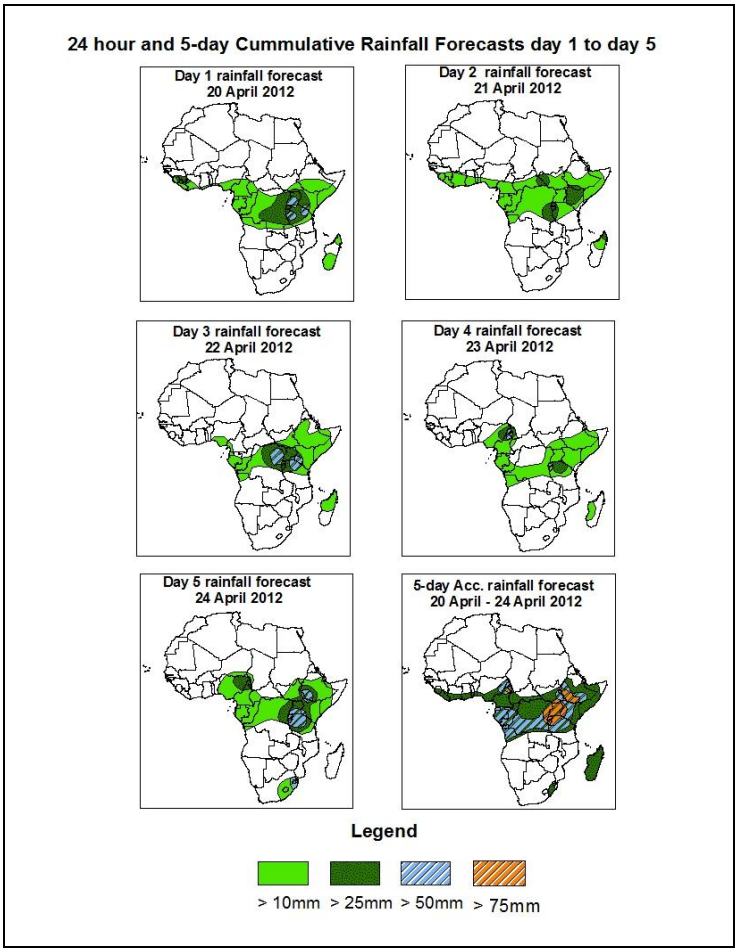
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 20 April – 06Z of 24 April 2012, (Issued at 15:00Z of 19 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.

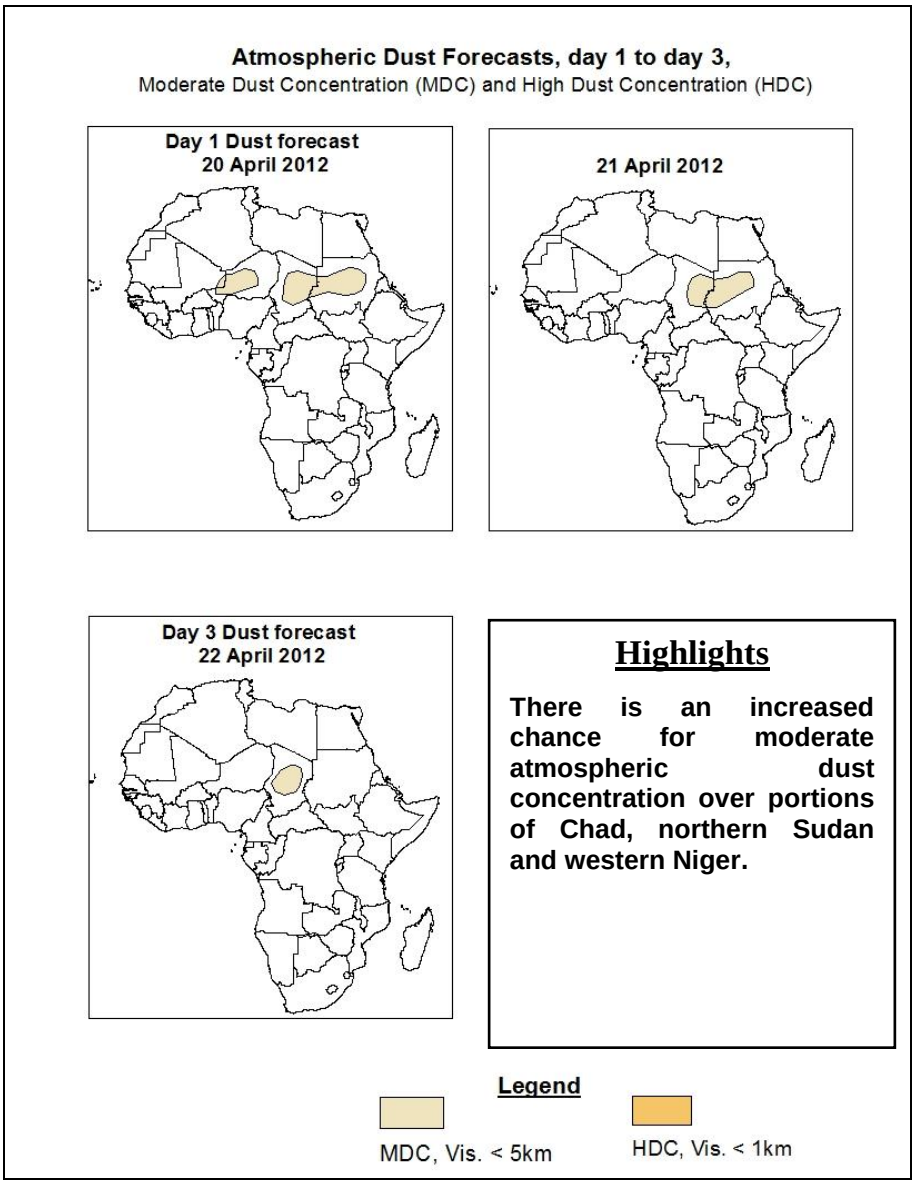


Summary

In the next five days, localized lower level convergences in the Gulf of Guinea and western equatorial Africa regions, convergences associated with Congo Air Mass, seasonal wind convergences in southern Ethiopia and Somalia, and interactions between mid-latitude and tropical systems across southeastern 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 20 – 22 April 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 19 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 northwestern Nigeria is expected to maintain central pressure value of 1007mb through 24 to 96 hours, and it tends to deepen slightly to mean sea level pressure value of 1005mb towards end of the forecast period. The central pressure value of a low over central Chad tends to increase slightly from 1002mb in 24 hours to 1004mb in 72 hours, and it tends to decrease to mean sea level pressure value of 1003mb towards end of the forecast period. The low across Sudan and South Sudan Republic is also expected to fill up slightly, with its central pressure value increasing from 1002mb to 1003mb through 24 to 72 hours, and its central pressure value tends to decrease back to 1002mb towards end of the forecast period.

The St. Helena High pressure system over southeast Atlantic Ocean is expected to intensify, with its central pressure value increasing from 1026mb in 24 hours to 1037mb in 72 hours. The high tends to weaken progressively into mean sea level pressure value of 1031mb towards end of the forecast period

The Mascarene high pressure system over southwestern Indian Ocean is expected to shift eastwards (from about 40^{o}E in 48 hours to about 70^{o}E in 120hours) position, while giving way to the interactions between mid-latitude and tropical systems across the Mozambique Channel during the forecast period. Its central pressure value is expected to increase from 1023mb to 1027mb through 48 to 120 hours.

At 925hpa level, zone of strong and dry northerly wind across western Niger and central Chad is expected to weaken gradually through 24 to 72 hours with wind speed values decreasing below 35kts. Dry northerly wind with moderate intensity is expected to prevail over parts of Sudan.

At the 850hpa level, a lower tropospheric wind convergence associated with the West African Monsoon is expected to remain active across the Gulf of Guinea region through 24 to 48 hours, and it tends to weaken across western portions of the Gulf of Guinea

with an anticyclonic circulation building over West Africa through 72 to 120 hours. Seasonal lower level convergences are expected to remain active southern Sudan, Ethiopia and Somalia throughout the forecast period. The convergence associated with the meridional arm of the ITCZ is expected remain active across eastern DRC and the Lake Victoria region during the forecast period. Lower level convergences are also expected to dominate the flow over western parts of equatorial Africa, extending southwards into northern Angola.

At 500hpa level, the wavy pattern in the mid-tropospheric flow across northern Africa and the neighboring areas tends to become zonal during the forecast period. A mid-latitude trough is expected dominate the flow across southeastern Africa and the Mozambique Channel through 24 to 48 hours. The trough is expected to retrograde and merge with another mid-latitude trough across southern Africa through 72 to 120 hours.

At 200mb, the Sub-Tropical Westerly Jet across northeastern Atlantic Ocean, North Africa and eastern Egypt is expected to weaken gradually, with wind speed values dropping below 100kts towards end of the forecast period.

In the next five days, localized lower level convergences in the Gulf of Guinea and western equatorial Africa regions, convergences associated with Congo Air Mass, seasonal wind convergences in southern Ethiopia and Somalia, and interactions between mid-latitude and tropical systems across southeastern 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 Chad, northern Sudan and western Niger.

2.0. Previous and Current Day Weather Discussion over Africa

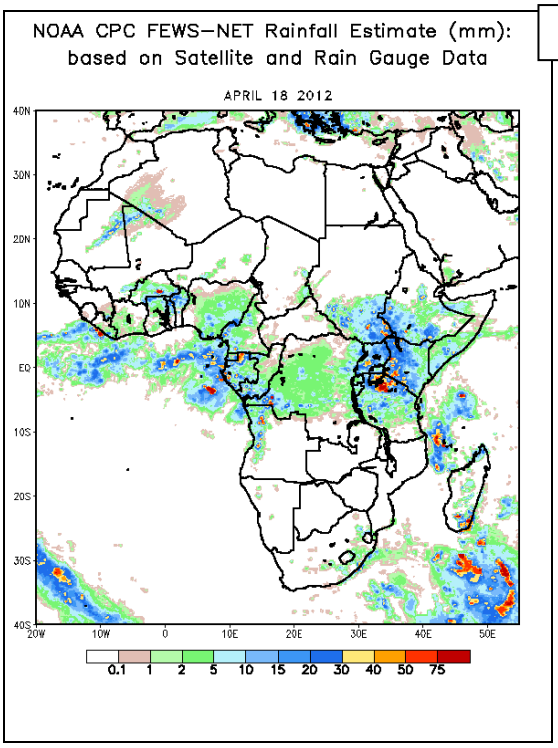
(19 April – 20 April 2012)

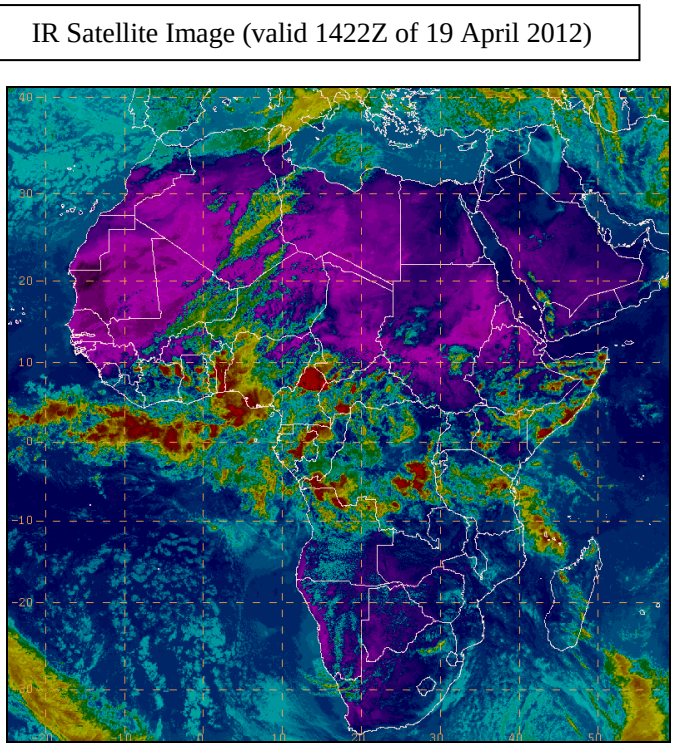
2.1. Weather assessment for the previous day (18 April 2012)

During the previous day, moderate to locally heavy rainfall was observed across portions of Burkina Faso, northern Ghana, Togo, Benin, Gabon, portions of DRC, South Sudan Republic, southern Ethiopia, Uganda, Kenya, Northern Tanzania and southern Madagascar.

2.2. Weather assessment for the current day (19 April 2012)

Intense clouds are observed over many paces of the Gulf of Guinea region, central African countries and portions of East Africa.





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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