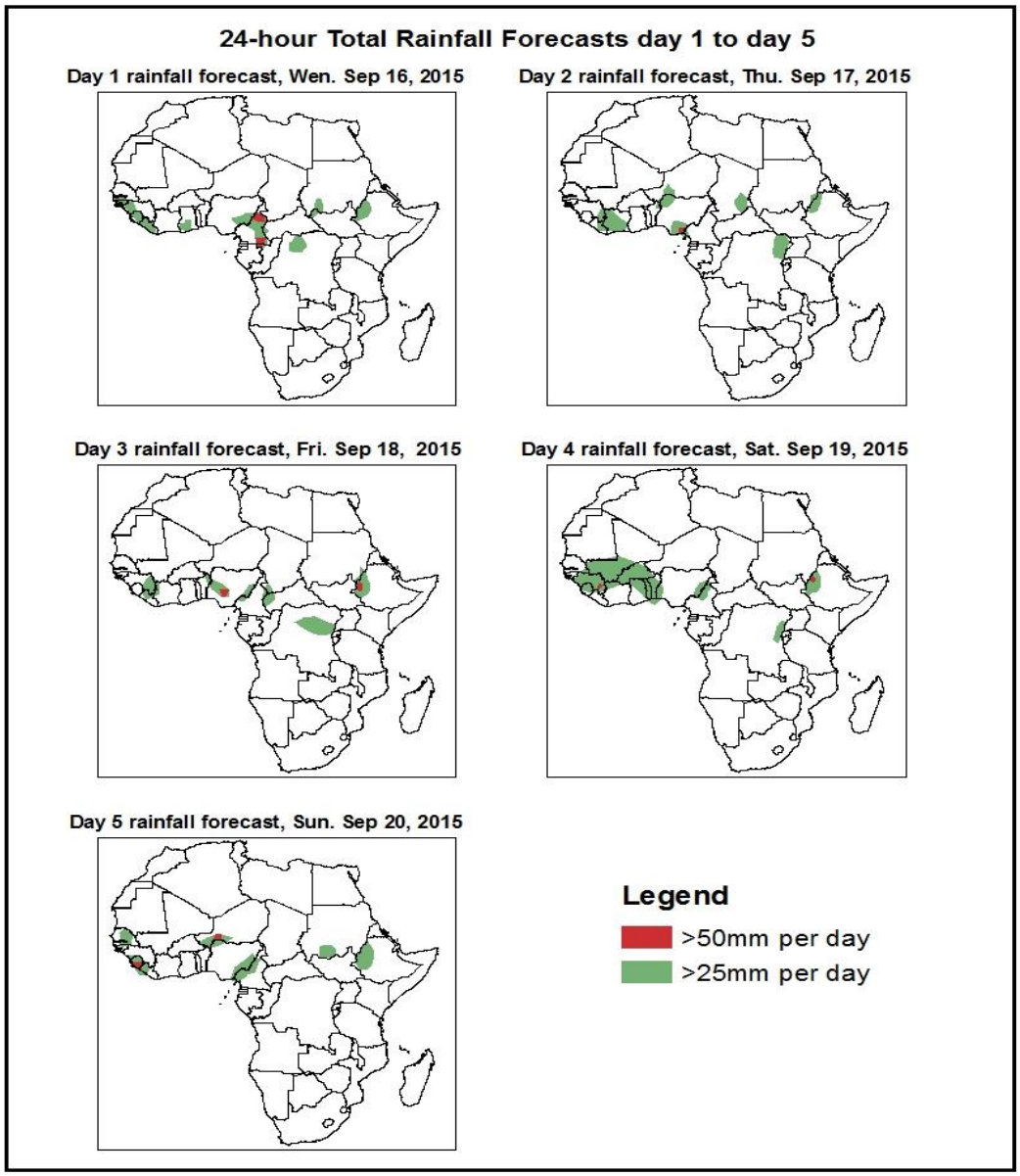
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

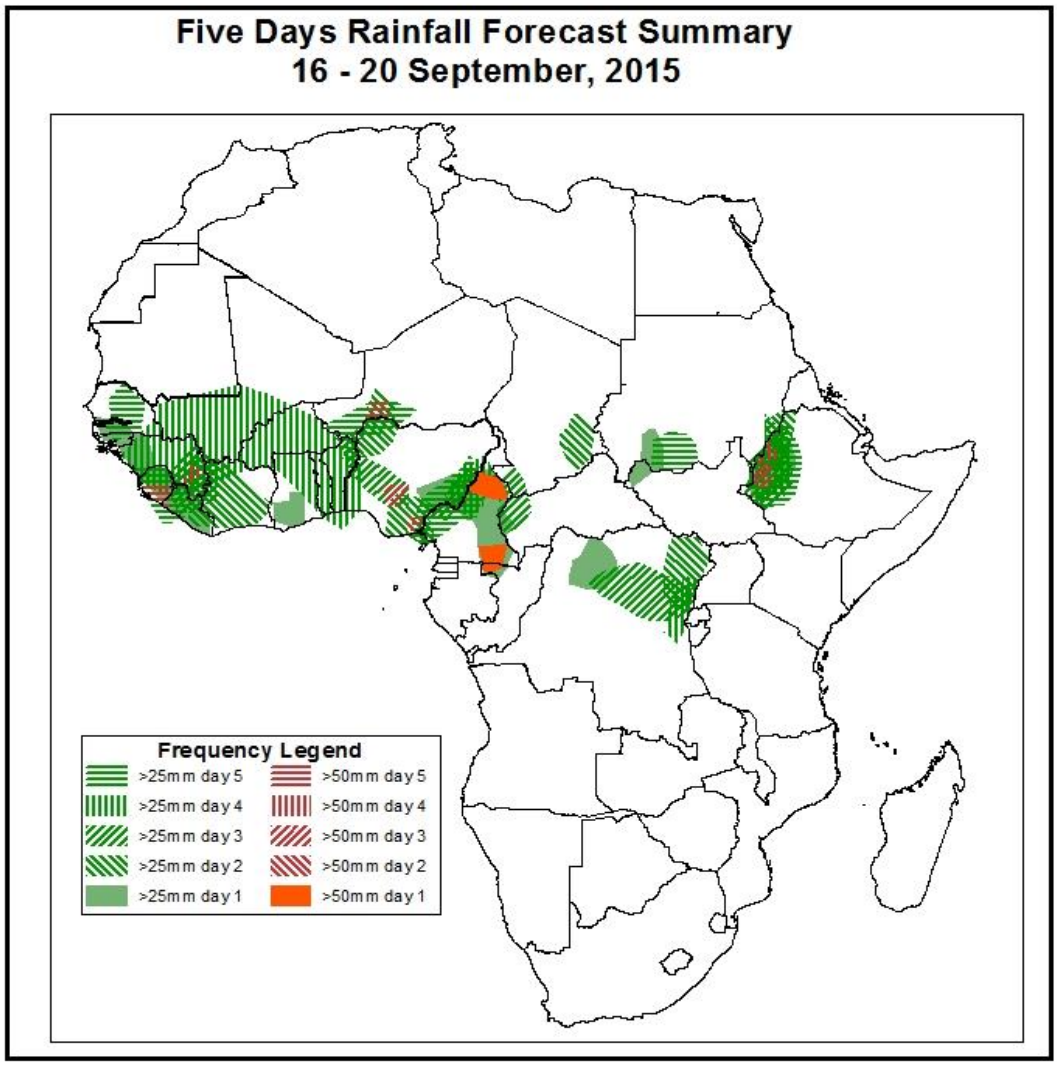
1. Rainfall and Dust Concentration Forecasts

Valid: 06Z of Sep 16 – 06Z of Sep 20 2015. (Issued on September 15, 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.





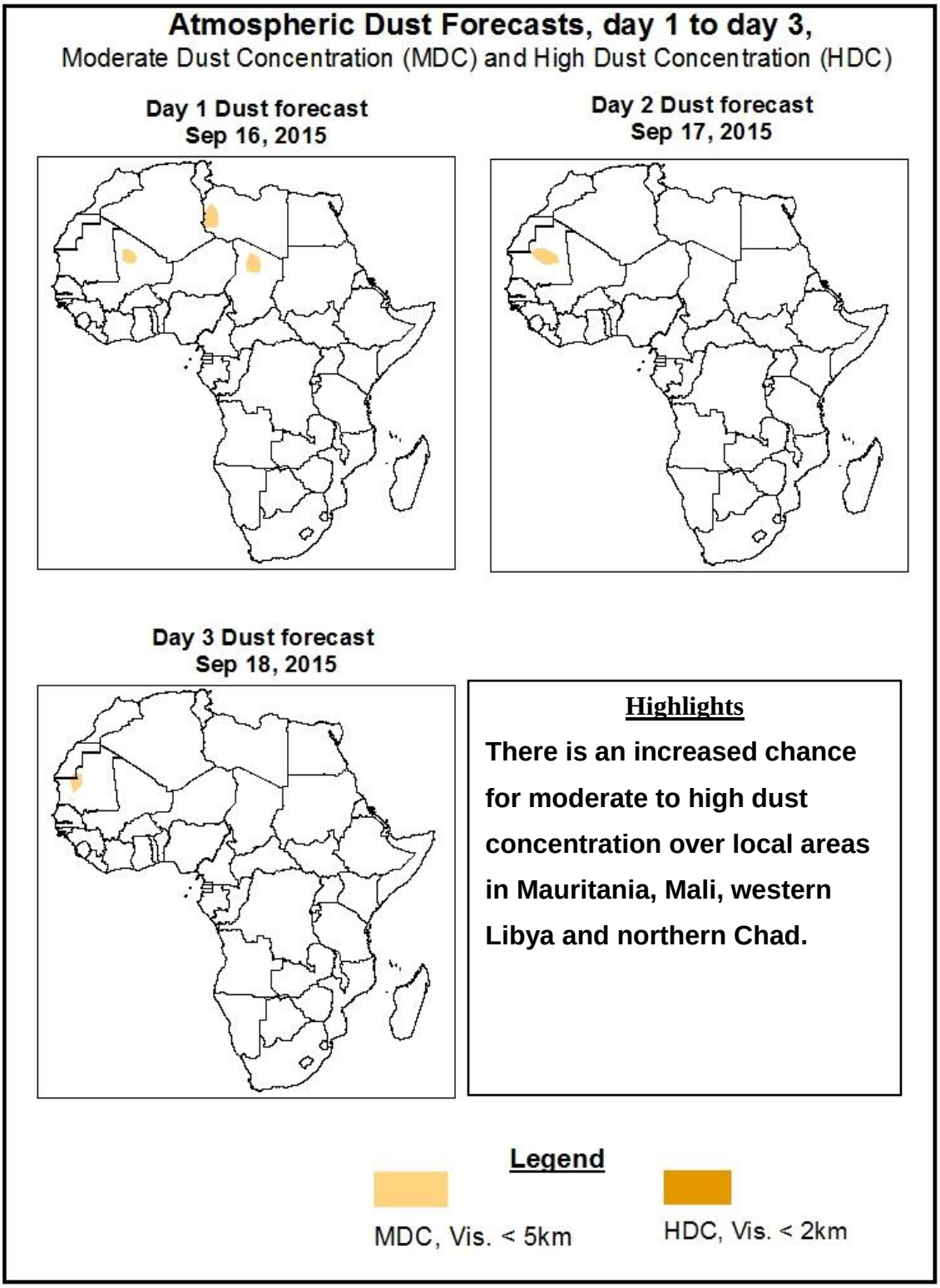
Summary

In the coming five days, monsoon flow from the Atlantic Ocean with its associated convergence across West and Central Africa will continue enhancing rainfall over southern Senegal, Guinea-Bissau, Guinea-Conakry, Sierra Leone, Liberia, southwestern Mali, western Cote d'Ivoire, northern Ghana, Nigeria, western Cameroon, portions of Chad and south western Sudan. Seasonally moderate to heavy rainfall is also expected to continue across western Ethiopia, North eastern DRC.

1.2. Atmospheric Dust Concentration Forecasts

Valid: 12Z of Sep 16– 12Z of Sep 18, 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: 16 – 20 September, 2015

The Azores high pressure system over Northeast Atlantic Ocean is expected to strengthen gradually, with its central pressure value increasing from about 1019hpa to 1027hpa during the forecast period, according to the GFS model.

The ridge associated with the St Helena high pressure system over the Southeast Atlantic Ocean is expected to extend into southwestern Indian Ocean, while breaking into two high pressure systems in 96 hours before the subtropical high pressure systems resume their climatological towards end of the forecast period. The first pressure cell associated with St Helena high pressure system is expected to intensify, with its central pressure value increasing from 1031hpa to 1034hpa, during the forecast period.

The second high pressure cell broken from the St Helena High takes position of the Mascarene high pressure system while relaxing gradually.

A thermal low over Niger is expected to propagate towards coastal Mauritania Mali through 24 to 120 hours, while slightly deepening. Its central pressure value is expected to decrease from 1007hpa in 24 hours to 1006hpa through 24 to 72 hours, and it tends to fill up towards end of the forecast period.

At 925Hpa, a cyclonic circulation over Niger is expected to propagate towards coastal area of Senegal across Mali through 24 to 120 hours. Zonal wind convergence is expected to prevail in the region between Chad and Sudan during the forecast period. Meridional wind convergence is expected to remain active in the region between Sudan and Northeast DRC, with occasional shift towards the Lake Victoria region during the forecast period.

At 850Hpa level, a cyclonic circulation over Niger is expected to propagate towards coastal Senegal during the forecast period.

At 700hpa level, a trough in easterlies is expected to propagate westward across the Gulf of Guinea region during the forecast period.

In the coming five days, monsoon flow from the Atlantic Ocean with its associated convergence across West and Central Africa will continue enhancing rainfall over southern Senegal, Guinea-Bissau, Guinea-Conakry, Sierra Leone, Liberia, southwestern Mali, western Cote d'Ivoire, northern Ghana, Nigeria, western Cameroon, portions of Chad and south western Sudan. Seasonally moderate to heavy rainfall is also expected to continue across western Ethiopia, North eastern DRC.

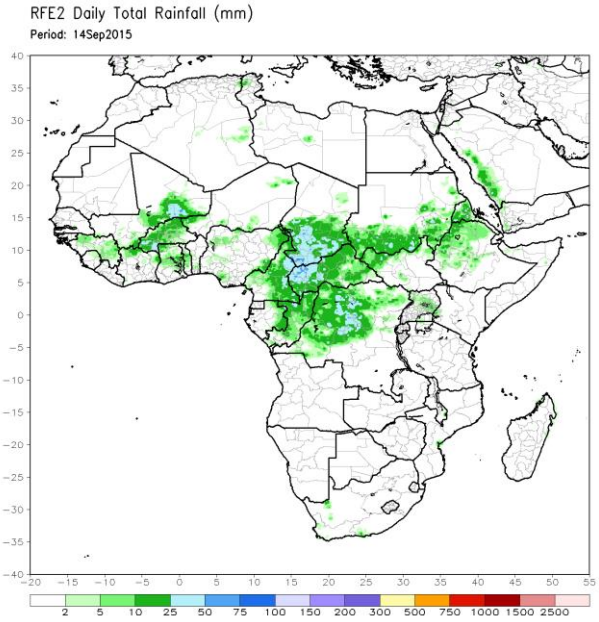
2.0. Previous and Current Day Weather over Africa

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

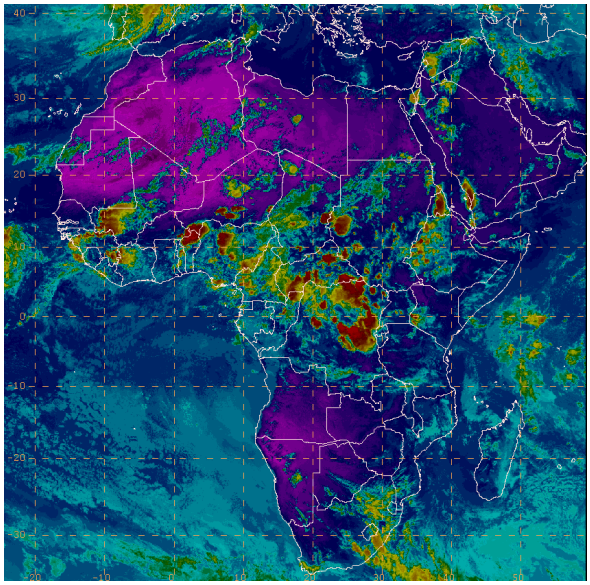
Moderate to locally heavy rainfall was observed over southern Mali, western Burkina Faso, eastern Cameroon, western CAR, southern Chad and northwestern DRC.

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

Intense clouds are observed portions of West Africa, many places of Central Africa countries, and parts of Eritrea and western Ethiopia.



IR Satellite Image (valid 1530 of September 15, 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

Author: Innocent Dudu (Burundi Hydro-meteorological Department / CPC-African Desk); innocent.dudu@noaa.gov