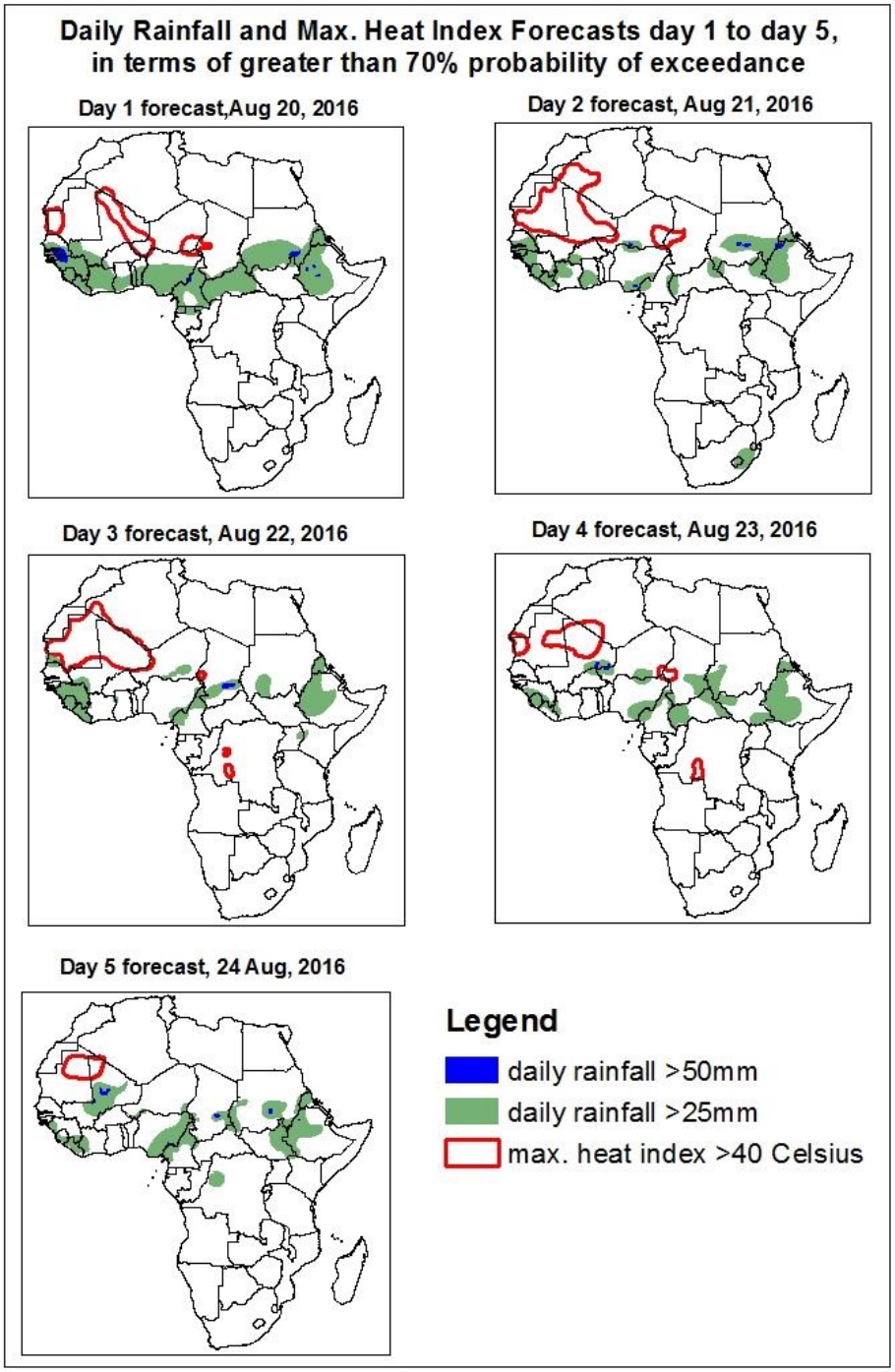
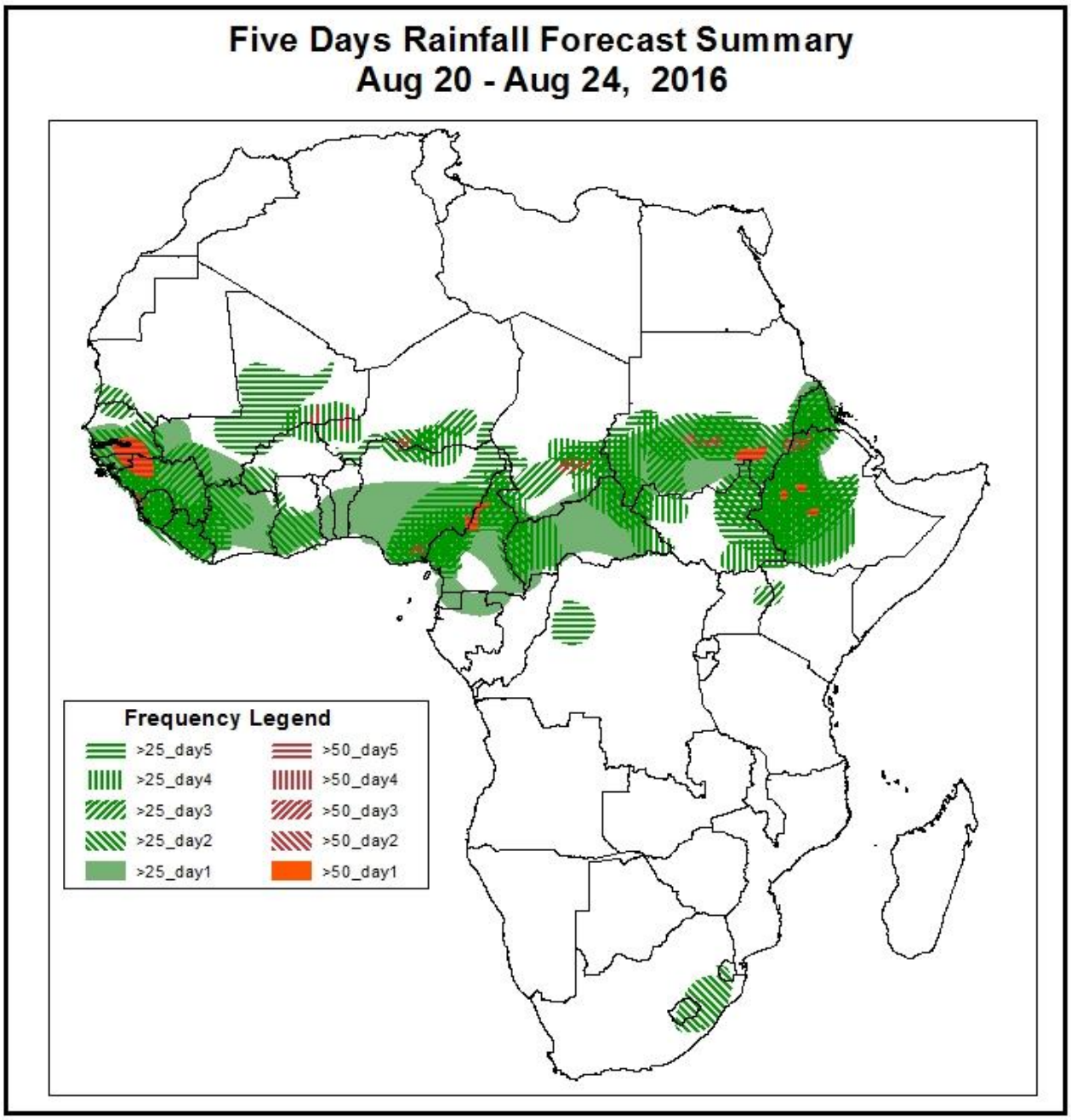
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on Aug 19, 2016)

1.1. Daily Rainfall and Maximum Heat Index Forecasts (*valid: Aug 20– Aug 24 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.



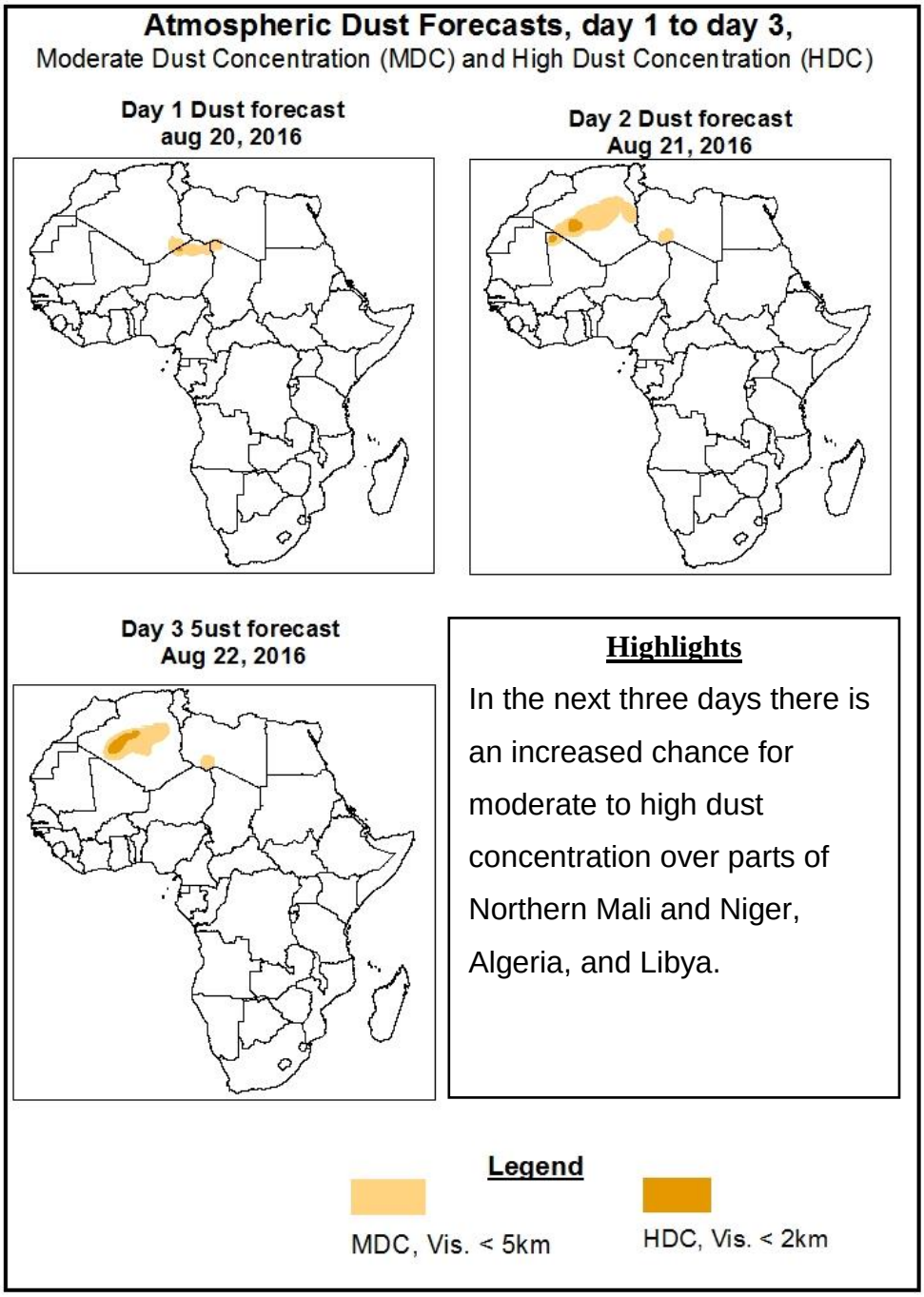


Highlights

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 Senegal and Guinea, much of Guinea Bissau, Sierra Leone and Liberia, portions of Cote d'Ivoire, Ghana and Nigeria, local areas in Mali and Niger, portions of Chad, Cameroon, Sudan, Ethiopia and Eritrea.

1.2. ***Atmospheric Dust Concentration Forecasts (****valid: Aug 20– Aug 22 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 20 –Aug 24, 2016*

The Azores high pressure system over the North Atlantic is expected to intensify, with its central pressure value increasing from 1022 hPa to 1029 hPa during the forecast period.

The St. Helena high-pressure system over the Southeast Atlantic Ocean is expected to intensify, with its value of the central pressure increasing from 1029 hPa to 1033 hPa from 24 hours to 72 hours and tends to weaken, with its value of central pressure decreasing from 1033 hPa to 1028 hPa between 72 hours to 120 hours.

The Mascarene High pressure system over the Southeast Atlantic Ocean is expected to intensify, with its central pressure value increasing from 1028 hPa to 1038 hPa during the forecast period.

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 1007 hPa to 1005 hPa between 24 and 72 hours, and tends to fill up, with its central pressure value increasing from 1005 hPa to 1006 hPa between 72 hours to 120 hours. The heat low over Central Sahel is expected to vary between 1005 hPa and 1007 hPa during the forecast period. The heat low over Sudan tends to fill up, with its central pressure value increasing from 1007 hPa to 1010 hPa during the forecast period.

At 925hPa, strong dry northeasterly to easterly winds may lead to moderate to high dust concentration in parts of Northern Mali and Niger, Algeria, and Libya.

At 850hPa level, a cyclonic circulation is expected to propagate westwards in the region between northern Mali and Senegal through 24 to 48 hours, 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 portions of the Gulf of Guinea region during the forecast period.

At 500 hPa, a zone of strong wind (>35kts), associated with AEJ is expected appear between northern Nigeria and Senegal 48 hours to 72 hours of the forecast period and remain weak during the rest of the forecast period.

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 Senegal, much of Guinea Bissau, Guinea, Sierra Leone and Liberia, portions of southern Mali, Cote d'Ivoire, Ghana and Nigeria, local areas in Burkina Faso, Niger and Chad, portions of Cameroon, Sudan, Ethiopia and Eritrea.

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

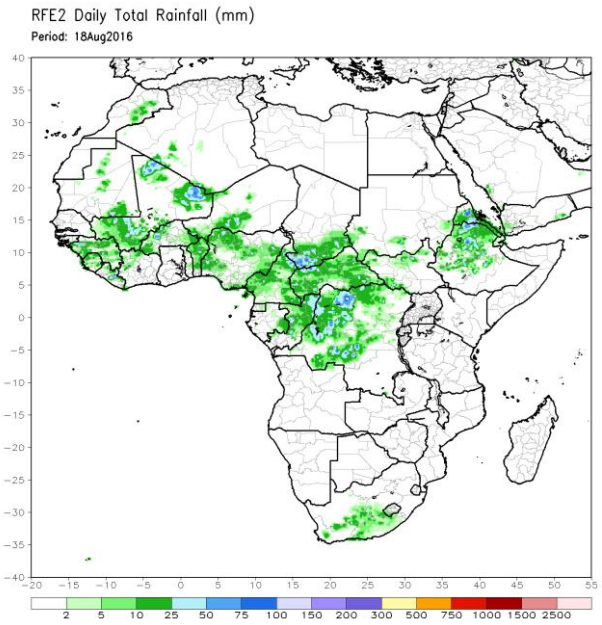
2.0. Previous and Current Day Weather over Africa

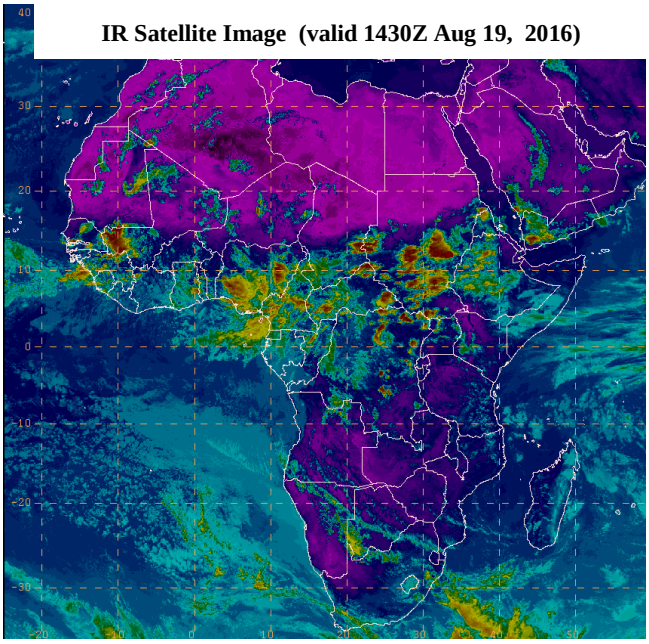
2.1. Weather assessment for the previous day (Aug 18, 2016)

Moderate to locally heavy rainfall was observed over local portions of Southern Mauritania, Mali, Guinea and Burkina Faso, local areas in Niger, portions of Benin, Nigeria, Cameroun, Chad, CAR, DRC, local areas in Sudan, portions of Ethiopia and Eritrea.

2.2. Weather assessment for the current day (Aug 19, 2016**)**

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





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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