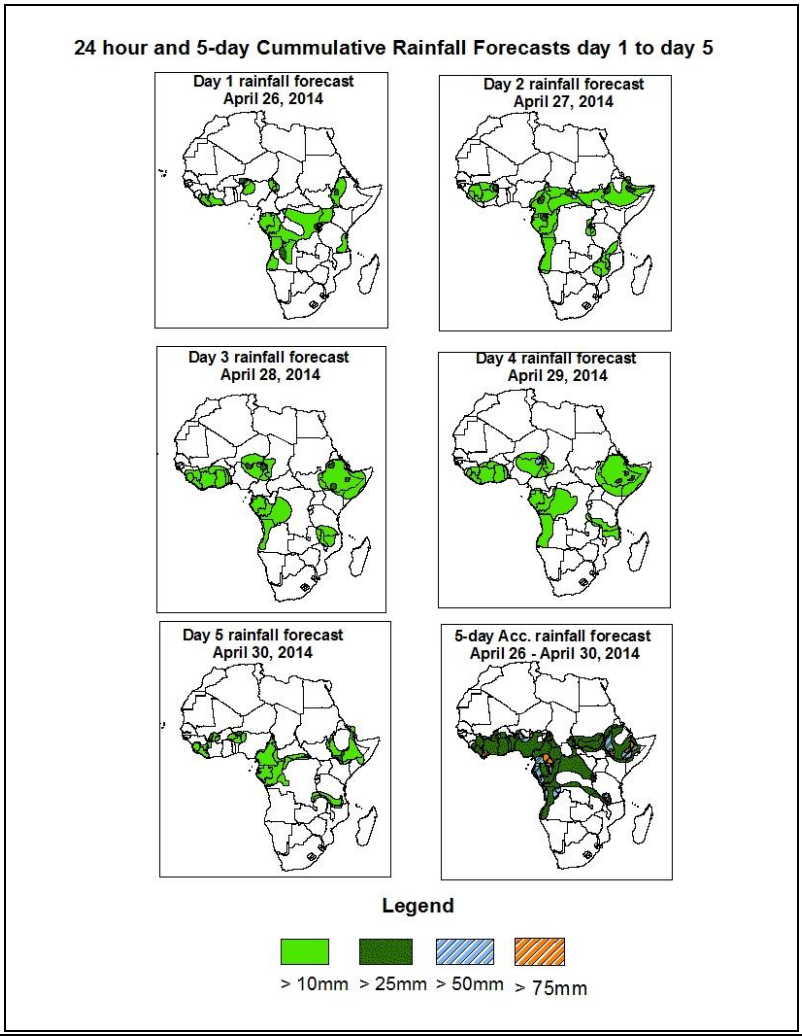
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of April 26 – 06Z of April 30, 2014. (Issued at 1600Z of April 25, 2014)

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/GFS and UK Met Office NWP outputs, and the NCEP global ensemble forecasts system (GEFS) and expert assessment.

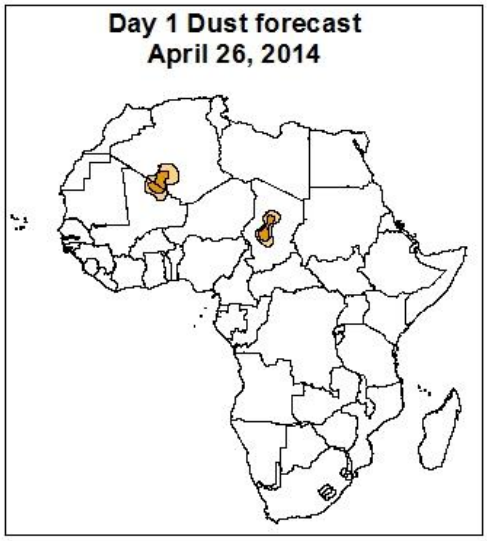


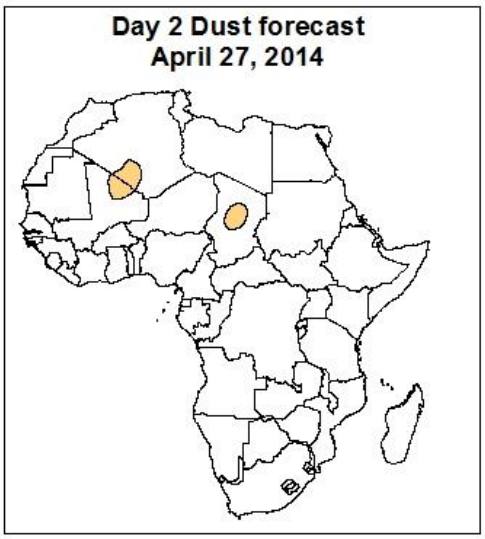
Summary

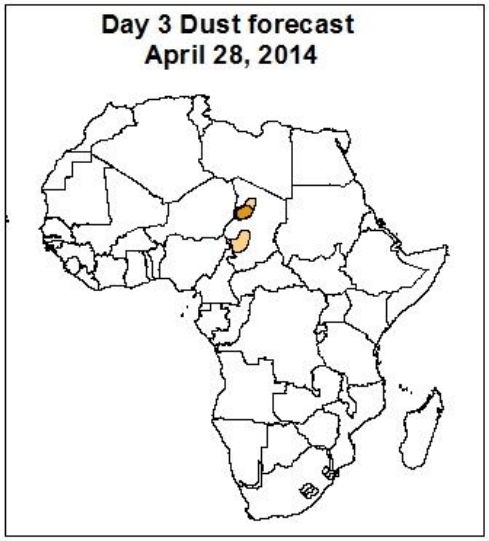
In the coming five days, lower troposphere convergence associated with the West African Monsoon flow is expected to enhance rainfall across the Gulf of Guinea region. Seasonal wind convergence in the Central and East Africa is expected to enhance rainfall in respective regions. Interactions between the mid latitude and tropical systems across north eastern Africa is expected to enhance rainfall over the Ethiopia but reduced rainfall will be over most of East African countries. Moderate to Heavy rainfall are expected over Liberia, Sierra Leone, Cote D'Ivoire, Ghana, Togo, Burkina Faso Nigeria, Cameroun, Central African Republic, Democratic Republic of Congo Uganda, Angola and Ethiopia

1.2. Atmospheric Dust Forecasts: Valid April 26– April 28 2014

Atmospheric Dust Forecasts, day 1 to day 3,
Moderate Dust Concentration (MDC) and High Dust Concentration (HDC)







Highlights

There is an increased chance for moderate dust concentration over Algeria, Mali and Chad

Legend

MDC, Vis. < 5km

HDC, Vis. < 1km

1.3. Model Discussion: Valid from 00Z of April 25, 2014

Model comparison (GFS and UKMET Valid from 00Z: April 25, 2014*) shows general agreement in terms of depicting positions of the northern and southern hemisphere sub-tropical highs, while they showed slight differences in depicting their intensity.*

The Azores high pressure system in Northeastern Atlantic Ocean is expected to weaken while shifting eastwards through 24 to 120 hours for both GFS and UKMET models. It is expected to retreat westwards towards the coast of Morocco from its existing position of North Africa. Its central pressure value is expected to decrease from about 1028hpa to 1023hpa according to the GFS and 1028 to 1024hpa according to the UKMET models.

The St. Helena High Pressure System in southern Atlantic Ocean is expected to weaken through 24 to 48 hours and intensify through 48 to 72 hours and weaken through 96hours and intensify again to the end of the forecast period while shifting eastwards. Its central pressure value is expected to decrease slightly from about 1021hpa to 1018hpa and then increase to 1025 and decrease again to 1022hpa according to the GFS model, and from about 1020hpa to 1027hpa and then increase to 1018 and increase again to 1024hpa according to the UKMET model.

The Mascarene high pressure system in southwestern Indian Ocean is expected to slightly decrease maintaining its central value for the 24 to 48houirs and, increase through the 72 hours and then decrease for the rest of the forecast period for the GFS model while it decreases through 24 to 48 hours and then increase through 72hours and starts decreasing again for the UKMET model. Its central pressure value is expected to increase from about 1033hpa to 1034hpa and then decrease to 1032hpa through the rest of the forecast period according to the GFS and from about 1033 through 1034 to 1030hpa according to the UKMET models.

The heat lows over the central Sahel and the neighboring region are expected to deepen during the forecast period particularly over Chad and Niger, but expected to fill up in the Sudan region. Heat lows around Central African region are expected to deepen and fill up thereafter. The lowest central values are expected to vary between 1003 to 1009hpa for GFS model and 1003 to1005 for UKMET models

At 925Hpa level, Moderate to strong convergence is expected to persist throughout the forecast period over the Sahel region, Congo Coast and the Central African region.

At 850Hpa level, Monsoon wind flow expected to dominate flow across the West African region and penetrate inland northwards is expected to persist. Zonal monsoon wind convergence is also expected to flow across the Sahel South of latitude 15˚C while meridional wind convergence will dominate across forecast period over Sahel region, Central Africa region, Angola Coast and Great Horn of Africa region

At 500Hpa level, troughs associated with mid-latitude frontal system persist and these interactions between the mid latitude and tropical systems across north eastern Africa is expected to enhance rainfall over the Eastern Gulf of Guinean countries, North of East Africa, Greater Horn of Africa for most part of the forecast period.

At 200hpa level, the sub-tropical Westerly Jet mainly (with wind speed >70 knots and <90 knots), are slightly weaker over North Africa during the forecast period. In the south, the sub-tropical westerly Jet (with speed >70 knots and <110 knots) is expected over South Africa, Namibia, Botswana, Zimbabwe, Zambia, Mozambique, Indian and Southern Atlantic Ocean.

In the coming five days, lower troposphere convergence associated with the West African Monsoon flow is expected to enhance rainfall across the Gulf of Guinea region. Seasonal wind convergence in the Central and East Africa is expected to enhance rainfall in respective regions. Interactions between the mid latitude and tropical systems across north eastern Africa is expected to enhance rainfall over Ethiopia but reduced rainfall will be over most of East African countries. Moderate to Heavy rainfall are expected over Liberia, Sierra Leone, Cote D'Ivoire, Ghana, Togo, Burkina Faso Nigeria, Cameroun, Central African Republic, Democratic Republic of Congo Uganda, Angola and Ethiopia

2.0. Previous and Current Day Weather Discussion over Africa

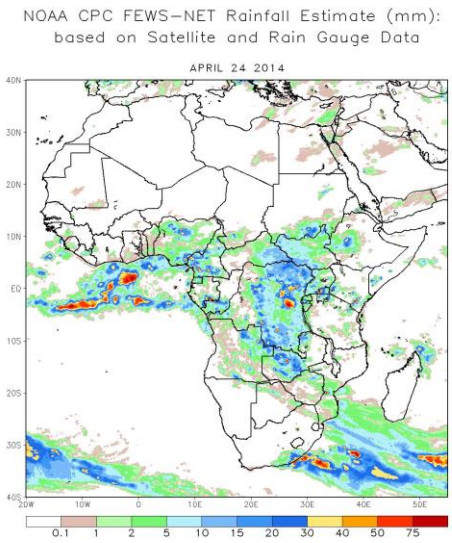
(April 24, 2014 – April 25, 2014)

2.1. Weather assessment for the previous day (April 24, 2014)

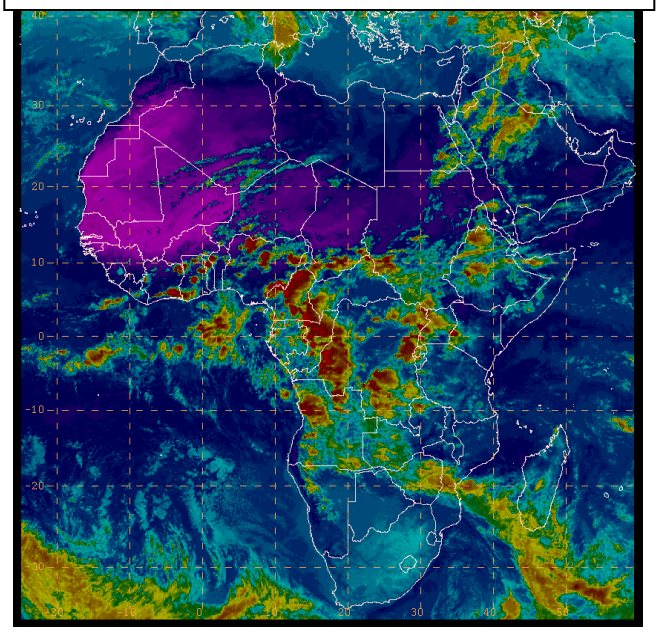
During the previous day, moderate to heavy rainfall was observed over parts of Nigeria, Cameroun, Gabon, Congo Brazzaville, DRC, Ethiopia, South Sudan, Central African Republic and south eastern coast of South Africa

2.2. Weather assessment for the current day (April 25, 2014)

Intense clouds are observed over local areas in the Cote D'Ivoire, Burkina Faso, Benin, Nigeria, Cameroun, Southern Chad, Congo Brazzaville, Equatorial Guinea, Angola, Democratic Republic of Congo, South Sudan, Ethiopia, Uganda, Mozambique, Zambia, Botswana, Zimbabwe and Southeast of South Africa



IR Satellite Image (valid 1200 Z of April 25, 2014)



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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