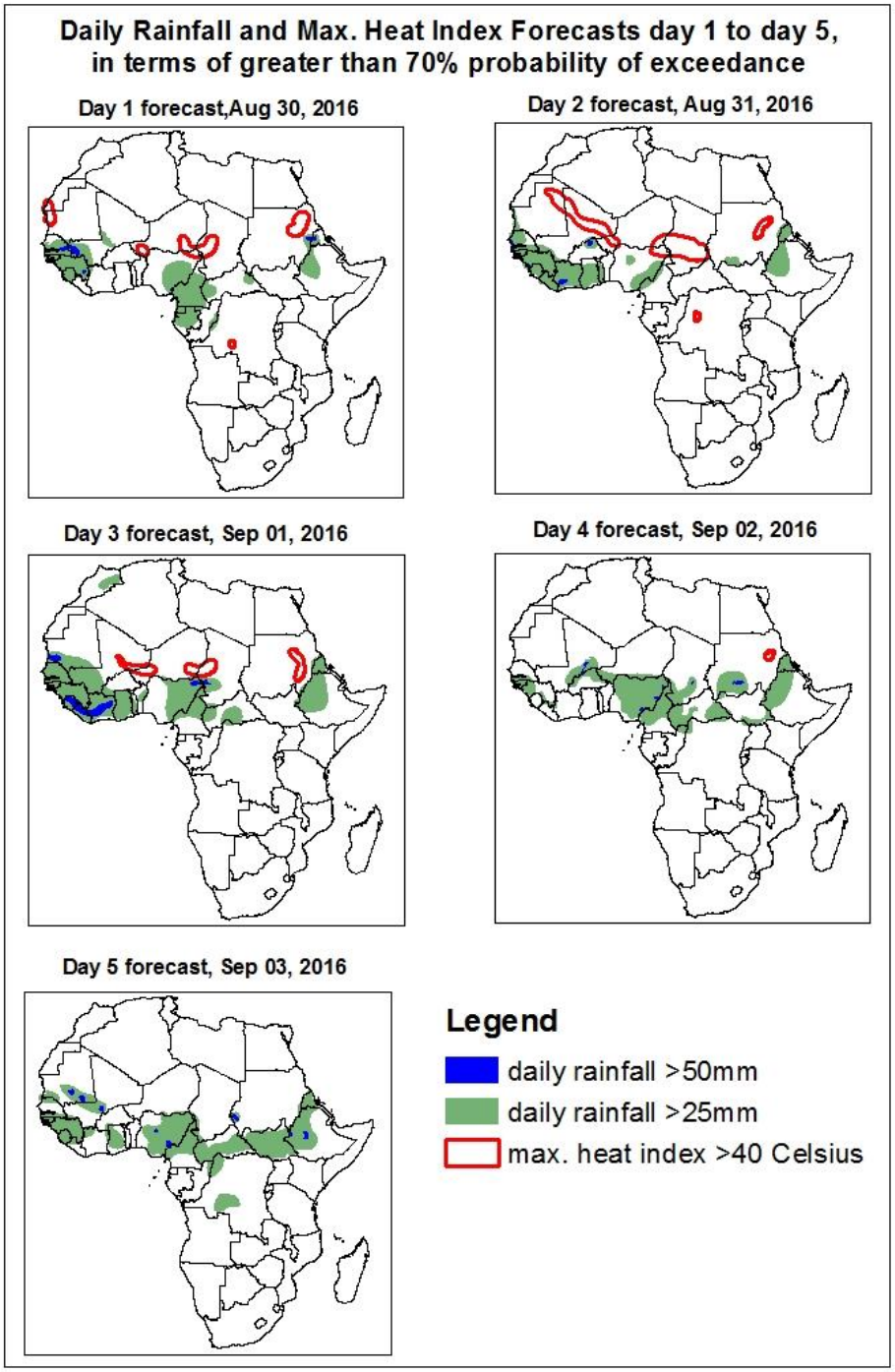
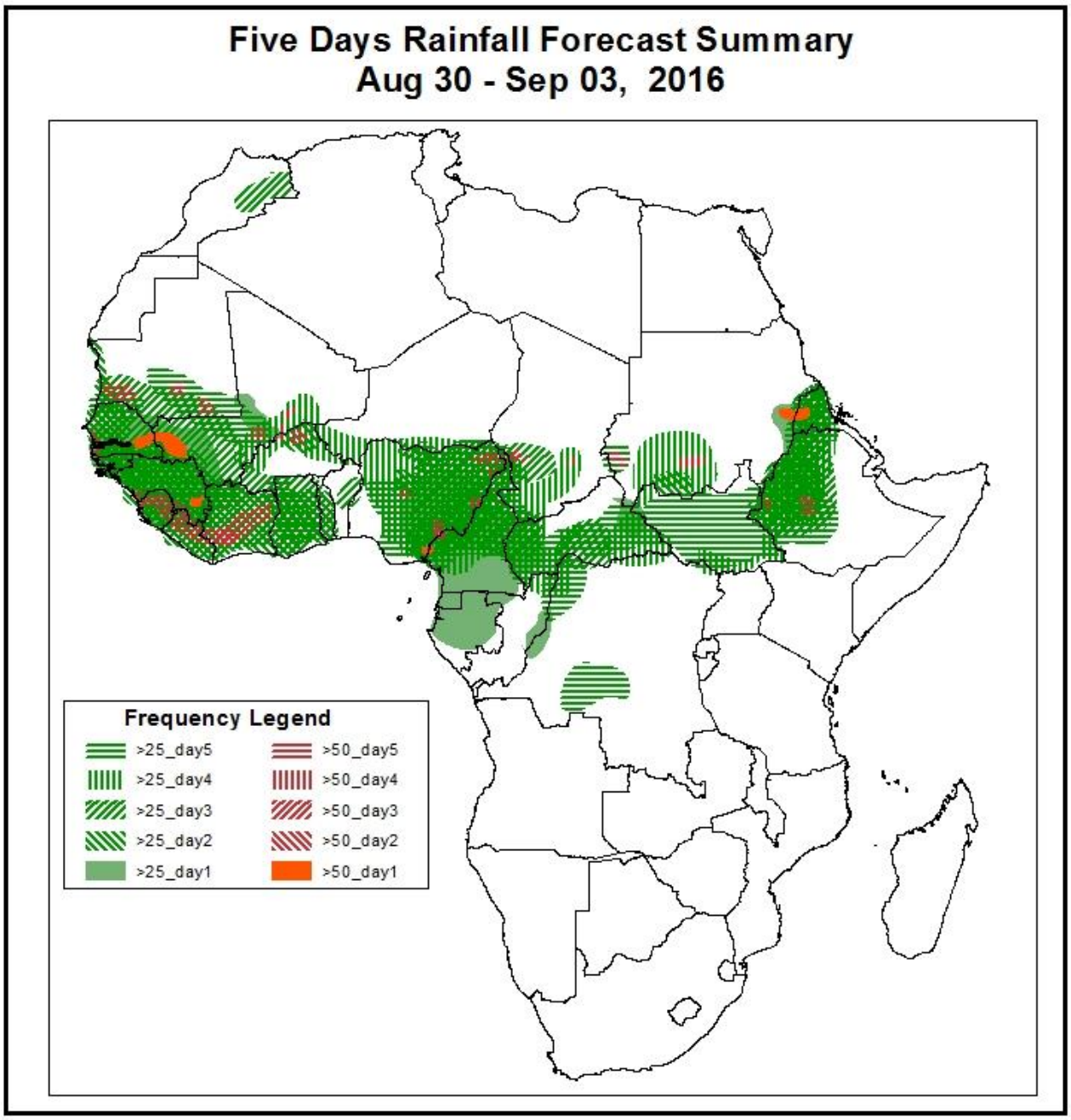
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on Aug 29, 2016)

1.1. Daily Rainfall and Maximum Heat Index Forecasts (*valid: Aug 30– Sep 03 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.



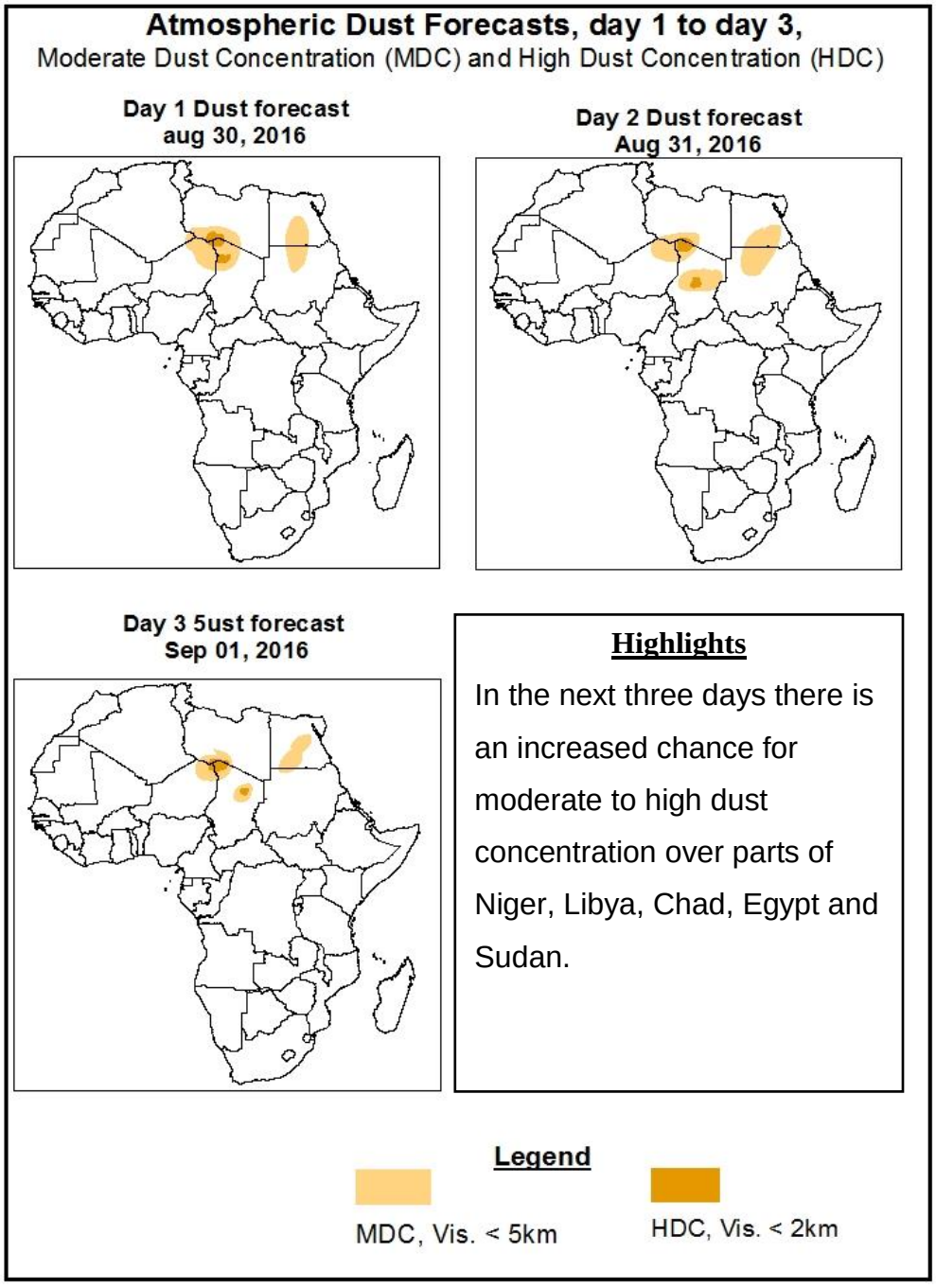


Highlights

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

1.2. ***Atmospheric Dust Concentration Forecasts (****valid: Aug 30– Sep 01 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 30 –Sep 03, 2016*

The Azores high pressure system over the North Atlantic is expected to intensify, with its value of the central pressure increasing from 1025 hPa to 1026 hPa from 24 hours to 72 hours and tends to weaken, with its value of central pressure decreasing from 1026 hPa to 1024 hPa between 72 hours to 120 hours.

The high pressure system St. Helena on the southeast of the Atlantic Ocean is expected to intensify, with its value of the central pressure increasing from 1030 hPa to 1040 hPa from 24 hours to 96 hours and tends to weaken, with its value of central pressure decreasing from 1037 hPa to 1034 hPa between 96 hours to 120 hours.

The Mascarene High pressure system over the Southeast Atlantic Ocean is expected to intensify, with its value of the central pressure increasing from 1031 hPa to 1042 hPa from 24 hours to 72 hours and tends to weaken, with its value of central pressure decreasing from 1042 hPa to 1032 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 weaken, with its central pressure value decreasing from 1011 hPa to 1007 hPa during the forecast period. The heat low over Central Sahel is expected to fill up, with its central pressure value increasing from 1008 hPa to 1011 hPa during the forecast period. The heat low over Sudan is expected to maintain an average central pressure value of 1008hPa during the forecast period.

At 925hPa, strong dry to northerly easterly winds may lead to moderate to high dust concentration in parts of In the next three days there is an increased chance for moderate to high dust concentration over parts of Niger, Libya, Chad, Egypt and Sudan.

At 850hPa level, a cyclonic circulation is expected to propagate westwards in the region between Southern 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 AEJ is expected appear temporarily between Burkina Faso and Senegal 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 Southern Mauritania, much of Senegal, Guinea Bissau, Guinea and Sierra Leone and Liberia, portions of Mali, Burkina Faso, Cote d'Ivoire, Ghana, and Togo, local areas in southern Niger, portions of Nigeria, Cameroon, CAR, southern Chad, local areas in Sudan, portions of Ethiopia and Eritrea.

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

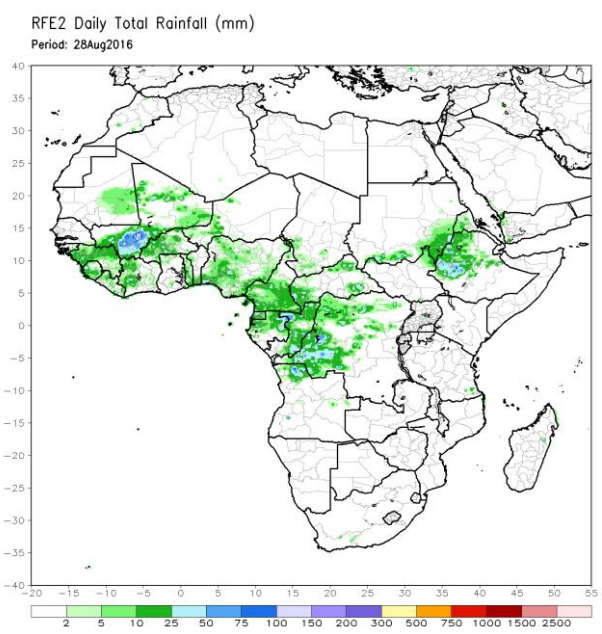
2.0. Previous and Current Day Weather over Africa

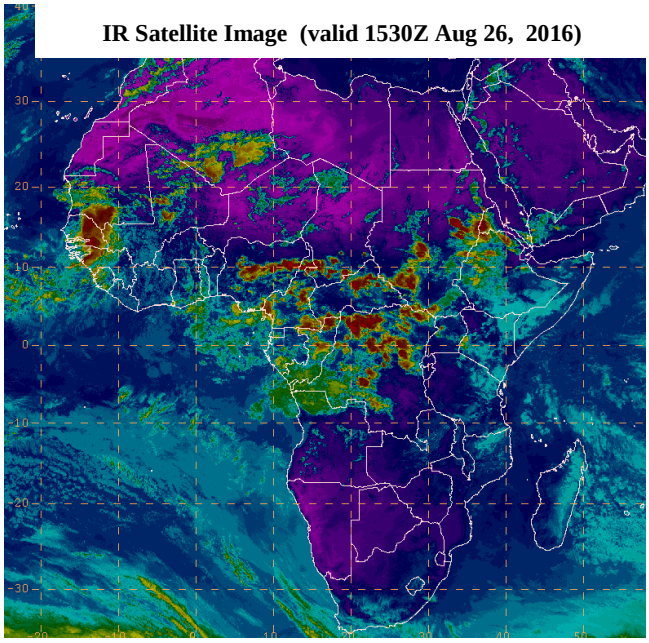
2.1. Weather assessment for the previous day (Aug 28, 2016)

Moderate to locally heavy rainfall was observed over portion of Mali, local areas in Burkina Faso, Guinea, Sera Leone, Cote d'Ivoire, and Nigeria, portions of central Africa and Great Horn of Africa.

2.2. Weather assessment for the current day (Aug 29, 2016**)**

Intense convective clouds are observed over portions of Mauritania, Senegal, Guinea Bissau and Guinea, local areas in Mali, portion of Nigeria, Cameroun, Chad, CAR, DRC, Congo Sudan and Eritrea and local areas in Ethiopia.





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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