

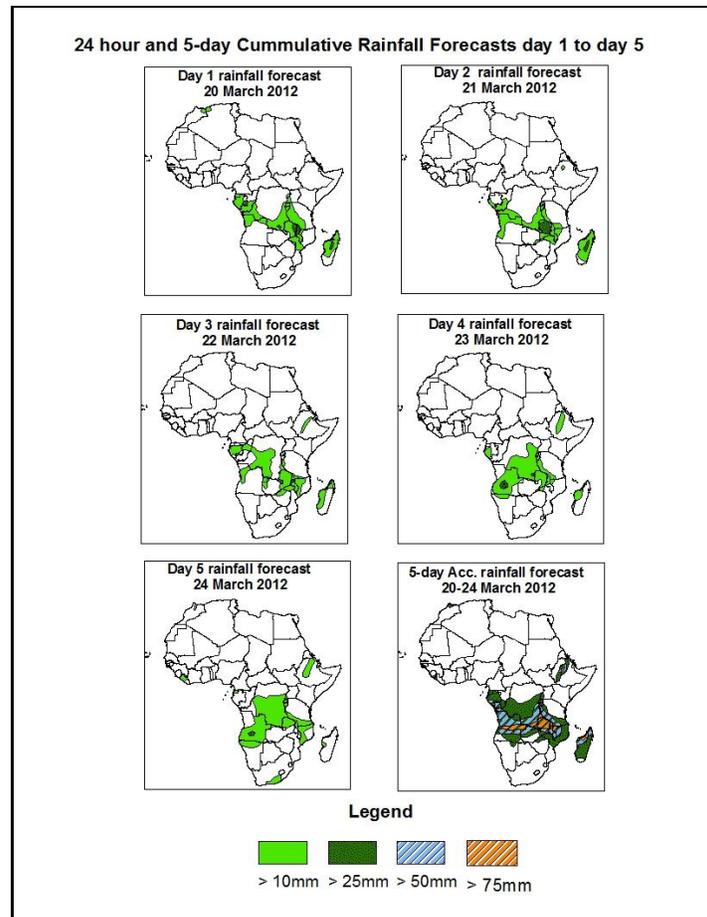


NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 20 March – 06Z of 24 March 2012, (Issued at 18:00Z of 19 March 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.

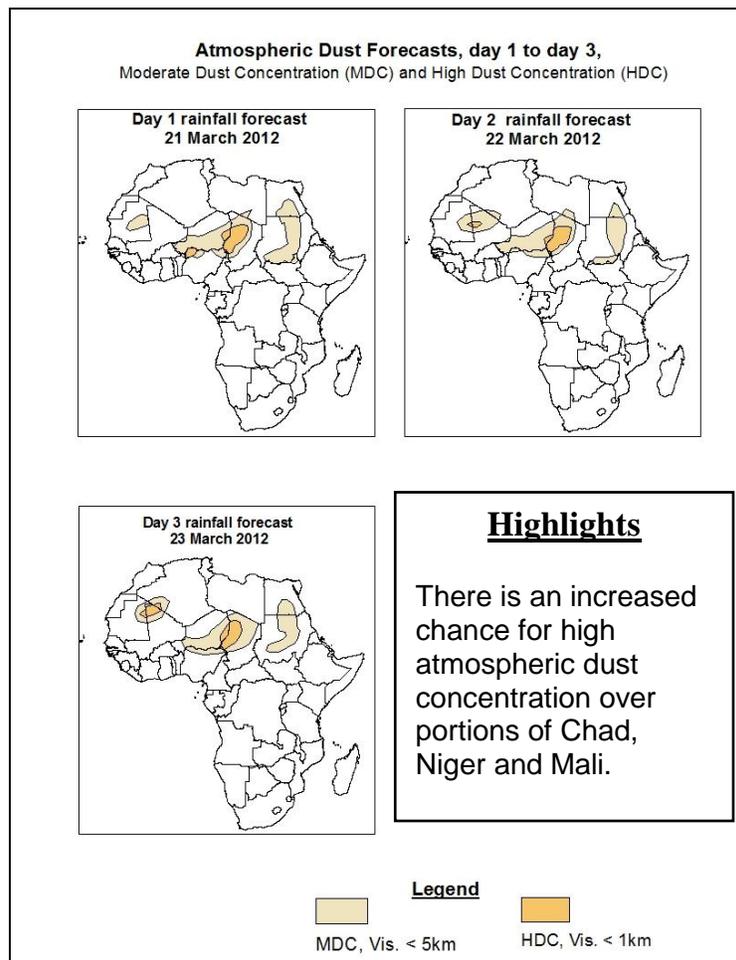


Summary

In the next five days, low level tropospheric wind convergences from eastern Congo through central DRC to eastern DRC, the low level weak convergence in the vicinity of eastern DRC, western Uganda, Rwanda, Burundi and western Tanzania associated with the meridional arm of the ITCZ, the zonal arm of the ITCZ over eastern Angola running across southern DRC, northern Zambia and northern Malawi up to southern Tanzania and convergences over central Ethiopia are expected to enhance rainfall in their respective regions. Hence, there is a chance of heavy rainfall over Equatorial Guinea, Gabon, Angola, Zambia, Congo, DRC, northern Mozambique, Malawi, southern and western Tanzania, central Ethiopia 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 19 March 2012

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

A low will form in the vicinity of northern DRC and CAR with a central MSLP of 1006mb 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, 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 northern DRC and Central Africa Republic 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. According to the **UKMET** model, the same low with mean sea level pressure value of 1008mb will be located in

the vicinity of northern DRC and CAR at the beginning of the forecast. It tends to deepen with its central MSLP value decreasing to 1004mb 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 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 **ECMWF** model, the same low with a central MSLP value of 1006mb 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. According to the **UKMET** model, the low will form over the same area with a central MSLP value of 1004mb 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 **UKMET** model, a low with a central MSLP value of 1009mb will form in the vicinity of southern Angola at the beginning of the forecast period. It tends to deepen with its central MSLP value decreasing to 1008mb towards the end of the forecast period.

According to **GFS** model, a low will form in the vicinity of northern Ghana with a central MSLP value of 1007mb at the beginning of the forecast period. It tends to deepen with its central MSLP value decreasing to 1005mb towards the end of the forecast period. According to **ECMWF** model, the same low with a central MSLP value of 1009mb will form in the vicinity of central Ghana at the beginning of the forecast period. It tends to deepen with its central MSLP value decreasing to 1006mb towards the end of the forecast period. The same low will form over northern Ghana 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 1005mb towards the end of the forecast period, according to **UKMET** model.

A low will form in the vicinity of southern Nigeria with a central MSLP value of 1007mb at the beginning of the forecast period. It tends to deepen with its central MSLP value decreasing to 1006mb towards the end of the forecast period, according to the **GFS** model. The same low will form over southern Nigeria with a central MSLP value of 1007mb at the beginning of the forecast period. It tends to fill with its central MSLP value increasing to 1008mb towards the end of the forecast period, according to **UKMET** model.

Another low will form in the vicinity of eastern Senegal with a central MSLP value of 1008mb at the beginning of the forecast period. It tends to shift eastwards to eastern Mali and deepen at the same time with its central MSLP value decreasing to 1005mb towards the end of the forecast period, according to the **GFS** model. According to **UKMET** model, this low with a central MSLP value of 1007mb will form in the vicinity of eastern Senegal / western Mali at the beginning of the forecast period. It tends to shift eastwards to eastern Mali and deepen with its central MSLP value decreasing to 1004mb towards the end of the forecast period.

The St. Helena High pressure system over southeast Atlantic Ocean with a central MSLP value of 1020mb at the beginning of the forecast period tends to strengthen with its central MSLP value increasing to 1028mb towards the end of the forecast period, according to **GFS** model. According to **ECMWF** model, the high will be located over southeast Atlantic Ocean with a central MSLP value of 1020mb at the beginning of the forecast period. It tends to strengthen with its central MSLP value increasing to 1024mb towards the end of the forecast period. According to **UKMET** model, the high is expected to strengthen, with its central MSLP value increasing from 1020mb to 1024mb towards the end of the forecast period.

The entire **three** models locate the Mascarene high pressure system over southwestern Indian Ocean with a central MSLP of 1016mb at the beginning of the forecast period. It tends propagate southeastwards and strengthen progressively to a central MSLP value of 1024mb towards the end of the forecast period.

At the 850hpa level, a lower tropospheric wind convergence is expected to be active from eastern Congo to eastern DRC passing through central DRC throughout the forecast period. A low level weak convergence zone is expected to form in the vicinity of eastern DRC, western Uganda, Rwanda, Burundi and western Tanzania associated with the meridional arm of the ITCZ. It tends to maintain its position throughout the forecast period. Another convergence zone, also associated with the meridional arm of the ITCZ will be located over central Ethiopia running from north to south throughout the forecast period. Another weak convergence zone associated with the zonal arm of the ITCZ will be located over eastern Angola running across southern DRC, northern Zambia and northern Malawi up to southern Tanzania throughout the forecast period.

At 500hpa, an eastward propagating mid latitude trough with the low geo-potential value of 5720gpm is expected to dominate the flow over eastern Egypt extending southwards to Ethiopia throughout the end of the forecast period.

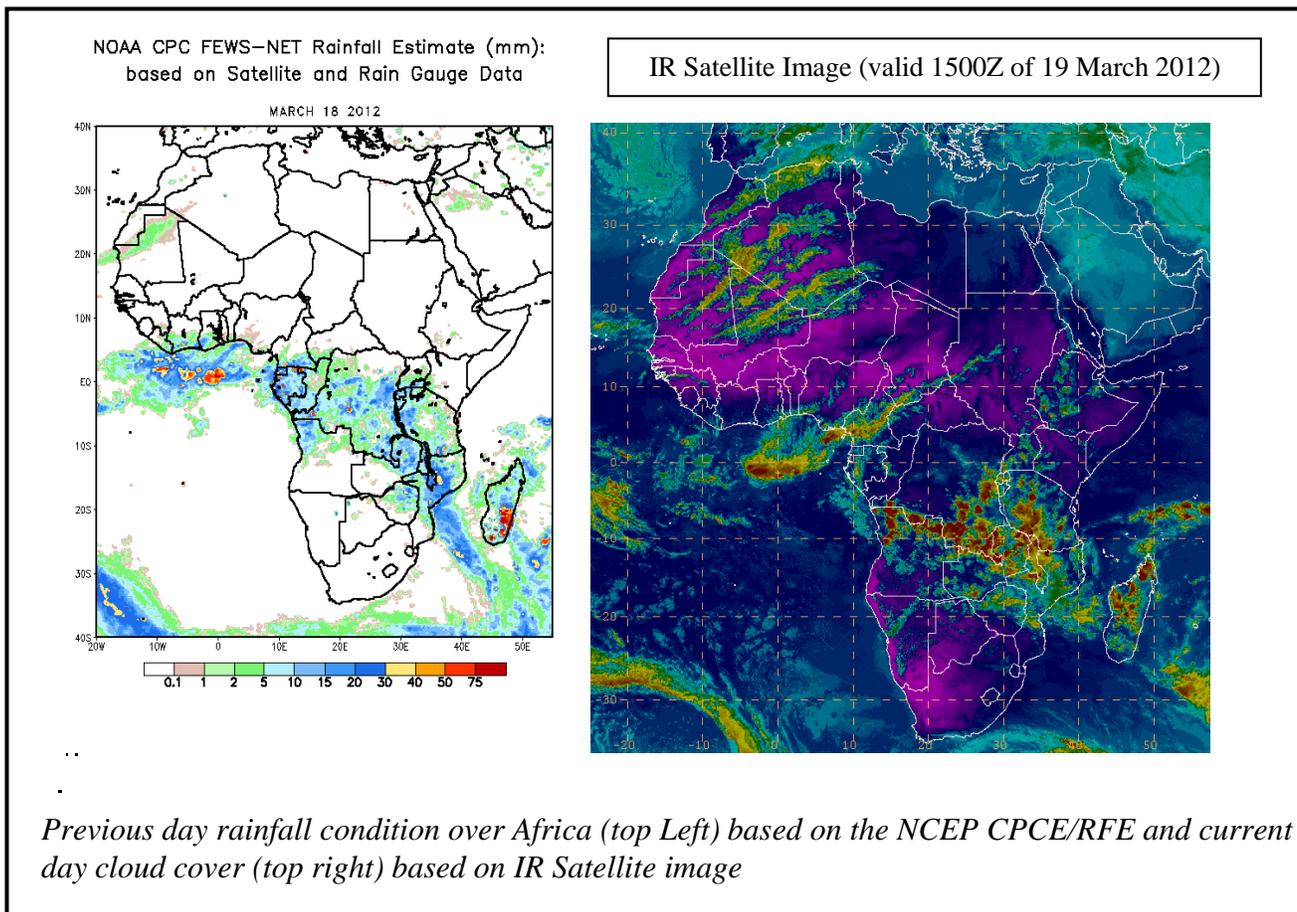
At 200mb, strong winds associated with Sub-Tropical Westerly Jet are expected to dominate the flow from northern Atlantic Ocean across North Africa to Persian Gulf during the forecast period. The intensity of the jet is expected to exceed 80kts while moving to the east with its core values occasionally increasing to more than 140kts throughout the forecast period.

In the next five days, low level tropospheric wind convergences from eastern Congo through central DRC to eastern DRC, the low level weak convergence in the vicinity of eastern DRC, western Uganda, Rwanda, Burundi and western Tanzania associated with the meridional arm of the ITCZ, the zonal arm of the ITCZ over eastern Angola running across southern DRC, northern Zambia and northern Malawi up to southern Tanzania and convergences over central Ethiopia are expected to enhance rainfall in their respective regions. Hence, there is a chance of heavy rainfall over Equatorial Guinea, Gabon, Angola, Zambia, Congo, DRC, northern Mozambique, Malawi, southern and western Tanzania, central Ethiopia and Madagascar Island.

2.0. Previous and Current Day Weather Discussion over Africa (18 March – 19 March 2012)

2.1. Weather assessment for the previous day (18 March 2012): During the previous day, moderate to locally heavy rainfall was observed over southeastern Madagascar, northern Mozambique, portions of DRC, eastern Zambia, southern and western Tanzania, Rwanda, Burundi, Gabon, Equatorial Guinea and southern Congo.

2.2. Weather assessment for the current day (19 March 2012): Intense clouds are observed over southern and eastern DRC, Rwanda, Burundi, northern Zambia, northern Malawi, northwestern Mozambique, northern Angola, Tanzania, Cameroun and Madagascar.



Author(s): Ezekiel Njoroge, (Kenyan Meteorological Department / CPC-African Desk); ezekiel.njoroge@noaa.gov
And
Author(s): Lotfi Khammari, (Tunisian Meteorological Authority / CPC-African Desk); lotfi.khammari@noaa.gov