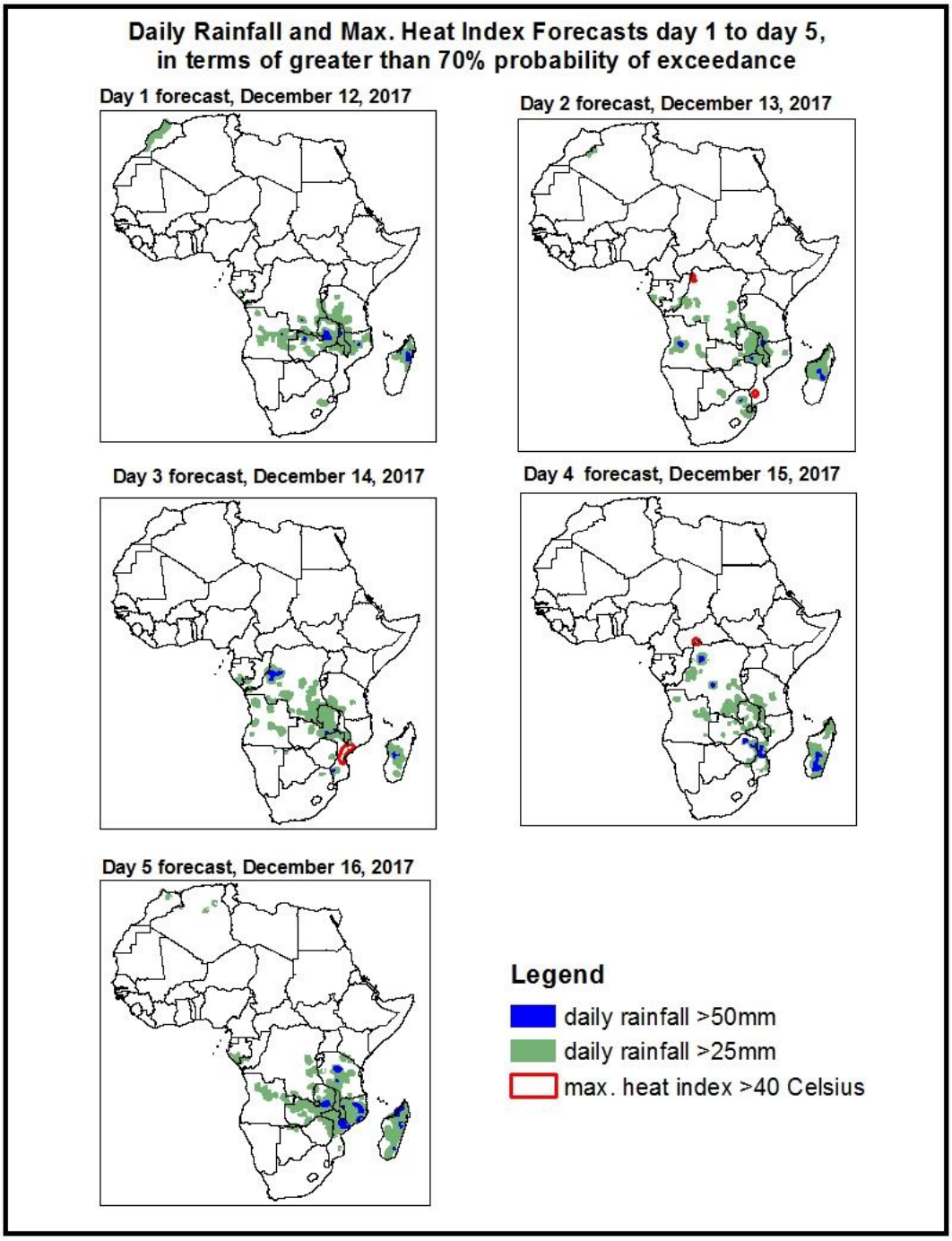
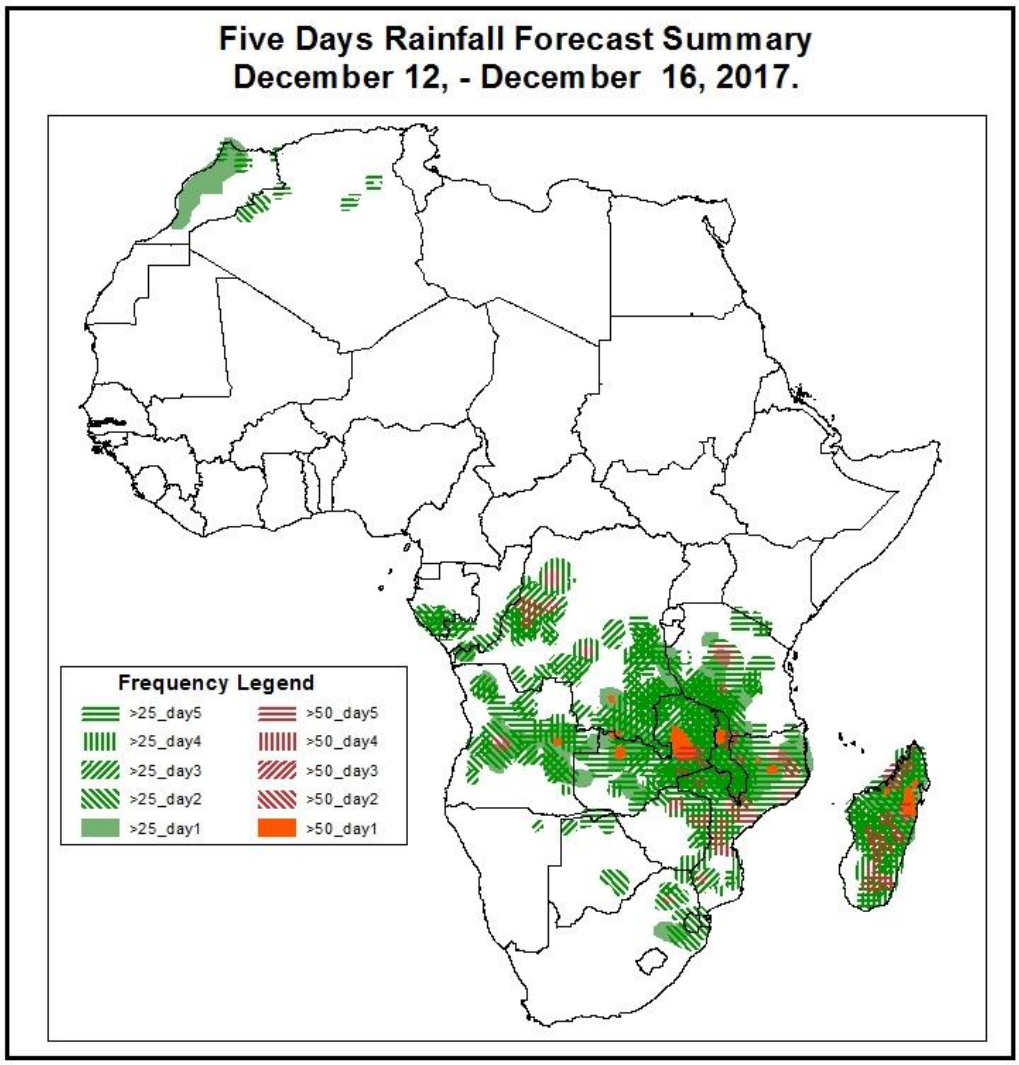
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on *Dec 11*, 2017)

1.1. Daily Rainfall and Maximum Heat Index Forecasts (valid: Dec 12, –Dec 16, 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.



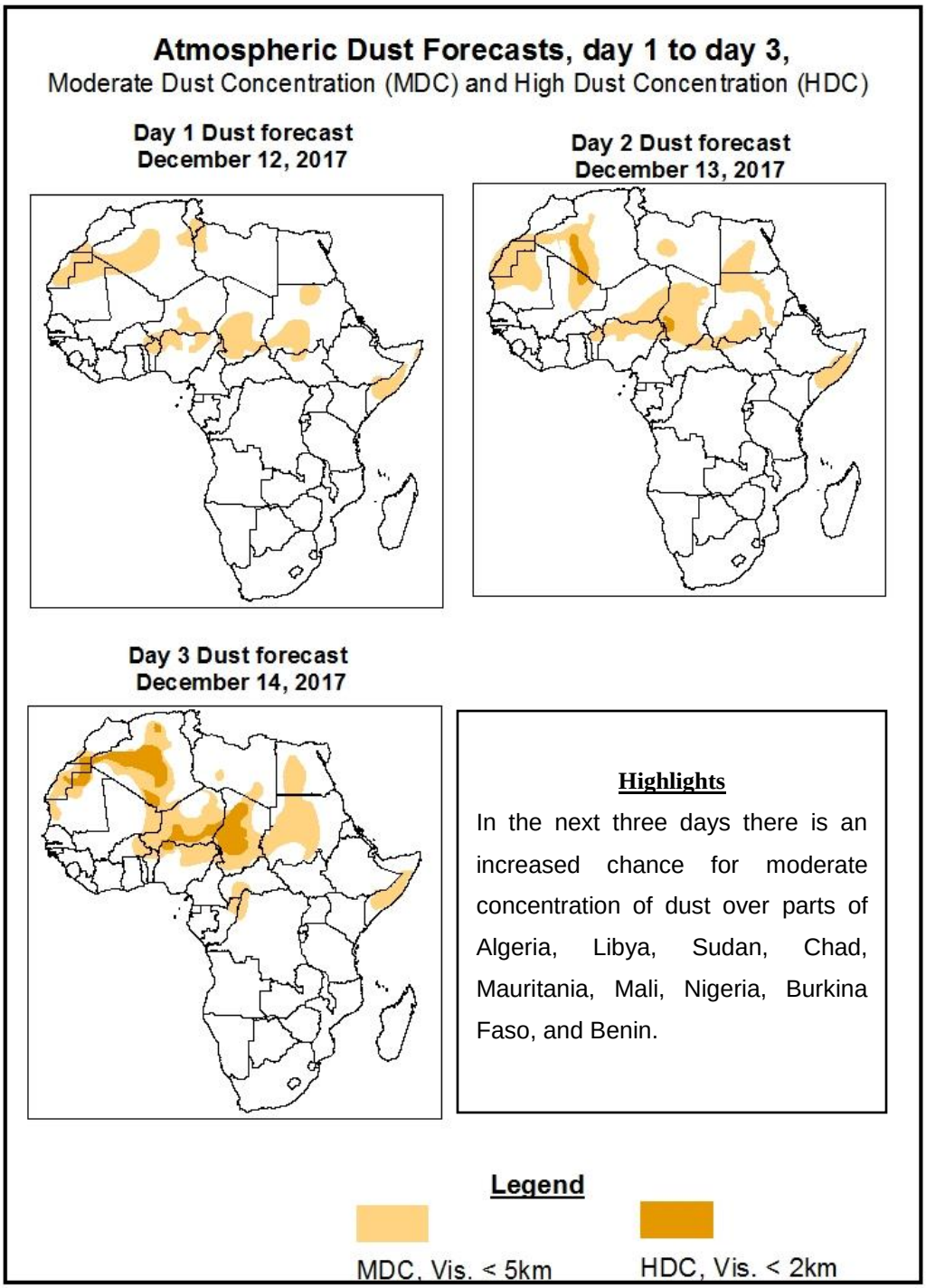


Highlights

In the next five days, active lower-level meridional convergence associated with the Congo air boundary (CAB) in the Lake Victoria region, lower-level convergence across the northern parts of southern Africa, and cyclonic circulation in the Mozambique Channel are expected to remain active during the forecast period. As a result, there is an increased chance for two or more days of moderate to heavy rainfall over many places in south Gabon, southeastern Congo, part of DRC, part of Tanzania, Angola, Zambia, northeastern Zimbabwe, north-eastern South Africa, Swaziland, Malawi, parts of Mozambique and Madagascar. .

1.2. Atmospheric Dust Concentration Forecasts (valid: Dec 12, – Dec 14, 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: Dec 12 – Dec 14, 2017*

The Azores High Pressure system over the North Atlantic Ocean is expected to intensify from its central pressure value of 1032hpa to 1036hpa and then weaken to 1031hpa towards the end of the forecast period.

The St. Helena High Pressure system over the Southeast Atlantic Ocean is expected to weaken from its central pressure value of 1027hpa to 1024hpa and then intensify back to its value of 1027hpa 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 1028hpa to 1025hpa and then intensify to 1029hpa towards the end of the forecast period.

At 925hPa, dry strong northeasterly to easterly wind is expected to prevail across the Sahel and northern Africa countries. As a result, there is an increased chance for moderate to high dust concentration in these regions.

At 850hPa, areas of wind convergences are expected to remain active in the Lake Victoria region, extending into parts of DRC. Lower-level wind convergences are also expected to enhance rainfall over parts of Angola and northern Mozambique. A cyclonic circulation across Madagascar is expected to enhance rainfall during the forecast period.

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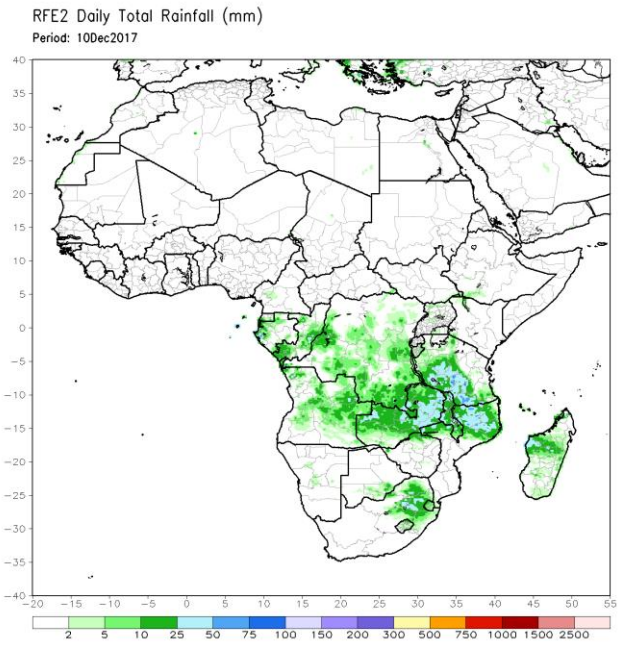
2.0. Previous and Current Day Weather over Africa

2.1. Weather assessment for the previous day (December 10, 2017)

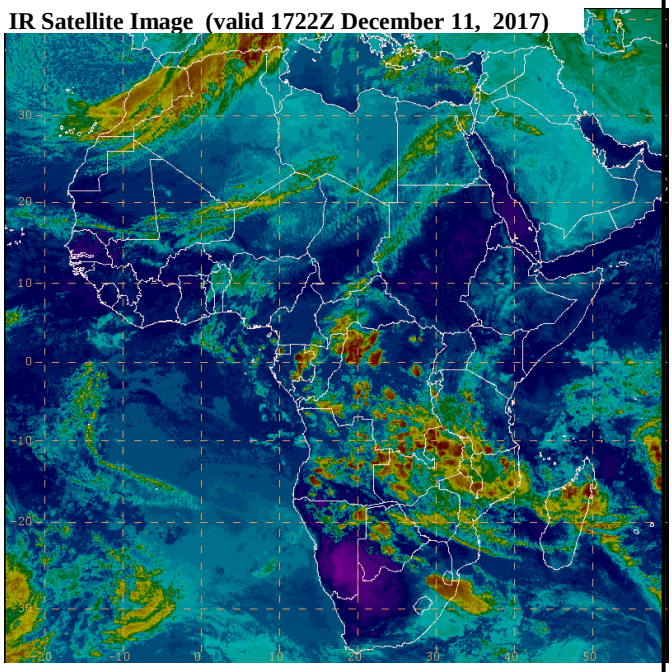
Moderate to locally heavy rainfall was observed over Gabon, Congo, DRC, Angola, Zambia, Botswana parts of South Africa, north Mozambique, Zimbabwe and Madagascar.

2.2. Weather assessment for the current day (December 11, 2017)

Intense convective clouds are observed over portions of Central and South Africa.



IR Satellite Image (valid 1722Z December 11, 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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