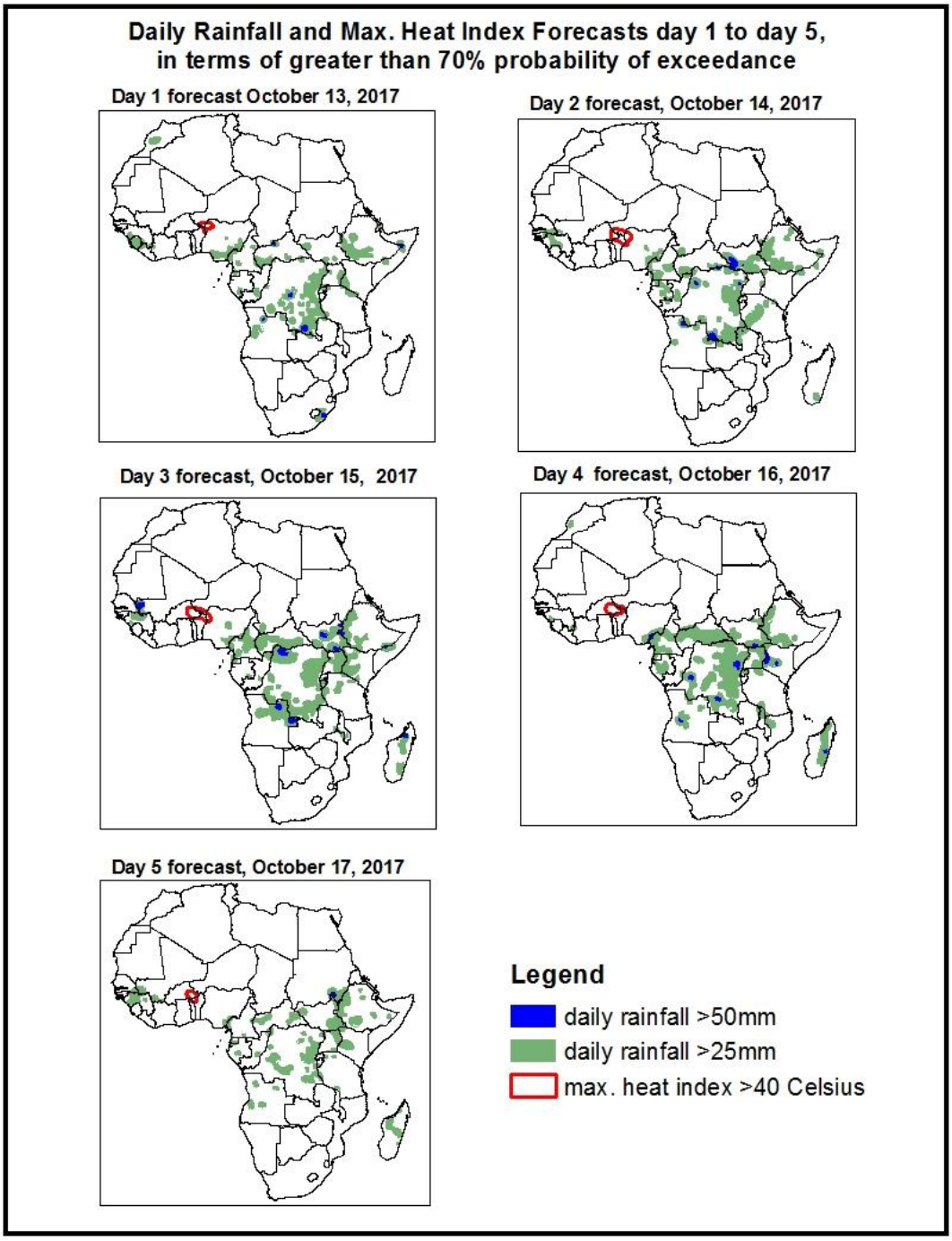
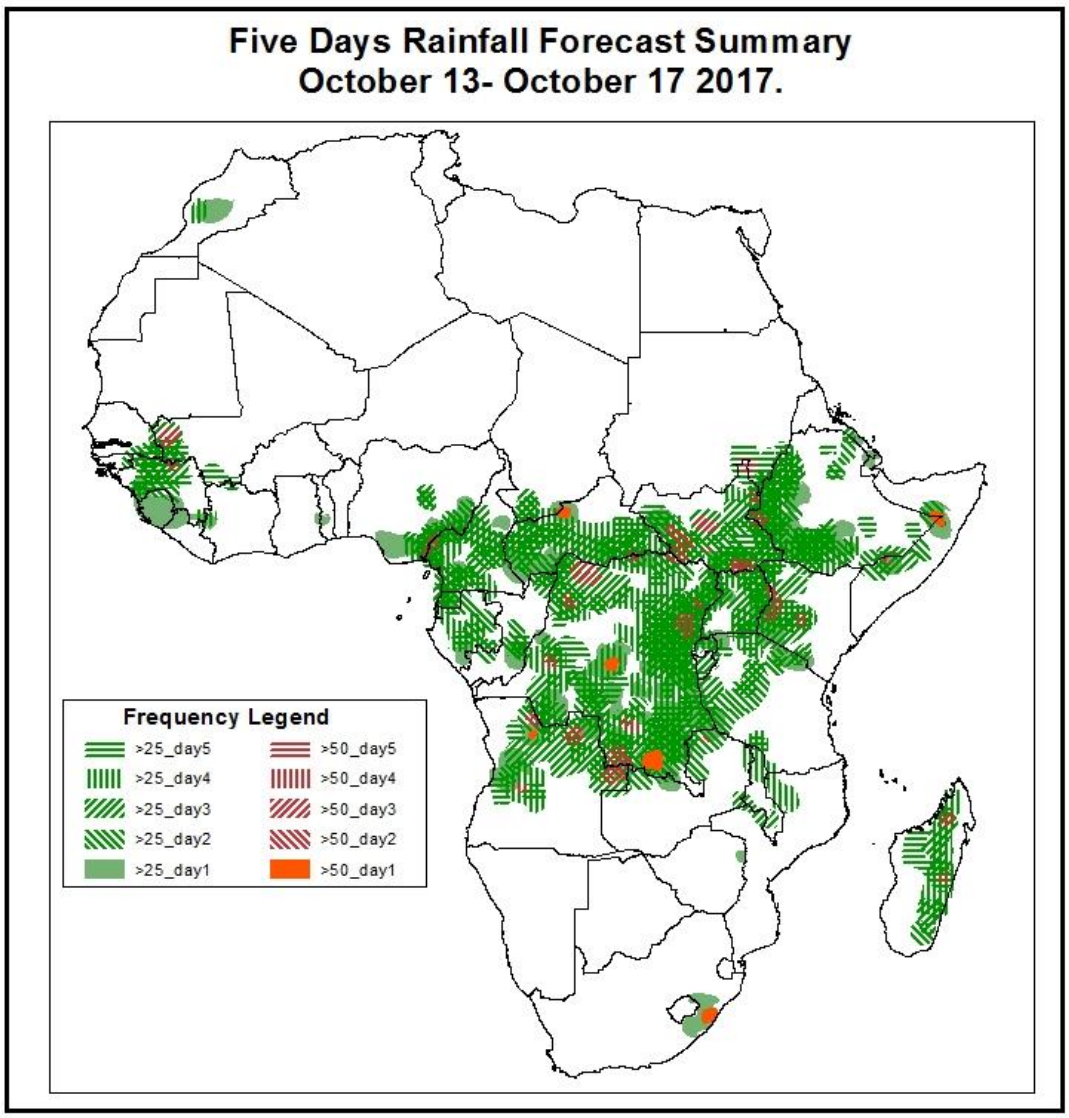
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on *Oct 12*, 2017)

1.1. Daily Rainfall and Maximum Heat Index Forecasts (valid: Oct 13, –Oct 17, 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.



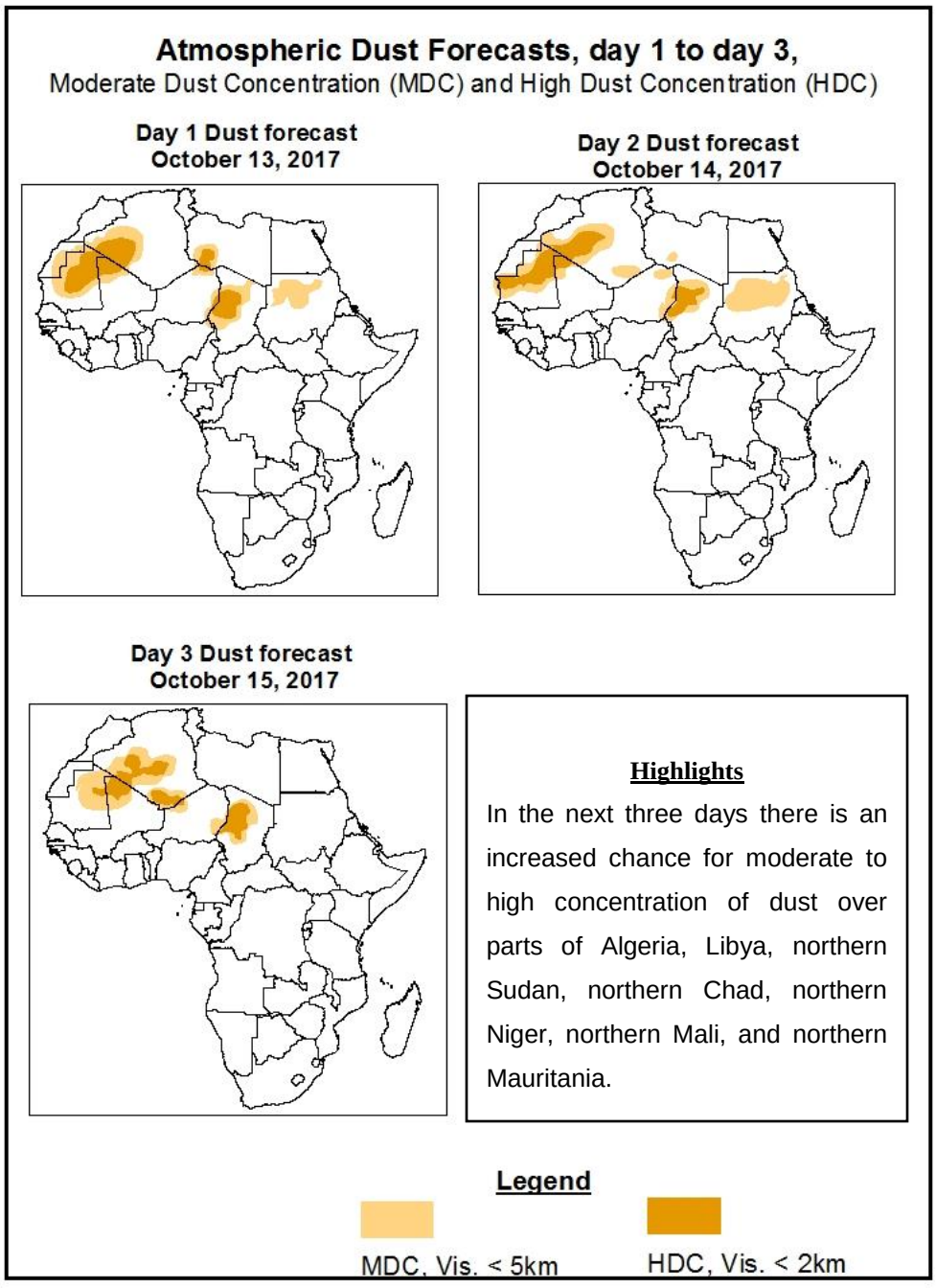


Highlights

In the next five days, active lower-level meridional convergence associated with the Congo air boundary (CAB) between the South Sudan to the southeast DRC and low level wind convergences in the far western Africa, the equatorial Africa and parts of Angola, Ethiopia and Madagascar are expected to enhance rainfall in the respective regions. As a result, there is an increased chance for two or more days of moderate to heavy rainfall over many places in southeastern Senegal, eastern Guinea, southwestern Mali, southeastern Nigeria, central Cameroon, CAR, Equatorial Guinea, central (Gabon and Congo), DRC, South Sudan, western Ethiopia, western Kenya, Uganda, western Tanzania, Burundi, Rwanda, northern Angola, Malawi, central Somalia and Madagascar.

1.2. Atmospheric Dust Concentration Forecasts (valid: Oct 13, – Oct 15, 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: Oct 13 – Oct 17, 2017*

The Azores High Pressure system over the North Atlantic Ocean is expected to weaken from its central pressure value of 1027hpa to 1019hpa in the next 24 hours then intensify to 1032hpa in another 24hours and thereafter weaken to 1029hps towards the end of the forecast period.

The St. Helena High Pressure system over the Southeast Atlantic Ocean is expected to intensify from its central pressure value of 1022hpa to 1026hpa in the next 72hours and then thereafter weaken to 1025hpa towards the end of the forecast period.

The Mascarene High Pressure system over the Southwest Indian Ocean is expected to gradually intensify from its central pressure value of 1035hpa to 1037hpa in the next 24hours and thereafter weakens to 1027hpa towards the end of the forecast period.

The heat low over western Sahel is expected to gradually deepen from its value of 1011hpa to 1008hpa in the next 48hours then fill up back to 1011 towards the end of the forecast period.

Over the central Sahel, the heat low is to maintain its value of 1010hpa towards the end of the forecast period.

Over the Sudan area, the heat low is expected to gradually fill up from its value of 1008hpa to 1010hpa towards the end of the forecast period.

At 925hPa, there is a convergence over West Africa and the Sudan area with some vortices developing over the west Sahel and the Sudan area which are dominated by the continental winds and are moving westward towards the end of the forecast period.
Another strong convergence is established over Angola to the DRC which traverse and extends to western Tanzania, Burundi, Rwanda and then to Uganda and moves slightly to east direction towards the end of the forecast period. Also, another low pressure system is established over Namibia towards the end of the forecast period.

The dry north easterlies to easterly winds propagating from the subtropical high pressure system over North Africa sustained the spreading and transportation of the Saharan dust over Algeria, Libya, Egypt, northern Sudan, northern Chad, northern Niger, northern Mali and northern Mauritania.

At 850hPa, there is a convergence flow over West Africa with a low pressure system developing over the Central Sahel which is dominated by the continental winds and is propagating westward to the end of the forecast period.
There is another strong convergence over the southeastern DRC which traverse and extends to western Tanzania, Burundi, Rwanda and then to Uganda and is quasi-stationary towards the end of the forecast period.

In the next five days, active lower-level meridional convergence associated with the Congo air boundary (CAB) between the South Sudan to the southeast DRC and low level wind convergences in the far western Africa, the equatorial Africa and parts of Angola, Ethiopia and Madagascar are expected to enhance rainfall in the respective regions. As a result, there is an increased chance for two or more days of moderate to heavy rainfall over many places in southeastern Senegal, eastern Guinea, southwestern Mali, southeastern Nigeria, central Cameroon, CAR, Equatorial Guinea, central (Gabon and Congo), DRC, South Sudan, western Ethiopia, western Kenya, Uganda, western Tanzania, Burundi, Rwanda, northern Angola, Malawi, central Somalia and Madagascar.

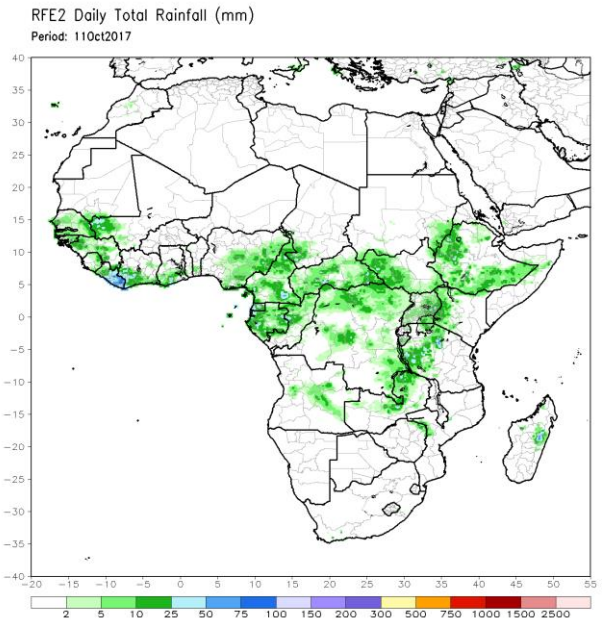
2.0. Previous and Current Day Weather over Africa

2.1. Weather assessment for the previous day (October 11, 2017)

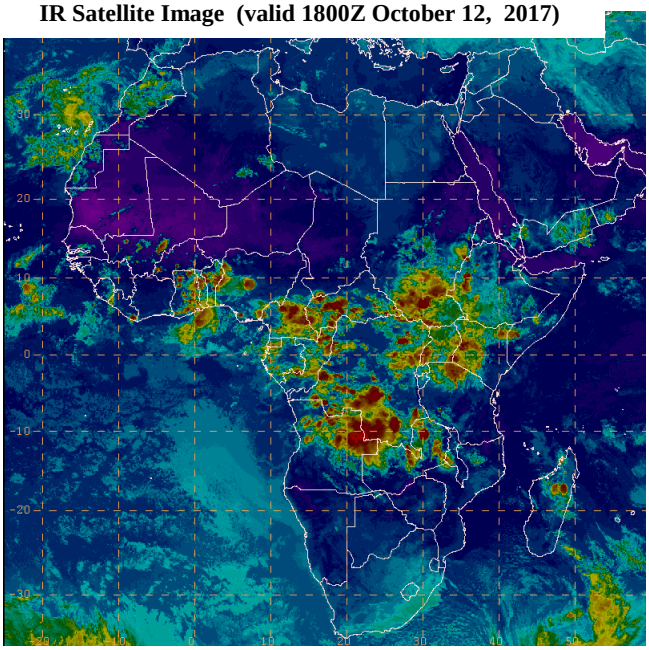
Moderate to locally heavy rainfall was observed over Senegal, Gambia, Guinea Bissau, Guinea, southwestern Mali, Liberia, southern Ivory Coast, southern Ghana, eastern Nigeria, Cameroon, Equatorial Guinea, Gabon, Congo, CAR, western South Sudan, Ethiopia, DRC, Rwanda, Burundi, Uganda, western Kenya, western Tanzania, northern Zambia and central Madagascar.

2.2. Weather assessment for the current day (October 12, 2017)

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



IR Satellite Image (valid 1800Z October 12, 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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