Seasonal Climate Watch
January to May 2020

Date issued: December 20, 2019

1. Overview

The El Niño-Southern Oscillation (ENSO) is currently in a borderline weak El Niño state and the forecast indicates that it will most likely remain at the border between the weak El Niño and neutral states for the rest of the summer season. With the sudden warming over the last two months in the equatorial Pacific Ocean sea surface temperatures and subsequent higher likelihood of a weak El Niño state, there is also more confidence in a drier than normal late summer season. In general, however, there is still significant uncertainty on the expected rainfall conditions for the rest of the summer period.

The rainfall forecast for late-summer (Jan-Feb-Mar) and early-autumn (Feb-Mar-Apr) from the SAWS/NOAA-GFDL Multi-Model system indicates enhanced probabilities of below-normal rainfall over most of the country. With regards to temperatures, mostly higher than normal temperatures are expected this summer over most of South Africa with the exception of the far south-western parts that indicate lower than normal minimum temperature throughout late-summer and autumn.

The South African Weather Service will continue to monitor and provide updates on any future assessments that may provide more clarity on the current expectations for the coming seasons.
2. South African Weather Service Prediction System

2.1. Ocean-Atmosphere Global Climate Model

The South African Weather Service (SAWS) is currently recognised by the World Meteorological Organization (WMO) as the Global Producing Centre (GPC) for Long-Range Forecasts (LRF). This is owing to its local numerical modelling efforts which involve coupling of both the atmosphere and ocean components to form a fully-interactive coupled modelling system, named the SAWS Coupled Model (SCM), the first of its kind in both South Africa and the region. Below are the first season (January-February-March) predictions for rainfall (Figure 1) and average temperature (Figure 2).

![SAWS Operational Ensemble Prediction System](image)

Figure 1: January-February-March global prediction for total rainfall probabilities.
2.2. Seasonal Forecasts for South Africa from the SAWS OAGCM

The above mentioned global forecasting system’s forecasts are combined with the NOAA-GFDL system (part of the North American Multi-Model Ensemble System) for South Africa, as issued with the December 2019 initial conditions, and are presented below for South Africa.
Figure 3: January-February-March 2020 (JFM; left), February-March-April 2020 (FMA; middle), March-April-May 2020 (MAM; right) seasonal precipitation prediction. Maps indicate the highest probability from three probabilistic categories namely Above-Normal, Near-Normal and Below-Normal.
Figure 4: January-February-March 2020 (JFM; left), February-March-April 2020 (FMA; middle), March-April-May 2020 (MAM; right) seasonal minimum temperature prediction. Maps indicate the highest probability from three probabilistic categories namely Above-Normal, Near-Normal and Below-Normal.
Figure 5: January-February-March 2020 (JFM; left), February-March-April 2020 (FMA; middle), March-April-May 2020 (MAM; right) seasonal maximum temperature prediction. Maps indicate the highest probability from three probabilistic categories namely Above-Normal, Near-Normal and Below-Normal.
2.3. **Climatological Seasonal Totals and Averages**

The following maps indicate the rainfall and temperature (minimum and maximum) climatology for the early-summer (Dec-Jan-Feb), mid-summer (Jan-Feb-Mar) and the late-summer (Feb-Mar-Apr). The rainfall and temperature climate is representative of the average rainfall and temperature conditions over a long period of time for the relevant 3-month seasons presented here.
Figure 6: Climatological seasonal totals for precipitation during Jan-Feb-Mar (JFM; left), Feb-Mar-Apr (FMA; middle) and Mar-Apr-May (MAM; right).
Figure 7: Climatological seasonal averages for minimum temperature during Jan-Feb-Mar (JFM; left), Feb-Mar-Apr (FMA; middle) and Mar-Apr-May (MAM; right).
Figure 8: Climatological seasonal averages for maximum temperature during Jan-Feb-Mar (JFM; left), Feb-Mar-Apr (FMA; middle) and Mar-Apr-May (MAM; right).
3. Contributing Institutions and Useful links

All the forecasts presented here are a result of the probabilistic prediction based on the ensemble members from the coupled climate model from the South African Weather Service. Other useful links for seasonal forecasts are:

http://www.weathersa.co.za/home/seasonal (Latest predictions from SAWS for the whole of SADC)

https://iri.columbia.edu/our-expertise/climate/forecasts/enso/current/ (ENSO predictions from various centres)

https://iri.columbia.edu/our-expertise/climate/forecasts/seasonal-climate-forecasts/ (Copernicus Global forecasts)