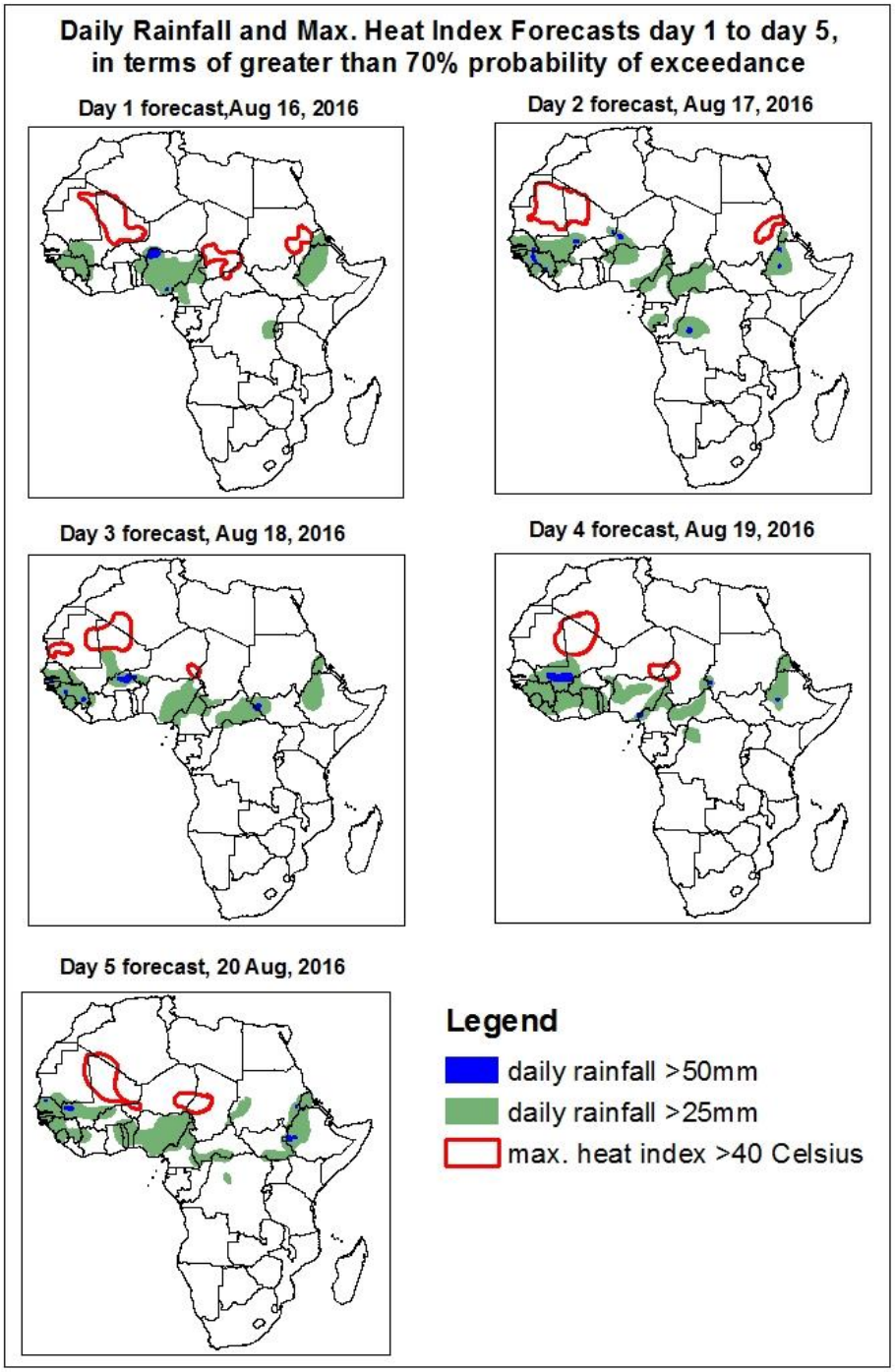
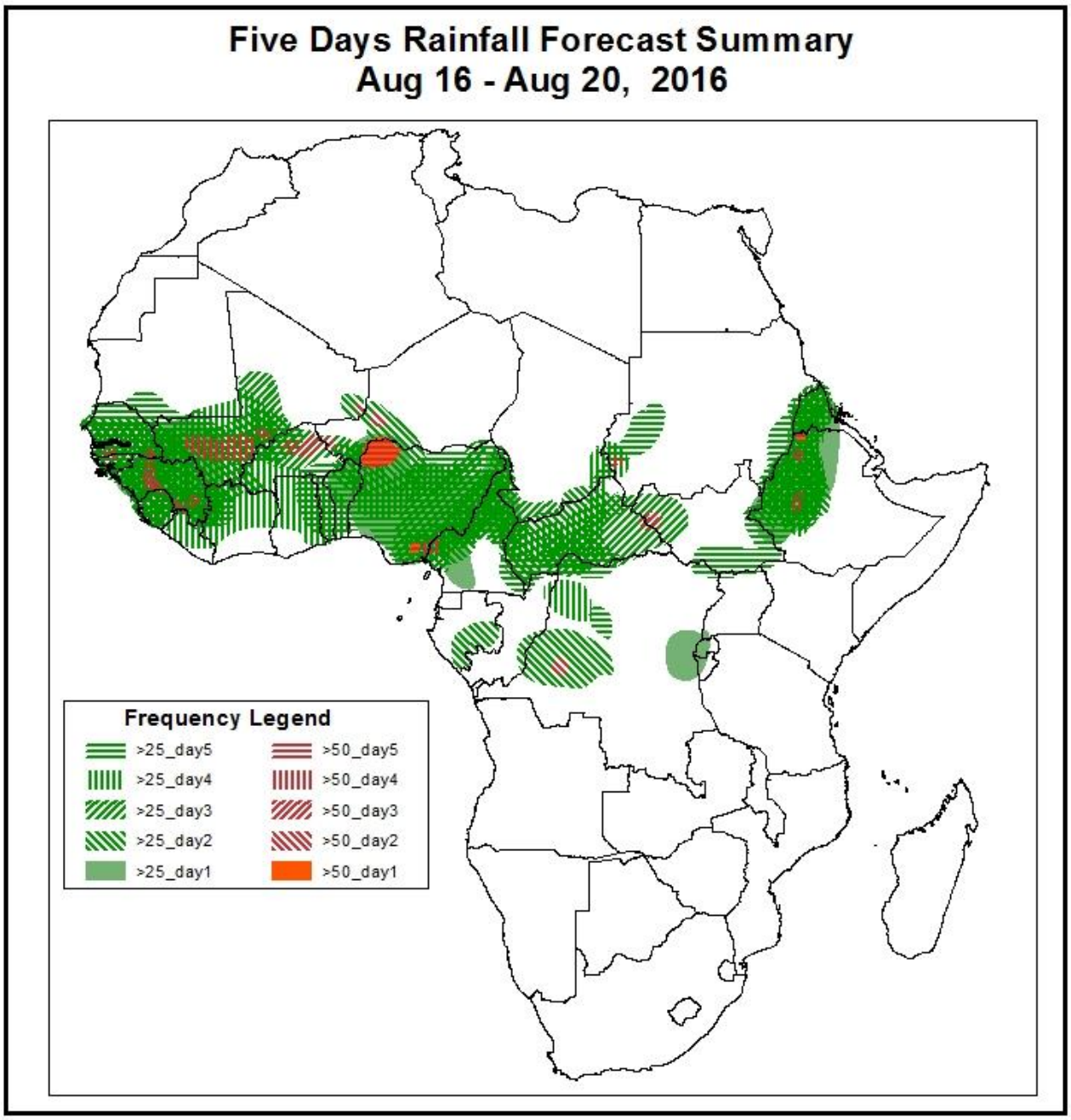
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on Aug 15, 2016)

1.1. Daily Rainfall and Maximum Heat Index Forecasts (*valid: Aug 16– Aug 20 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.



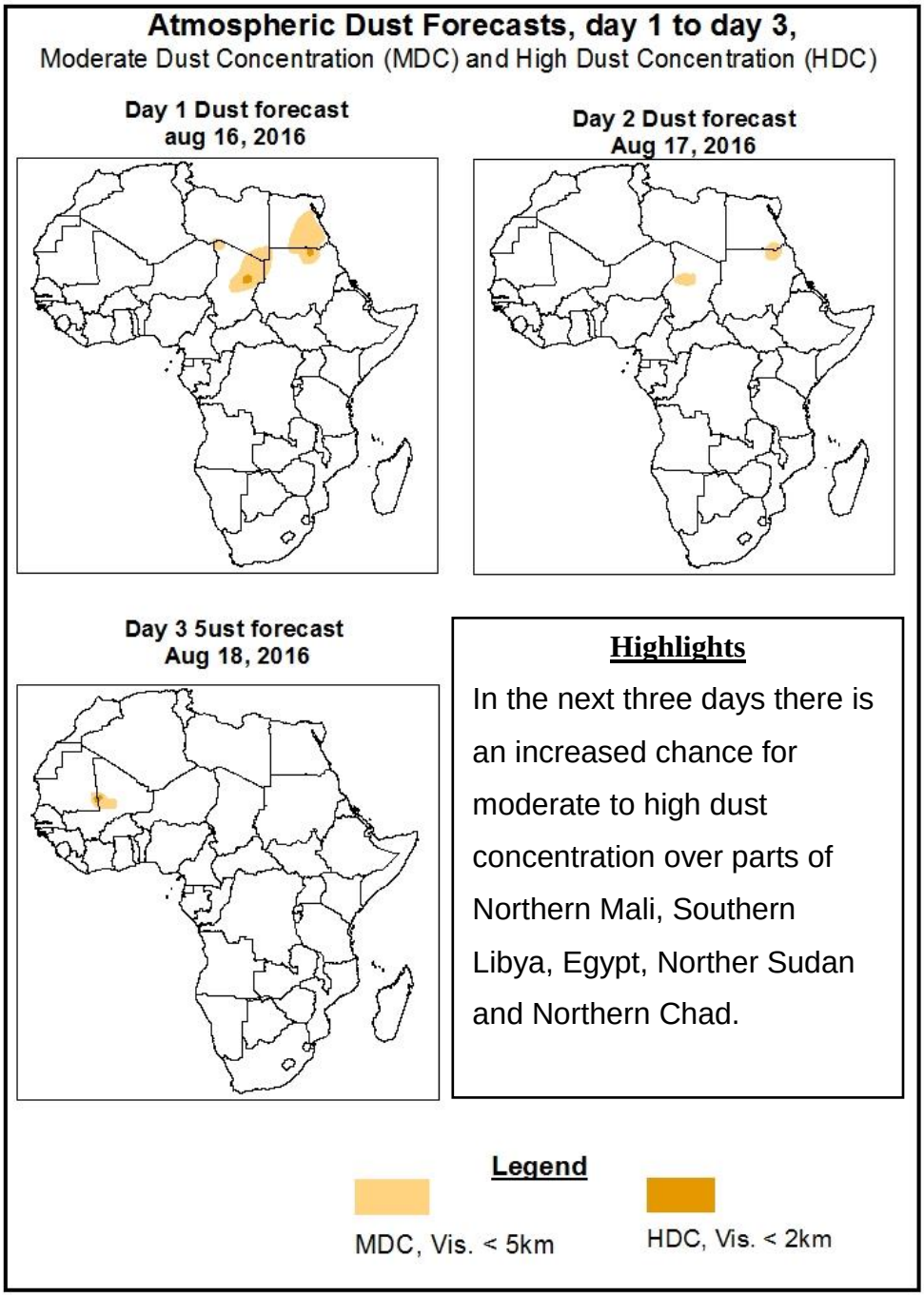


Highlights

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 and Sierra Leone, portions of Mali, Burkina Faso, Cote d'Ivoire, western Niger, Nigeria, southern Chad and Cameroon CAR, local areas of Sudan and DRC, portions of Ethiopia and Eritrea.

1.2. ***Atmospheric Dust Concentration Forecasts (****valid: Aug 16– Aug 18 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 16 –Aug 20, 2016*

The Azores high pressure system over the North Atlantic is expected to weaken, with its value of the central pressure decreasing from 1024 hPa to 1019 hPa from 24 hours to 96 hours and tends to intensify, with its value of central pressure increasing from 1019 hPa to 1022 hPa between 96 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 1032 hPa to 1026 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 1032 hPa to 1026 hPa during the forecast period.

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 deepen, with its central pressure value decreasing from 1009 hPa to 1007 hPa during the forecast period. The heat low over Central Sahel is expected to deepen, with its central pressure value decreasing from 1011 hPa to 1007 hPa during the forecast period. The heat low over Sudan is expected to vary between 1007 hPa and 1008 hPa during the forecast period.

At 925hPa, an anticyclonic circulation which weakens and its associated ridge is expected to prevail across Libya and the neighboring areas. Strong dry northeasterly to easterly winds may lead to moderate to high dust concentration in parts of Northern Mali Southern Libya, Northern Chad, Northern Sudan and Egypt.

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

At 700 hPa, a zone of strong easterly flow, with its associated trough in the easterlies is expected to propagate westward across West Africa during the forecast period.

At 500 hPa, a zone of strong wind (>35kts), associated with AEJ is expected to weaken during the forecast period.

At 150 hPa A strong wind (> 70 kts), associated with the TEJ is also expected to remain weake 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 Mali, Burkina Faso, Cote d'Ivoire, western Niger, Nigeria, southern Chad and 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 and Algeria, Chad local areas in Niger Chad and Nigeria, portion of Sudan.

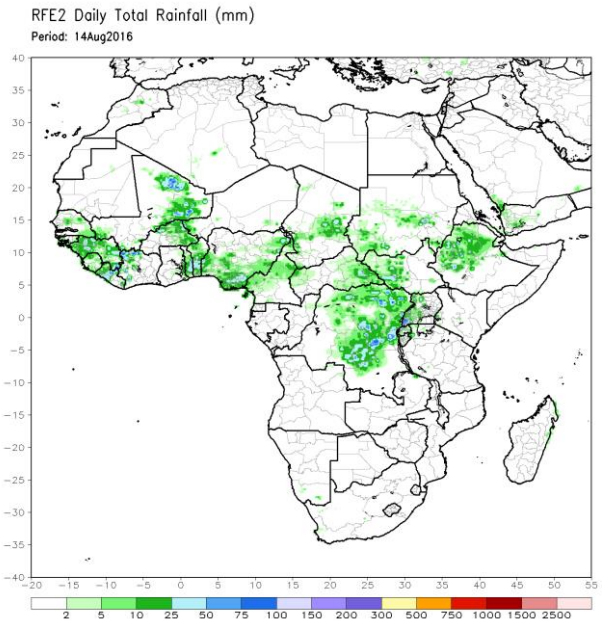
2.0. Previous and Current Day Weather over Africa

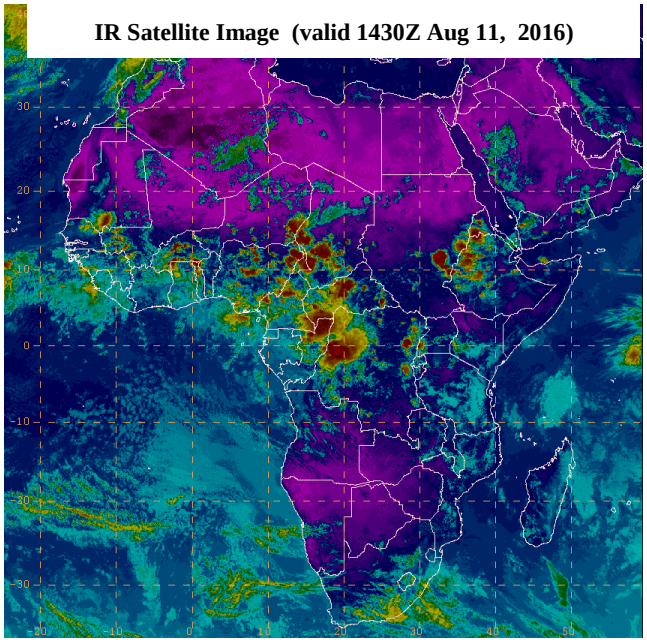
2.1. Weather assessment for the previous day (Aug 14, 2016)

Moderate to locally heavy rainfall was observed over portions of Guinea, Liberia, Cote d'Ivoire Northern Mali and Burkina Faso local areas in Nigeria, Chad, CAR and Sudan, portions of Ethiopia, DRC and Uganda.

2.2. Weather assessment for the current day (Aug 15, 2016**)**

Intense convective clouds are observed over local areas in West Africa, portion 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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