

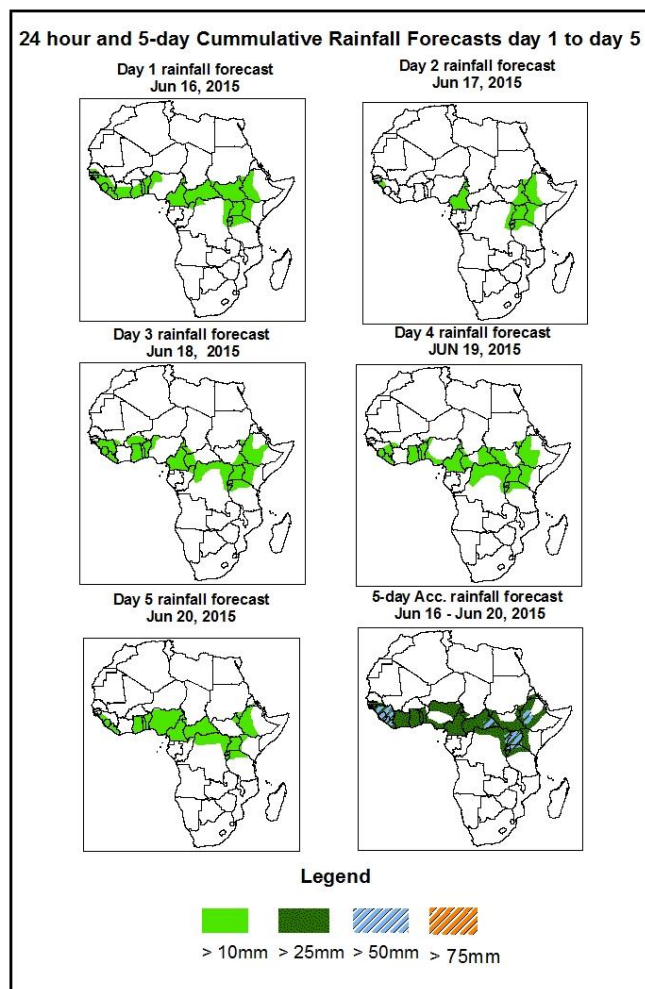


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1. Rainfall Forecast: Valid 06Z of June 16 – 06Z of June 20, 2015. (Issued at 1500Z of June 15, 2015)

### 1.1. Twenty Four Hour Cumulative Rainfall Forecasts

The forecasts are expressed in terms of high probability of precipitation (POP), based on the NCEP/GFS and the NCEP global ensemble forecasts system (GEFS) and expert assessment.

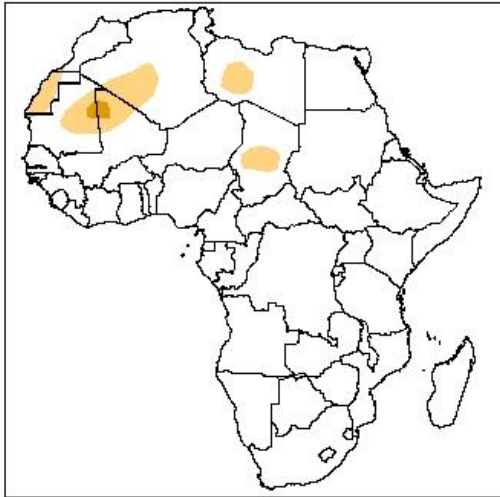


### Summary

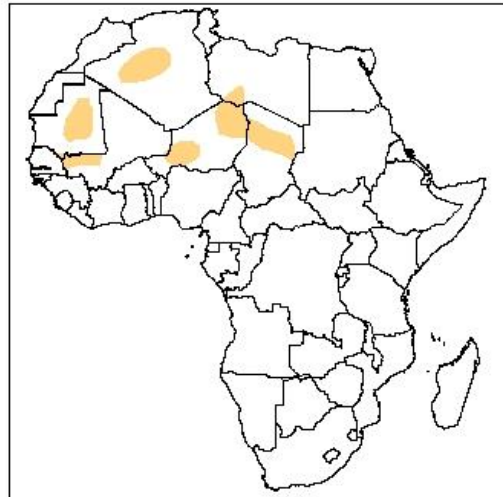
In the next five days, the monsoon flow from the Atlantic Ocean and its associated convergence across West and Central Africa, combined with westward propagating convective systems across the central Africa, southern Sahel, and the Gulf of Guinea countries, and active lower level wind convergences across northern DRC and parts of the Greater Horn of Africa are expected to enhance rainfall in their respective regions. Thus, There is an increased a chance for heavy rainfall over Liberia, Sierra Leon, Guinea, Car, Cameroon, Uganda, and Ethiopia..

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

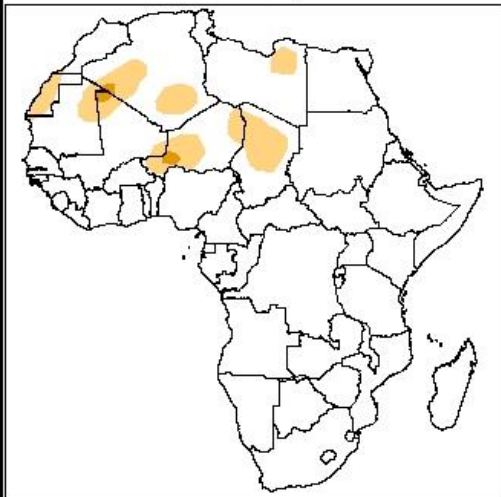
**Day 1 Dust forecast**  
Jun 16, 2015



**Day 2 Dust forecast**  
Jun 17, 2015



**Day 3 Dust forecast**  
Jun 18, 2015



**Highlights**

There is an increased chance for moderate to high dust concentration over some parts of the Sahel and North African countries with highest dust concentrations over some parts of Chad, Mauritania, Mali, Niger, and Algeria.

**Legend**



MDC, Vis. < 5km



HDC, Vis. < 1km

## **1.2. Model Discussion, Valid: June 16 – June 20, 2015**

The St Helena high pressure system over the Southeast Atlantic Ocean is expected to relax through 24 to 120 hours, with its central pressure value decreasing from about 1029hpa to 1025hpa.

The Mascarene high pressure system is expected to remain over the land across southern Africa countries, maintaining average central pressure value of 1027hpa through 24 to 72 hours. It is then expected to shift eastwards into the Southwest Indian Ocean, with its central pressure value increasing to 1031hpa towards end of the forecast period, according to the GFS model.

The heat lows in the region between Mali and Sudan across the Sahel region are expected to maintain average central pressure values, ranging between 1007hpa to 1010hpa during the forecast period.

The northern limit of the 1016hpa isobar associated with the East African ridge is expected to extend northwards up to the latitudes of Kenya during the forecast period.

At 925Hpa level, the monsoon flow from the Atlantic Ocean is expected to prevail across much of the Gulf of Guinea countries, and the neighboring areas of the Southern Sahel and Central African countries. On the other hand, dry northeasterly wind (>20kts) is expected to prevail across northern Mauritania, Algeria, Libya, Egypt, northern Chad and northern Sudan. An east-west oriented wind convergence is expected to remain active near the 15°N latitude, in the region between Southwest Mali and Sudan during the forecast period.

At 850Hpa level, east-west oriented wind convergence is expected to remain active across Guinea, Burkina Faso, northern Nigeria, northern Cameroon, CAR and Sudan, with a feeble cyclonic circulation propagating westwards between Niger and Guinea Conakry during the forecast period. Wind convergences are also expected to remain active across northern DRC, South Sudan Republic and portions of Ethiopia during the

forecast period. On the other hand, strong lower level wind associated with the Somali Jet is expected to remain along the East Africa coast and the neighboring areas of northwestern Indian Ocean and the Arabian Sea.

At 700hpa level, northeasterly to easterly flow is expected to prevail across the Gulf of Guinea and Central Africa countries. A broad zone of strong wind (>30kts) is expected to propagate westwards in the region between Nigeria and Guinea Conakry through 24 to 72 hours.

At 500Hpa level, a zone of strong easterly flow (>50kts) is expected to prevail in the region between southern Mali and northern Niger through 72 to 120 hours.

In the next five days, the monsoon flow from the Atlantic Ocean and its associated convergence across West and Central Africa, combined with westward propagating convective systems across the central Africa, southern Sahel, and the Gulf of Guinea countries, and active lower level wind convergences across northern DRC and parts of the Greater Horn of Africa are expected to enhance rainfall in their respective regions. Thus, There is an increased a chance for heavy rainfall over Liberia, Sierra Leon, Guinea, Car, Cameroon, Uganda, and Ethiopia.

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

(14 – 15, June 2015)

### 2.1. Weather assessment for the previous day (June 14, 2015)

Moderate to heavy rainfall were observed across Liberia, Ivory Coast, Ghana, Nigeria, Cameroon, Congo Brazzaville, CAR, South Sudan, and DRC.

### 2.2. Weather assessment for the current day (June 15, 2015)

Intense convective deep clouds are observed over Nigeria, Congo Brazzaville, DRC, Kenya, South Sudan, Uganda, and Ethiopia.

