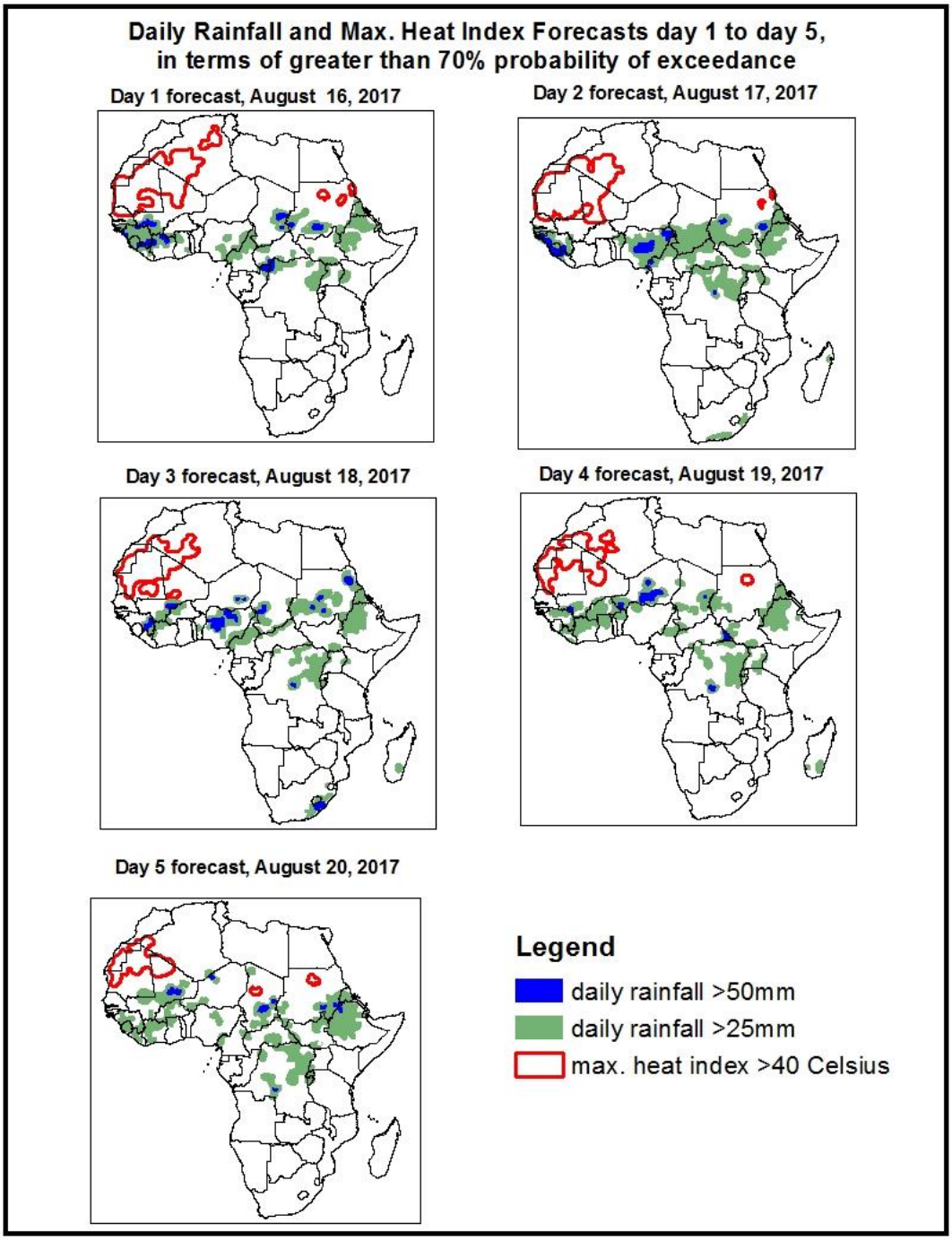
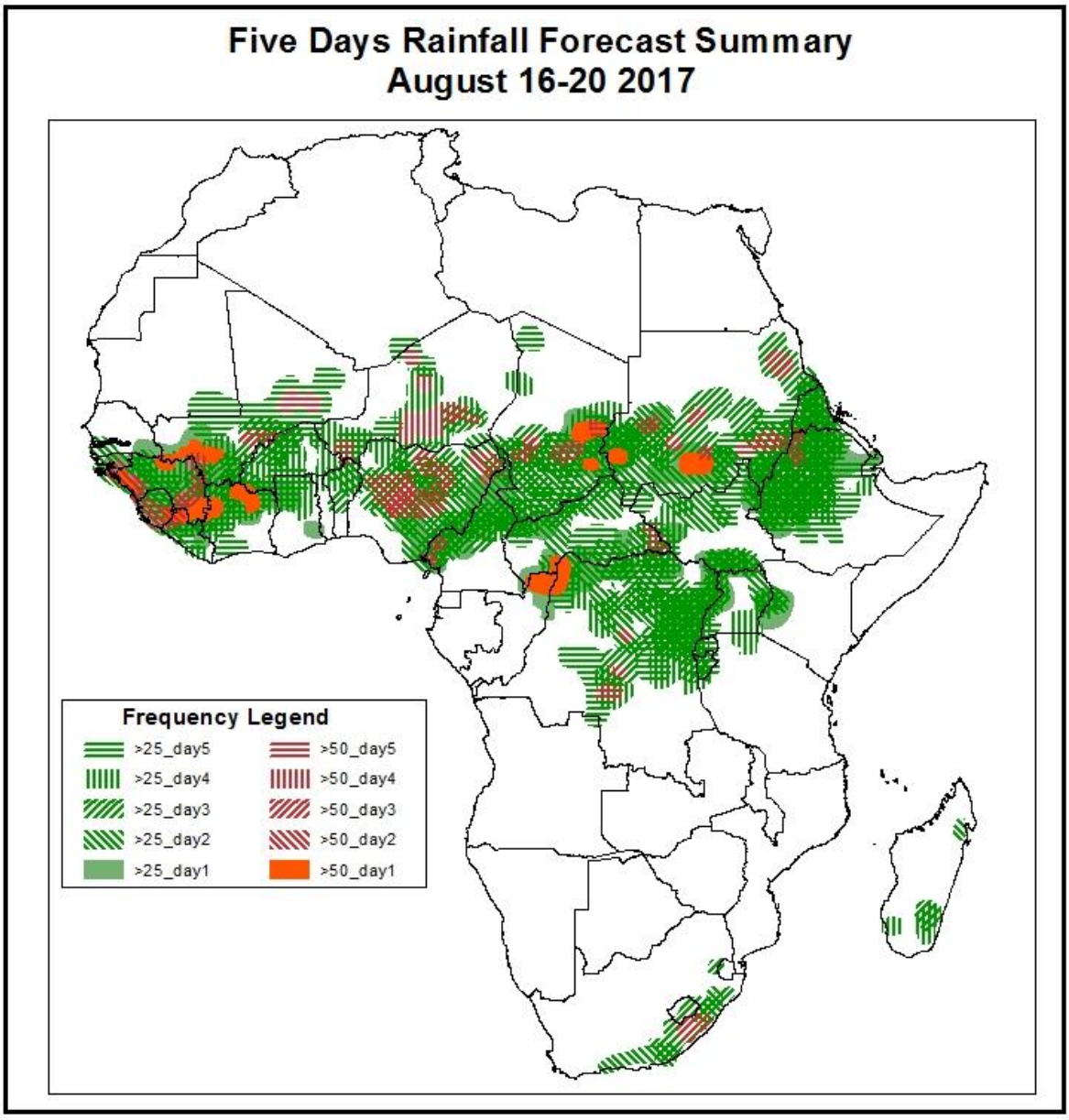
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on August 15, 2017)

1.1. Daily Rainfall and Maximum Heat Index Forecasts *(valid: August 16–20 August, 2017)*

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.



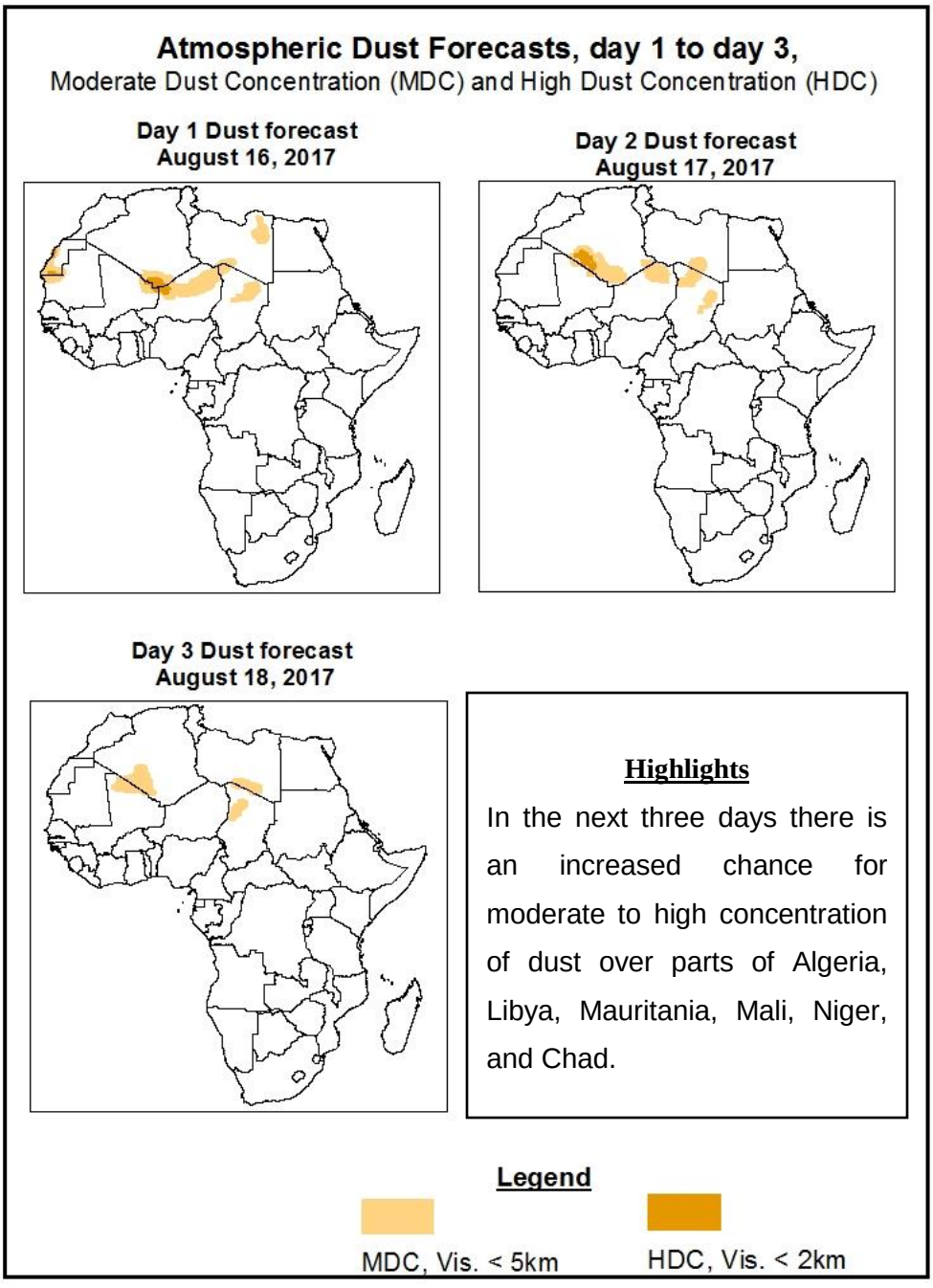


Highlights

In the next five days, a strong monsoon flow from the Atlantic Ocean across West and Central Africa combined with a lower-level cyclonic circulation propagating across the Sahel countries with lower level convergence and upper level divergence is expected to enhance rainfall over many places in West and Central African countries. As a result, there is an increased chance for two or more days of moderate to heavy rainfall over many places in northern of Guinea, South Mali, Sierra Leone, North Cote D'Ivoire, southern Niger, northern Nigeria, south Chad, south Sudan, south CAR, DRC, South Africa and Ethiopia.

1.2. Atmospheric Dust Concentration Forecasts (valid: August 16-18, 2017)

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: August 16-20 2017*

The Azores High Pressure system over the North Atlantic Ocean is expected to maintain its central pressure value of 1025hPa in the next 72hours and later on weakens to 1023hpa in the next 96hours to the end of the forecast period.

The St. Helena High Pressure system over the Southeast Atlantic Ocean is expected to weaken drastically from its central pressure value of 1032hPa in the next 48hours to 1021hpa and will maintain the value for the next 48hours. Thereafter starts to gradually intensify to 1026hpa and later to 1033hpa towards the end of the forecast period.

The Mascarene High Pressure system over the Southwest Indian Ocean is expected to intensify from its central pressure value of 1039hpa to 1041hpa in the next 48hours and gradually starts to weaken after 72hours to 1032hpa to the end of the forecast period.

The heat low over western Sahel is expected to deepen from its value of 1005hpa to 1003hpa in the next 48hours. It will gradually start to fill up after 72hours to 1006hpa to the end of the forecast period. Over the central Sahel, the heat low is expected to deepen from 1007hpa to 1005hpa in the next 48hours and after 72hours fill up to its initial core value of 1007hpa. Over the Sudan area the heat low is expected maintain its value of 1004hpa in the 48hours and starts to fill up to 1007hpa after 72hours up to the end of the forecast period.

At 925hPa, there is an influx of moist south westerlies into West Africa with convergence over north east Sudan with the shear line extending to Mali. The strong dry northeasterly propagation from the subtropical high pressure over North Africa results to the spreading and transport of the dust over Libya and the northern parts of Mali, Niger, Chad and Sudan.

At 850hPa, a cyclonic circulation over Eastern Sudan is expected to propagate westwards into Chad, Niger and Mali.

At 700hPa, the ridges of the subtropical high pressure system extend to the coast of West Africa in the next 72hours. Afterwards the intrusion of the mid latitude trough weakens the high pressure system to the end of the forecast period.

In the next five days, a strong monsoon flow from the Atlantic Ocean across West and Central Africa combined with a lower-level cyclonic circulation propagating across the Sahel countries with lower level convergence and upper level divergence is expected to enhance rainfall over many places in West and Central African countries. As a result, there is an increased chance for two or more days of moderate to heavy rainfall over many places in northern of Guinea, South Mali, Sierra Leone, North Cote D'Ivoire, southern Niger, northern Nigeria, south Chad, south Sudan, south CAR, DRC, South Africa and Ethiopia.

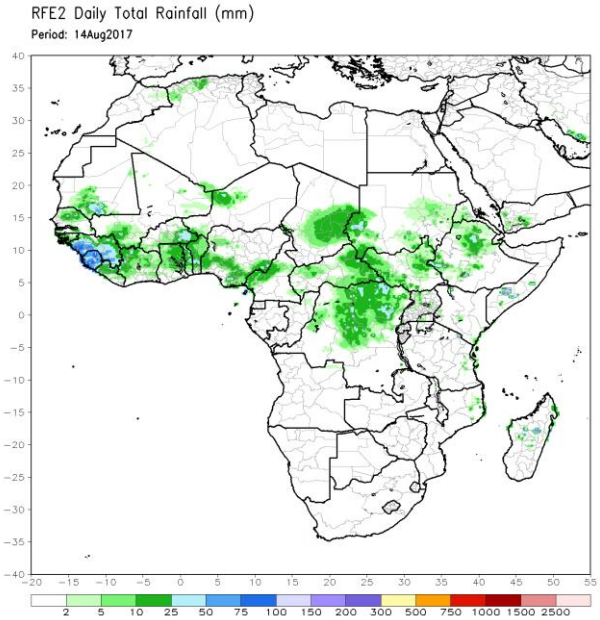
2.0. Previous and Current Day Weather over Africa

2.1. Weather assessment for the previous day (August 14, 2017)

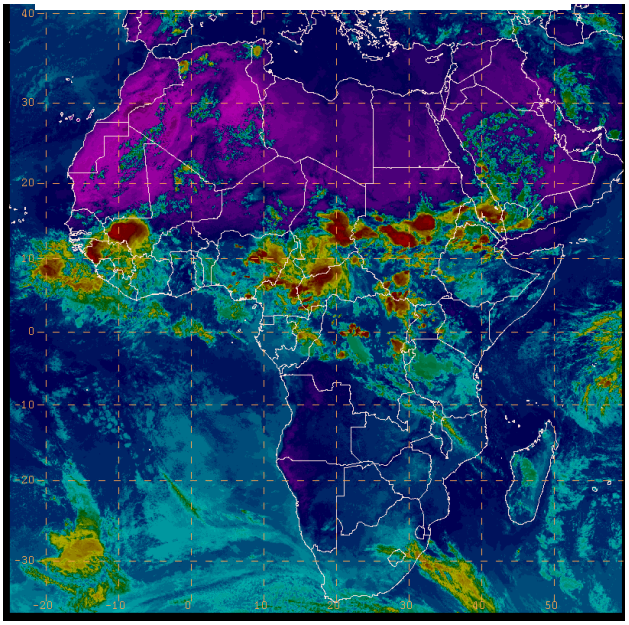
Moderate to locally heavy rainfall was observed over parts of south Mauritania, northern Senegal, southern Mali, eastern Burkina Faso, local areas of Niger, Guinea, Sierra Leone, northern Liberia, northern Cote D'ivoire, northern Ghana, Togo, Benin, local areas of Nigeria, western Cameroon, Chad, CAR, southern Sudan, south Sudan, DRC and northern Ethiopia.

2.2. Weather assessment for the current day (August 15, 2017)

Intense convective clouds are observed over portions of West, Central and East Africa.



IR Satellite Image (valid 1622Z August 15 , 2017)



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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