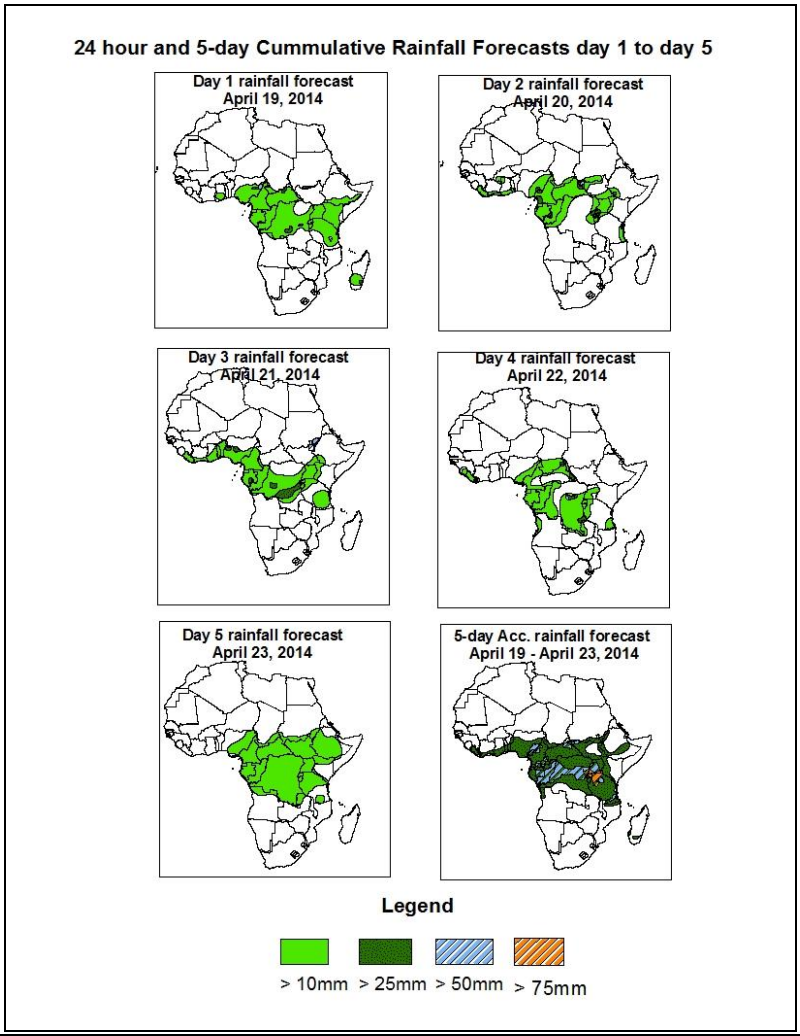
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of April 19 – 06Z of April 23, 2014. (Issued at 1600Z of April 18, 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.

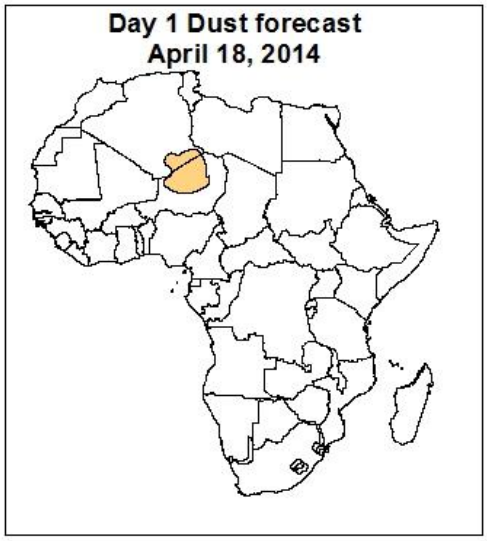


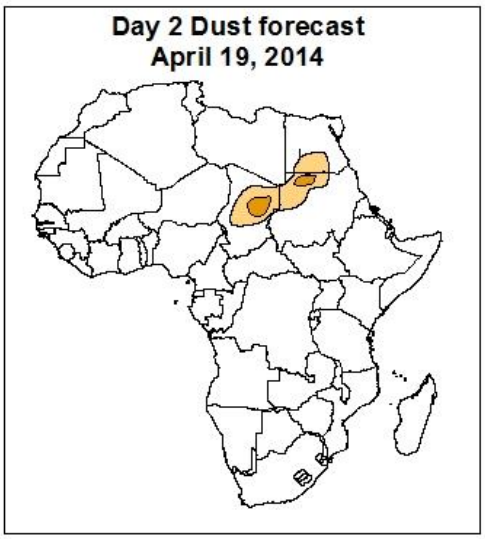
Summary

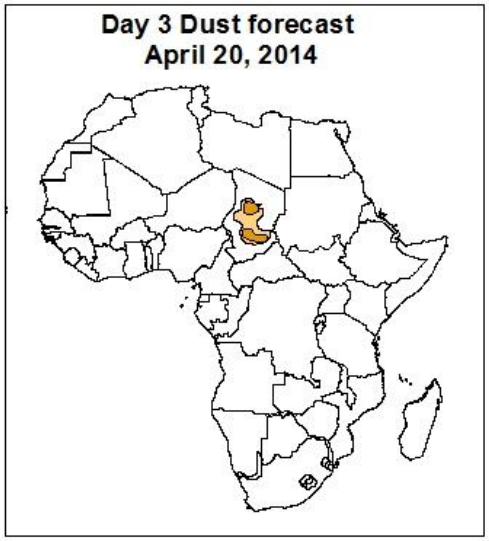
Lower troposphere convergence associated with the West African Monsoon flow is expected to enhance rainfall across the Gulf of Guinea region. Seasonal wind convergence in the Central and East Africa is expected to enhance rainfall in respective regions. Interactions between the mid latitude and tropical systems across north eastern Africa is expected to enhance rainfall over the Greater Horn of Africa. Moderate to Heavy rainfall are expected over South Eastern Nigeria, Cameroun, Central African Republic, Democratic Republic of Congo Uganda, Burundi and Rwanda

1.2. Atmospheric Dust Forecasts: Valid April 19– April 21 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, Niger, Egypt, Chad and Sudan

Legend

MDC, Vis. < 5km

HDC, Vis. < 1km

1.3. Model Discussion: Valid from 00Z of April 18, 2014

Model comparison (GFS and UKMET Valid from 00Z: April 18, 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 St. Helena High Pressure System, in southern Atlantic Ocean is expected to intensify through 24 to 72 hours and begin to weaken from 72 hours up until the end of the forecast period with eastwards shift. Its central pressure value is expected to increase from about 1028hpa to 1031hpa and then decrease to 1028hpa according to the GFS model, and from about 1027hpa to 1029hpa and then decrease to 1028hpa according to the UKMET model.

The Mascarene high pressure system in southwestern Indian Ocean is expected to Intensify from 24 to 48 hours whilst it weakens from 48 to 72 hours and intensifies again until the end of the forecast. The East African ridge is expected to intensify gradually as a result of normal orientation of the Mascarene high pressure system and weaken again as the Mascarene High takes it zonal position and intensify again. Its central pressure value is expected to increase from about 1023hpa to 1024hpa and then weakens to 1020hpa and intensifies to 1026hpa according to the GFS whilst it is between 1021 to 1018hpa and intensifies again to 1027 according to the UKMET models.

The Azores high pressure system in Northeastern Atlantic Ocean is expected to weaken while shifting eastwards through 24 to 120 hours for the forecast period. Its central pressure value is expected to decrease from about 1031hpa to 1024hpa according to the GFS and 1032 to 1023hpa according to the UKMET models.

At 925Hpa level, Moderate to strong convergence is expected to persist throughout the forecast period over the Sahel region, the Horn of Africa and the Congo Coast, Central African region, south eastern Africa. Along the Coast of Guinea Conakry, there exist prevailing northeasterly winds

At 850Hpa level, Moderate to strong convergence is expected to persist throughout the forecast period over Sahel region, central Africa region, Horn of Africa, Northern Central Africa and South Eastern Africa

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 Greater horn of Africa for most part of the forecast period.

At 200hpa level, the sub-tropical Westerly Jet mainly (with wind speed >90 knots and <130 knots), extending between Western Sahara, Algeria, Morocco, Egypt and Libya, persist during the forecast period. In the south, the sub-tropical westerly Jet (with speed >70 knots and <90 knots) is expected over South Africa, Namibia, Indian and Southern Atlantic Ocean.

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 Greater Horn of Africa. Moderate to Heavy rainfall are expected over South Eastern Nigeria, Cameroun, Central African Republic, Democratic Republic of Congo Uganda, Burundi and Rwanda

2.0. Previous and Current Day Weather Discussion over Africa

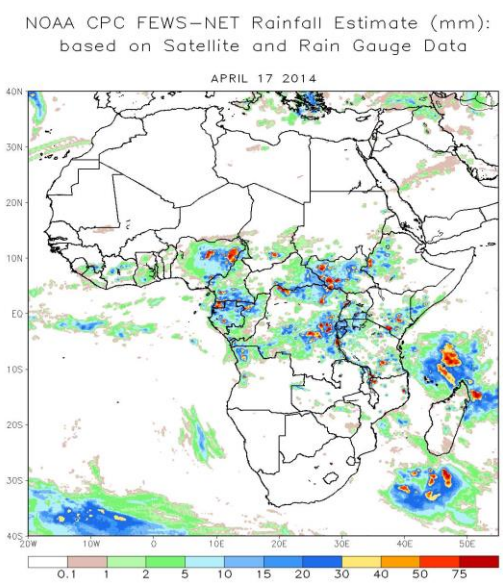
(April 17, 2014 – April 18, 2014)

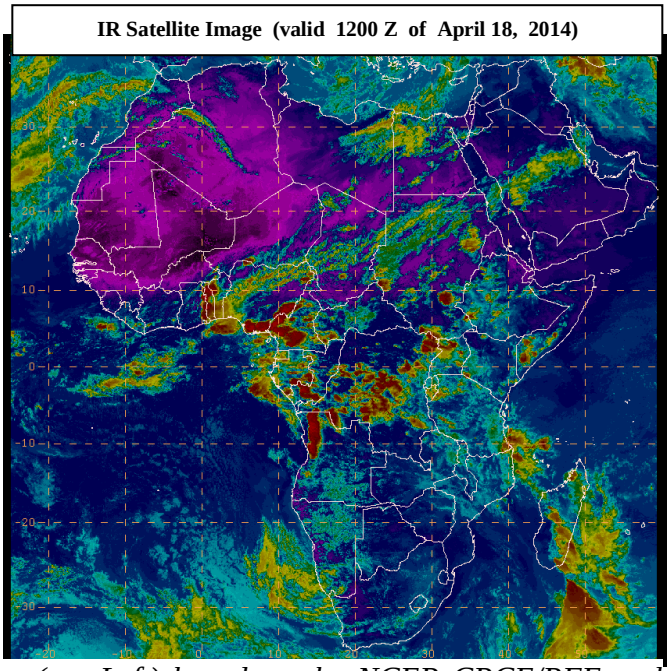
2.1. Weather assessment for the previous day (April 17, 2014)

During the previous day, moderate to heavy rainfall was observed over parts of Nigeria, Cameroun, DRC, South Sudan, Gabon, Ethiopia, Kenya, Tanzania,, Uganda, Congo Brazzaville and Equatorial Guinea

2.2. Weather assessment for the current day (April 18, 2014)

Intense clouds are observed over local areas in the Nigeria, Togo, Benin, Nigeria, Cameroun, Gabon, Equatorial Guinea, DRC, Congo Brazzaville, Uganda, Madagascar, Tanzania and Greater Horn of 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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