

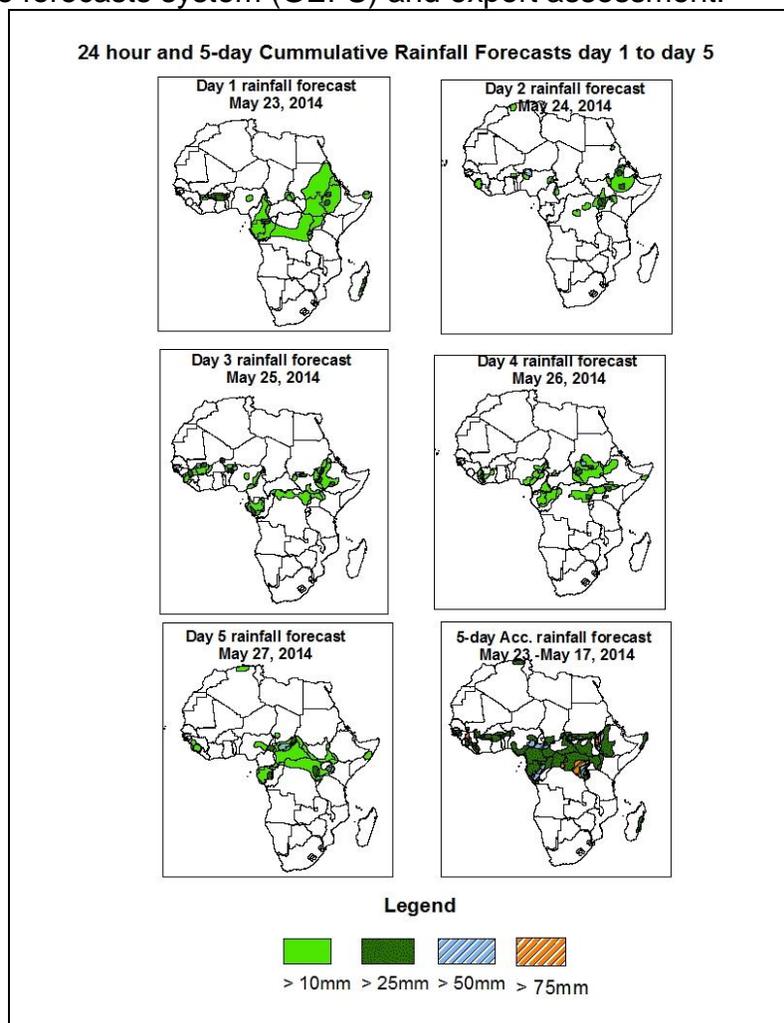


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid 06Z of May 23 – 06Z of May 27, 2014. (Issued at 1600Z of May 22, 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

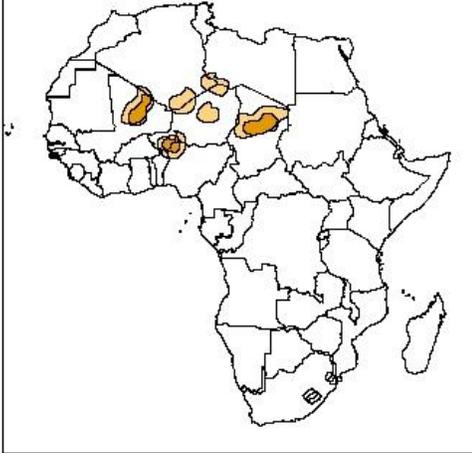
In the next five days, westward propagating easterly waves across the Gulf of Guinea, seasonal wind convergences in East Africa region are expected to enhance rainfall in their respective regions.

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 and Kenya

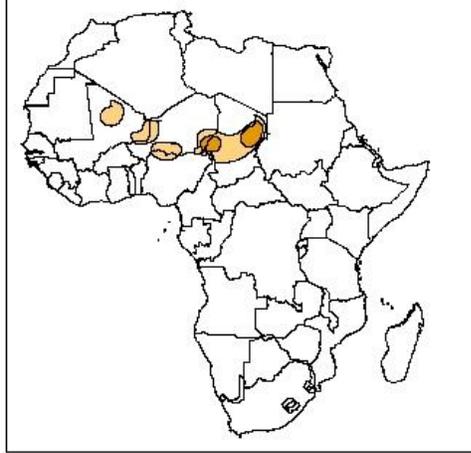
## 1.2. Atmospheric Dust Forecasts: Valid May 23 – May 25 2014

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

**Day 1 Dust forecast**  
May 23, 2014



**Day 2 Dust forecast**  
May 24, 2014



**Day 3 Dust forecast**  
May 25, 2014



### Highlights

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

### Legend



MDC, Vis. < 5km



HDC, Vis. < 1km

### **1.3. Model Discussion: Valid from 00Z of May 23, 2014**

*Model comparison (GFS and UKMET Valid from 00Z: May 22, 2014) shows general agreement in terms of depicting positions of the northern and southern hemisphere subtropical 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 North eastern Algeria is expected to fill up from its mean sea level pressure of 1006hpa to 1007hpa through 24 to 48hours, is expected to deepen to 1006hpa through 72hours and then expected to fill up to 1009hpa through 96hours. A heat low over the Mali, Senegal at 1008hpa is expected to deepen through 24 to 72 hours to 1005hpa. Another low over Niger, Burkina Faso is expected to deepen from 1006hpa to 1004hpa through 24 to 48 hours. A low over DRC is expected to maintain its pressure value of 1011hpa through 24 to 72 hours and then deepen through 96 hours to the value of 1010hpa.

The Azores high pressure system over the North Atlantic Ocean with its central pressure value of 1031hpa is expected to relax through 24 to 72hours to 1029hpa and then intensify through 72 to 120 hours to 1033hpa for both GFS model. For the UKMET model, the central pressure value of 1031hpa is expected to maintain through 24 to 48 hours, relax its value to 1030hpa through 72hours and then expected to intensify to 1034hpa to the end of the forecast period.

Due to the mid latitude frontal system over the southeastern Atlantic ocean, the St. Helena high pressure system will remain weak.

The East African ridge associated with the Mascarene high pressure system over the southwestern Indian Ocean is expected to maintain its position at 1032hpa from 24 hours to 48hours and then relax to1020hpa from 48 to 96 hours and then intensify to 1028hpa through 96hours to the end of the forecast period for GFS model.

For the UKMET model, the pressure value is expected to maintain its position at 1033hpa from 24 hours to 48hours and then relax to1021hpa from 48 to 96 hours and then intensify to 1025hpa through 96hours to the end of the forecast period.

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

At 850Hpa level, zonal monsoon wind convergence is expected to dominate the flow across northwestern Gulf of Guinea coast, central Sahel region and central African 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 Libya, Egypt, and Sudan through 24 to 120hours.

At 200hpa level, winds with strong speed (>70kts) 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 and <110kts) is expected in the southern Hemisphere across South Africa, Atlantic Ocean 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 and Kenya

## 2.0. Previous and Current Day Weather Discussion over Africa

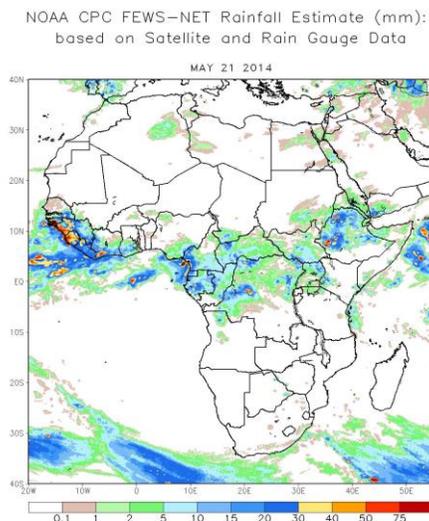
(May 21, 2014 – May 22, 2014)

### 2.1. Weather assessment for the previous day (May 21, 2014)

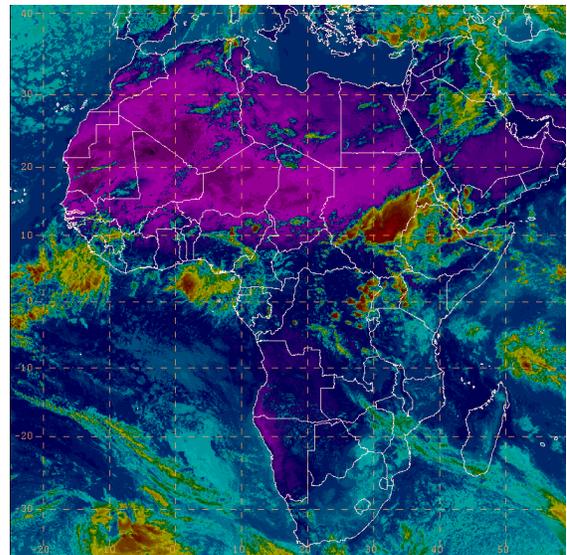
During the previous day, moderate to heavy rainfall was observed over Gulf of Guinea Coast, Coe D'Ivoire, Ghana, Togo, Cameroun, Congo, Uganda and Ethiopia

### 2.2. Weather assessment for the current day (May 22, 2014)

Intense clouds are observed over local areas in Sierra Leone, Liberia, Nigeria, Sudan, Democratic Republic of Congo, South Sudan, Ethiopia, Somalia and Uganda



IR Satellite Image (valid 1200 Z of May 22, 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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