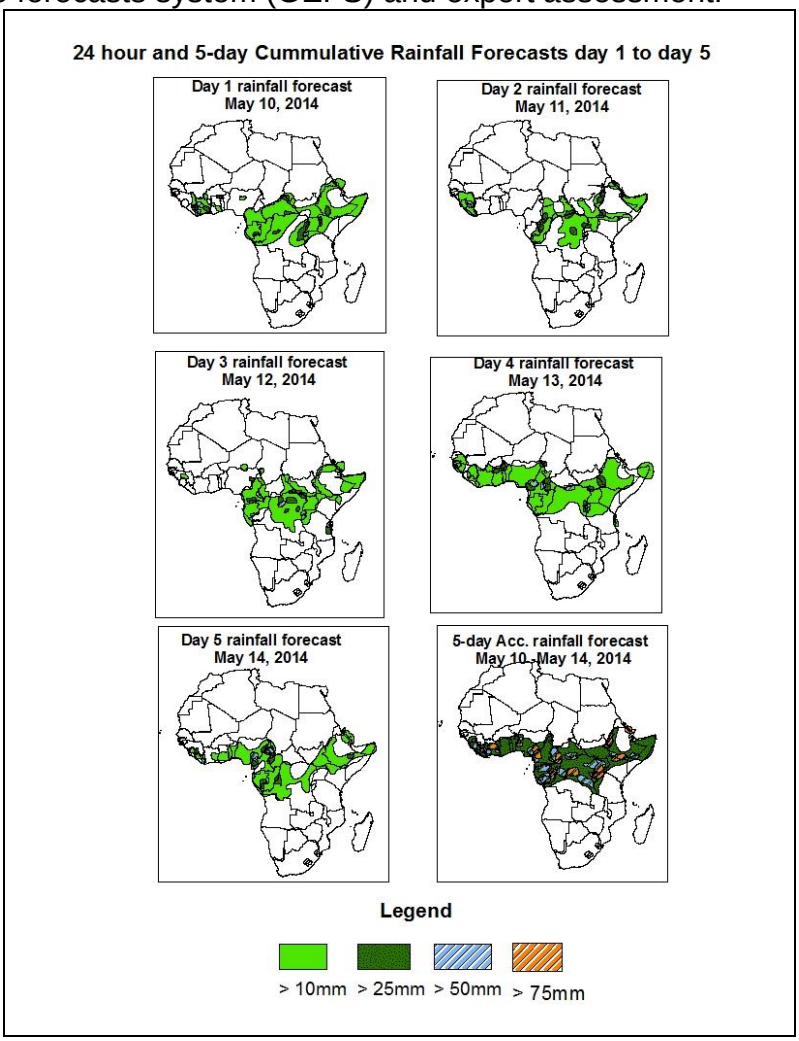
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of May 10 – 06Z of May 14, 2014. (Issued at 1600Z of May 09, 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.



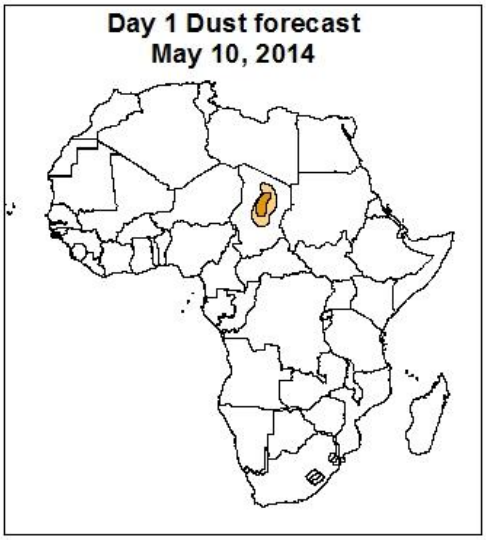
Summary

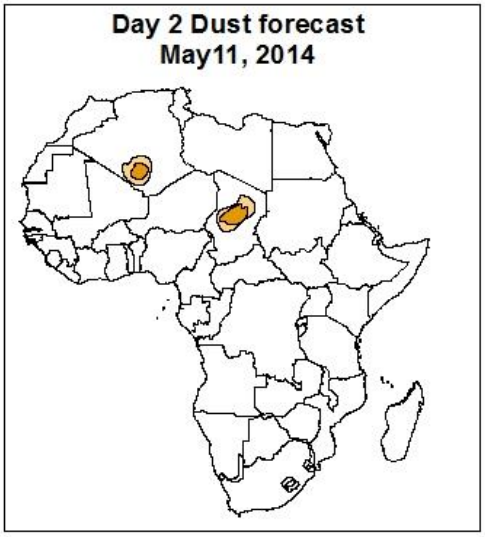
In the next five days, westward propagating easterly waves across the Gulf of Guinea, seasonal wind convergences in East Africa region are expected to enhance rainfall in their respective regions.

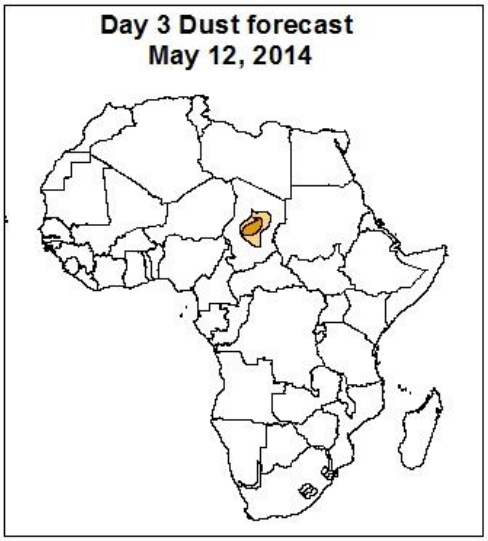
Thus, there is an increased chance for moderate to heavy rainfall over portions of Senegal, The Gambia, Guinea Bissau, Guinea Conakry, Sierra Leone, Liberia, Burkina Faso, Ghana, Togo, Benin, Nigeria, Democratic Republic of Congo, Cameroun, Equatorial Guinea, Eritrea, Djibouti, Gabon, Congo Brazzaville, Uganda, Ethiopia, Somalia, Burundi, Rwanda, Kenya and Tanzania

1.2. Atmospheric Dust Forecasts: Valid May 10 – May 12 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 Chad and Algeria

Legend

MDC, Vis. < 5km

HDC, Vis. < 1km

1.3. Model Discussion: Valid from 00Z of May 10, 2014

Model comparison (GFS and UKMET Valid from 00Z: May 09, 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.*

According to the GFS and UKMET models, the monsoon trough and its associated heat lows across the Sahel region are expected to maintain its east-west orientation during the forecast period. The models also indicate series of heat lows and their associated troughs across Central African countries extending partly to East African countries

A heat low over eastern Sudan is expected to maintain its mean sea level pressure value of 1005hpa through 24 to 72 hours according to the GFS model and fill up slightly to 1006hpa through 72 to 96 hours and then deepen to 1005 hpa for the rest of the forecast period. South west Sudan with a central pressure of 1007hpa is expected to deepen to 1006hpa through 24 to 48 hours, maintain its position of 1006hpa through 48 to72 hours and then fill-up for the rest of the forecast period. Algeria, Mali and Somalia are expected to deepen from a central pressure value of 1008hpa through 24 to 48 hours while Mali is expected to maintain its position at 72hours and deepen through 120 hours. Northern Nigeria and southern Niger at pressure values of 1006hpa at 48hous are expected to fill up through 48hours and deepen through 72 hours.

For the UKMET modal, a low of 1009hpa over DRC is expected to maintain its position through 24 to 48hours and fill up to 1010hpa whilst maintaining this position up to end of the forecast period. A low pressure over the Gulf of Guinea and the Cameroun coast is also expected to fill up from 1010hpa to 1011hpa through 24 to 48 hours, deepen to 1010hpa and then fill-up to 1012hpa to the end of the forecast period

The Azores high pressure system over the North Atlantic Ocean with its central pressure value of 1028 for both GFS and UKMET models is expected to weaken through 24 to 48 hours, intensify through 72hours, while GFS maintains its central value pressure of 1029hpa through 72 to 96 hours, UKMET is expected to relax its position from 1031 hpa to 1028hpa, intensifies to 1031 and 1032hpa respectively for the rest of the forecast period.

The St. Helena High pressure system over southern Atlantic Ocean is expected to intensify its central position of 1022hpa to 1028hpa through 24 hours to 48hours and then relax its position to 1020hpa from 48hours to 72hours and then intensify again to the rest of the forecast period for the GFS model while for the UKMET model, it intensifies from 24hours to 48 hours, weakens through 72hours while maintaining its position through 96hours and then intensifies to the end of the forecast period. Its central pressure value is expected to be from about 1028hpa to 1031hpa according to GFS model and then 1022 to 1028hpa according to UKMET model.

The East African ridge associated with the Mascarene high pressure system over the southwestern Indian Ocean is expected to weaken its position from 24 hours to 48hours and then intensify from 48hours to72 and then weaken through 96hours and then intensify till the end of the forecast period for GFS model and for the UKMET model. Its central pressure value is around 1019hpa to 1021hpa according to the GFS and 1019hpa to 1027hpa according to the UKMET models

At 925Hpa level, a zone of moderate and dry northerly and easterly winds are expected to prevail over western Sahel, northern Gulf of Guinea countries, eastern Sahel, Central Africa Region and East Africa region through 24 to 120hours.

At 850Hpa level, zonal monsoon wind convergence is expected to dominate the flow across western Sahel, Gulf of Guinea coast, Central Sahel region, Central African Region and Eastern Africa region through 24hours to 120 hours.

At 500Hpa level, a mid-latitude trough across Northern Africa and neighboring areas is expected to deepen gradually with its axis over Algeria, Libya, Egypt, Mauritania, Mali and Chad through 24 to 120hours. A mid –Latitude frontal trough is also expected to propagate across South Africa during 72 to 120hours

At 200hpa level, winds with strong speed (>90kts) associated with the Northern hemisphere sub-tropical Westerly Jet mainly is expected to propagate across the North Africa during the forecast period across the subtropical latitudes during the forecast

period while winds (>70kts) is expected in the southern Hemisphere across South Africa, Atlantic Ocean, Namibia, Mozambique, Botswana and Madagascar

In the next five days, westward propagating easterly waves across the Gulf of Guinea, seasonal wind convergences in East Africa region are expected to enhance rainfall in their respective regions.

Thus, there is an increased chance for moderate to heavy rainfall over portions of Senegal, The Gambia, Guinea Bissau, Guinea Conakry, Sierra Leone, Liberia, Burkina Faso, Ghana, Togo, Benin, Nigeria, Democratic Republic of Congo, Cameroun, Equatorial Guinea, Eritrea, Djibouti, Gabon, Congo Brazzaville, Uganda, Ethiopia, Somalia, Burundi, Rwanda, Kenya and Tanzania

2.0. Previous and Current Day Weather Discussion over Africa

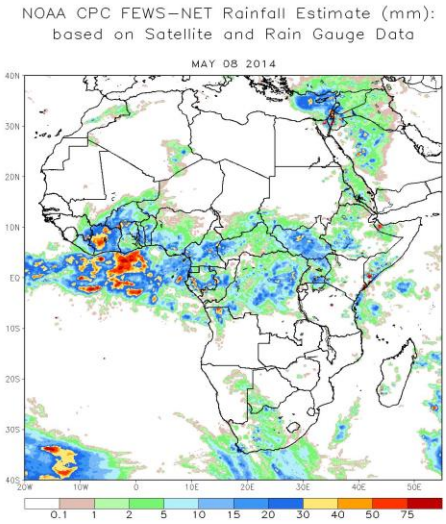
(May 08, 2014 – May 09, 2014)

2.1. Weather assessment for the previous day (May 07, 2014)

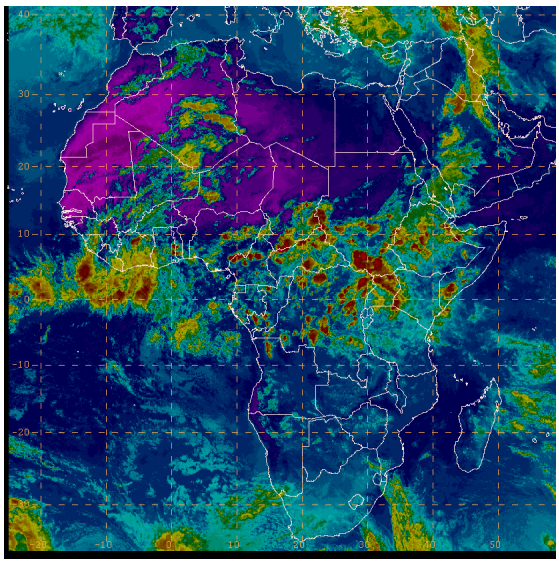
During the previous day, moderate to heavy rainfall was observed over Gulf of Guinea Coast, Coe D'Ivoire, Ghana, Togo, Benin, Nigeria, Cameroun, Congo, South Sudan, Uganda, Somalia and Ethiopia

2.2. Weather assessment for the current day (May 09, 2014)

Intense clouds are observed over local areas in Sierra Leone, Liberia, Cote D'Ivoire, Ghana, Togo, Benin, Nigeria, Mali, Cameroun, Congo Brazzaville, South Chad, South Sudan, Democratic Republic of Congo, Kenya, South Sudan, Ethiopia, Somalia and Uganda



IR Satellite Image (valid 1200 Z of May 09, 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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