

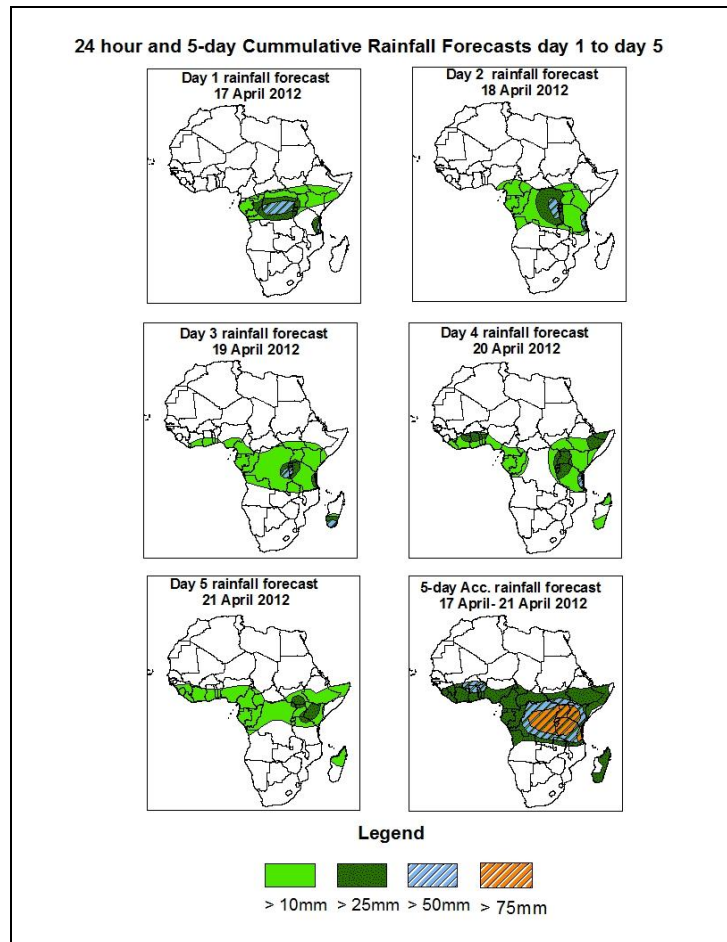


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid 06Z of 17 April – 06Z of 21 April 2012, (Issued at 16:00Z of 16 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.

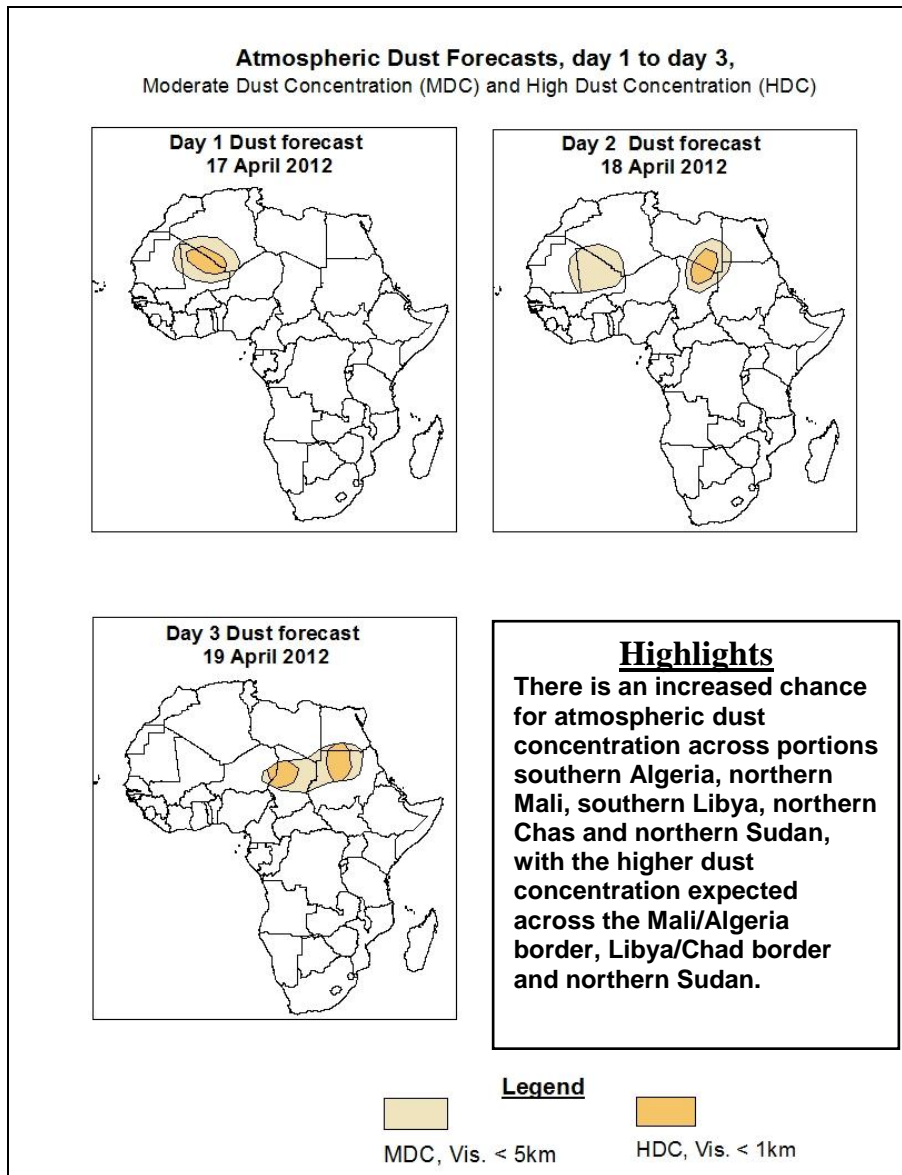


### Summary

In the next five days, the West Africa monsoon flow with its convergence across the Gulf of Guinea, convergences associated with Congo Air Mass, localized wind convergences in Ethiopia and Somali and strong southerly wind across coast of Tanzania are expected to enhance rainfall across their respective regions. In general, there is an increased chance for heavy rainfall over portions of the northern Ghana, southern Burkina Faso, central and eastern DRC, Uganda, Rwanda, Burundi, portions of Kenya and Tanzania.

## 1.2. Atmospheric Dust Forecasts: Valid 17 – 19 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 16 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 eastern Mali and Sudan.

A low across Niger and northern Nigeria is expected to have minimum central values of 1006mb during 24 and 48 hours, while maintaining minimum central pressure value of 1005mb during the rest of the forecast period. Another low over southern Chad tends to maintain central pressure value of 1003mb, during the forecast period. The low across Sudan and South Sudan Republic is expected to have central pressure value of 1002mb, which is expected to drop occasionally to central pressure value of 1001mb.

The St. Helena High pressure system over southeast Atlantic Ocean is expected to intensify from mslp values of about 1025 in 24 hours to 1035mb in 120 hours.

The Mascarene high pressure system over southwestern Indian Ocean is expected to shift eastwards, while maintaining its central pressure value of 1035mb during the forecast period.

At 925hpa level, zone of strong northerly wind across the Algeria/Mali border is expected to weaken gradually through 24 to 72 hours. Moderate to strong wind is expected to prevail across central and northern Chad, and northern Sudan, with wind speed values expected to exceed 35kts by 72 hours.

At the 850hpa level, a lower tropospheric wind convergence associated with the West African Monsoon is expected to remain active in the region between Cote d'Ivoire and southern Chad traversing, Burkina Faso, Ghana, Togo, Benin, Nigeria and Cameroon during the forecast period. Another zone of lower level convergence is expected to prevail over southern Sudan and portions of Ethiopia 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. Strong moist southerly flow with its associated convergence is expected to prevail across coastal Tanzania during the forecast period.

At 500hpa level, a trough associated with mid-latitude frontal system is expected to propagate across northern Africa while weakening. The flow tends to become zonal across the northern Africa towards end of the forecast period. Eastwards propagating mid-latitude trough with a geo-potential value of 5840gpm along its northern extent is expected to dominate the flow over southern African countries as it propagates eastwards reaching the longitude of the Mozambique Channel by 120 hours.

At 200mb, winds with strong wind speed, associated with a stationary Sub-Tropical Westerly Jet are expected to dominate the flow from northeastern Atlantic Ocean across North Africa to eastern Egypt during the forecast period, with the intensity of the jet is exceeding 140kts through 24 to 48 hours, and the intensity tends to decrease towards end of the forecast period.

In the next five days, the West Africa monsoon flow with its convergence across the Gulf of Guinea, convergences associated with Congo Air Mass, localized wind convergences in Ethiopia and Somali and strong southerly wind across coast of Tanzania are expected to enhance rainfall across their respective regions. In general, there is an increased chance for heavy rainfall over portions of the northern Ghana, southern Burkina Faso, central and eastern DRC, Uganda, Rwanda, Burundi, portions of Kenya and Tanzania.

There is an increased chance for atmospheric dust concentration across portions southern Algeria, northern Mali, southern Libya, northern Chas and northern Sudan, with the higher dust concentration expected across the Mali/Algeria border, Libya/Chad border and northern Sudan.

## 2.0. Previous and Current Day Weather Discussion over Africa

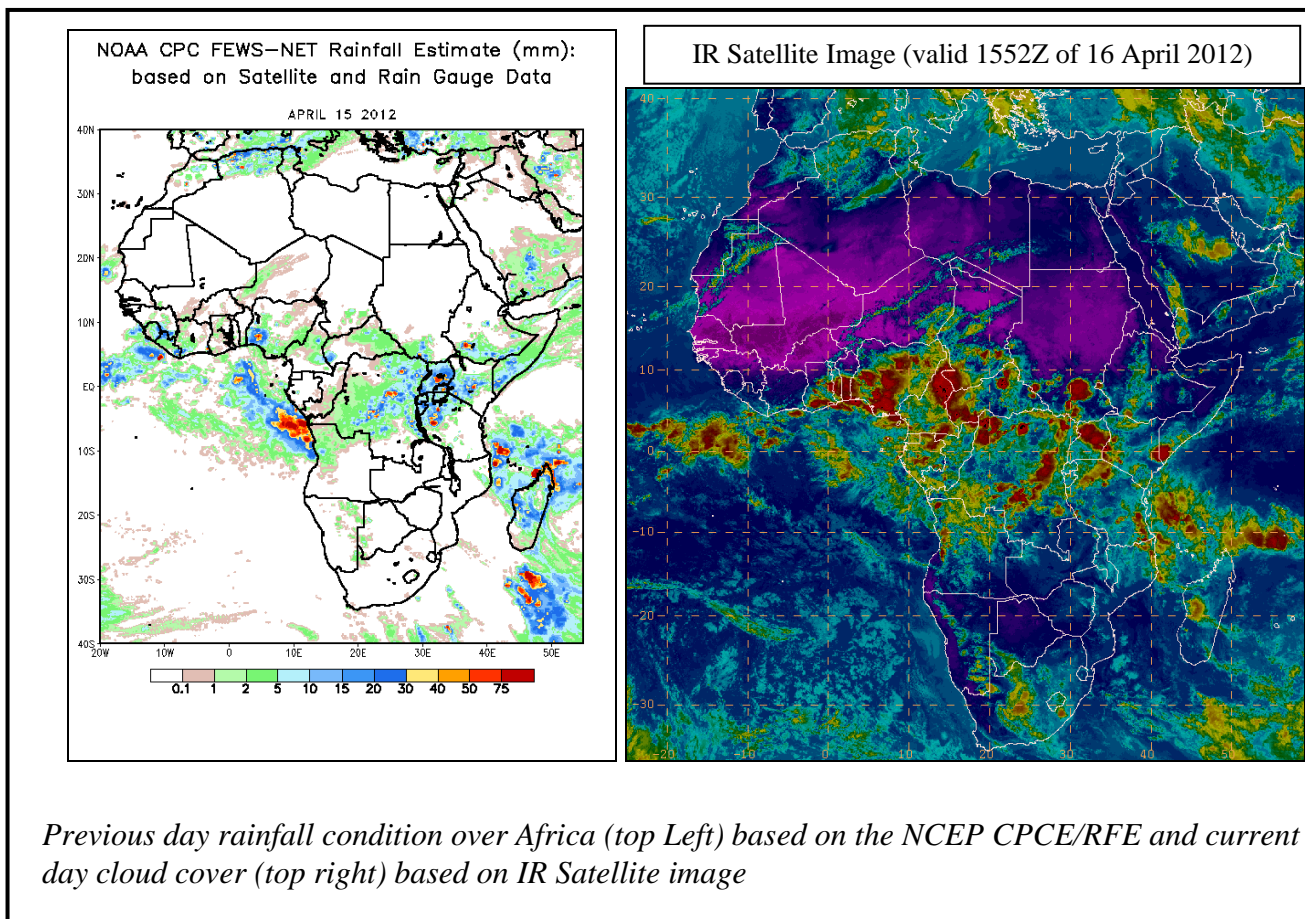
(15 April – 16 April 2012)

### 2.1. Weather assessment for the previous day (15 April 2012)

During the previous day, moderate to locally heavy rainfall was observed across portions of western Nigeria, DRC, Uganda, Kenya, northern Tanzania, southern Ethiopia, southern Somalia and portions of Madagascar.

### 2.2. Weather assessment for the current day (16 April 2012)

Intense clouds are observed across eastern Gulf of Guinea and central African regions, South Sudan Republic, Uganda, Kenya, southern Somalia Tanzania, portions of Angola, South Africa and Madagascar.



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