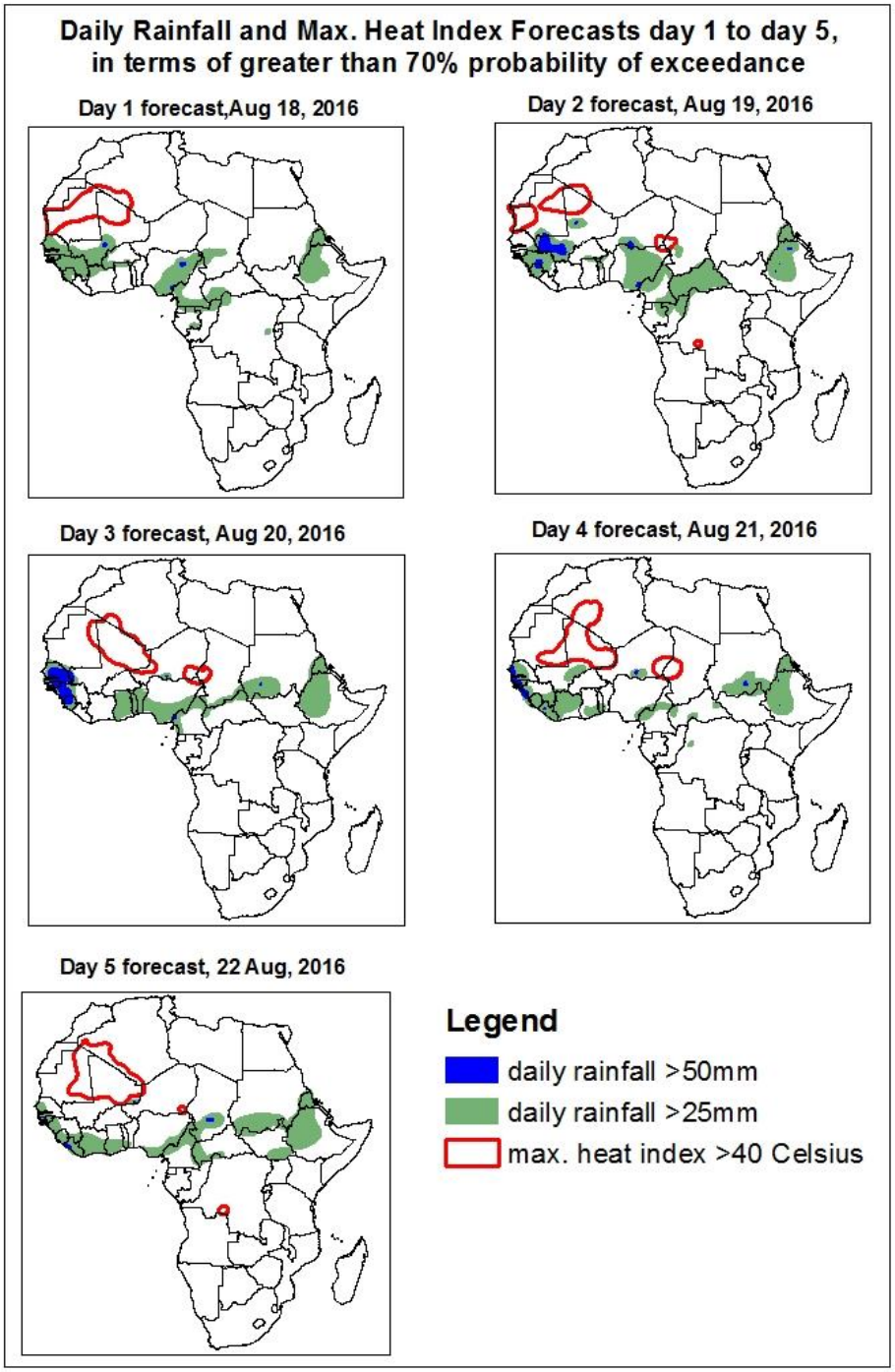
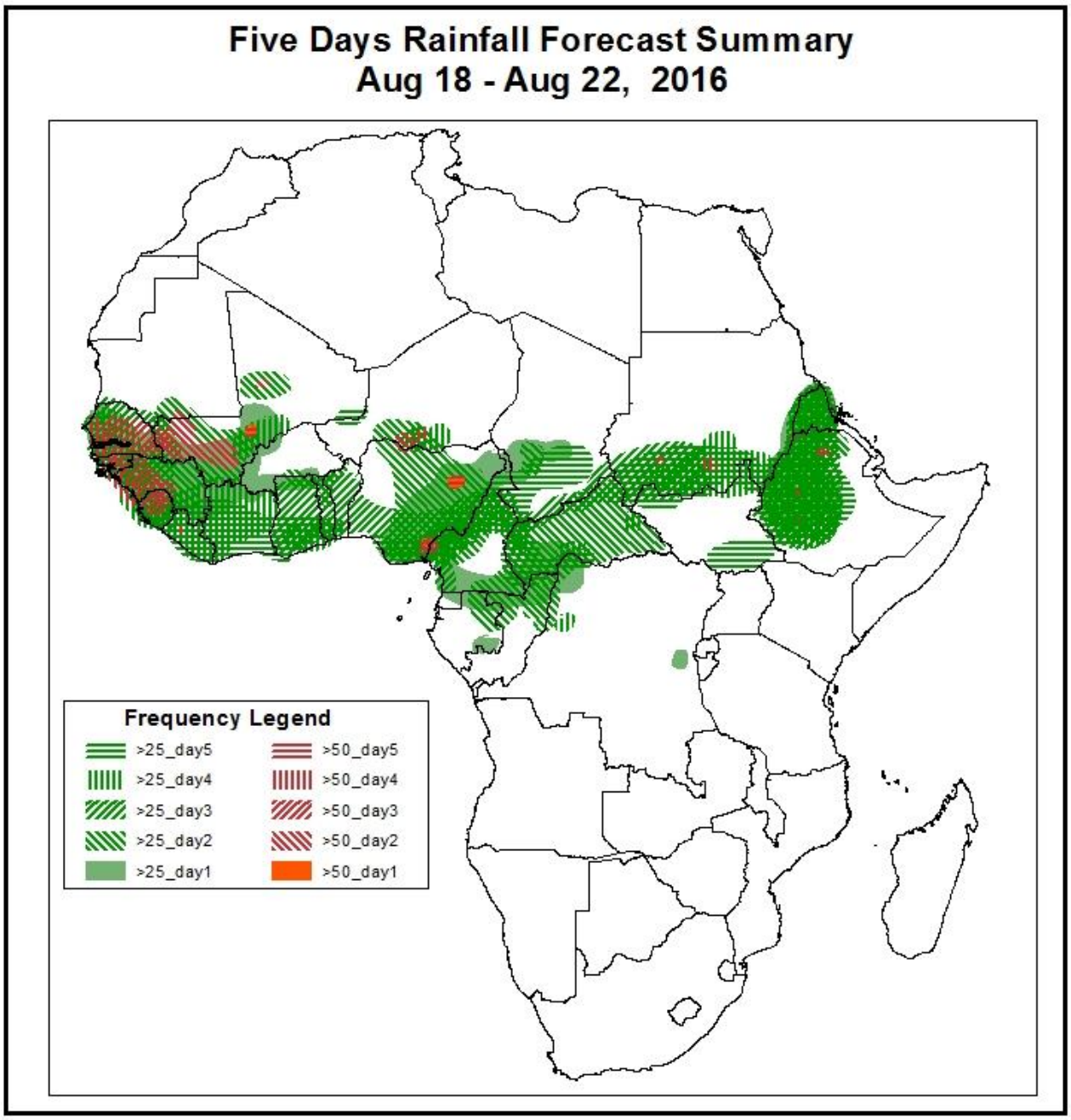
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on Aug 17, 2016)

1.1. Daily Rainfall and Maximum Heat Index Forecasts (*valid: Aug 18– Aug 22 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.



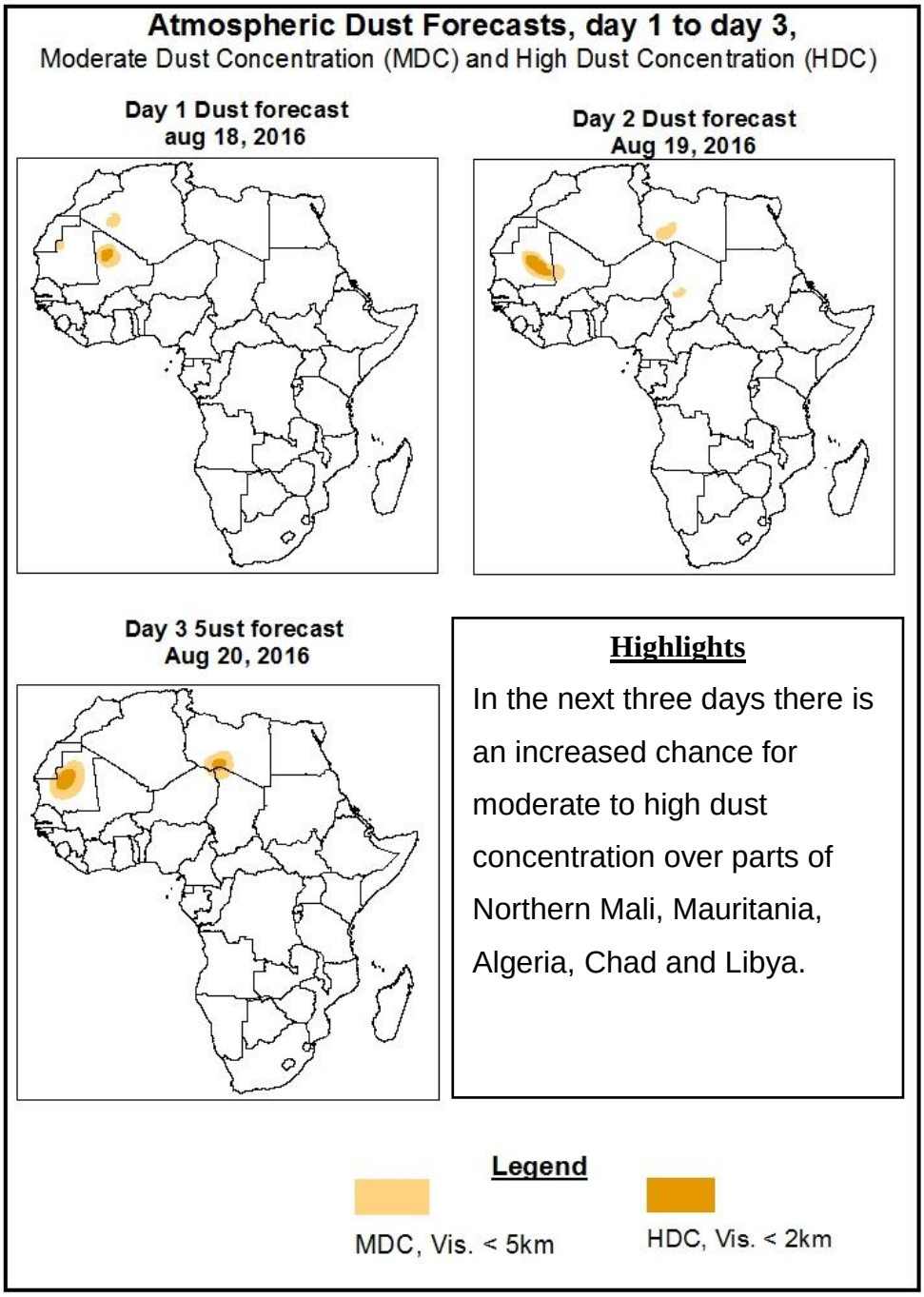


Highlights

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

1.2. ***Atmospheric Dust Concentration Forecasts (****valid: Aug 18– Aug 20 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 18 –Aug 22, 2016*

The Azores high pressure system over the North Atlantic is expected to weaken, with its value of the central pressure decreasing slightly from 1019 hPa to 1018 hPa from 24 hours to 48 hours and tends to intensify, with its value of central pressure increasing from 1019 hPa to 1029 hPa between 72 hours to 120 hours.

The St. Helena high-pressure system over the Southeast Atlantic Ocean is expected to weaken, with its value of the central pressure decreasing from 1029 hPa to 1026 hPa from 24 hours to 48 hours and tends to intensify, with its value of central pressure increasing from 1029 hPa to 1032 hPa between 72 hours to 120 hours.

The Mascarene High pressure system over the Southeast Atlantic Ocean is expected to weaken, with its value of the central pressure decreasing from 1030 hPa to 1028 hPa hPa from 24 hours to 48 hours and tends to intensify, with its value of central pressure increasing from 1029 hPa to 1031 hPa between 72 hours to 120 hours.

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

The heat low over Western Sahel is expected to vary between 1005 hPa and 1006 hPa during the forecast period. The heat low over Central Sahel is expected to deepen, with its central pressure value decreasing from 1008 hPa to 10087hPa between 24 and 48 hours, and tends to fill up, with its central pressure value increasing from 1007 hPa to 1008 hPa between 72 hours to 120 hours. The heat low over Sudan is expected to maintain an average central pressure value of 1008hPa 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, Mauritania, Algeria, Chad and Libya.

At 850hPa level, a cyclonic circulation is expected to propagate westwards in the region between northern Mali and Senegal through 24 to 72 hours. Anothern cyclonic circulation is

expected to propagate westwards between chad and northern Mali during the forecast period.

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 to remain weak, with the exception of occasional strong winds expected to appear in the region between the western Niger and Senegal during 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 and Sierra Leone, portions of Liberia, Mali, Burkina Faso, Cote d'Ivoire, Ghana, Togo, Benin, Western Niger, Nigeria, southern Chad, Cameroon, CAR, local areas of Sudan and DRC, portions of 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.

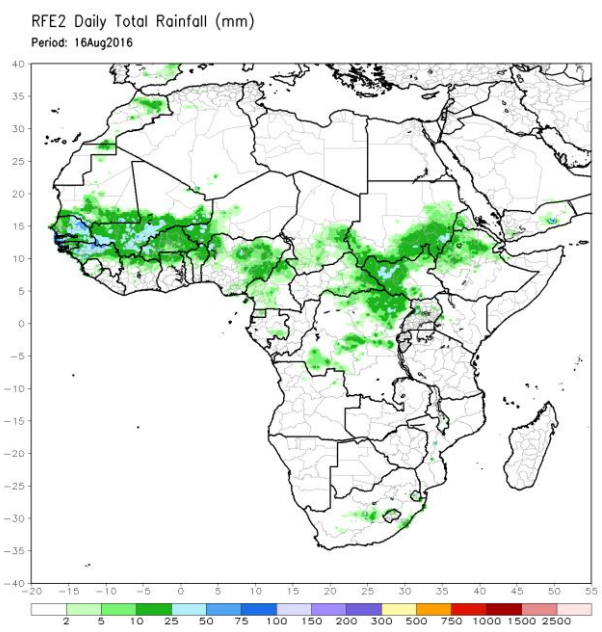
2.0. Previous and Current Day Weather over Africa

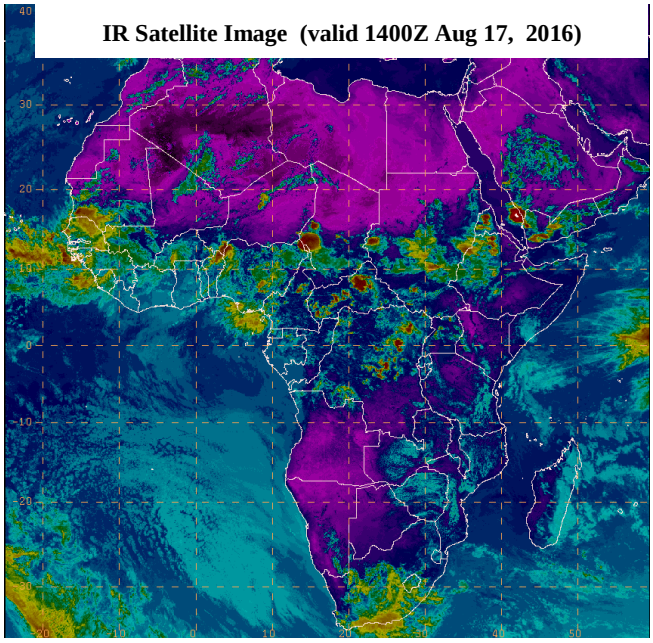
2.1. Weather assessment for the previous day (Aug 16, 2016)

Moderate to locally heavy rainfall was observed over local portions of Senegal, Southern Mauritania, Guinea, Mali, Burkina Faso and Niger, local areas in Ghana and Nigeria, portions of Sudan and Northern DRC, local areas in Ethiopia and Uganda.

2.2. Weather assessment for the current day (Aug 17, 2016**)**

Intense convective clouds are observed over portions of western end of West Africa, local areas in Burkina Faso, Niger, Nigeria and Chad, 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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