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 southern Ethiopia, eastern DRC, Uganda, Kenya portions of Tanzania, Rwanda and Burundi.

There is an increased chance for moderate atmospheric dust concentration over portions of Egypt, Algeria, Sudan, Mali, Northern Senegal, Mauritania, Chad, Libya and Egypt.

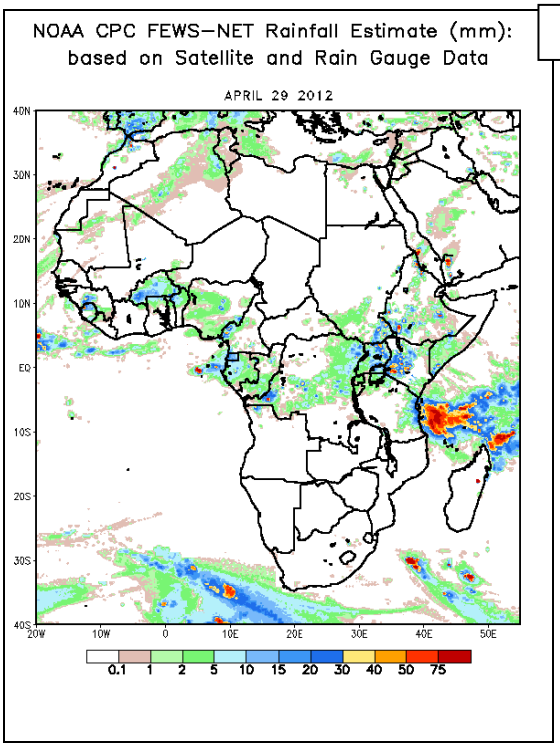
2.0. Previous and Current Day Weather Discussion over Africa (29 April – 30 April 2012)

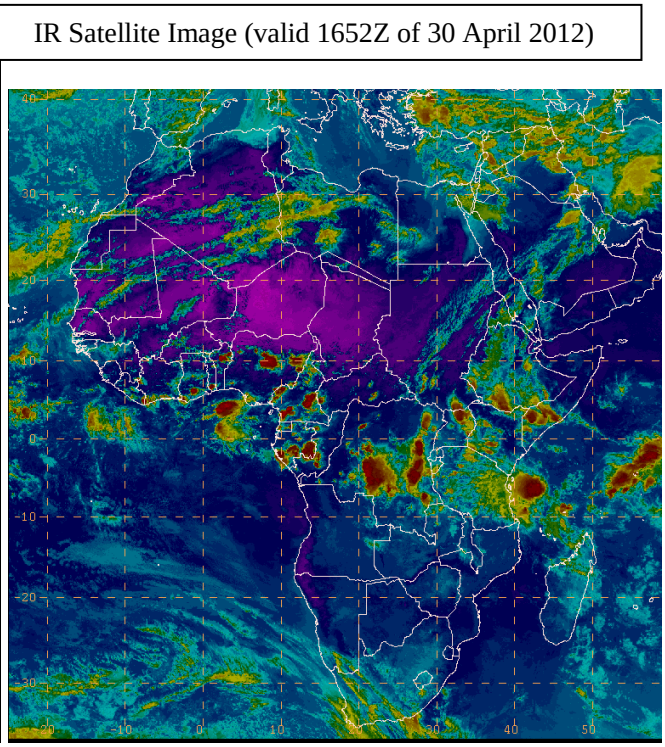
2.1. Weather assessment for the previous day (29 April 2012)

During the previous day, moderate to locally heavy rainfall was observed across portions of Guinea, Burkina Faso, Cameron, Southern Sudan, DRC, Southern Ethiopia, Uganda, Coast Tanzania, Gabon, Sierra Leone, and Western Kenya.

2.2. Weather assessment for the current day (30 April 2012)

Intense clouds are observed across Nigeria, Benin, Cameron, Gabon, DRC, Tanzania, Ethiopia, Kenya, Somalia, Uganda, Congo and Southern Sudan.





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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