

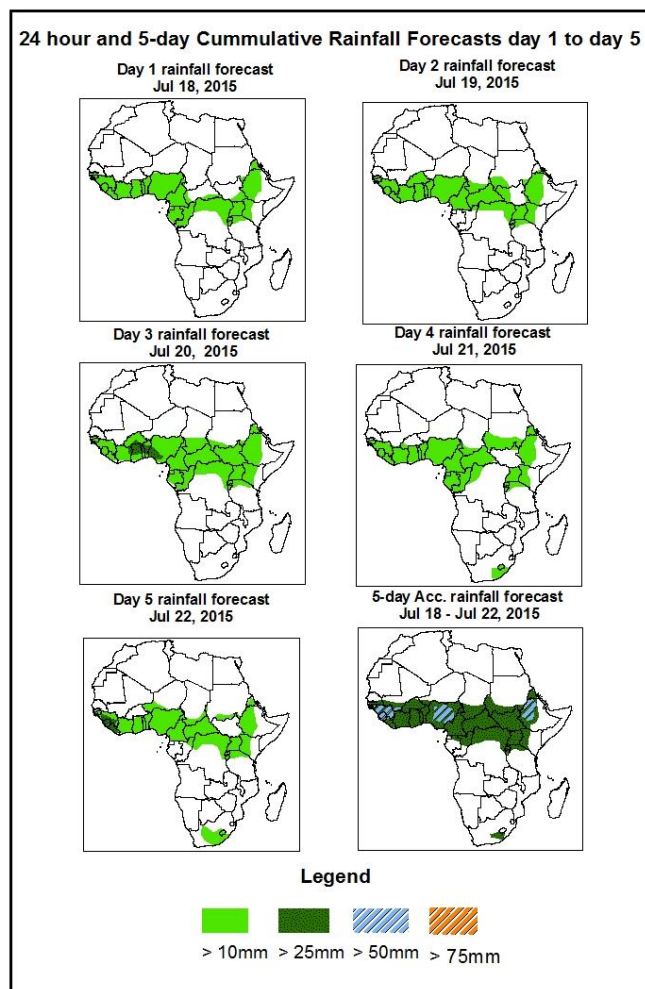


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1. Rainfall Forecast: Valid 06Z of July 18 – 06Z of July 22, 2015. (Issued at 1530Z of July 17, 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.

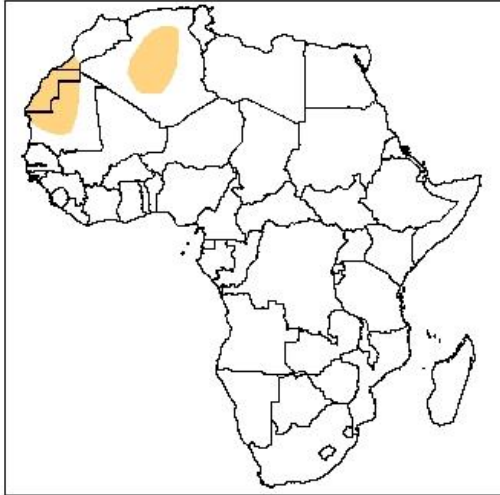


### Summary

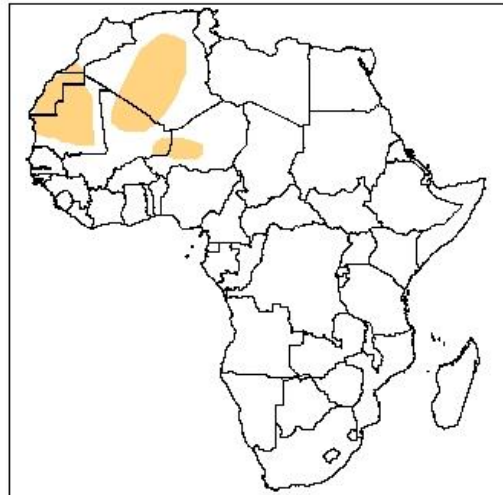
In the next five days, the monsoon flow from the Atlantic Ocean and its associated convergence across West and Central Africa, combined with westward propagating convective systems across the central Africa, southern Sahel, and the Gulf of Guinea countries, and active lower level wind convergences across 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, Sierra Leon, Mali, Ivory Coast, Burkina Faso, Eretria, Niger, Nigeria, Cameroon, CAR, South Africa, DRC, Chad, South Sudan, Sudan, and Ethiopia.

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

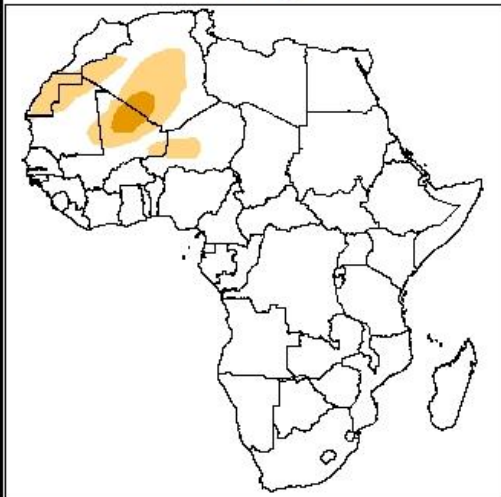
**Day 1 Dust forecast**  
Jul 18, 2015



**Day 2 Dust forecast**  
Jul 19, 2015



**Day 3 Dust forecast**  
Jul 20, 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 concentration expected over some parts Algeria, and Mali.

**Legend**



MDC, Vis. < 5km



HDC, Vis. < 1km

## **1.2. Model Discussion, Valid: July 18 – July 22, 2015**

The Azores high pressure system over Northeast Atlantic Ocean is expected to maintain an average central pressure value 1022hpa during the forecast period, according to the GFS model.

The St Helena high pressure system over the Southeast Atlantic Ocean is expected to intensify, with its central pressure value is increasing from about 1033hpa to 1039hpa during the forecast period.

The Mascarene high pressure system the Southwest Indian Ocean is expected to intensify, with its central pressure value decreasing from 1036hpa to 1041 through 24 to 72 hours, and then it expected to relax towards end of the forecast period, according to the GFS model.

The heat low over northern Mali is expected to deepen gradually, with its central pressure value decreasing from about 1006hpa to 1002hpa during the forecast period.

The northern limit of the 1020hpa isobar associated with the East African ridge is expected to extend northwards up to the latitudes of Ethiopia 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 Sahel and Central African countries. A zone of wind convergence is expected to prevail across the Sahel region, with a cyclonic circulation propagating westward between northern Chad and Mali during the forecast period.

At 850Hpa level, east-west oriented wind convergence is expected to remain active across the Sahel region, with a cyclonic circulation propagating westward between Chad and Mali 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, easterly flow is expected to prevail across West and Central Africa countries, with a trough in the easterlies propagating westwards across the Gulf of Guinea countries during the forecast period..

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, Sierra Leon, Mali, Ivory Coast, Burkina Faso, Eretria, Niger, Nigeria, Cameroon, CAR, South Africa, DRC, Chad, South Sudan, Sudan, and Ethiopia.

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

(16 July – 17 July, 2015)

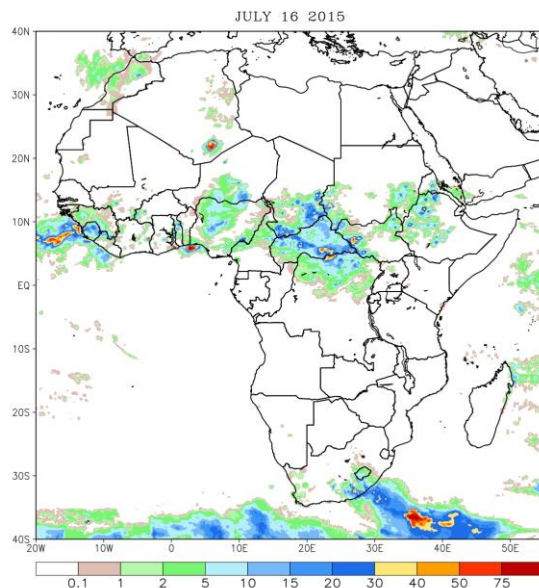
### 2.1. Weather assessment for the previous day (July 16, 2015)

Moderate to heavy rainfall were observed across Morocco, Algeria, Guinea Conakry, Sierra Leon, Niger, Nigeria, Cameroon, Chad, CAR, DRC, South Africa, Eretria, South Sudan, Sudan, and Ethiopia.

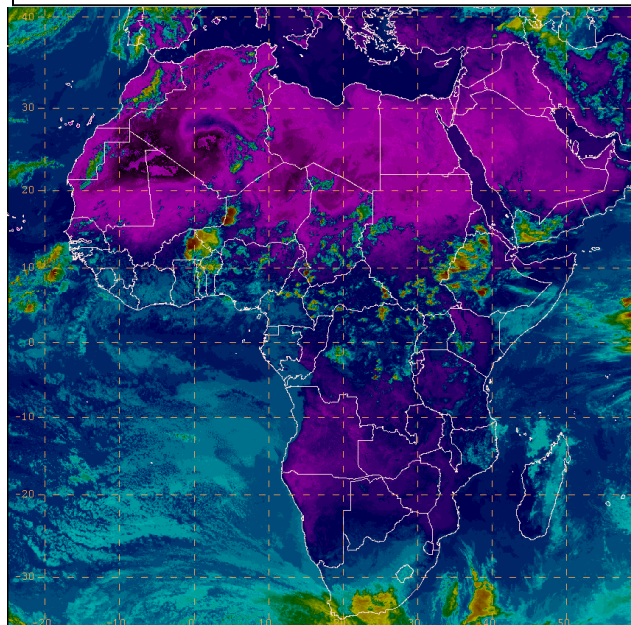
### 2.2. Weather assessment for the current day (July 17, 2015)

Intense convective deep clouds are observed over Guinea Conakry, Nigeria, Cameroon, Eretria, South Africa, Chad, CAR, DRC, South Sudan, Sudan, and Ethiopia.

NOAA CPC FEWS–NET Rainfall Estimate (mm):  
based on Satellite and Rain Gauge Data



IR Satellite Image (valid 1430Z of July 17, 2015)



*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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