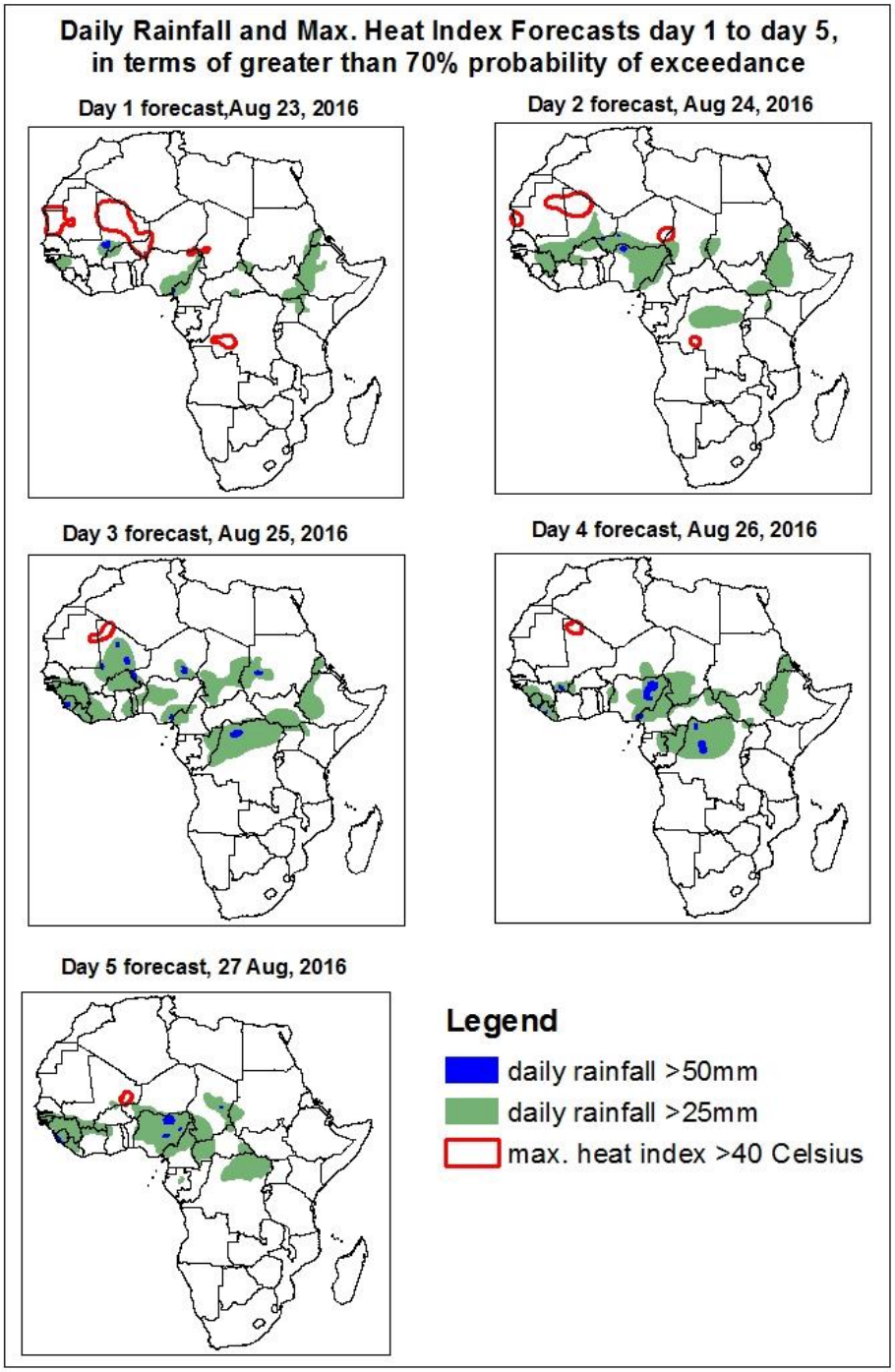
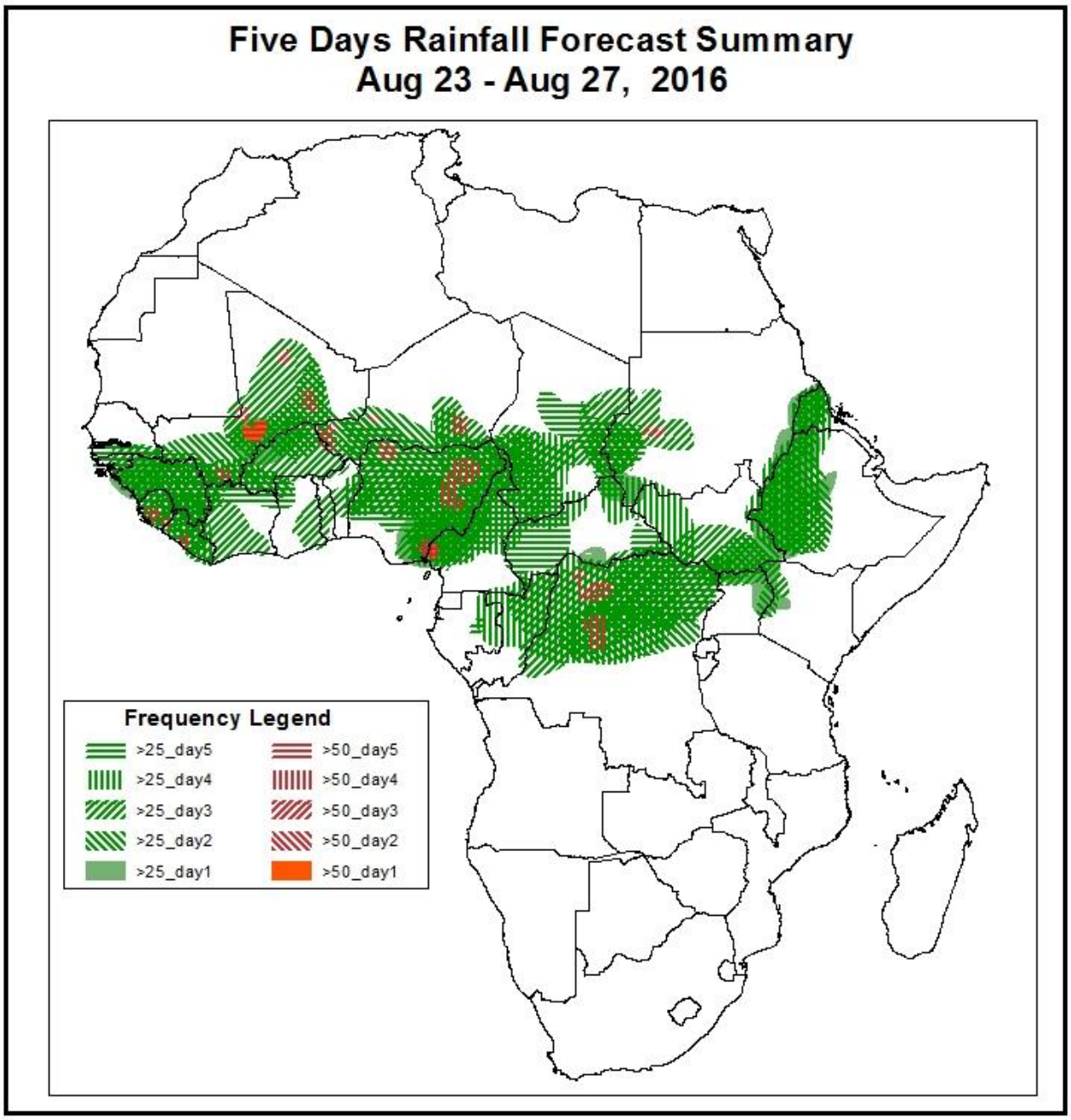
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on Aug 22, 2016)

1.1. Daily Rainfall and Maximum Heat Index Forecasts (*valid: Aug 23– 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.



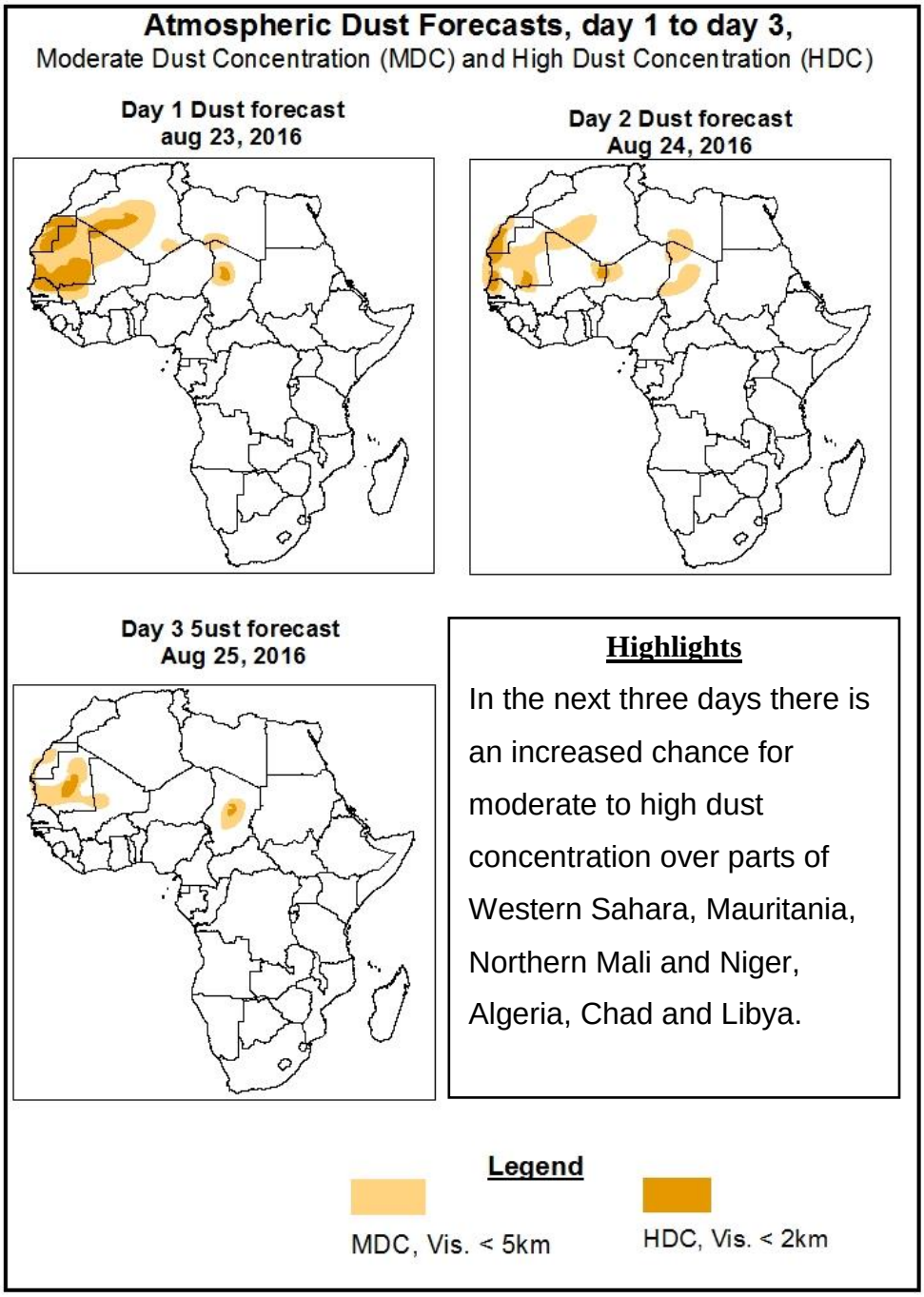


Highlights

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

1.2. ***Atmospheric Dust Concentration Forecasts (****valid: Aug 23– Aug 27 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 23 –Aug 27, 2016*

The Azores high pressure system over the North Atlantic is expected to weaken, with its central pressure value decreasing from 1030 hPa to 1024 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 decreasing from 1028 hPa to 1024 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 1037 hPa to 1030 hPa from 24 hours to 96 hours and tends to intensify, with its value of central pressure increasing from 1030 hPa to 1036 hPa between 96 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 1005 hPa to 1004 hPa between 24 and 72 hours, and tends to fill up, with its central pressure value increasing from 1004 hPa to 1007 hPa between 72 hours to 120 hours. The heat low over Central Sahel is expected to deepen, with its central pressure value decreasing from 1007 hPa to 1006 hPa between 24 and 72 hours, and tends to fill up, with its central pressure value increasing from 1006 hPa to 1011 hPa between 72 hours to 120 hours. The heat low over Sudan tends to fill up, with its central pressure value increasing from 1008 hPa to 1012 hPa 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, Northern Mali and Niger, Algeria, Chad and Libya.

At 850hPa level, a cyclonic circulation is expected to propagate westwards in the region between Chad and southern 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 Nigeria during the forecast period.

At 500 hPa, a zone of strong wind (>35kts), associated with AEJ is expected to 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 Guinea Bissau, much of Guinea, Sierra Leone and Liberia, portions of Mali, Burkina Faso and Niger, local areas in Cote d'Ivoire and Ghana, portions of Nigeria, Chad, Cameroon, local areas in CAR, portions of Sudan, Ethiopia, Eritrea, DRC and Congo..

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

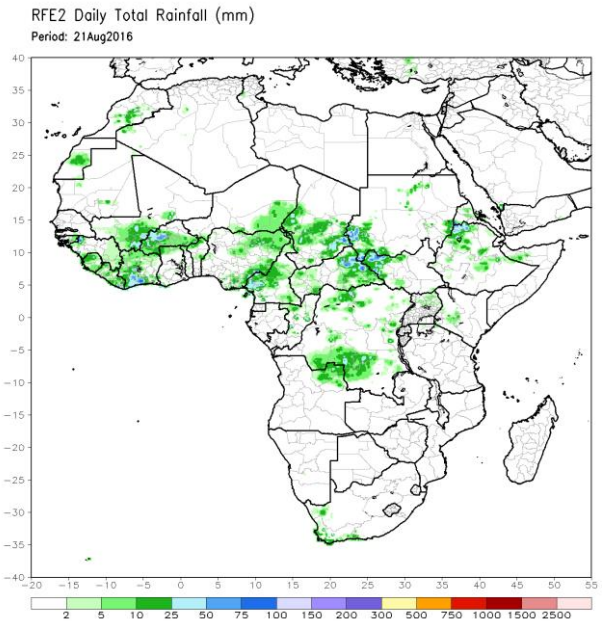
2.0. Previous and Current Day Weather over Africa

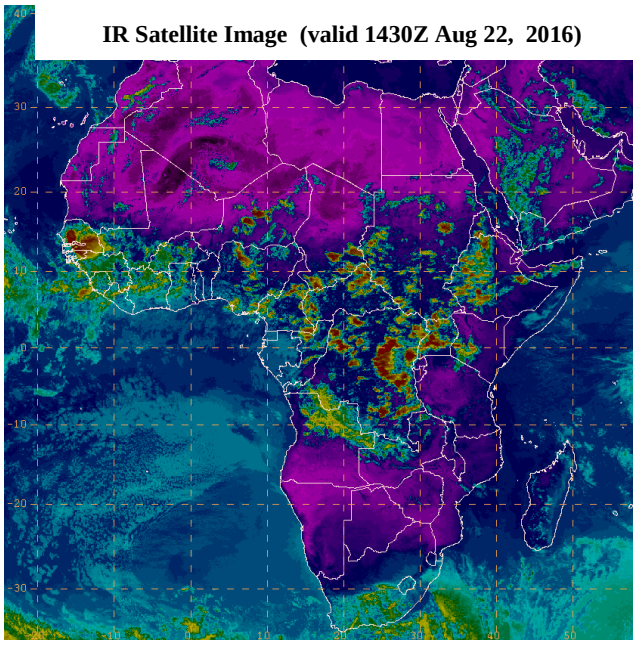
2.1. Weather assessment for the previous day (Aug 21, 2016)

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

2.2. Weather assessment for the current day (Aug 22, 2016**)**

Intense convective clouds are observed over portions of Senegal and Guinea Bissau, local areas in Niger and 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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