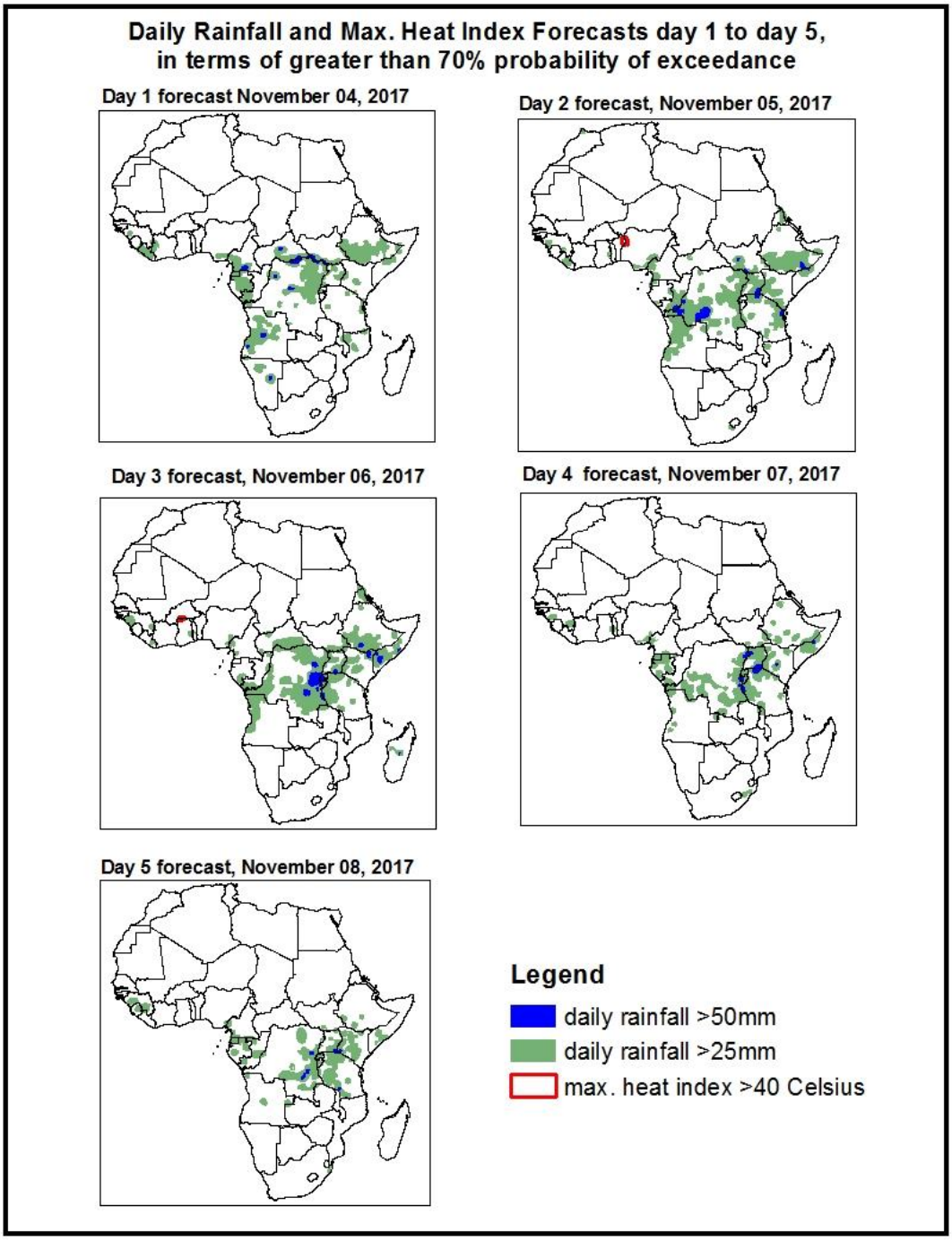
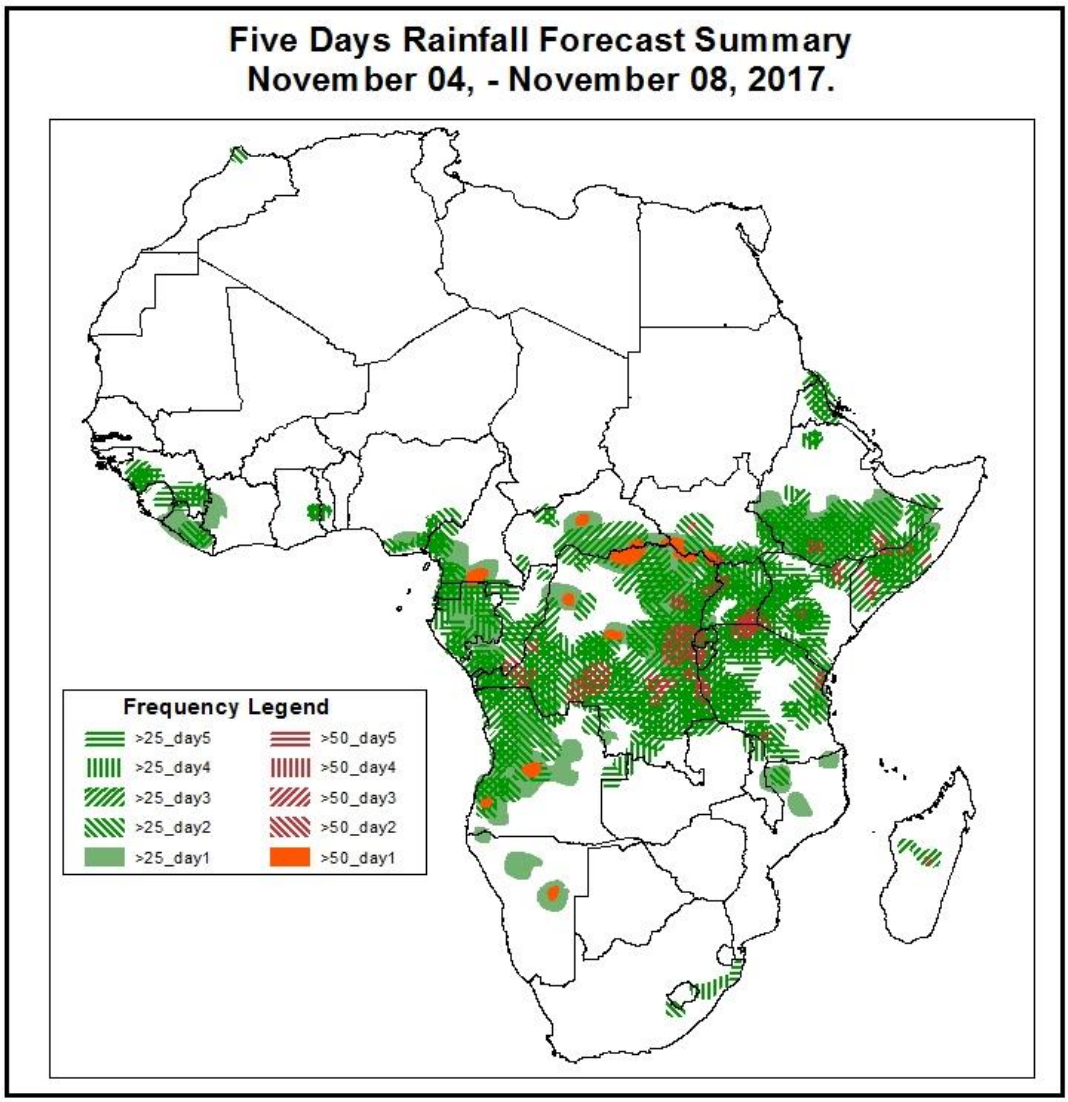
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on *Nov 03*, 2017)

1.1. Daily Rainfall and Maximum Heat Index Forecasts (valid: Nov 04, –Nov 08, 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 equatorial Africa and parts of Angola, Namibia and Ethiopia, 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 of Guinea, Liberia, western Cote D'Ivoire , southern Nigeria, southern Cameroon, CAR, Equatorial Guinea, Gabon, Congo, DRC, southern Sudan, southern Ethiopia, Kenya, central Somalia, Uganda, parts of Tanzania, Burundi, Rwanda, Angola and Namibia.

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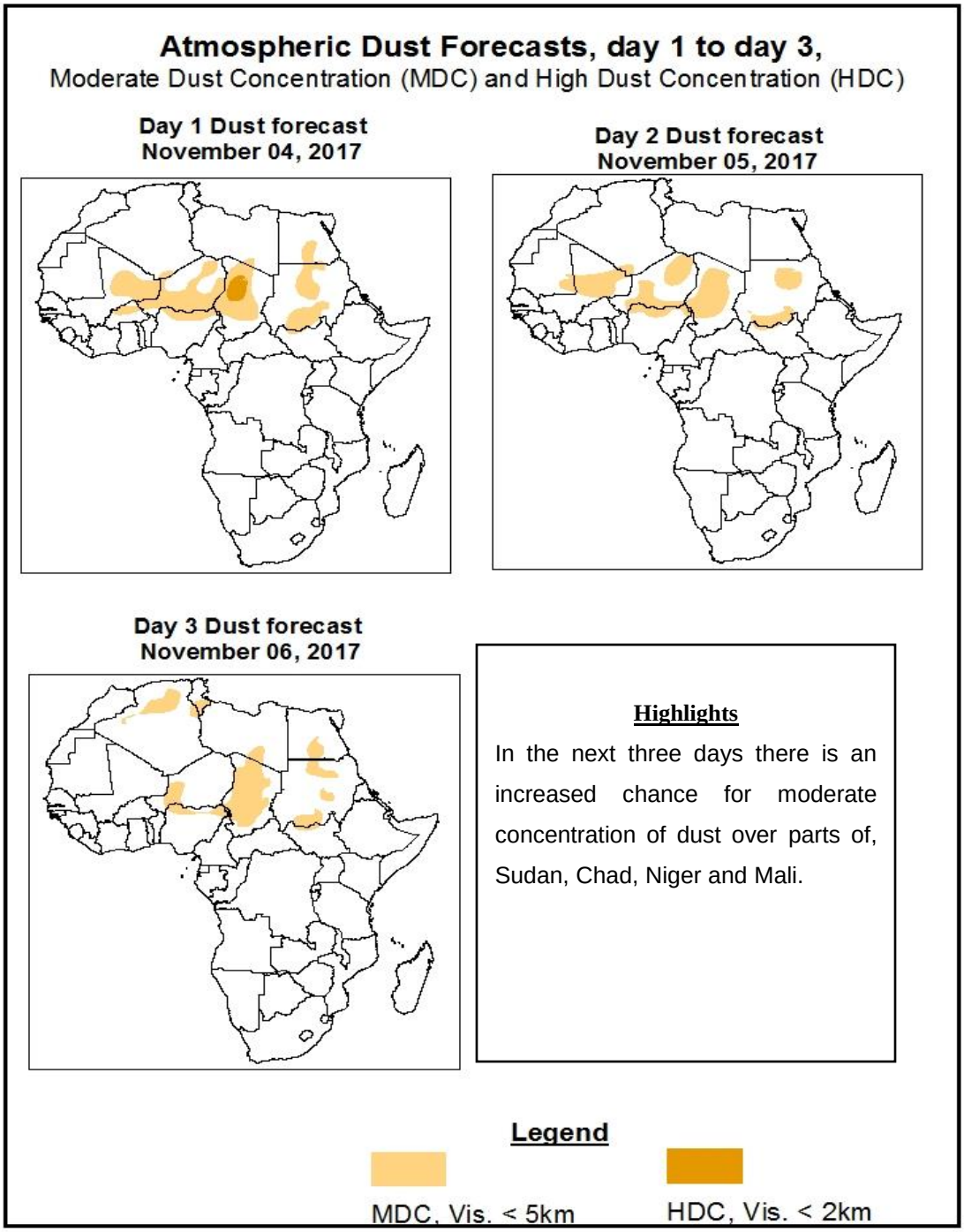
1.2. Atmospheric Dust Concentration Forecasts (valid: Nov 04, – Nov 06, 2017)

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 04 – Nov 06, 2017*

The Azores High Pressure system over the North Atlantic Ocean is expected to maintain in the next 72hours from its central pressure value of 1032hpa and then intensify to 1036hpa towards the end of the forecast.

The St. Helena High Pressure system over the Southeast Atlantic Ocean is expected to intensify from its central pressure value of 1024hpa to 1035hpa and then weaken in the last 48hours to 1032hpa 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 1033hpa to 1020hpa towards the end of the forecast period.

The heat low over western Sahel is expected to maintain its value of 1009hpa in the next 48hours and then deepen to 1008hpa towards the end of the forecast period.

The heat low over central Sahel is expected to slightly maintain its value of 1010hpa towards the end of the forecast period.

Over the Sudan area, the heat low is expected to maintain its value of 1010hpa in the next 72hours and then deepen to 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 equatorial Africa and parts of Angola, Namibia and Ethiopia, 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 of Guinea, Liberia, western Cote D'Ivoire , southern Nigeria, southern Cameroon, CAR, Equatorial Guinea, Gabon, Congo, DRC, southern Sudan, southern Ethiopia, Kenya, central Somalia, Uganda, parts of Tanzania, Burundi, Rwanda, Angola and Namibia.

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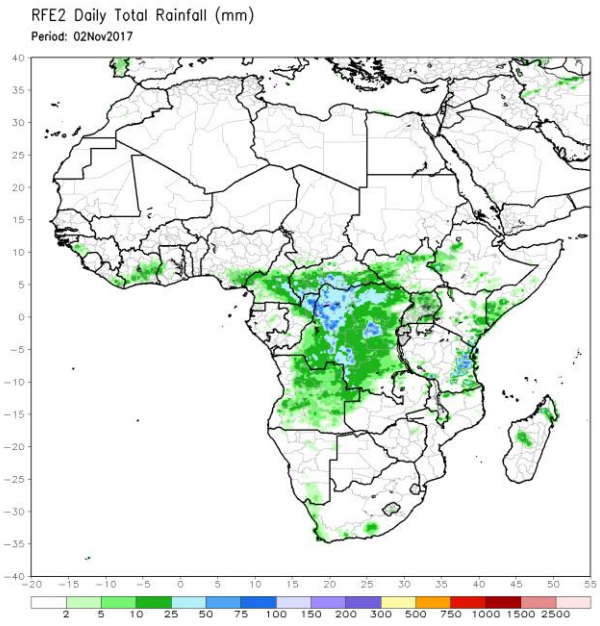
2.0. Previous and Current Day Weather over Africa

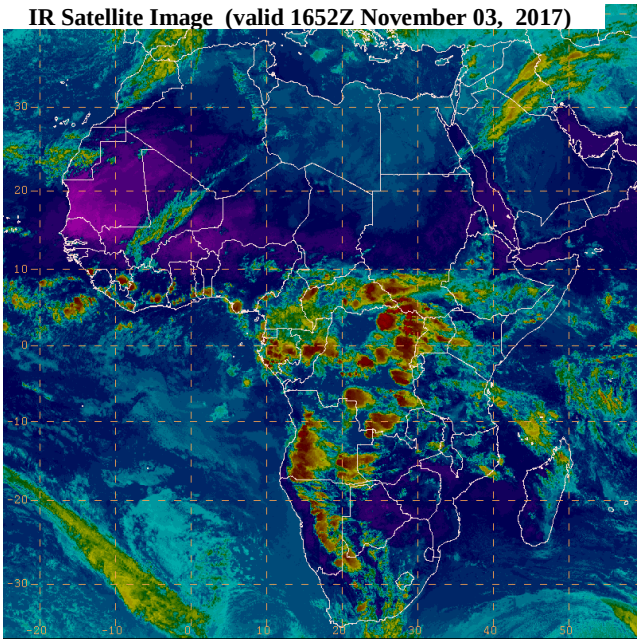
2.1. Weather assessment for the previous day (November 02, 2017)

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

2.2. Weather assessment for the current day (November 03, 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.

Authors: Andre Nhantumbo (Mozambique—INAM) (CPC-African Desk); *andre.nhantumbo@noaa.gov*