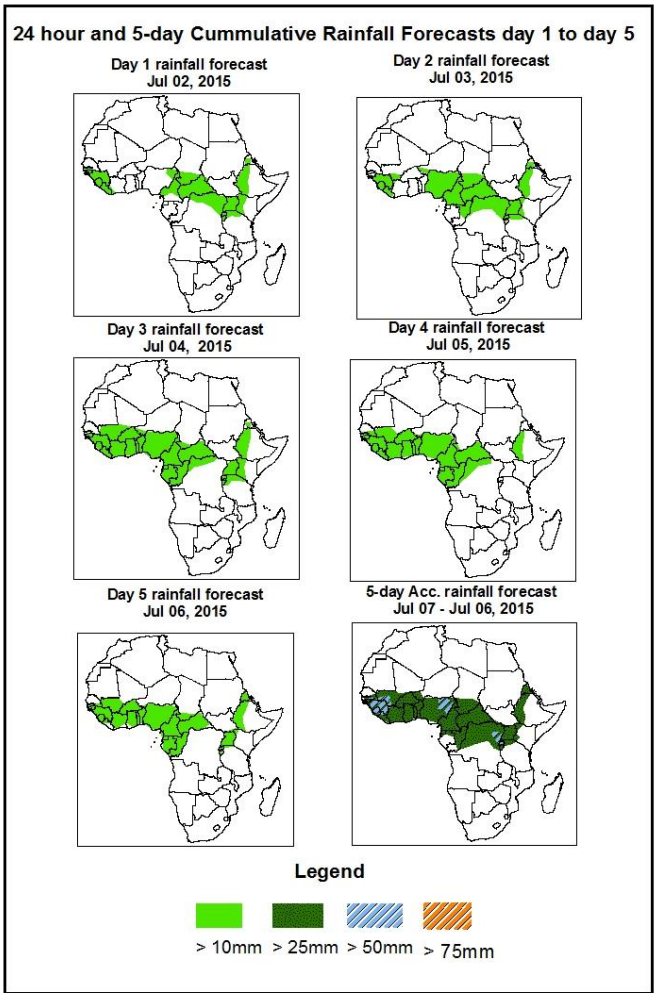
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Rainfall Forecast: Valid 06Z of July 2 – 06Z of July 6, 2015. (Issued at 1530Z of July 1, 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.



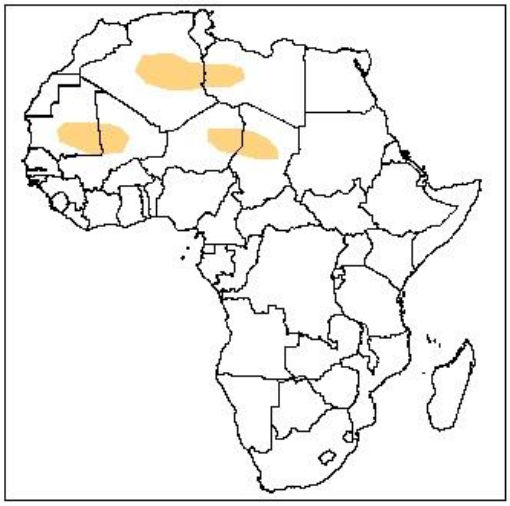
Summary

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 Guinea Bissau, Guinea Conakry, Cameroon, Uganda, Southern Chad, Southern Sudan, South Sudan, and Ethiopia.

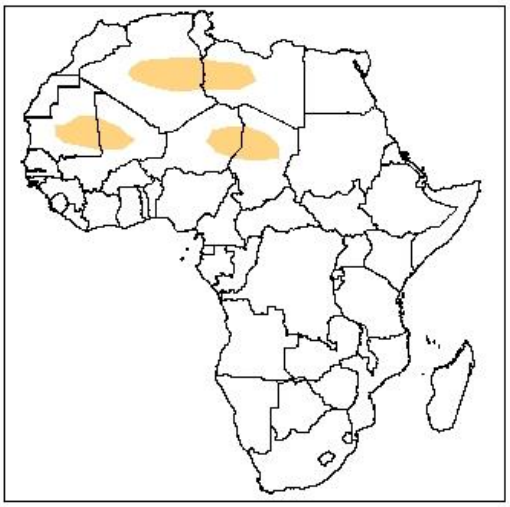
Atmospheric Dust Forecasts, day 1 to day 3,

Moderate Dust Concentration (MDC) and High Dust Concentration (HDC)

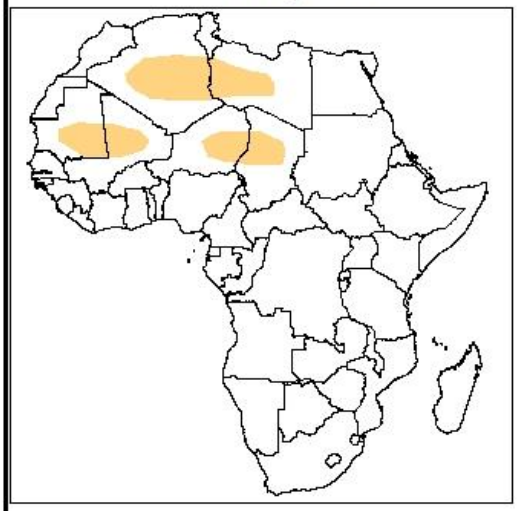
Day 1 Dust forecast
Jul 02, 2015



Day 2 Dust forecast
Jul 03 , 2015



Day 3 Dust forecast
Jul 04, 2015



Highlights

There is an increased chance for moderate to high dust concentration over some parts of the Sahel and North African countries.

Legend

MDC, Vis. < 5km

HDC, Vis. < 1km

1.2. Model Discussion, Valid: July 2 – July 6, 2015

The Azores high pressure system over Northeast Atlantic Ocean is expected to maintain an average central pressure value of 1028hpa during the forecast period, according to the GFS model.

The St Helena high pressure system over the Southeast Atlantic Ocean is expected to relax gradually, with its central pressure value decreasing from 1037hpa to 1033hpa through 24 to 72 hours.

The Mascarene high pressure system the Southwest Indian Ocean is expected relax slightly with its central pressure value decreasing from about 1033hpa to 1030hpa during the forecast period, according to the GFS model.

The heat low near the Niger/Mali border is expected to propagate towards Mauritania, while its central pressure value decreasing from about 1007hpa to 1004hpa 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 Southern Sahel and Central African countries. A zone of wind convergence is expected to prevail along the 18^{o}N latitude in the West and Central Africa, with an embedded feeble cyclonic circulation propagating westwards between Niger and Mauritania.

At 850Hpa level, east-west oriented wind convergence is expected to remain active across the Sahel region, with a feeble cyclonic circulation propagating westwards between Niger and southern Mauritania through 24 to 96 hours. Wind convergences are expected to remain active across northern and eastern DRC, the Lake Victoria region, South Sudan Republic and western 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, easterly flow is expected to prevail across the Gulf of Guinea and Central Africa countries.

At 500Hpa level, a zone of strong easterly flow (>30kts) is expected to prevail across the western end of West Africa through 24 to 48 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 Guinea Bissau, Guinea Conakry, Cameroon, Uganda, Southern Chad, Southern Sudan, South Sudan, and Ethiopia.

2.0. Previous and Current Day Weather Discussion over Africa

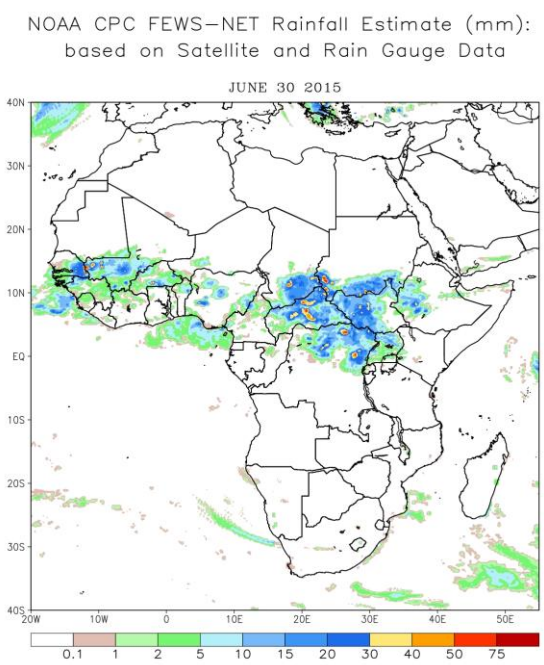
(31 June – 1 July, 2015)

2.1. Weather assessment for the previous day (June 31, 2015)

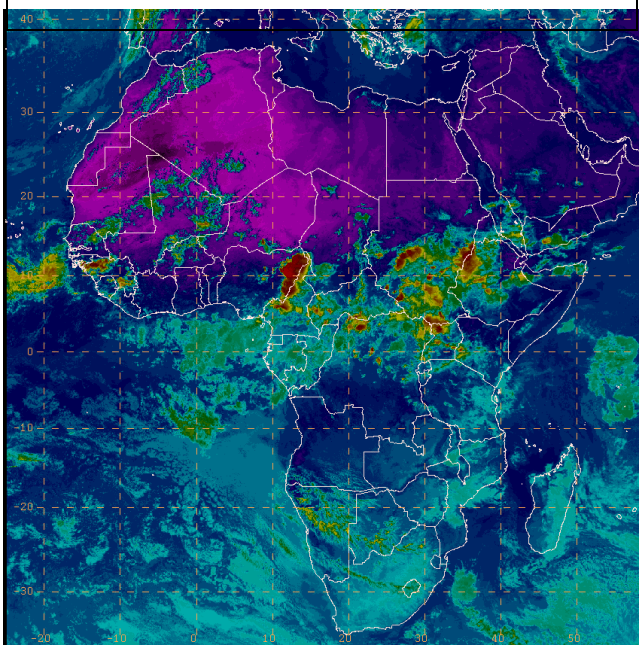
Moderate to heavy rainfall were observed across Senegal, Guinea Conakry, Mali, Burkina Faso, Nigeria, Southern Chad, CAR, DRC, Southern Chad, Southern Sudan, Uganda,, South Sudan, and Ethiopia.

2.2. Weather assessment for the current day (July 1, 2015)

Intense convective deep clouds are observed over Guinea Conakry, Nigeria, CAR, DRC, Southern Sudan, Southern Chad, Uganda, South Sudan, and Ethiopia.



IR Satellite Image (valid 1630Z of Jul 1, 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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