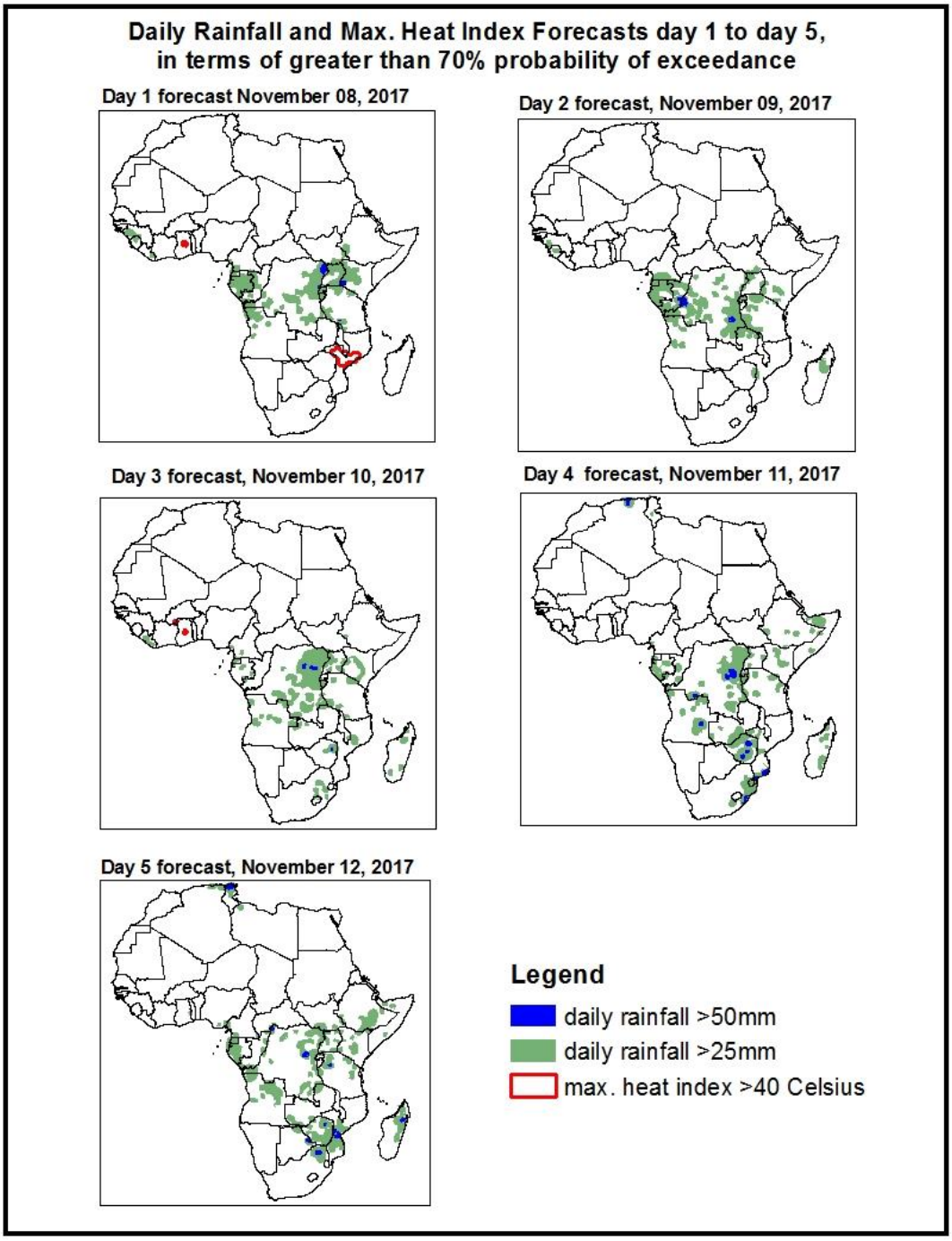
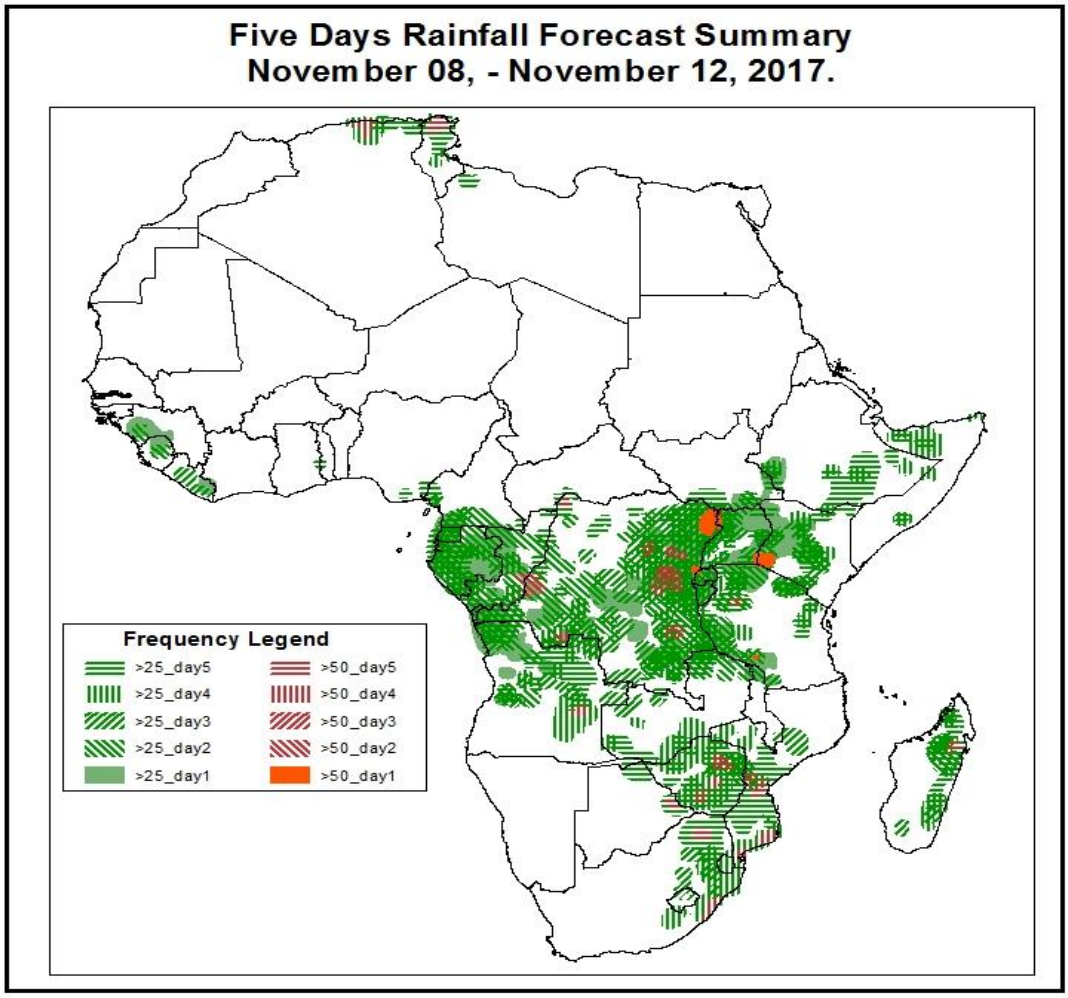
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on *Nov 07*, 2017)

1.1. Daily Rainfall and Maximum Heat Index Forecasts (valid: Nov 08, –Nov 12, 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, South Africa 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 northern Algeria, Tunisia, southern of Guinea, Liberia, southern Cameroon, Equatorial Guinea, Gabon, Congo, DRC, southern Sudan, southern Ethiopia, Kenya, northern of Somalia, Uganda, western Tanzania, Burundi, Rwanda, Angola, Zambia, Zimbabwe, Eastern South Africa, Botswana, Swaziland, parts of Mozambique and Madagascar.

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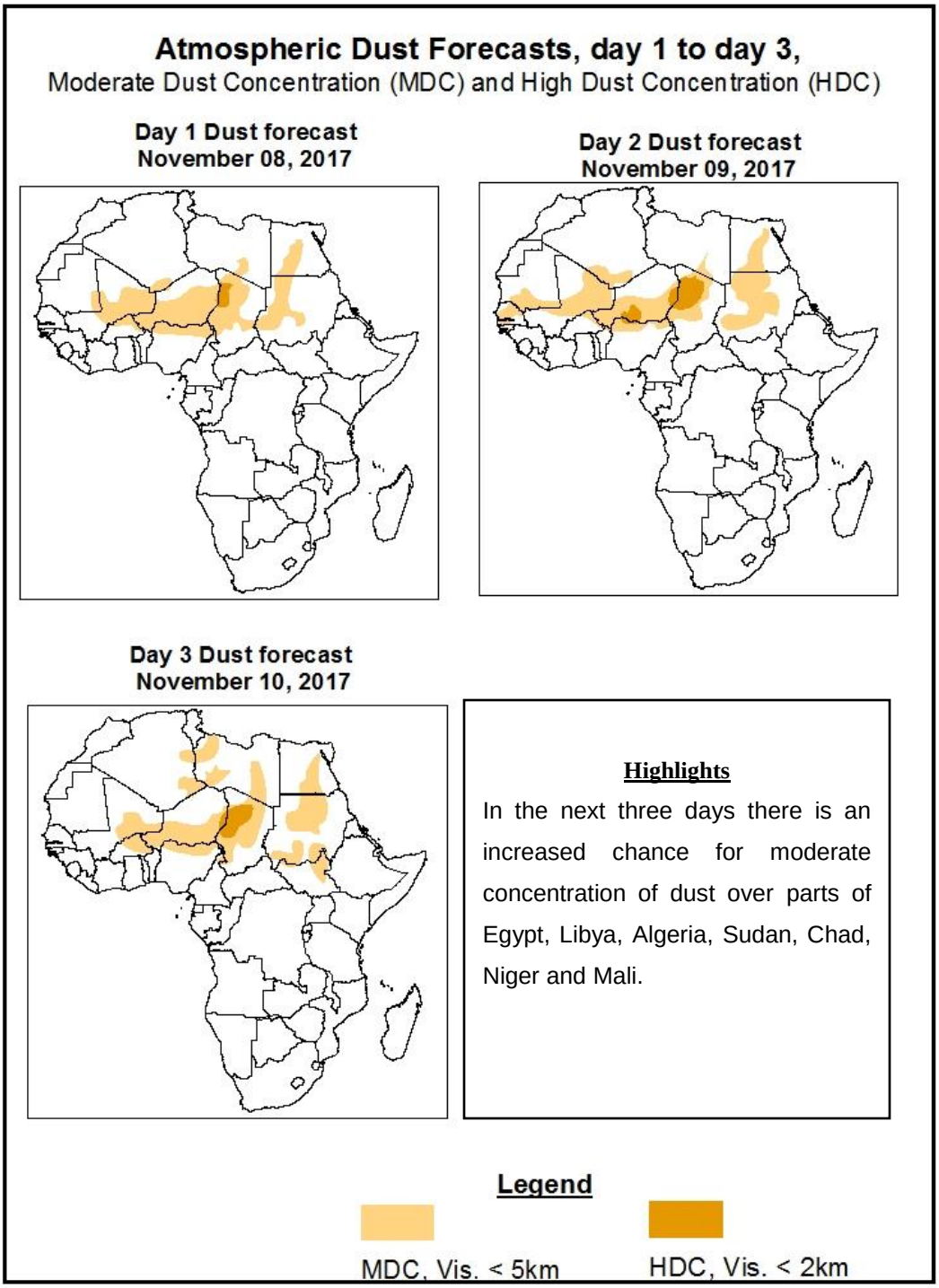
1.2. Atmospheric Dust Concentration Forecasts (valid: Nov 08, – Nov 10, 2017)

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 08 – Nov 10, 2017*

The Azores High Pressure system over the North Atlantic Ocean is expected to maintain its central pressure value of 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 1021hpa to 1026hpa towards the end of the forecast period.

The Mascarene High Pressure system over the Southwest Indian Ocean is expected to maintain in the next 72hours its central pressure value of 1021hpa and intensify to 1025hpa towards the end of the forecast period.

The heat low over western Sahel is expected to maintain its value of 1008hpa and then slightly fill up to 1009hpa towards the end of the forecast period.

The heat low over central Sahel is expected to 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 1009hpa towards the end of the forecast period.

At 925hPa, West Africa is dominated by the continental winds with a convergence all through the region and vortex developing over the extreme western part and moving westward to the end of the forecast period. Over the Sudan area, there is a convergence which is dominated by the continental winds also with a vortex southern Sudan and moving westward towards the end of the forecast period.
Another strong convergence is established over the Central Africa Republic, Tanzania and the southern part of Africa which are quasi-stationary 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 Egypt, Sudan, Chad, Niger, 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, South Africa 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 northern Algeria, Tunisia, southern of Guinea, Liberia, southern Cameroon, Equatorial Guinea, Gabon, Congo, DRC, southern Sudan, southern Ethiopia, Kenya, northern of Somalia, Uganda, western Tanzania, Burundi, Rwanda, Angola, Zambia, Zimbabwe, Eastern South Africa, Botswana, Swaziland, parts of Mozambique and Madagascar.

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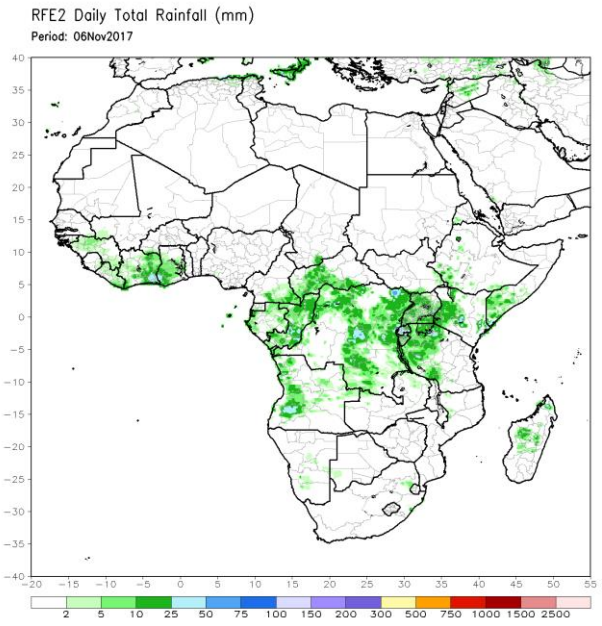
2.0. Previous and Current Day Weather over Africa

2.1. Weather assessment for the previous day (November 06, 2017)

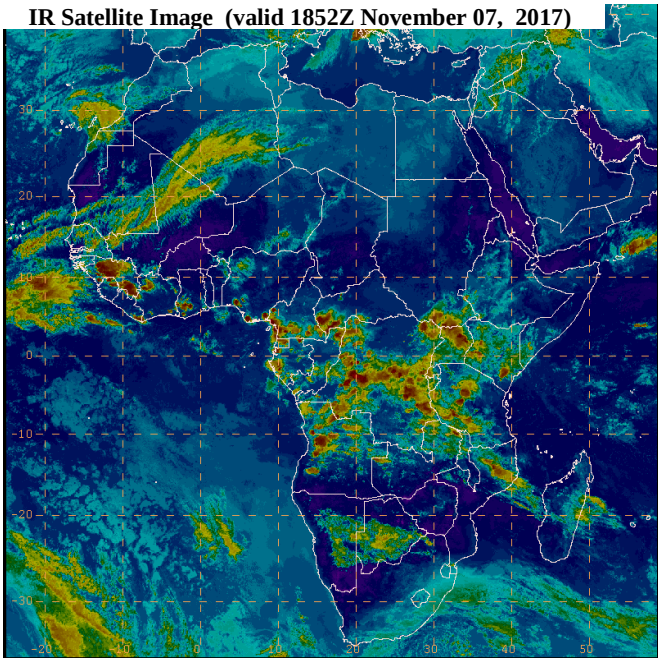
Moderate to locally heavy rainfall was observed over Sierra Leone, Guinea, southern Ivory Coast, southern Ghana, southern Cameroon, Equatorial Guinea, southern Congo, Gabon, parts of CAR, DRC, Ethiopia, parts of Angola and Madagascar.

2.2. Weather assessment for the current day (November 07, 2017)

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



IR Satellite Image (valid 1852Z November 07, 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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