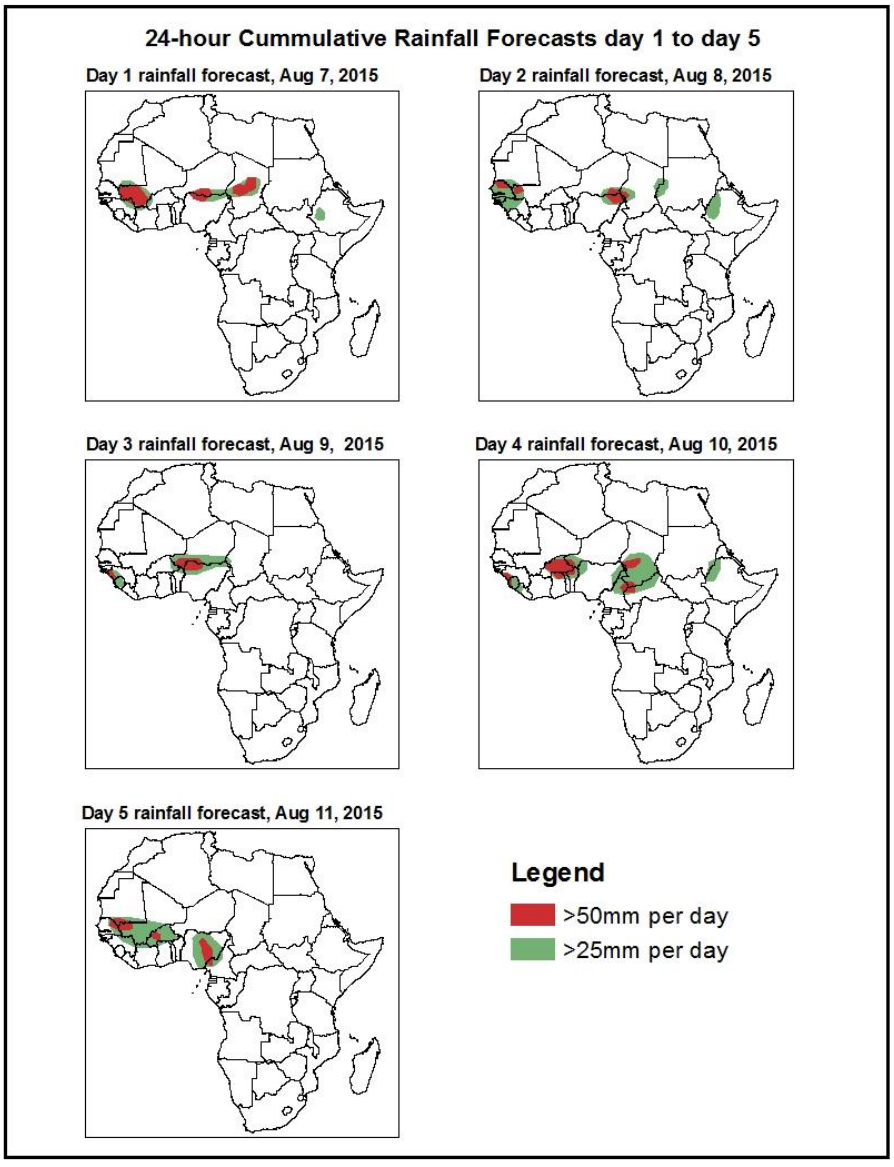
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

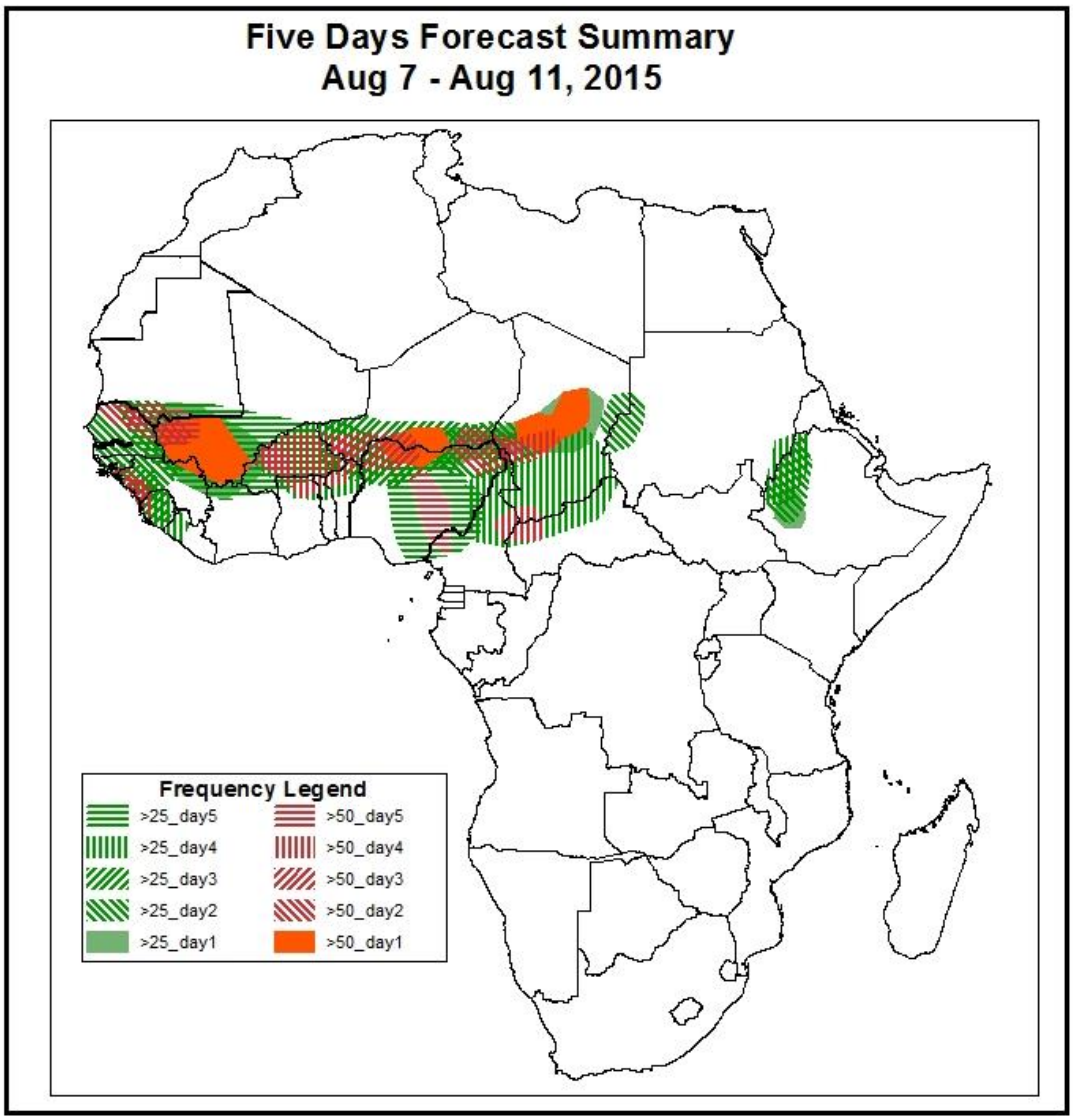
1. Rainfall and Dust Concentration Forecasts

Valid: 06Z of Aug 7 – 06Z of Aug 11 2015. (Issued at 1530Z of August 6, 2015)

1.1. 24-hour Cumulative Rainfall Forecasts

The forecasts are expressed in terms of high probability of precipitation (POP), based on the NCEP/GFS, ECMWF and the NCEP Global Ensemble Forecasts System (GEFS) and expert assessment.





Summary

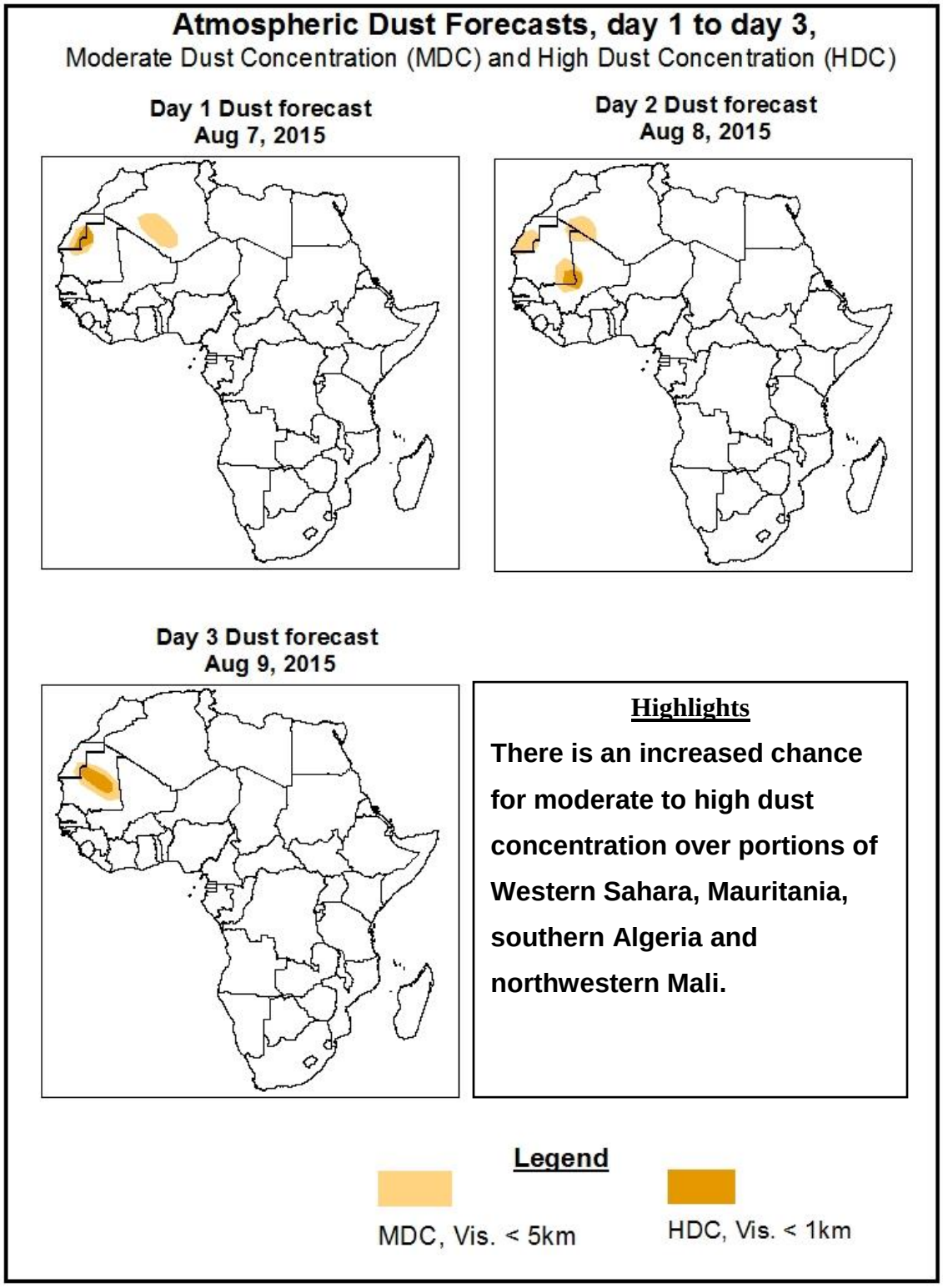
In the next five days, the monsoon flow from the Atlantic Ocean and its associated lower-level convergence across West and Central Africa, combined with westward propagating cyclonic circulations across the central Africa, southern Sahel, and the Gulf of Guinea countries, and active lower level wind convergences across parts of the Greater Horn of Africa are expected to enhance rainfall in their respective regions.

There is an increased chance for frequent moderate to heavy rainfall across many places in the Sahel region.

1.2. Atmospheric Dust Concentration Forecasts

Valid: 12Z of Aug 7– 12Z of Aug 9, 2015

The forecasts are expressed in terms of high probability of dust concentration, based on the Navy Aerosol Analysis and Prediction System, NCEP/GFS lower-level wind forecasts and expert assessment.



1.3. Model Discussions, Valid: Aug 7 – Aug 11, 2015

The Azores high pressure system over Northeast Atlantic Ocean is expected to maintain an average central pressure value of 1029hpa during the forecast period, according to the GFS model.

The St Helena high pressure system over the Southeast Atlantic Ocean is expected to relax while shifting eastwards, with its central pressure value is decreasing from about 1042hpa to 1034hpa through 24 to 120hours, according to the GFS model.

The Mascarene high pressure system across Southern Africa and the neighboring areas of Southwest Indian Ocean is expected to relax, with its central pressure value decreasing from 1029hpa to 1022 during the forecast period, according to the GFS model.

The heat low over northern Mauritania is expected to maintain an average central pressure value of 1005hpa while shifting westward into coastal Mauritania through 24 to 72hours. The heat low over northern Niger is expected to shift towards northern Mali through 24 to 72 hours, while maintaining an average central pressure value of 1006hpa. The heat low over northern Chad is also expected to shift towards northern Niger while maintaining central pressure value of 1006hpa. On the other hand, the heat low over northern Sudan is expected to maintain an average central pressure value of 1006hpa, while the low over the Red is expected to remain quasi-stationary, with an average central pressure value of 1004hpa, during the forecast period.

The East African ridge across Southeast and East Africa is expected to weaken gradually along with the weakening of the Mascarene high pressure system during the forecast period.

At 925Hpa level, a broad area of southwesterly monsoon flow is expected to prevail across much of the Gulf of Guinea countries and southern Sahel during the forecast period. Two cyclonic circulations over northern Mauritania and central Mali are expected to merge through 24 to 48 hours, and the merged cyclonic circulations is expected to shift westwards into the West Africa coast by 96hours. Another cyclonic circulation is

expected to shift westwards between northern Chad and northern Mali. A meridional wind convergence is expected to prevail in the region between Sudan and Uganda across South Sudan during the forecast period.

At 850Hpa level, two cyclonic circulations over southern Mauritania and southern Mali are expected to merge through 24 to 48 hours, and the merged cyclonic circulations is expected to shift westwards and leave the West Africa coast by 96hours. Another cyclonic circulation is expected to shift westwards between Chad and Mali. Meridional wind convergence is expected to prevail across southern Sudan, South Sudan Republic and Uganda, whereas local wind convergences to remain active across 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, an easterly wave axis near Mali is expected to propagate westwards, leaving the West Africa coast in 96 hours. Another trough is expected to propagate westwards between the longitudes of CAR and Burkina Faso during the forecast period.

In the next five days, the monsoon flow from the Atlantic Ocean and its associated lower-level convergence across West and Central Africa, combined with westward propagating cyclonic circulations across the central Africa, southern Sahel, and the Gulf of Guinea countries, and active lower level wind convergences across parts of the Greater Horn of Africa are expected to enhance rainfall in their respective regions. Thus, there is an increased chance for frequent moderate to heavy rainfall across many places in the Sahel region.

2.0. Previous and Current Day Weather over Africa

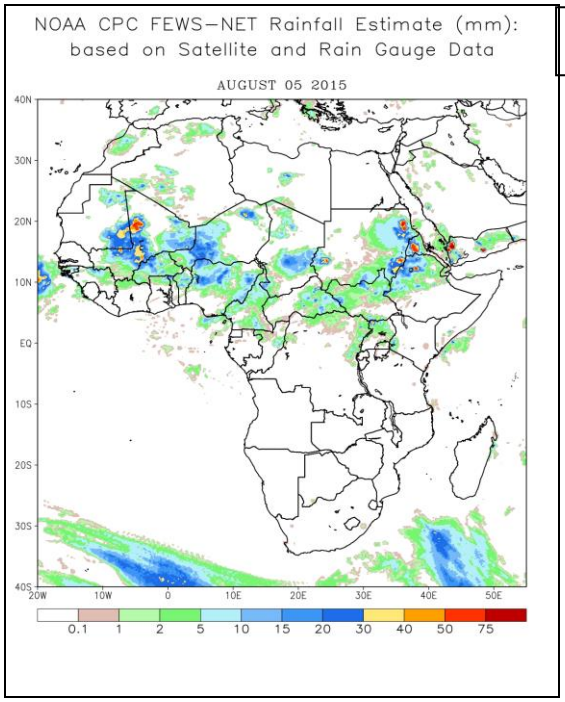
(Valid: 5 – 6 August, 2015)

2.1. Weather assessment for the previous day (August 5, 2015**)**

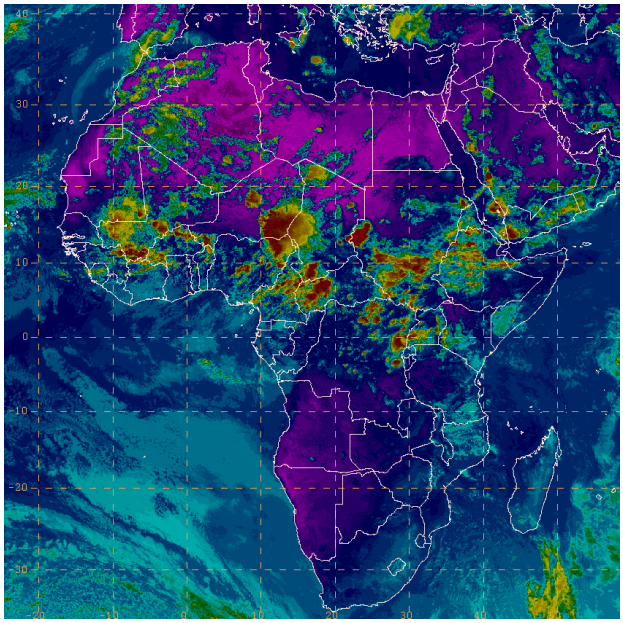
Moderate to heavy rainfall was observed over portions of southern Mauritania, central Mali, central Niger, local areas in northern Nigeria, central Chad, eastern Sudan, northern Ethiopia and Eritrea.

2.2. Weather assessment for the current day (August 6, 2015**)**

Intense clouds were observed across portions of western and central Africa countries, Sudan Republic, Ethiopia and Eritrea.



IR Satellite Image (valid 1500Z of August 6, 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