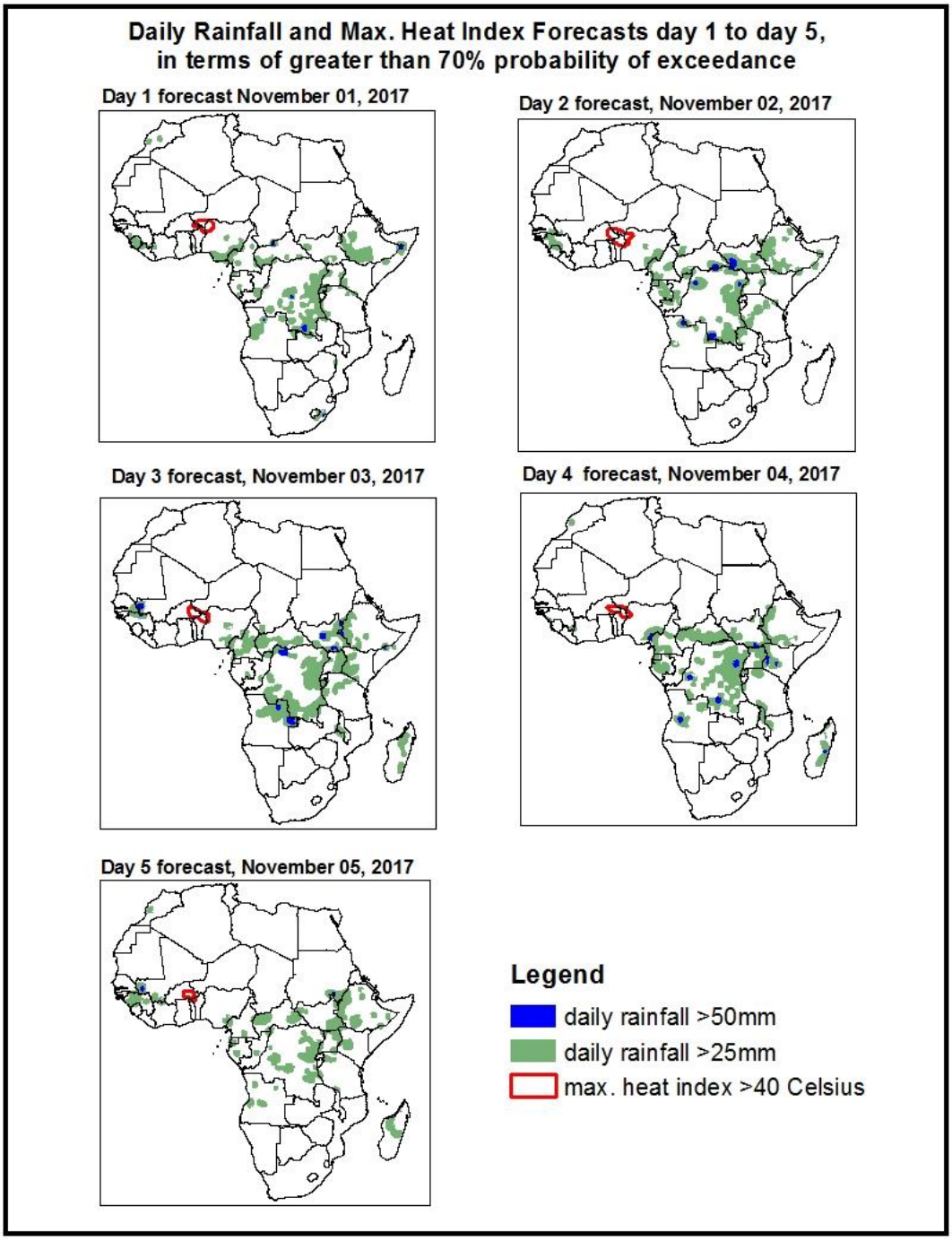
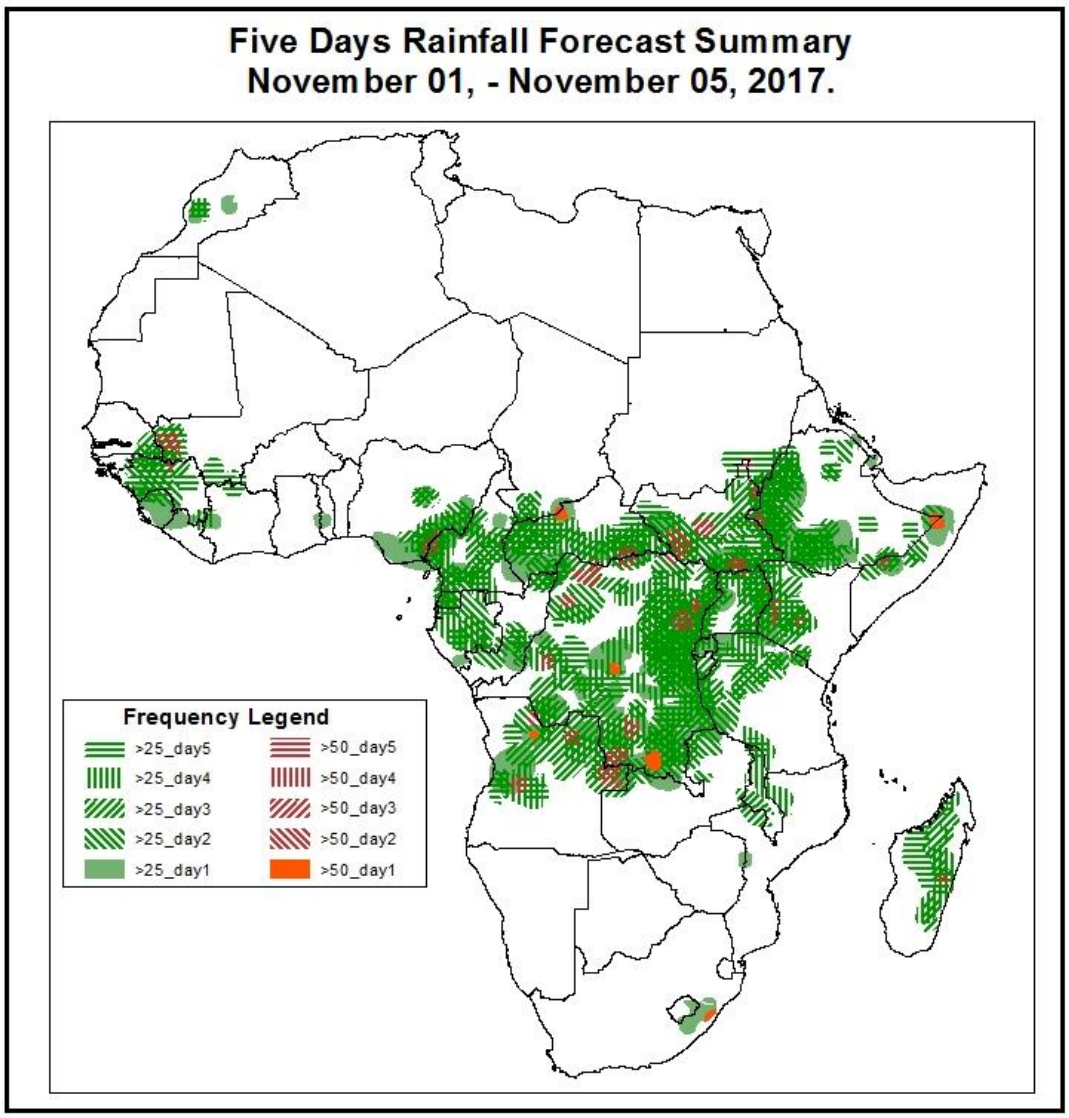
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on *Oct 31*, 2017)

1.1. Daily Rainfall and Maximum Heat Index Forecasts (valid: Nov 01, –Nov 05, 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.



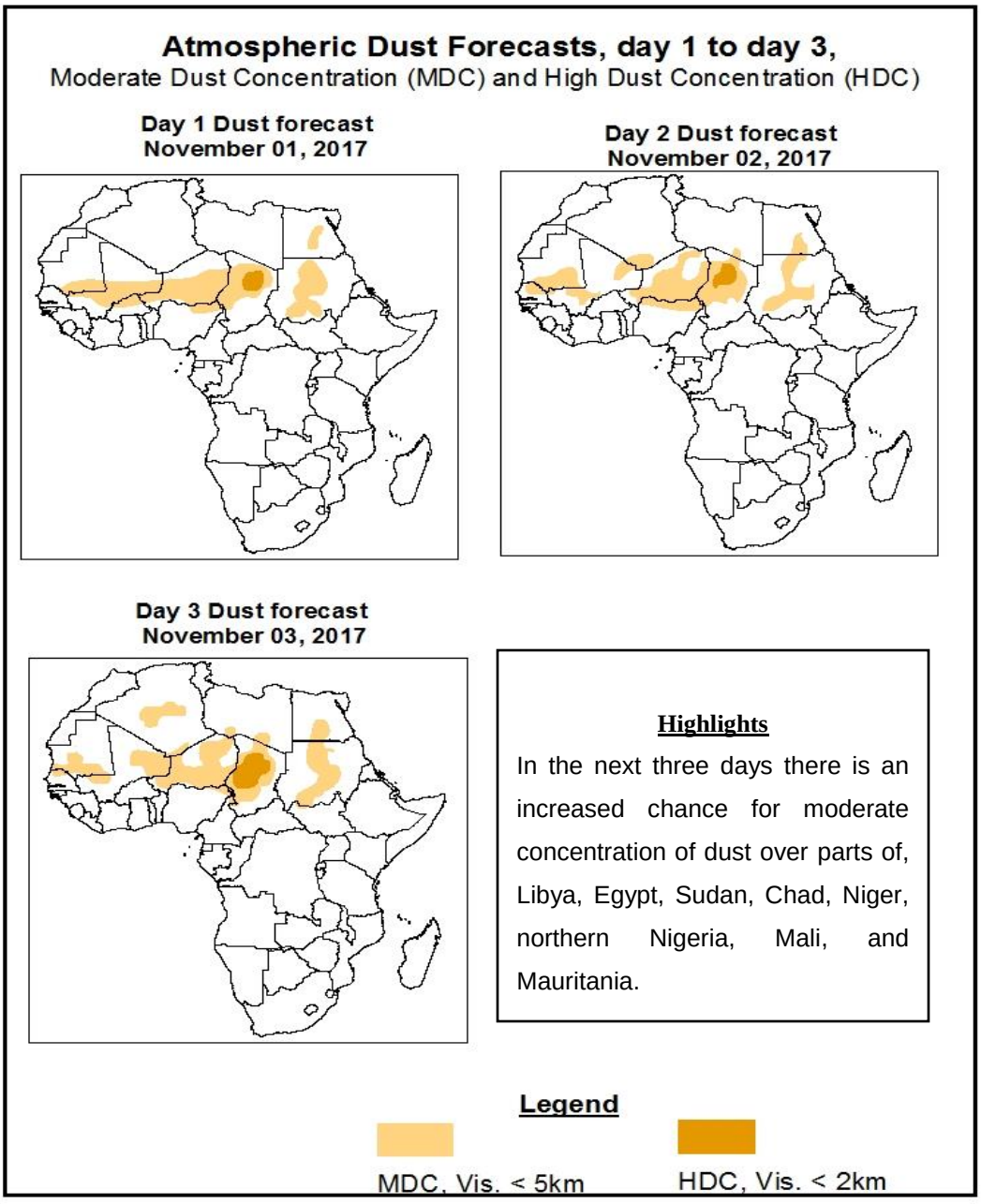


Highlights

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, Namibia, Ethiopia, Madagascar and South Africa 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 southern Guinea, southern Sierra Leone, southern Liberia, southern Cote D'IVoire, southern Ghana, southern Nigeria, Cameroon, CAR, Equatorial Guinea, Gabon, central Congo, DRC, South Sudan, western Ethiopia, western Kenya, Uganda, southeastern Tanzania, Burundi, Rwanda, Angola, Namibia, South Africa, southern Somalia and Madagascar.

1.2. Atmospheric Dust Concentration Forecasts (valid: Nov 01, – Nov 03, 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: Nov 01 – Nov 04, 2017*

The Azores High Pressure system over the North Atlantic Ocean is expected to intensify in the next 24hours from its central pressure value of 1020hpa to 1022hpa and then to weaken back to 1020hpa towards the end of the forecast.

The St. Helena High Pressure system over the Southeast Atlantic Ocean is expected to weaken in the next 72hours from its central pressure value of 1027hpa to 1020hpa and intensify to 1029hpa towards the end of the forecast period.

The Mascarene High Pressure system over the Southwest Indian Ocean is expected to weaken from its central pressure value of 1030hpa to 1019hpa towards the end of the forecast period.

The heat low over western Sahel is expected to slightly deepen from its value of 1010hpa in the next 48hours to 1009hpa and maintain this value towards the end of the forecast period.

The heat low over central Sahel is expected to deepen from its value of 1011hpa to 1009hpa and then fill up back to its value of 1011hpa towards the end of the forecast period.

Over the Sudan area, the heat low is expected to maintain its value of 1009hpa 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 which traverse through DRC and extends to western Tanzania, Burundi, Rwanda and then to southern Sudan and moves slightly to east direction 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 northern Libya, Egypt, Sudan, Chad, Niger, northern Nigeria, Mali and 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, Namibia, Ethiopia, Madagascar and South Africa 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 southern Guinea, southern Sierra Leone, southern Liberia, southern Cote D'IVoire, southern Ghana, southern Nigeria, Cameroon, CAR, Equatorial Guinea, Gabon, central Congo, DRC, South Sudan, western Ethiopia, western Kenya, Uganda, southeastern Tanzania, Burundi, Rwanda, Angola, Namibia, South Africa, southern Somalia and Madagascar.

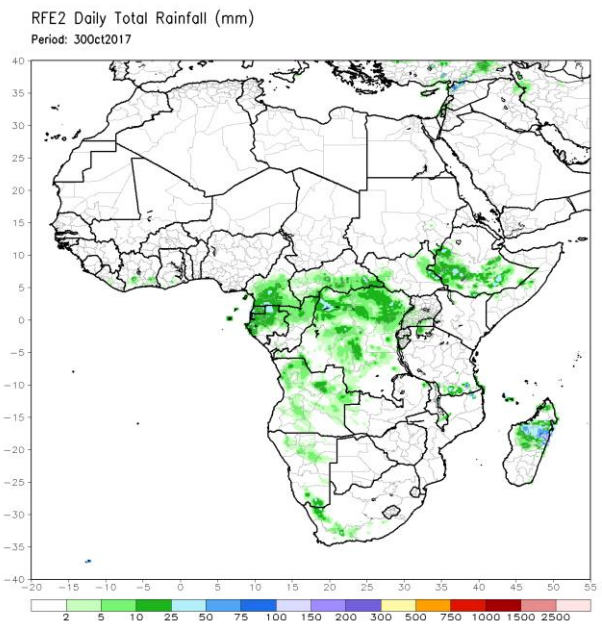
2.0. Previous and Current Day Weather over Africa

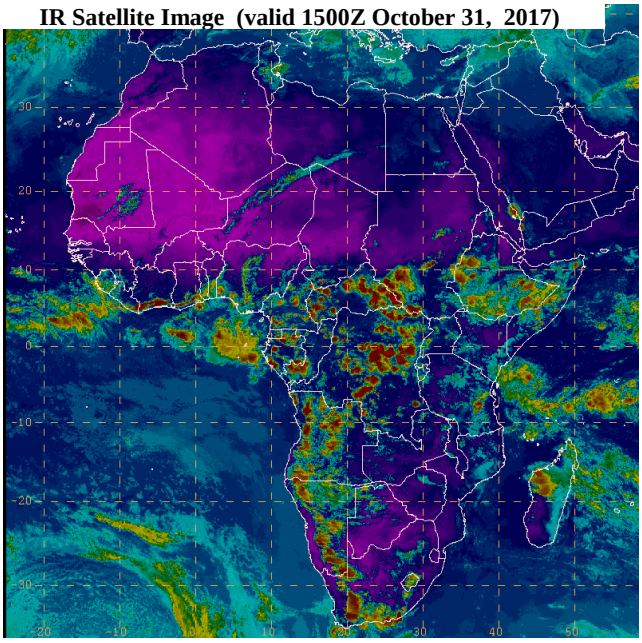
2.1. Weather assessment for the previous day (October 30, 2017)

Moderate to locally heavy rainfall was observed over southern Ivory Coast, southern Cameroon, Equatorial Guinea, northern Congo, Gabon, parts of CAR, DRC, southern South Sudan, Ethiopia, Eastern Kenya, parts of Angola, Namibia, South Africa and Madagascar.

2.2. Weather assessment for the current day (October 31, 2017)

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