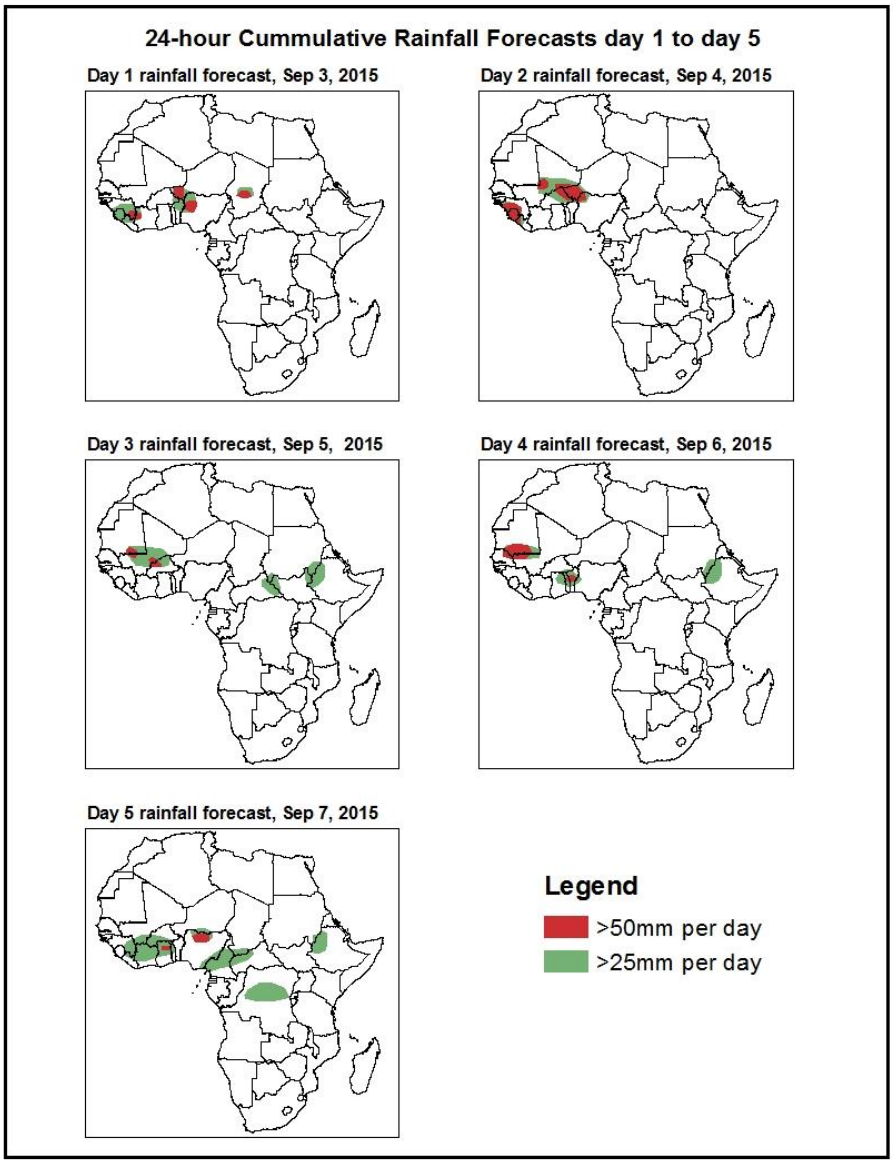
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

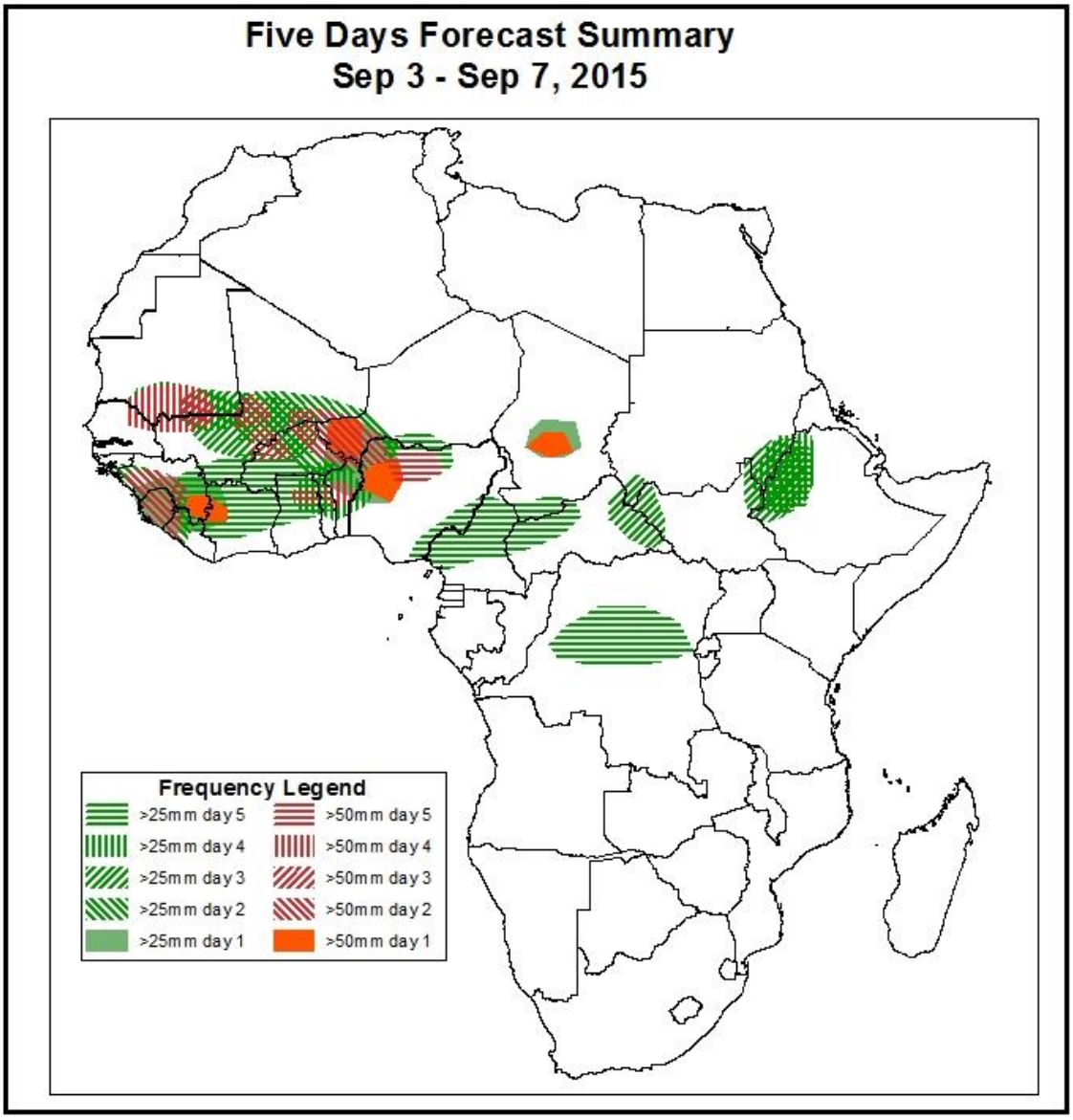
1. Rainfall and Dust Concentration Forecasts

Valid: 06Z of Sep 3 – 06Z of Sep 7 2015. (Issued on September 2, 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.





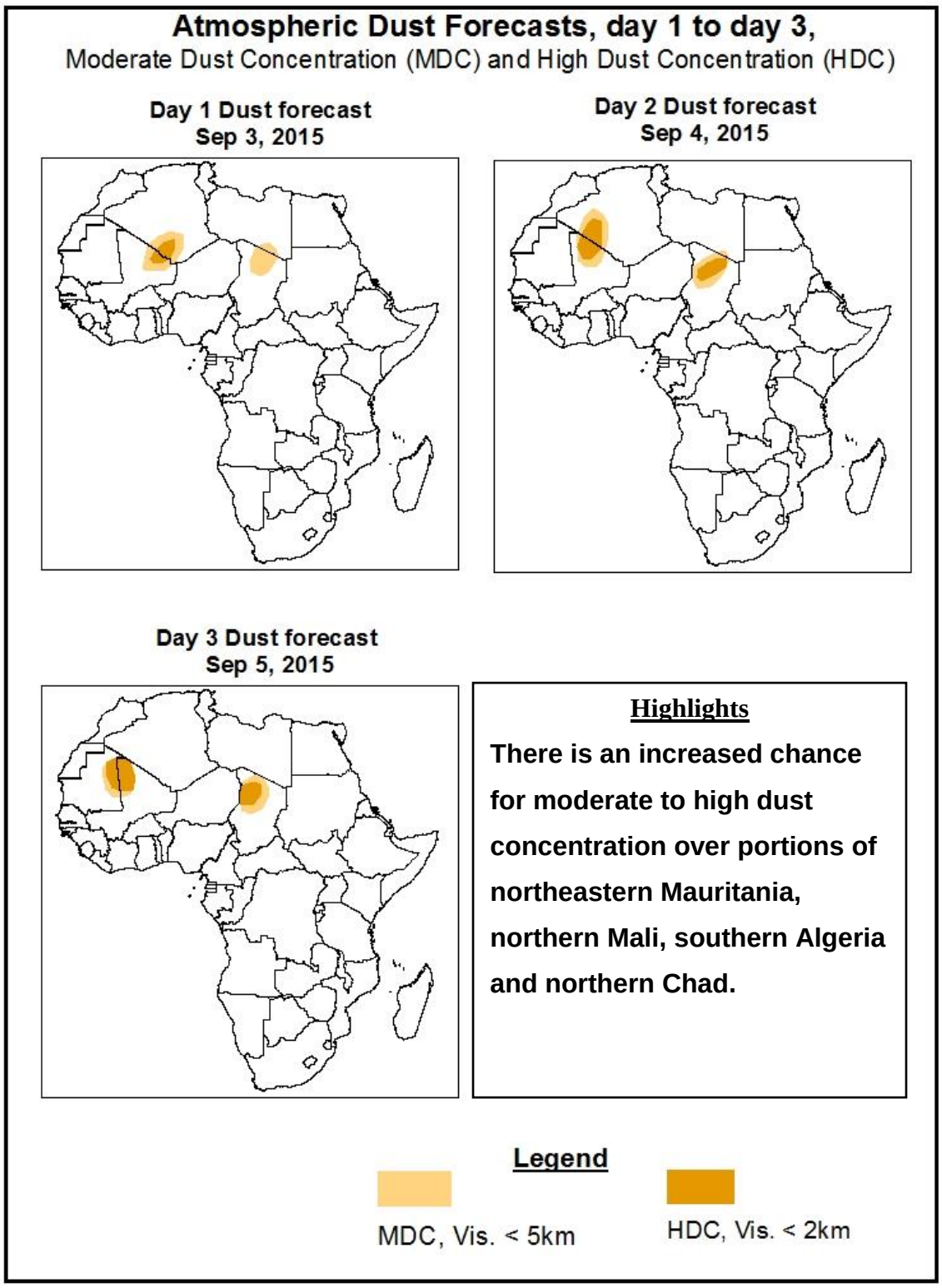
Summary

In the next five days, westward propagating monsoon systems across Central and West Africa are expected to enhance rainfall in region. Thus, many places in West Africa and portions of central and East Africa are expected to receive moderate to heavy rainfall. There is an increased chance for daily rainfall to exceed 50mm for two or more days over portions of southern Mauritania, central and southern Mali, parts of northern Ghana, Burkina Faso, southwestern Niger and northwestern Nigeria.

1.2. Atmospheric Dust Concentration Forecasts

Valid: 12Z of Sep 3– 12Z of Sep 5, 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 Discussion, Valid: Sep 3 – Sep 7, 2015

The Azores high pressure system over Northeast Atlantic Ocean is expected to intensify, with its central pressure value increasing from about 1030hpa to 1035hpa through 24 to 120 hours, according to the GFS model.

The St Helena high pressure system over the Southeast Atlantic Ocean is expected to intensify slightly while shifting eastward into the southern coast of South Africa through 24 to 48 hours, and it is expected to shift further into Southwest Indian Ocean towards end of the forecast.

The Mascarene high pressure system over Southwest Indian Ocean is expected to relax while shifting eastwards, with its central pressure value decreasing from 1033hpa to 1029 during the forecast period, according to the GFS model.

A thermal low over northern Mali is expected to shift towards Mauritania while maintaining an average central pressure value of 1007hpa during the forecast period. Another thermal low over Niger is expected to shift towards northern Mali during the forecast period.

At 925Hpa, a cyclonic circulation over northern Mali and another cyclonic circulation over Burkina Faso are expected to merge while shifting towards Mauritania during the forecast period. Zonal wind convergence is expected to prevail across the Central and eastern Sahel with embedded cyclonic circulations over Niger and Chad. Meridional wind convergence is expected to remain active in the region between southern Sudan and northeastern DRC during the forecast period.

At 850Hpa level, a broad area of cyclonic circulation near Cote d'Ivoire and the neighboring areas is expected to propagate northwestward, towards Mauritania during the forecast period. Seasonal lower-level wind convergences are expected to remain active across the Sahel region, Sudan, portions of Ethiopia, South Sudan, Uganda and northeastern DRC.

At 700hpa level, a deep trough in the easterlies is expected to propagate westward between the longitudes of western Nigeria and western Mauritania during the forecast period.

In the next five days, westward propagating monsoon systems across Central and West Africa are expected to enhance rainfall in region. Thus, many places in West Africa and portions of central and East Africa are expected to receive moderate to heavy rainfall. There is an increased chance for daily rainfall to exceed 50mm for two or more days over portions of southern Mauritania, central and southern Mali, parts of northern Ghana, Burkina Faso, southwestern Niger and northwestern Nigeria.

2.0. Previous and Current Day Weather over Africa

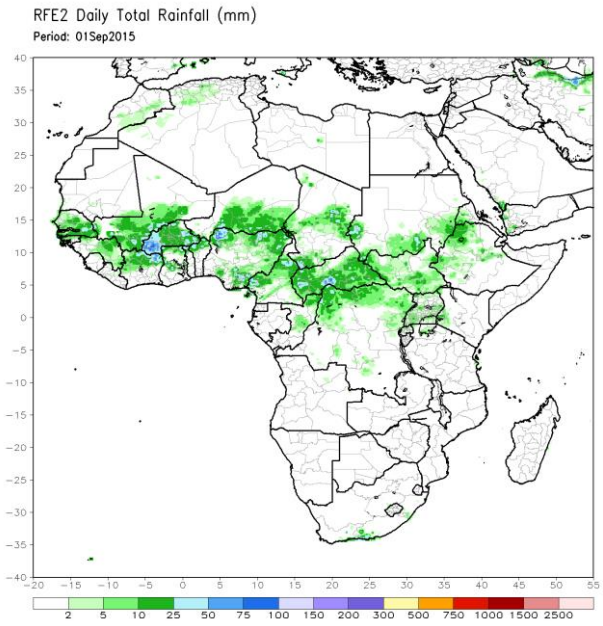
(Valid: 1 – 2 September, 2015)

2.1. Weather assessment for the previous day (September 1, 2015**)**

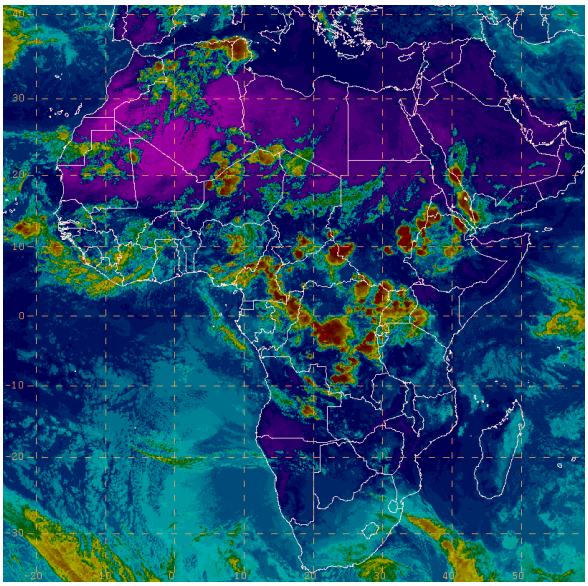
Moderate to heavy rainfall was observed over local areas in Senegal, western Burkina Faso, northern Cote d'Ivoire, portions of northern Nigeria, and local areas in CAR and western Sudan.

2.2. Weather assessment for the current day (September 2, 2015**)**

Intense clouds are observed over many places in the central Africa countries, the Lake Victoria region and portions of the Greater Horn of Africa.



IR Satellite Image (valid 1630 of September 2, 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