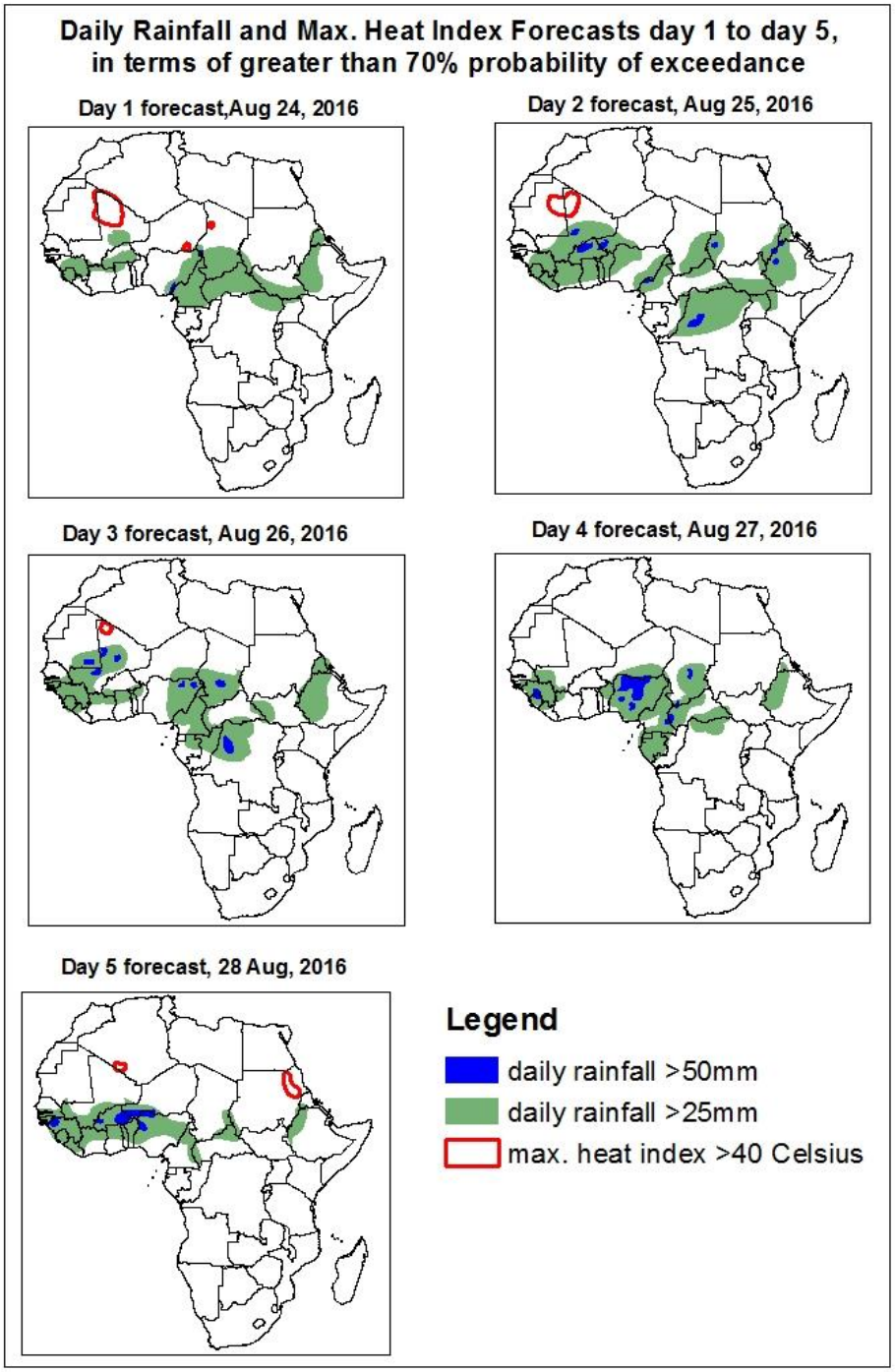
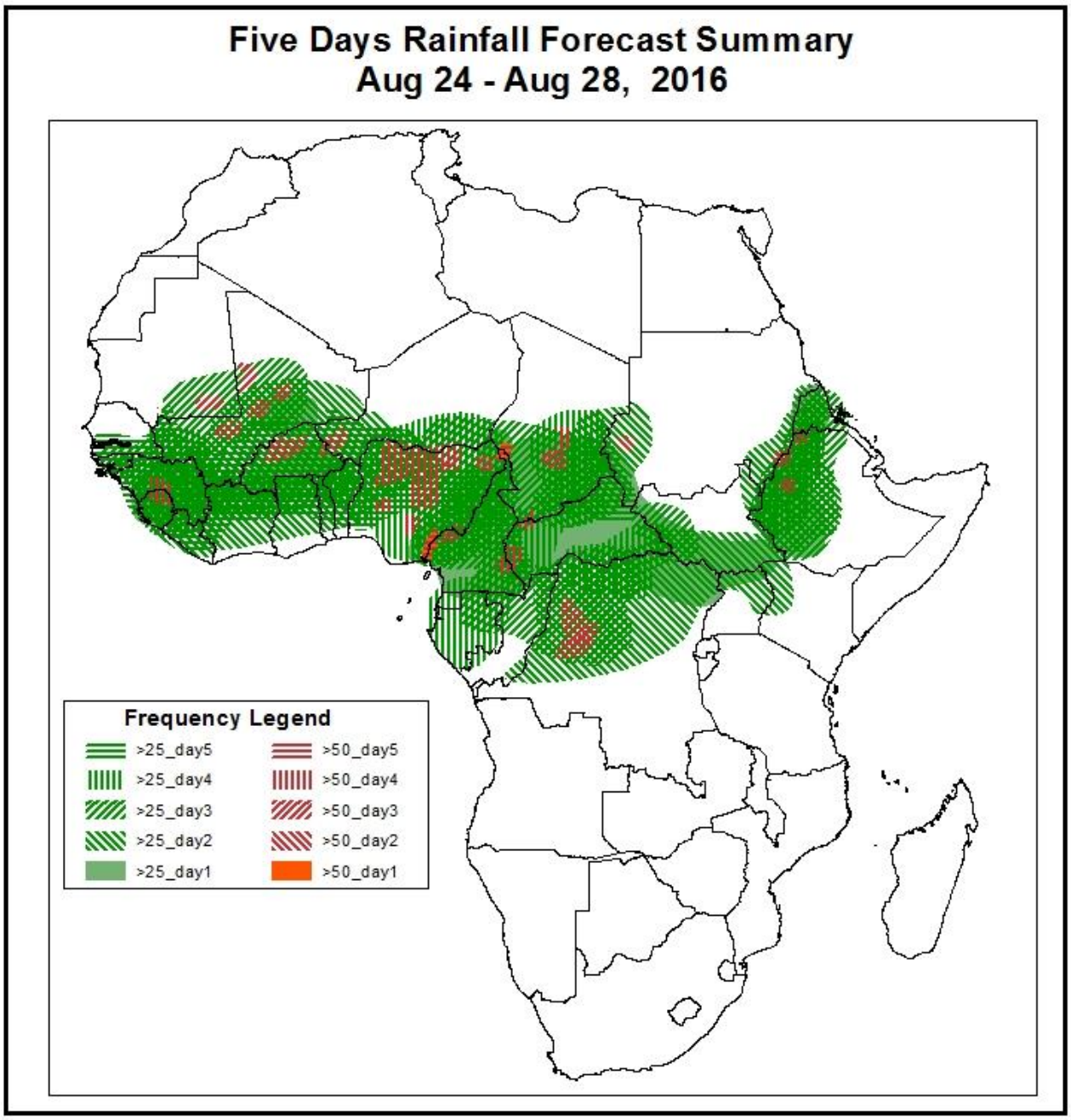
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on Aug 23, 2016)

1.1. Daily Rainfall and Maximum Heat Index Forecasts (*valid: Aug 24– Aug 27 2016)*

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



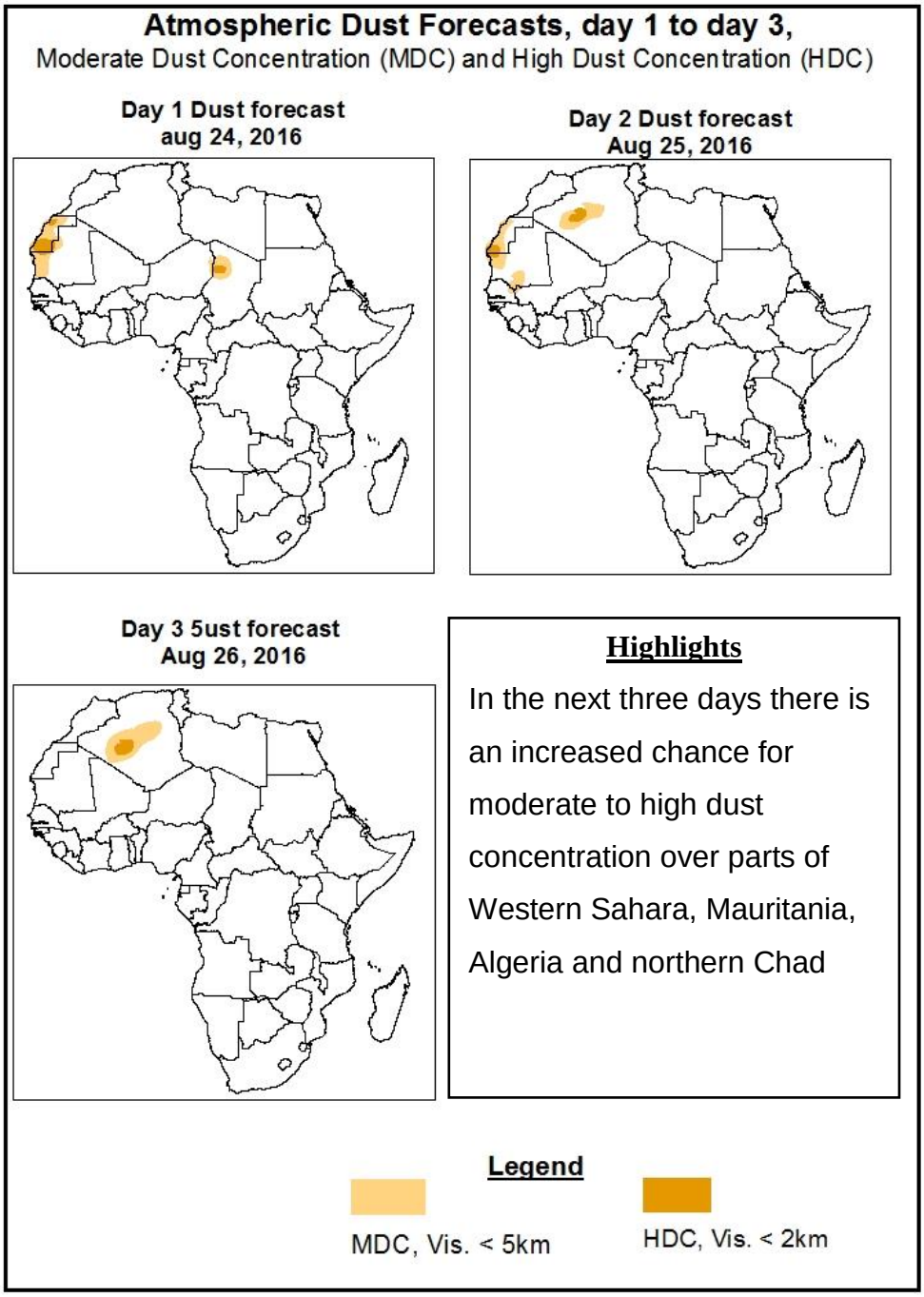


Highlights

In the next five days, westward propagating lower-level cyclonic systems across West Africa and central Sahel and lower level wind convergences across the Greater Horn of Africa are expected to enhance rainfall in their respective regions. Therefore, there is an increased chance for two or more days of moderate to heavy rainfall over portion of Guinea Bissau, much of Guinea and Sierra Leone, portions of Liberia, Mali, Mauritania, much of Burkina Faso, portions of Cote d'Ivoire, Ghana, Togo, Benin, Niger, Nigeria, Chad, Cameroon, CAR, local areas in Sudan portions of Ethiopia, Eritrea, DRC, Congo and Gabon.

1.2. ***Atmospheric Dust Concentration Forecasts (****valid: Aug 24– Aug 28 2016****)***

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: Aug 24 –Aug 28, 2016*

The Azores high pressure system over the North Atlantic is expected to weaken, with its central pressure value decreasing from 1027 hPa to 1025 hPa during the forecast period.

The St. Helena high-pressure system over the Southeast Atlantic Ocean is expected to weaken, with its central pressure value vary between 1025 hPa to 1027 hPa during the forecast period.

The Mascarene High pressure system over the Southeast Atlantic Ocean is expected to weaken, with its value of the central pressure decreasing from 1035 hPa to 1031 hPa from 24 hours to 72 hours and tends to intensify, with its value of central pressure increasing from 1035 hPa to 1038 hPa between 72 hours to 120 hours.

The 1016mb isobar, associated with the East African ridge is expected to remain near the latitudes of northern Ethiopia during the forecast period.

The heat low over Western Sahel is expected to deepen, with its central pressure value decreasing from 1004 hPa to 1003 hPa between 24 and 48 hours, and tends to fill up, with its central pressure value increasing from 1005 hPa to 1007 hPa between 72 hours to 120 hours. The heat low over Central Sahel is expected to fill up, with its central pressure value increasing from 1006 hPa to 1011 hPa between during the forecast period. The heat low over Sudan is expected to maintain an average central pressure value of 1010hPa during the forecast period.

At 925hPa, strong dry to northerly northeasterly winds may lead to moderate to high dust concentration in parts of Western Sahara, Mauritania, Algeria and northern Chad.

At 850hPa level, a cyclonic circulation is expected to propagate westwards in the region between Chad and Senegal through northern Mali during the forecast period, while the lower level wind convergence is expected to prevail in the Greater Horn of Africa.

A trough in the easterlies is expected to propagate westwards across the western between southern Sudan and Burkina Faso during the forecast period.

At 500 hPa, a zone of strong wind (>35kts), associated with AEJ is expected to expected to propagate westwards across in the region between Chad and Burkina Faso.

At 150 hPa A strong wind (> 70 kts), associated with the TEJ is also expected to remain weak over the Greater Horn of Africa during the forecast period.

In the next five days, westward propagating lower-level cyclonic systems across West Africa and central Sahel and lower level wind convergences across the Greater Horn of Africa are expected to enhance rainfall in their respective regions. Therefore, there is an increased chance for two or more days of moderate to heavy rainfall over portion of Guinea Bissau, much of Guinea and Sierra Leone, portions of Liberia, Mali, Mauritania, much of Burkina Faso, portions of Cote d'Ivoire, Ghana, Togo, Benin, Niger, Nigeria, Chad, Cameroon, CAR, local areas in Sudan portions of Ethiopia, Eritrea, DRC, Congo and Gabon.

There is an increased chance for maximum heat index to exceed 40^{o}C over portions of Mauritania and Mali local areas in Niger, Nigeria and Chad.

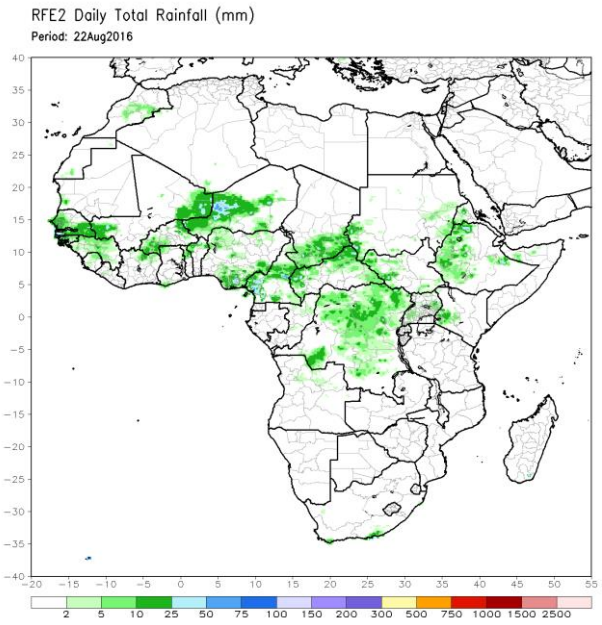
2.0. Previous and Current Day Weather over Africa

2.1. Weather assessment for the previous day (Aug 22, 2016)

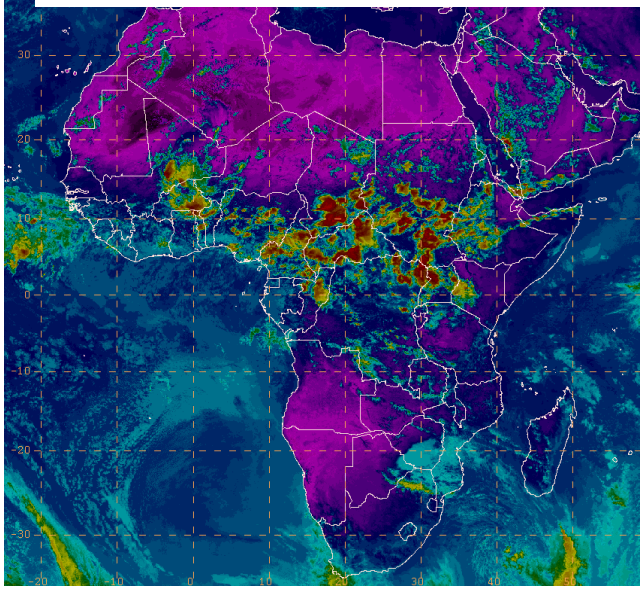
Moderate to locally heavy rainfall was observed over local areas in Senegal, Mali, portions of Niger, local areas in Central Africa and Great Horn of Africa.

2.2. Weather assessment for the current day (Aug 23, 2016**)**

Intense convective clouds are observed over portions of Mali and Burkina Faso, local areas in Ghana, Togo and Benin, portions of Nigeria, Central Africa and Great horn of Africa



IR Satellite Image (valid 1400Z Aug 23, 2016)



Previous day rainfall condition over Africa (Left) based on the NCEP CPCE/RFE and current day cloud cover (right) based on IR Satellite image.

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