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 30, 2017)

#### 1.1. Daily Rainfall and Maximum Heat Index Forecasts (valid: Dec 01, –Dec 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.





# <u>Highlights</u>

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 across Madagascar 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, DRC, southern Kenya, Tanzania, Burundi, Angola, part of Zambia, eastern South Africa, Malawi, north Mozambique and Madagascar.

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

The Azores High Pressure system over the North Atlantic Ocean is expected to maintain in the next 72hours 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 weaken from its central pressure value of 1024hpa to 1022hpa and then intensify to 1025hpa towards the end of the forecast period.

The Mascarene High Pressure system over the Southwest Indian Ocean is expected to intensify from its central pressure value of 1022hpa to 1030hpa and then weaken to 1026hpa 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 (November 29, 2017)

Moderate to locally heavy rainfall was observed over Morocco, north Algeria, Gabon, south Nigeria, south Congo, DRC, parts of Angola, north Zambia, Tanzania, Malawi, eastern South Africa, north Mozambique, and Madagascar.



#### 2.2. Weather assessment for the current day (November 30, 2017)

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