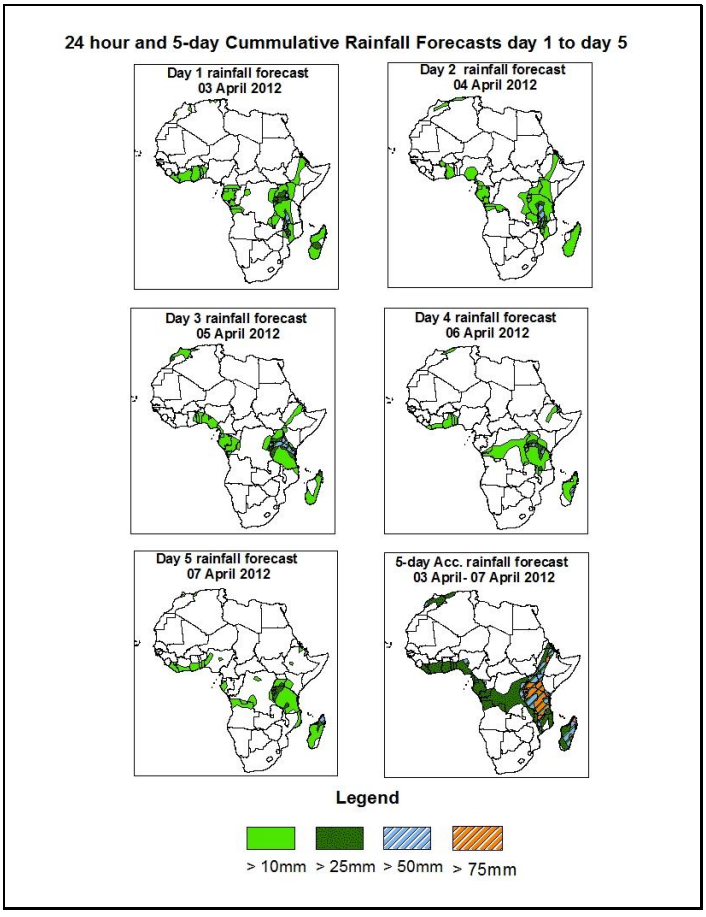
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 03 April – 06Z of 07 April 2012, (Issued at 16:30Z of 02 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.

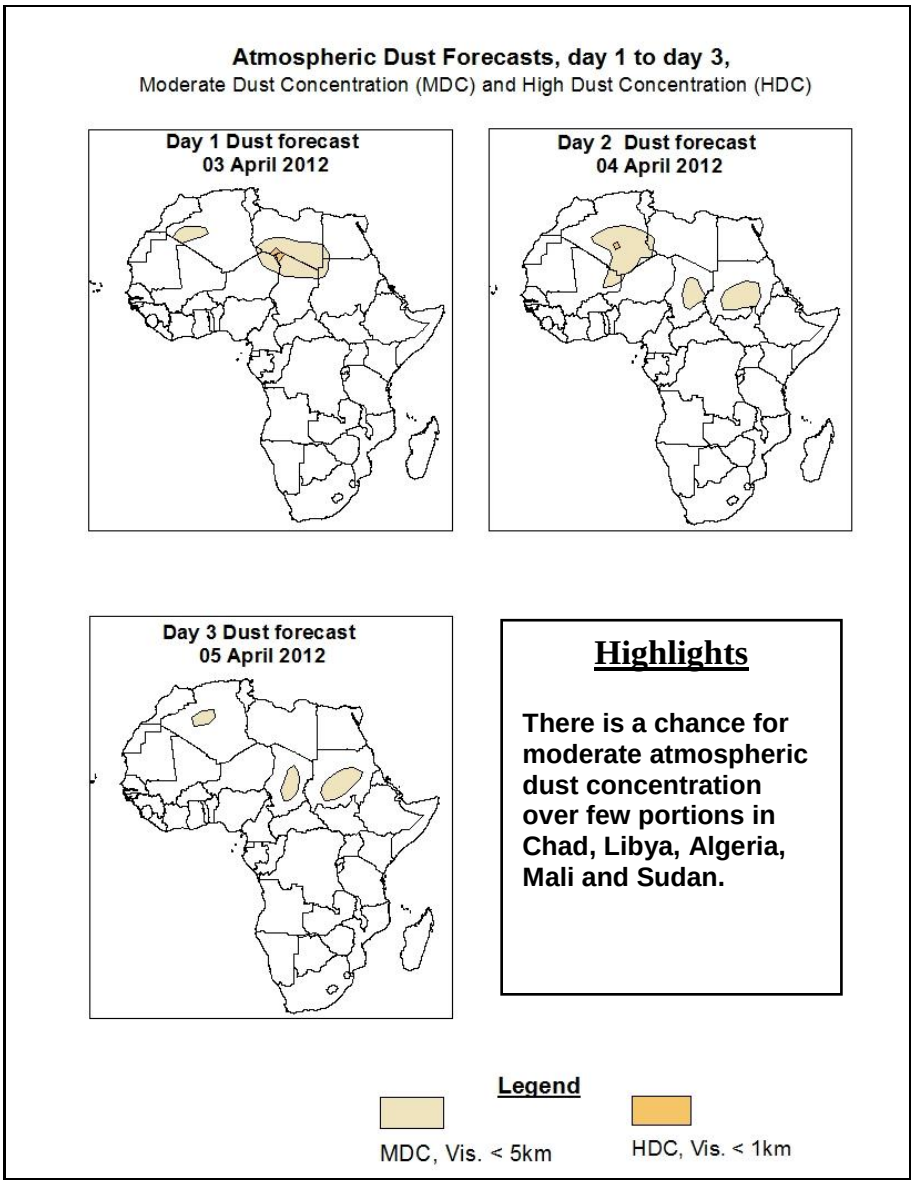


Summary

In the next five days, low level tropospheric wind convergences from central Nigeria to northeastern DRC passing through Cameroun, CAR and northern DRC, the low level weak convergence from northern Ethiopia to southern Tanzania traversing central Ethiopia, central Kenya and central Tanzania associated with the meridional arm of the ITCZ and the mid-latitude trough over Eritrea and northern Ethiopia are expected to enhance rainfall in their respective regions. Hence, there is a chance of moderate to heavy rainfall over central Ethiopia, western and central Kenya, Uganda, Rwanda, Burundi, Tanzania, Malawi, eastern DRC and Madagascar Island.

1.2. Atmospheric Dust Forecasts

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. Models Comparison and Discussion-Valid from 00Z of 02 April 2012

The GFS, ECMWF and UKMET models indicate series of lows and their associated troughs across northern, central and the South African countries.

A low will form in the vicinity of northern DRC, CAR and Cameroun with a central MSLP of 1005mb at the beginning of the forecast period. It tends to deepen with its central MSLP value decreasing to 1003mb towards the end of the forecast period, according to the **GFS** model. According to **ECMWF** model, the same low with a central MSLP value of 1006mb will form in the vicinity of Central Africa Republic and northern DRC at the beginning of the forecast period. It tends to deepen with its central MSLP value decreasing to 1004mb towards the end of the forecast period. **A**ccording to the **UKMET** model, this low with a central MSLP value of 1005mb will form over northern DRC, CAR and southern Chad at the beginning of the forecast. It tends to deepen with its central MSLP value decreasing to 1003mb towards the end of the forecast period.

According to **GFS** model, a low will form in the vicinity of the Republic of Southern Sudan with a central MSLP value of 1006mb at the beginning of the forecast period. It tends to deepen with its central MSLP value decreasing to 1003mb towards the end of the forecast period. According to **ECMWF** model, the same low with a central MSLP value of 1007mb will form in the vicinity of southern Sudan at the beginning of the forecast period. It tends to deepen with its central MSLP value decreasing to 1004mb towards the end of the forecast period. **A**ccording to the **UKMET** model, the low will form over the same area with a central MSLP value of 1006mb at the beginning of the forecast period. It tends to deepen with its central MSLP value decreasing to 1003mb towards the end of the forecast period.

A low will form in the vicinity of eastern Kenya and western Somalia with a central MSLP of 1009mb at the beginning of the forecast period. It tends to fill and shift northwards to northeastern Kenya and western Somalia while maintaining its central MSLP value throughout the forecast period, according to **GFS** model.

According to **GFS** model, a low will form in the vicinity of northern Benin and northwestern Nigeria with a central MSLP value of 1006mb at the beginning of the forecast period. It tends to deepen with its central MSLP value decreasing to 1003mb towards the end of the forecast period. **A** low will form over southern Mali, according to **UKMET** model, with a central MSLP value of 1008mb at the beginning of the forecast period. It tends to deepen with its central MSLP value decreasing to 1007mb through 24 to 48 hours. It thereafter tends to fill with its central MSLP value increasing to 1008mb towards the end of the forecast period.

The St. Helena High pressure system over southeast Atlantic Ocean with a central MSLP value of 1024mb at the beginning of the forecast period tends to weaken with its central MSLP value decreasing to 1020mb through 72 to 96 hours. It thereafter tends to strengthen with its central MSLP value increasing to 1024mb towards the end of the forecast period, according to **the three** models.

The **entire** models locate the Mascarene high pressure system over southwestern Indian Ocean with a central MSLP of 1012mb at the beginning of the forecast period. It tends to strengthen progressively with its central MSLP value increasing to 1024mb towards the end of the forecast period.

At the 850hpa level, a lower tropospheric wind convergence is expected to be active from central Nigeria to northeastern DRC passing through Cameroun, CAR and northern DRC throughout the forecast period. A low level weak convergence zone is expected to form from northern Ethiopia to southern Tanzania traversing central Ethiopia, central Kenya and central Tanzania associated with the meridional arm of the ITCZ at the beginning of the forecast period. It tends to weaken progressively.

At 500hpa, a northeast-southwest oriented, quasi-stationary mid latitude trough with the low geo-potential value of 5600gpm is expected to dominate the flow over western Morocco throughout the forecast period. **A**nother northeast-southwest oriented, eastwards propagating mid-latitude trough with a geo-potential value of 5840gpm is expected to dominate the flow over central Eritrea and northern Ethiopia throughout the forecast period. **A** mid-latitude trough with a geo-potential value of 5760gpm is expected to dominate the flow over western South Africa towards the end of the forecast period.

At 200mb, strong winds associated with Sub-Tropical Westerly Jet are expected to dominate the flow from northern Atlantic Ocean across North Africa to Persian Gulf during the forecast period. The intensity of the jet is expected to exceed 100kts while moving to the east with its core values occasionally increasing to more than 160kts especially at the beginning of the forecast period.

In the next five days, low level tropospheric wind convergences from central Nigeria to northeastern DRC passing through Cameroun, CAR and northern DRC, the low level weak convergence from northern Ethiopia to southern Tanzania traversing central Ethiopia, central Kenya and central Tanzania associated with the meridional arm of the ITCZ and the mid-latitude trough over Eritrea and northern Ethiopia are expected to enhance rainfall in their respective regions. Hence, there is a chance of moderate to heavy rainfall over central Ethiopia, western and central Kenya, Uganda, Rwanda, Burundi, Tanzania, Malawi, eastern DRC and Madagascar Island.

2.0. Previous and Current Day Weather Discussion over Africa

(01 April – 02 April 2012)

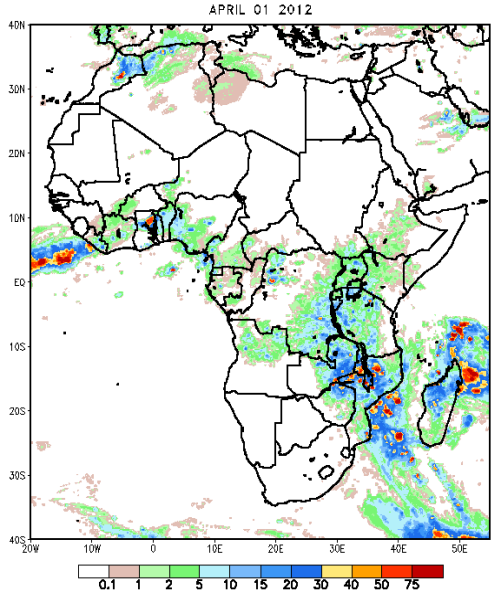
2.1. Weather assessment for the previous day (01 April 2012)

During the previous day, moderate to locally heavy rainfall was observed over Northern Madagascar, eastern Zambia, Malawi, Mozambique northeastern Ghana and northeastern Morocco.

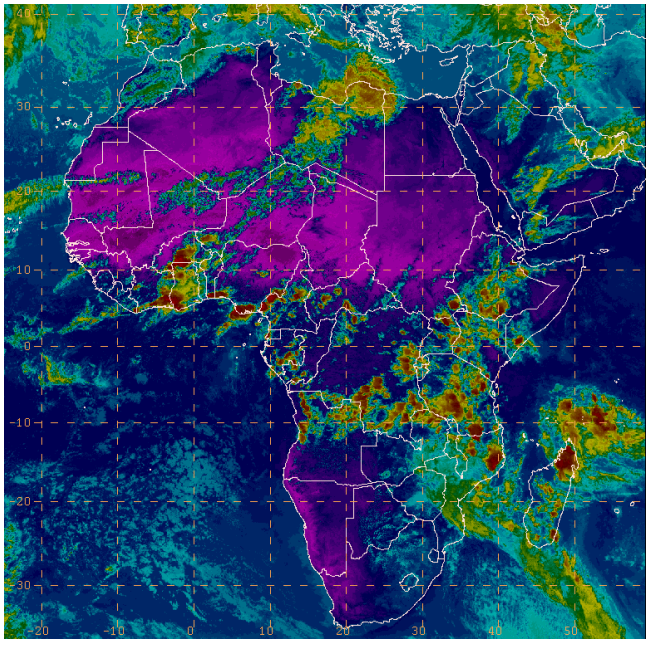
2.2. Weather assessment for the current day (02 April 2012)

Intense clouds are observed over Ghana, Togo, Benin, southeastern Nigeria, Cameroun, southern Gabon, southern and eastern DRC, eastern Uganda, Kenya, Rwanda, Burundi, Tanzania, northern Angola, northeastern Zambia, Malawi, northern Mozambique, northern Madagascar, central Ethiopia and northeastern Libya.

NOAA CPC FEWS–NET Rainfall Estimate (mm): based on Satellite and Rain Gauge Data



IR Satellite Image (valid 1500Z of 02 April 2012)



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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