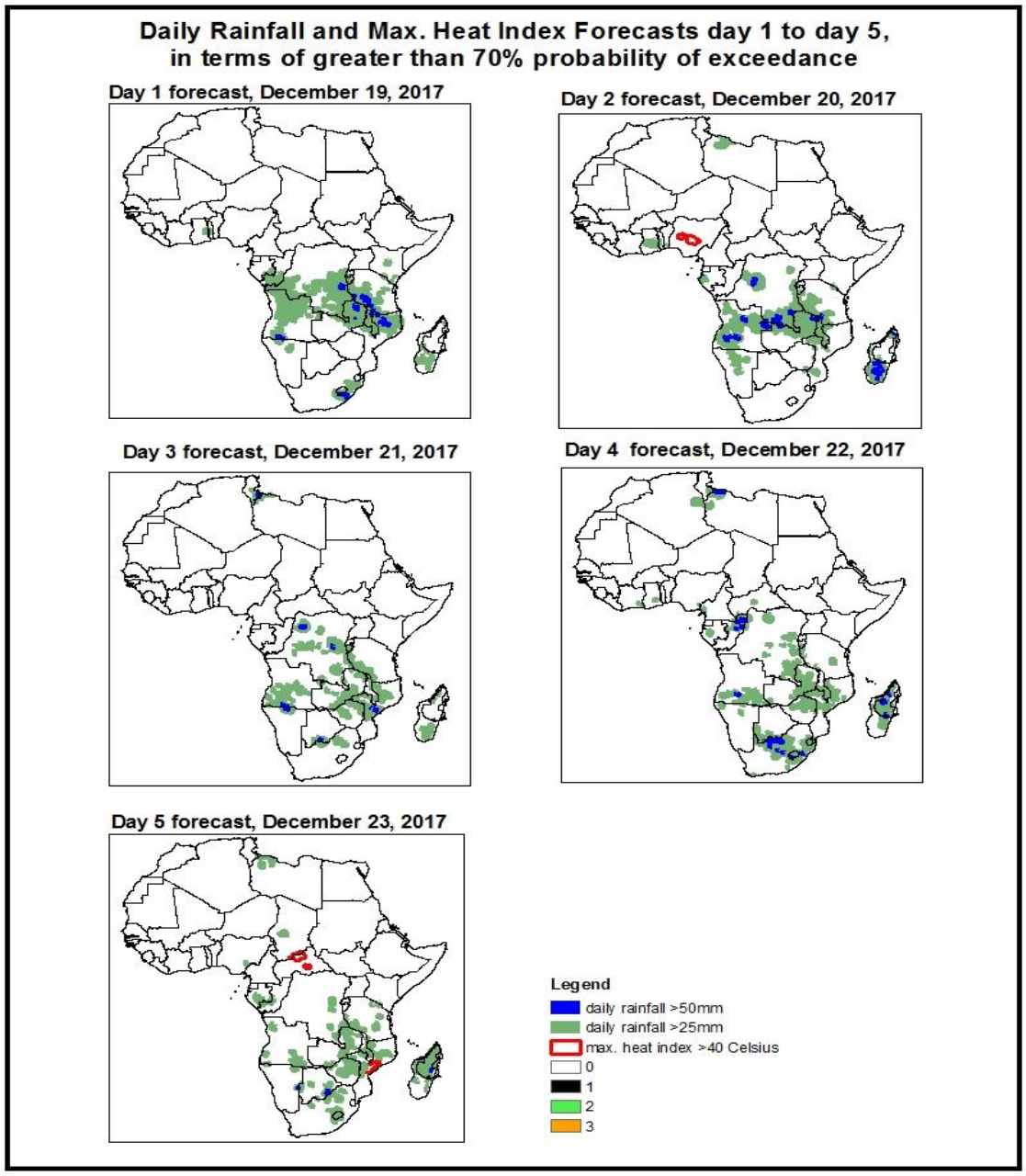
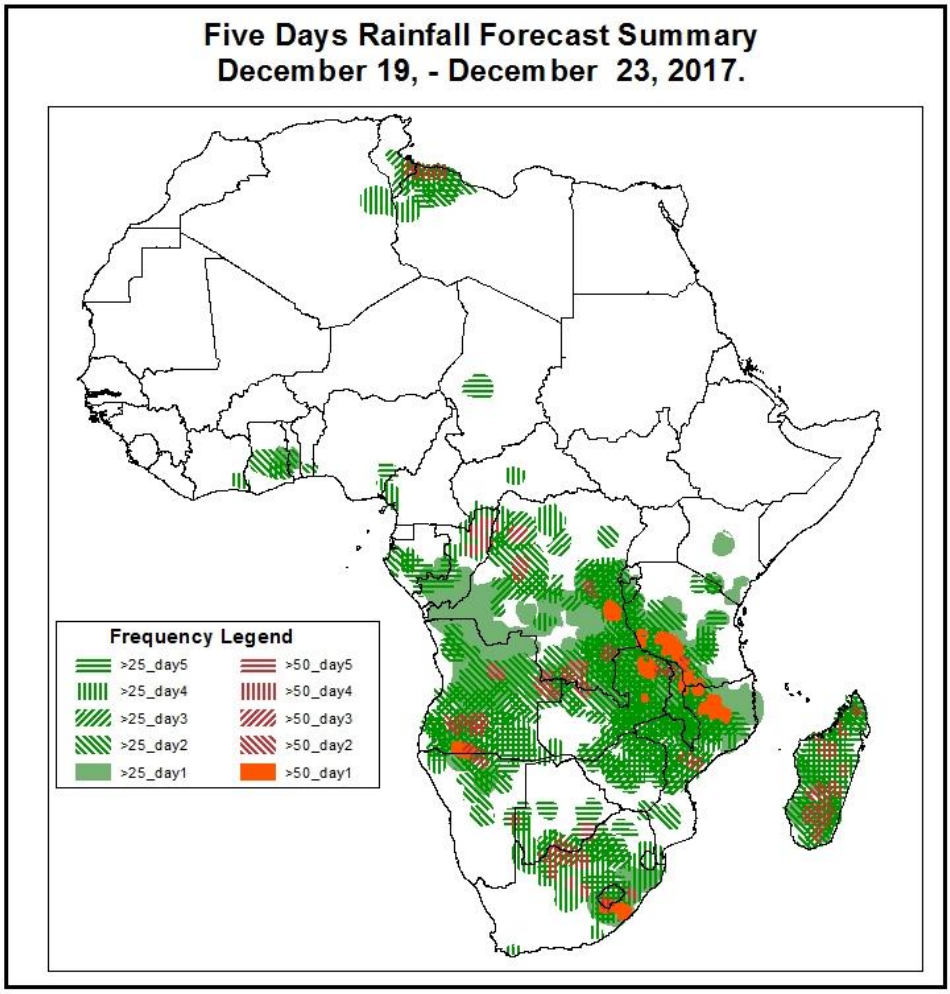
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on *Dec18*, 2017)

1.1. Daily Rainfall and Maximum Heat Index Forecasts (valid: Dec 19, –Dec 23, 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.



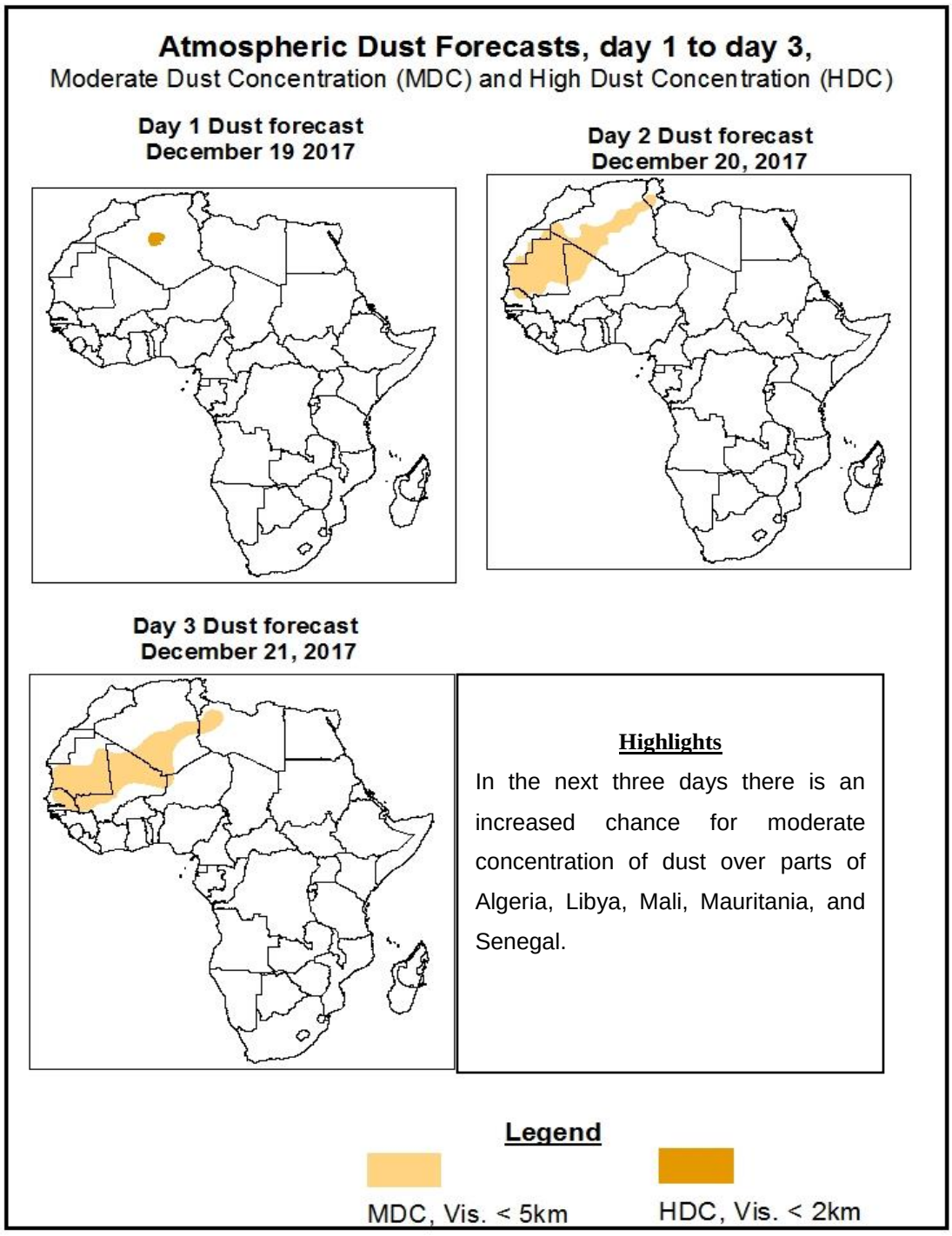


Highlights

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, Congo, part of DRC, Tanzania, Burundi, south Kenya, Angola, north Namibia, Zambia, south Botswana, north Zimbabwe, eastern South Africa, Swaziland, Malawi, center-north Mozambique and Madagascar. .

1.2. Atmospheric Dust Concentration Forecasts (valid: Dec 18, – Dec 20, 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 18 – Dec 20, 2017*

The Azores High Pressure system over the North Atlantic Ocean is expected to intensify from its central pressure value of 1032hpa to 1037hpa 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 1028hpa to 1024hpa and maintain in the next 72hours towards the end of the forecast period.

The Mascarene High Pressure system over the Southwest Indian Ocean is expected to slightly weaken from its central pressure value of 1020hpa to 1018hpa and back to its value of 1020hpa 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.

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, Congo, part of DRC, Tanzania, Burundi, south Kenya, Angola, north Namibia, Zambia, south Botswana, north Zimbabwe, eastern South Africa, Swaziland, Malawi, center-north Mozambique and Madagascar.

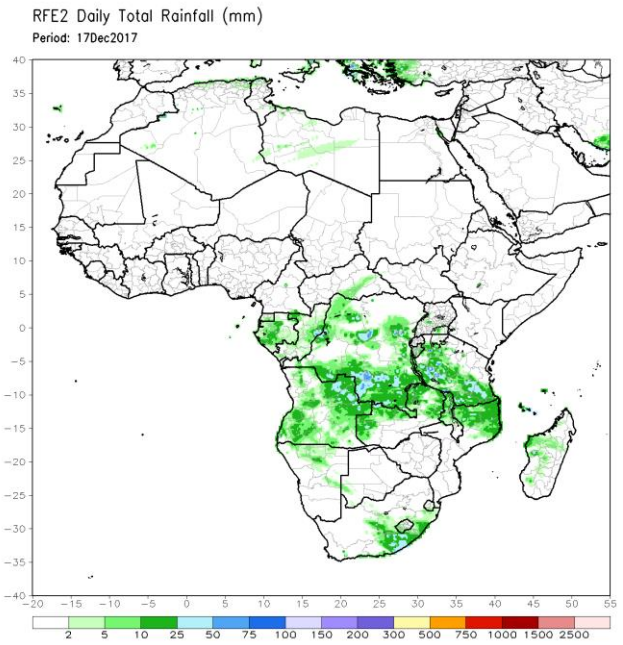
2.0. Previous and Current Day Weather over Africa

2.1. Weather assessment for the previous day (December 17, 2017)

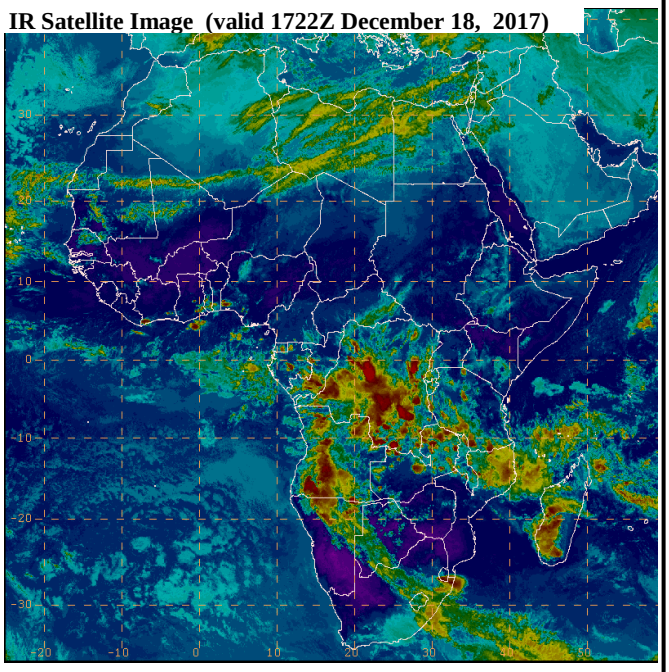
Moderate to locally heavy rainfall was observed over Gabon, Congo, DRC, Angola, Zambia, Tanzania, north Malawi, Mozambique and Madagascar.

2.2. Weather assessment for the current day (December 18, 2017)

Intense convective clouds are observed over portions of Central and Madagascar.



IR Satellite Image (valid 1722Z December 18, 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.

Authors: Georges Miouidi (Republique du Congo—ANAC) (CPC-African Desk););*georges.miouidi@noaa.gov*
Andre Nhantumbo (Mozambique—INAM) (CPC-African Desk); *andre.nhantumbo@noaa.gov*