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 February 12, 2020)

1.1. Daily Rainfall and Maximum Heat Index Forecasts (valid: 13 – 17 Feb, 2020)

The forecasts are expressed in terms of high probability of precipitation (POP), valid 06Z to 06Z, and exceedance probability of maximum heat index (>40°C), based on the NCEP/GFS and the NCEP Global Ensemble Forecasts System (GEFS) and expert assessment.





Highlights

- Cyclonic troughs at low and mid-level atmosphere are expected to enhance rainfall over portions of southeastern Africa, mostly across Angola, DRC, Zambia, Zimbabwe, Malawi, Mozambique, Tanzania and Madagascar.
- At least 25mm for two or more days is likely over local areas in northern Angola, southeastern DRC, Zambia, Malawi, northern Mozambique, southern Tanzania and Madagascar, with a an increased chance of rainfall in excess of 50mm over local areas in DRC, Malawi, Mozambique and Tanzania.
- There is an increased chance for daily maximum heat index to exceed 40°C over local areas in the Gulf of Guinea region, northern DRC and eastern South Sudan.

1.2. Atmospheric Dust Concentration Forecasts (valid: 13 – 15 Feb, 2020) 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: 13 – 17 February 2020

The Azores High Pressure system over Northeast Atlantic and over west Europe and the Maghreb is expected to maintain its position with a central pressure value around 1025hPa through 72 hours. It tends to move northwestwards with its central pressure value increasing significantly from 1025hPa to 1035hPa over North Atlantic between 96 to 120 hours.

The St. Helena High Pressure system over the Southwest Atlantic Ocean is expected to move northeastwards while weakening with his central pressure value decreasing from 1030hPa to 1025hPa during the forecast period.

The Mascarene High Pressure system over Southwest of Indian Ocean is expected to weaken with a central pressure value decreasing from 1025hPa to 1022hPa during the forecast period.

The Arabian Ridge across the northern part of the Greater Horn of Africa is expected to weaken and moves northeastwards from 72 hours to the end of forecast period.

At 925-hPa level, an area of strong dry northerly to northeasterly flow is expected to enhance atmospheric dust concentration over the Sahel and Sahara region. Zonal wind convergences are expected to remain active in the equatorial Africa region.

At 850-hPa level, an area of lower level-wind convergence and cyclone trough are expected to remain active across southeastern Africa and over Madagascar.

At 700-hPa level, a cyclonic trough is expected to propagate over southeastern Africa and Madagascar. Otherwise an anticyclonic circulation gradually propagates over Tanzania and DRC during the forecast period. A trough associated with mid-latitude frontal system is expected to propagate eastward across the Middle-East region, and is likely to cause increased in cloudiness across Sudan and Ethiopia during the forecast period.

Cyclonic troughs at low and mid-level atmosphere are expected to enhance rainfall over portions of southeastern Africa, mostly between Angola, DRC, Zambia, Zimbabwe, Malawi,

Mozambique, Tanzania and Madagascar. At least 25mm for two or more days is likely over local areas in northern Angola, southeastern DRC, Zambia, Malawi, northern Mozambique, southern Tanzania and Madagascar, with a an increased chance of rainfall in excess of 50mm over local areas in DRC, Malawi, Mozambique and Tanzania. There is an increased chance for daily maximum heat index to exceed 40°C over local areas in the Gulf of Guinea region, northern DRC and eastern South Sudan.

2.0. Previous and Current Day Weather over Africa

2.1. Weather assessment for the previous day (February 11, 2020)

Daily rainfall amount exceeded 25 mm over Zambia, Zimbabwe, Mozambique and Madagascar with rainfall amount in excess of 50 mm in some of these areas.

2.2. Weather assessment for the current day (February 12, 2020)

Convective clouds are observed over many places in Southern Africa.

