



COMMISSION DE  
L'OcéAN INDIEN



## STATEMENT OF THE NINTH SESSION OF THE SOUTH-WEST INDIAN OCEAN CLIMATE OUTLOOK FORUM (SWIACOF-9)

web conference  
14-17 SEPTEMBER 2020

### SUMMARY

#### Climate information

From October through January (2020/21):

- For **October-November-December** season (OND), normal rainfall is likely to occur over a large part of the SWIO region except in Tanzania, North Malawi and Seychelles where normal to below normal rainfall is expected. Mauritius is expected to experience normal to above normal rainfall. The forecast for North-West and South-East regions of Madagascar shows some uncertainties and therefore does not give any specific rainfall scenario.

In general, most of the countries are expected to experience normal to above normal temperatures, with the exception for Seychelles where normal temperatures are expected. Above normal temperatures are expected to occur in East Tanzania, Comoros and Madagascar.

- For **November-December-January** season (NDJ), a gradient from north to south of the region can be monitored for the rainfall pattern. Normal to below normal rainfall can be expected over Tanzania, North Malawi and Seychelles. Normal rainfall conditions are likely over Mozambique, South Malawi, Comoros, Madagascar and the Reunion island. Note that the expected rainfall conditions over central Mozambique and North-East Madagascar cannot be determined due to a high level of uncertainty in the forecast. Over South Africa and Mauritius island, normal to above normal rainfall is likely to occur.

The temperatures are likely to be normal to above normal over South Africa, South and central Mozambique, West Tanzania and the eastern side of Madagascar. Most of the regions are expected to experience normal temperatures, with an exception for Comoros where above normal temperatures are expected.

- For the **Cyclone activity**: Near normal activity is expected. The basin could experience 8 to 10 named tropical systems. Privileged cyclogenesis area may be shifted east of Diego Garcia. However, with privileged parabolic trajectories, all inhabited islands may be impacted by tropical systems.

## THE NINTH ANNUAL SOUTH WEST INDIAN OCEAN CLIMATE OUTLOOK FORUM

The Ninth Southern Western Indian Ocean Climate Outlook Forum (SWIOPCOF-9) was held by web conference from 14 to 17 September 2020 to prepare a consensus outlook for the 2020/2021 rainfall season over the SWIO region. Climate scientists from the SWIO National Meteorological and/or Hydrological Services (NMHSs), Meteo-France, and ACMAD formulated this outlook. Additional inputs were considered from global climate prediction centres (GPCLRFs) namely, European Centre for Medium Range Weather Forecast (ECMWF), Météo-France, South African Weather Service (SAWS), International Research Institute for Climate and Society (IRI), Copernicus Climate Change Services (C3S) and the WMO Lead Center for Long Range Forecasts Multi-Model Ensemble (WMO-LC-LRFMME). This outlook covers the major rainfall season from October 2020 through January 2021. The outlooks are presented in three-monthly rolling periods as follows: October-November-December (OND); November-December-January (NDJ).

*This Outlook is relevant only to seasonal (overlapping three-monthly) time-scales and relatively large areas and may not fully account for all factors that influence regional and national climate variability, such as local and month-to-month variations (intra-seasonal).*

*Users are strongly advised to contact the National Meteorological and Hydrological Services for interpretation of this Outlook, additional guidance and updates.*

## METHODOLOGY

Using statistical and other objective climate prediction methods, as well as expert interpretation, the climate scientists attending the SWIOPCOF determined the likelihoods of above-normal, normal and below-normal rainfall and other parameters relevant to the region such as temperatures for each area for rolling three monthly periods i.e. October-November-December (OND – Figure 1 and 2), November-December-January (NDJ – Figure 3 and 4). Above-normal category is defined as lying within the highest third of record (30 year mean that is, 1981-2010) of a given parameter; below-normal is defined as within the lowest third of the parameter and normal is the middle third, centred on the climatological median. The climatic statistics for rainfall and temperature are provided in the Annex. It should be noted that this outlook is produced over large zones at a regional scale. More local details and adaptations are given by the NMHSs.

The outlook for Tropical Cyclone (TC) Activity over SWIO basin ( $30^{\circ}\text{E}$ ,  $90^{\circ}\text{E}/0^{\circ}\text{S}, -40^{\circ}\text{S}$ ) is provided for the upcoming cyclonic season (Nov-May).

The climate scientists took into account oceanic and atmospheric factors that influence our climate over the SWIO region, in particular the El Niño-Southern Oscillation (ENSO) and regional climate drivers such as the Indian Ocean Dipole (IOD) and the Subtropical Indian Ocean Dipole (SIOD).

## OUTLOOK

The period of October to January over the SWIO region is typically a transition period before the main rainy season (January to March). The season (JFM) is also being referred to as the peak of the cyclonic season. The present outlook considers the following two overlapping seasons (i.e. OND and NDJ).

### Current status of the climate system

The sea surface temperature over the Equatorial Pacific shows developing negative anomalies. The Indian Ocean Dipole (IOD) is currently decreasing from a positive phase and has lately become negative, showing cooler temperatures in the west of the basin and warmer temperatures in the east. In the south of the basin, the South Indian Ocean Dipole (SIOD) is still in a negative phase.

## Expected evolution of the main climate drivers for SWIO region

Most global climate models suggest that:

- The IOD is expected to enter a negative phase which should reach its peak in October before going back to a neutral situation by January 2021.
- El Niño Southern Oscillation (ENSO) is expected to develop a Niña event by the end of the year.
- These patterns are likely to drive the regional climate for the coming seasons i.e. OND and NDJ.
- The SIOD should return to normal status and therefore should not have much impact over the region.

## Outlooks for OND 2020 and NDJ 2020/2021

Based on SST anomalies, sub-surface temperature patterns, knowledge and the understanding of seasonal climate variability over the South West Indian Ocean region together with available long range forecasts products, the following outlooks are provided for October 2020 to January 2021 which includes, precipitation, temperature and cyclones for the upcoming season (2020/2021).

### Precipitation & Temperature:

- For **October-November-December** season (OND), normal rainfall is likely to occur over a large part of the SWIO region except in Tanzania, North Malawi and Seychelles where normal to below normal rainfall is expected. Mauritius is expected to experience normal to above normal rainfall. The forecast for North-West and South-East regions of Madagascar shows some uncertainties and therefore does not give any specific rainfall scenario.

In general, most of the countries are expected to experience normal to above normal temperatures, with the exception for Seychelles where normal temperatures are expected. Above normal temperatures are expected to occur in East Tanzania, Comoros and Madagascar.

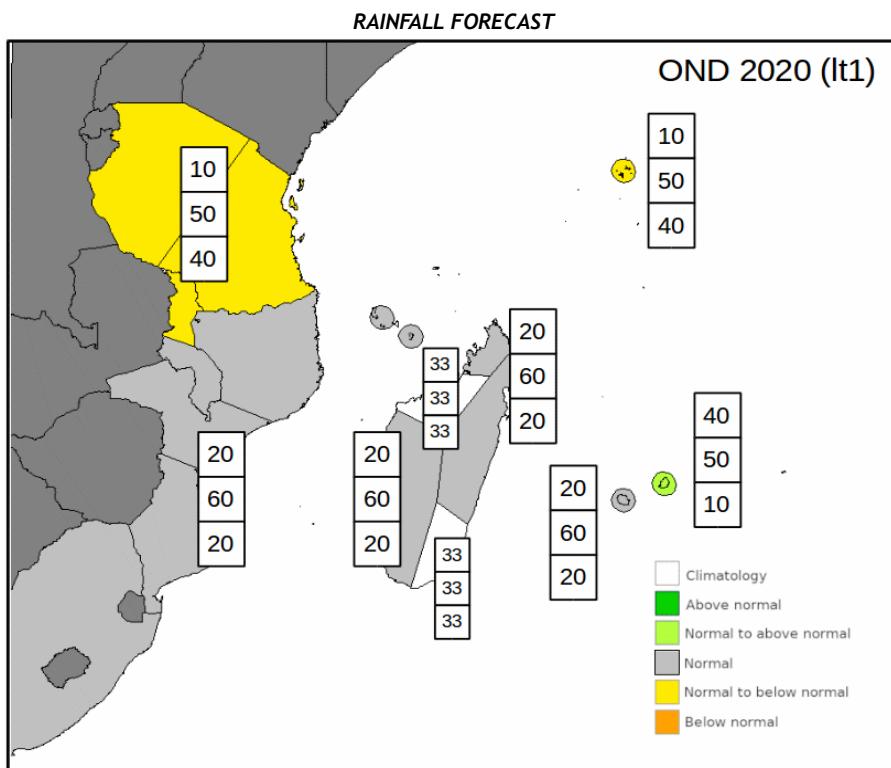


Figure 1 : Consensus forecast of precipitation for OND 2020 in SWIO region

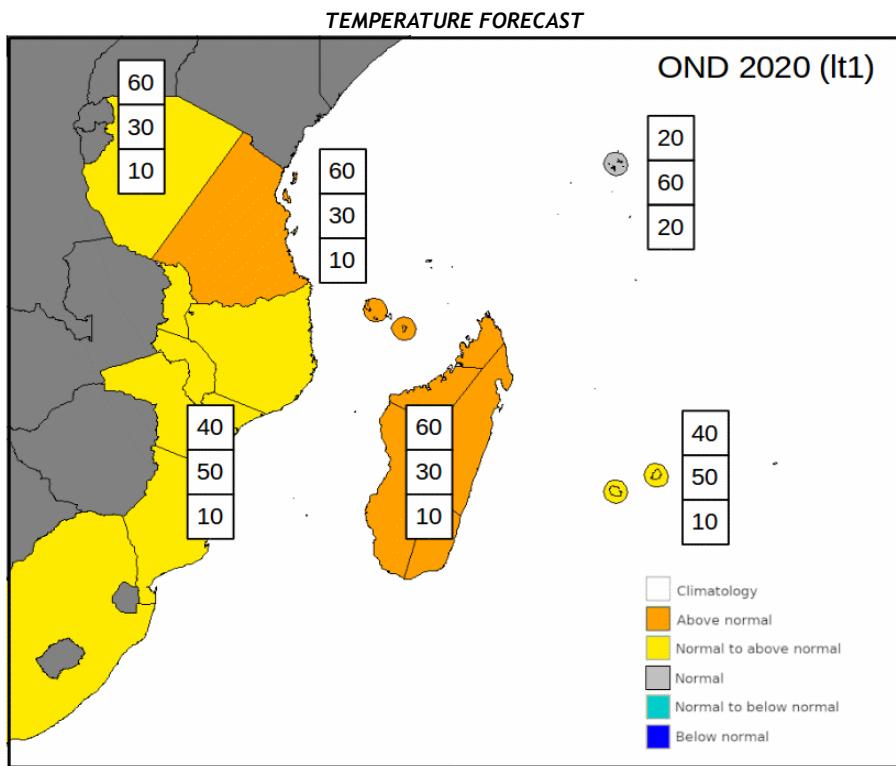


Figure 2 : Consensus forecast of temperature for OND 2020 in SWIO region

- For **November-December-January** season (NDJ), a gradient from north to south of the region can be monitored for the rainfall pattern. Normal to below normal rainfall can be expected over Tanzania, North Malawi and Seychelles. Normal rainfall conditions are likely over Mozambique, South Malawi, Comoros, Madagascar and the Reunion island. Note that the expected rainfall conditions over central Mozambique and North-East Madagascar cannot be determined due to a high level of uncertainty in the forecast. Over South Africa and Mauritius island, normal to above normal rainfall is likely to occur.

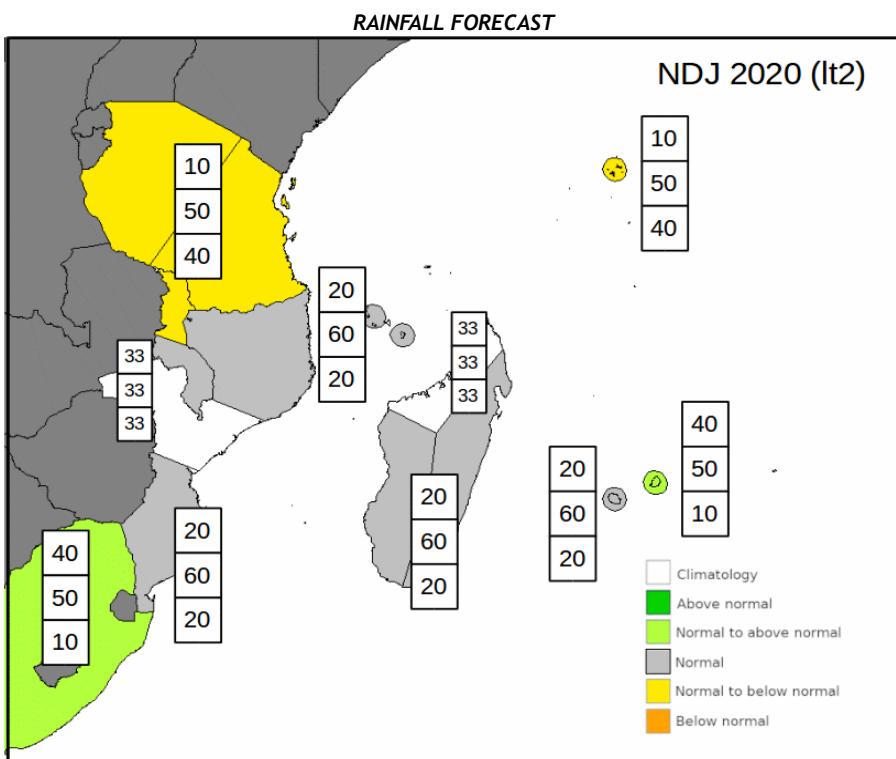


Figure 3: Consensus forecast of precipitation for NDJ 2020/21 in SWIO region

The temperatures are likely to be normal to above normal over South Africa, South and central Mozambique, West Tanzania and the eastern side of Madagascar. Most of the regions are expected to experience normal temperatures, with an exception for Comoros where above normal temperatures are expected.

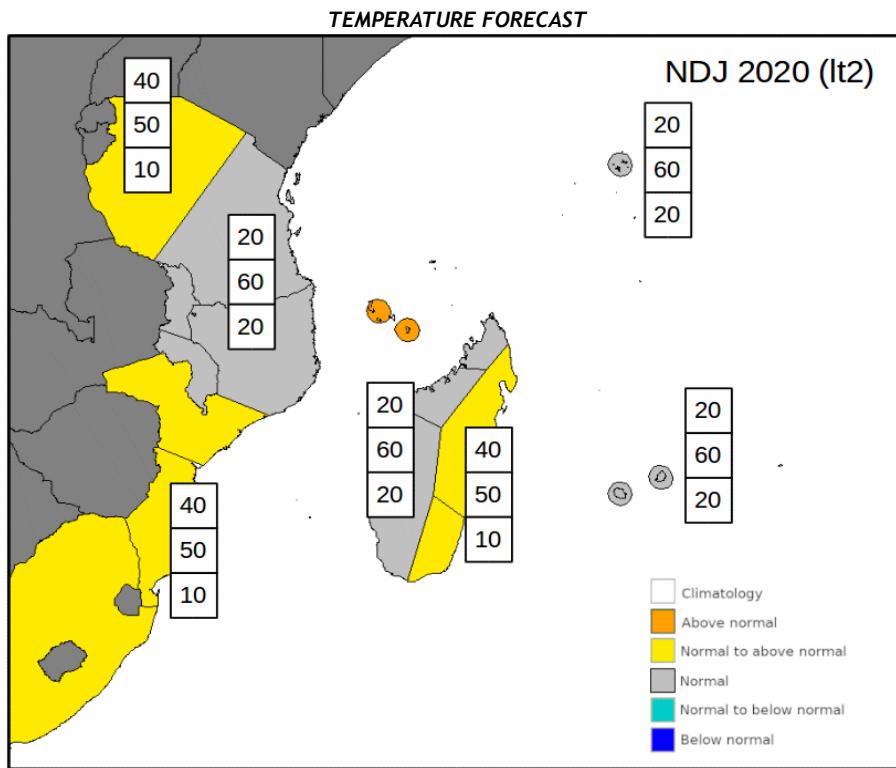


Figure 4: Consensus forecast of temperature for NDJ 2020/21 in SWIO region

### **Cyclone activity:**

- This outlook covers the South-West Indian Ocean cyclonic basin (from 30°E to 90°E, between the equator and 40°S)

Near normal activity is expected. The basin could experience 8 to 10 named tropical systems. Privileged cyclogenesis area may be shifted east of Diego Garcia. However, with privileged parabolic trajectories, all inhabited islands may be impacted by tropical systems.

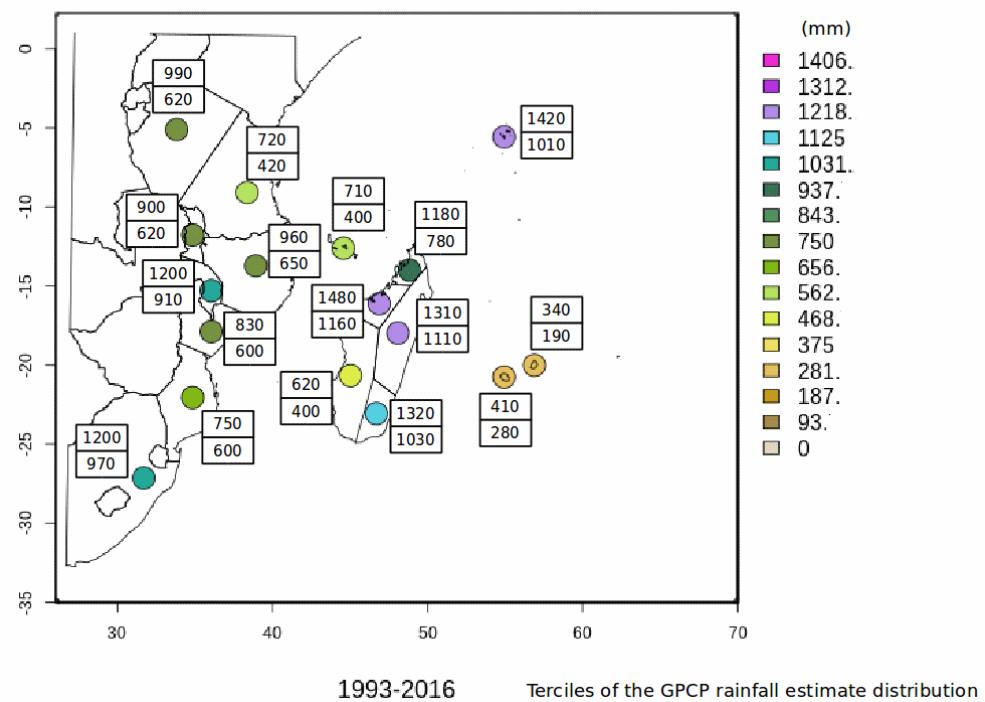
*This outlook is produced at the regional scale. Thus, its interpretation should be for regional use. For local and/or country adaptation and applications needs, it is highly recommended to consult the National Meteorological and Hydrological Services for local details and updates.*

*An outlook update specific to the cyclone activity will be provided by RSMC Reunion in November 2020 at <http://www.meteofrance.re/climat/previsions-saisonnieres>*

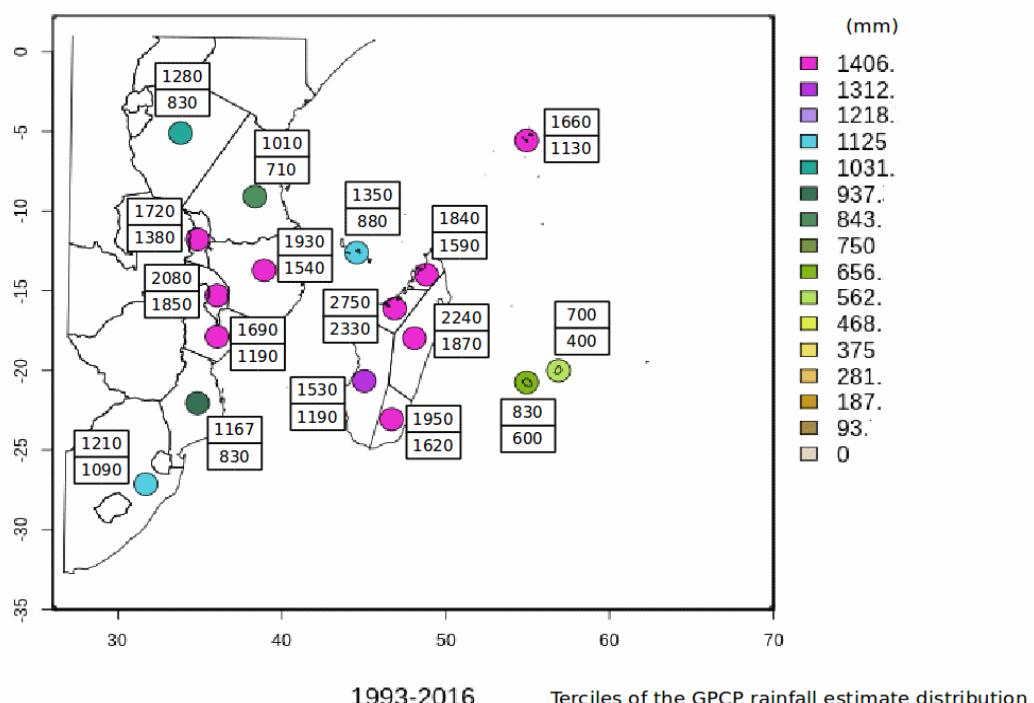
## **Annex 1: Normal values for Rainfall**

The values displayed on the following maps are upper and lower terciles of the distribution of the rainfall data that is used at regional scale. This data consist of estimates (Global Precipitation Climatology Project) so the values have to be considered as relevant at regional scale and should not be compared to observed data at local scale.

**GPCP Avg.: OND**



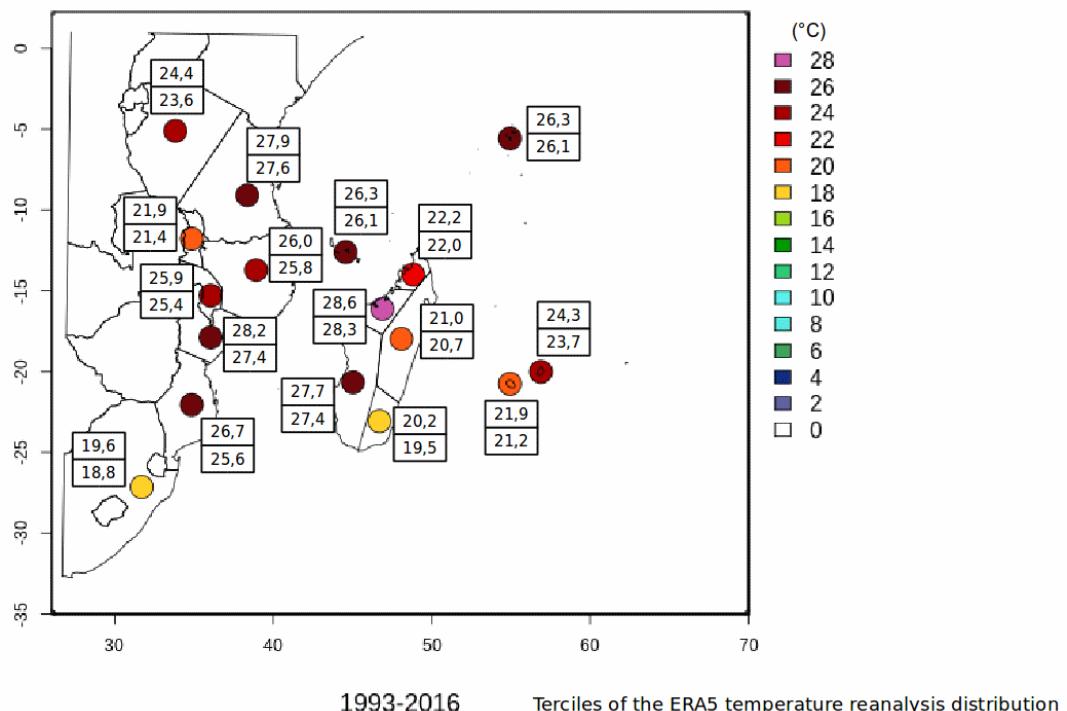
**GPCP Avg.: NDJ**



## **Annex 2: Normal values for Temperature**

The values displayed on the following maps are upper and lower terciles of the distribution of the temperature data that is used at regional scale. This data consist of estimates (ERA5 reanalysis) so the values have to be considered as relevant at regional scale and should not be compared to observed data at local scale.

**TM Avg.: OND**



**TM Avg.: NDJ**

