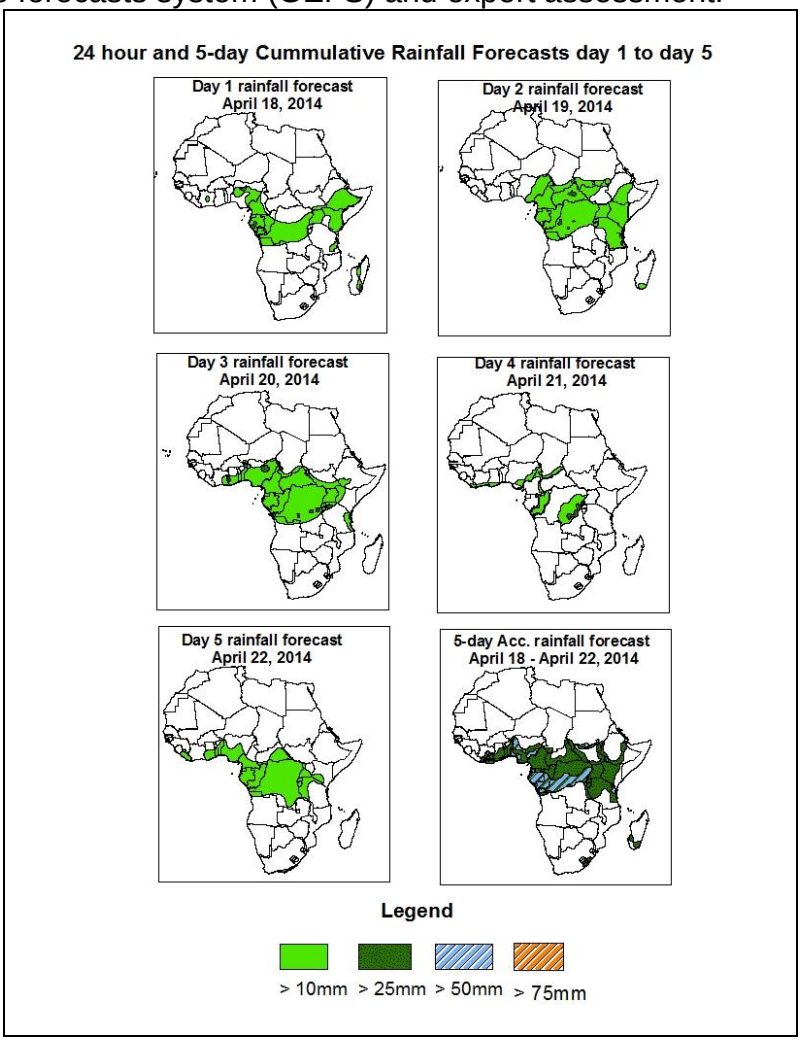
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of April 18 – 06Z of April 22, 2014. (Issued at 1600Z of April 17, 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.

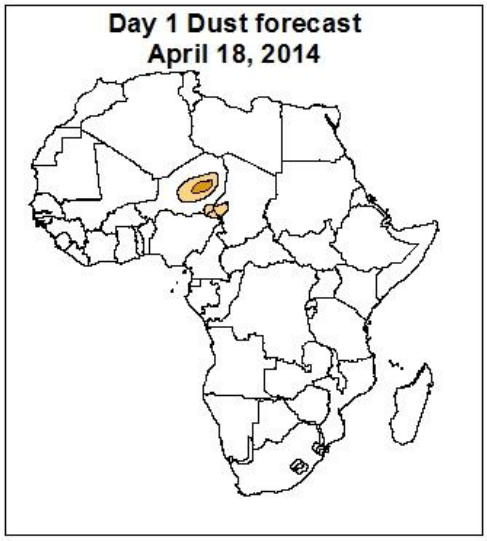


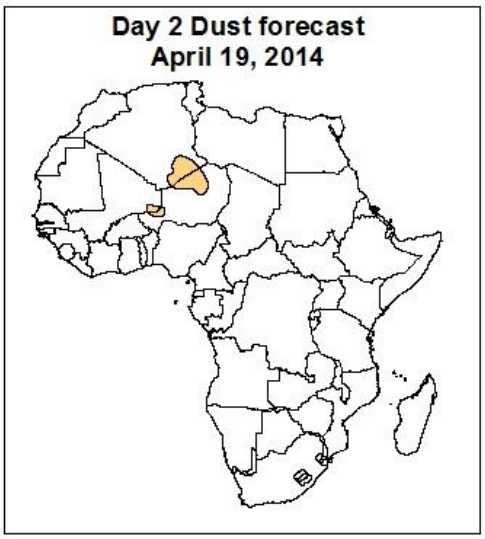
Summary

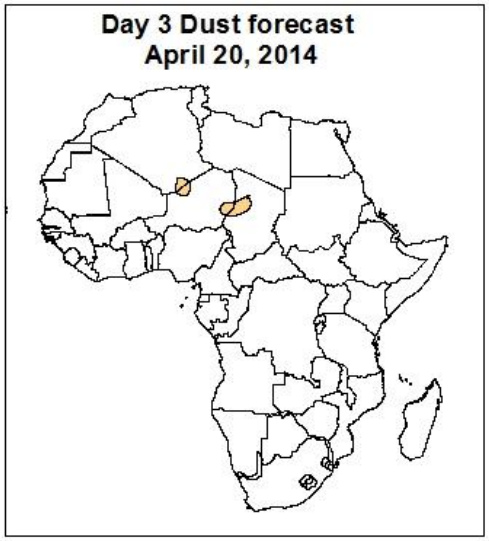
Lower troposphere convergence associated with the West African Monsoon flow is expected to enhance rainfall across the Gulf of Guinea region. Seasonal wind convergence in the Central and East Africa is expected to enhance rainfall in respective regions. Hence, there is an increased chance for heavy rainfall for Central African Republic, Cameroun, Congo Brazzaville, Democratic Republic of Congo, Uganda, Tanzania, Kenya, Madagascar, South Africa and Somalia

1.2. Atmospheric Dust Forecasts: Valid April 18– April 20 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 and Chad

Legend

MDC, Vis. < 5km

HDC, Vis. < 1km

1.3. Model Discussion: Valid from 00Z of April 17, 2014

Model comparison (GFS and UKMET Valid from 00Z: April 17, 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 through 24 to 120 hours until the end of the forecast shifting eastwards. Its central pressure value is expected to increase from about 1022hpa to 1031hpa according to the GFS model, and from about 1022hpa to 1030hpa according to the UKMET model.

The Mascarene high pressure system in southwestern Indian Ocean is expected to Intensify from 24 to 72 hours whilst it weakens from 72 to 120 hours until the end of the forecast while taking its normal position. 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. Its central pressure value is expected to increase from about 1021hpa to 1031hpa and then weakens to 1023 according to the GFS whilst it is between 1020 to 1031hpa and weakens again to 1021 according to the UKMET models.

The Azores high pressure system in Northeastern Atlantic Ocean is expected to intensify while shifting eastwards through 24 to 48 hours and then weaken through 48 hours till the end of the forecast period. Its central pressure value is expected to increase from about 1020hpa to 1031hpa and then to 1024 according to the GFS and 1021 to 1031hpa and then to 1023hpa according to the UKMET models.

At 925Hpa level, Moderate to strong convergence is expected to persist throughout the forecast period over between Guinea Conakry, Southern Mali, Burkina Faso Niger, Sudan, Ethiopia, Uganda, Congo Brazzaville, Gabon, Angola and Democratic Republic of Congo

At 850Hpa level, Moderate to strong convergence is expected to persist throughout the forecast period over Guinea Conakry ,Burkina Faso, Cote D'Ivoire, Niger, Nigeria,

Chad, Ethiopia, Democratic Republic of Congo, , Sudan, Uganda Cameroun, Zambia, Botswana, Zambia Central African Republic and Uganda

At 500Hpa level, troughs associated with mid-latitude frontal system persist and are expected to result in some tropical, extra-tropical interactions bringing rains over Mali, Libya, Niger ,Chad, Egypt ,Sudan ,Ethiopia 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 Madagascar, Namibia, extending to 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. Hence, there is an increased chance for heavy rainfall for Central African Republic, Cameroun, Congo Brazzaville, Democratic Republic of Congo, Uganda, Tanzania, Kenya, Madagascar, South Africa and Somalia

2.0. Previous and Current Day Weather Discussion over Africa

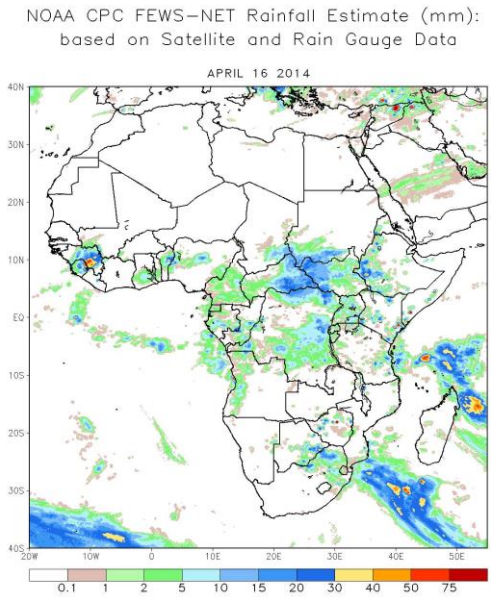
(April 16, 2014 – April 17, 2014)

2.1. Weather assessment for the previous day (April 16, 2014)

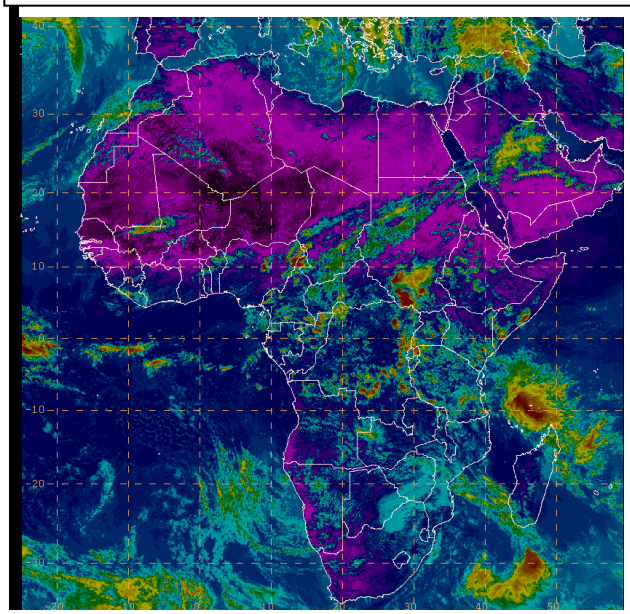
During the previous day, moderate to heavy rainfall was observed over parts of Guinea Conakry, Central African Republic and South Sudan

2.2. Weather assessment for the current day (April 17, 2014)

Intense clouds are observed over local areas in the North eastern Nigeria, South Sudan, Somalia, Democratic Republic of Congo, Central African Republic, Kenya and Tanzania



IR Satellite Image (valid 1200 Z of April 17, 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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