

Seasonal Climate Watch

November 2019 to March 2020

Date issued: November 4, 2019

I. Overview

The El Niño-Southern Oscillation (ENSO) is currently in a neutral state and the forecast indicates that it will most likely remain in a neutral state for the coming seasons. Usually when this is the case, seasonal forecasts for the summer rainfall areas of South Africa tend to be more uncertain as compared to seasons with a clear ENSO signal. Historically, neutral ENSO conditions have been associated with above-normal, near-normal and below-normal rainfall outcomes.

The rainfall forecast for early-summer (Nov-Dec-Jan) from the SAWWS seasonal prediction system indicates enhanced probabilities of below-normal rainfall over the far eastern parts of the country, whilst above-normal rainfall is predicted to be more likely for the western to central parts. Towards mid-summer (Dec-Jan-Feb), predictions indicate an increased likelihood of below-normal rainfall conditions. For the late-summer period (Jan-Feb-Mar), higher probabilities of below-normal rainfall are predicted to persist and to expand to other parts of the country. With regards to temperatures, mostly higher than normal temperatures are expected this summer. It may be noted that forecasts from other prediction centres for this summer season indicate even higher and more widespread probabilities of below-normal rainfall and above-normal temperatures over southern Africa compared to the SAWWS forecast, in particular for the mid-summer period (e.g. <https://iri.columbia.edu/our-expertise/climate/forecasts/seasonal-climate-forecasts/>).

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 (November-December-January) predictions for rainfall (Figure 1) and average temperature (Figure 2).

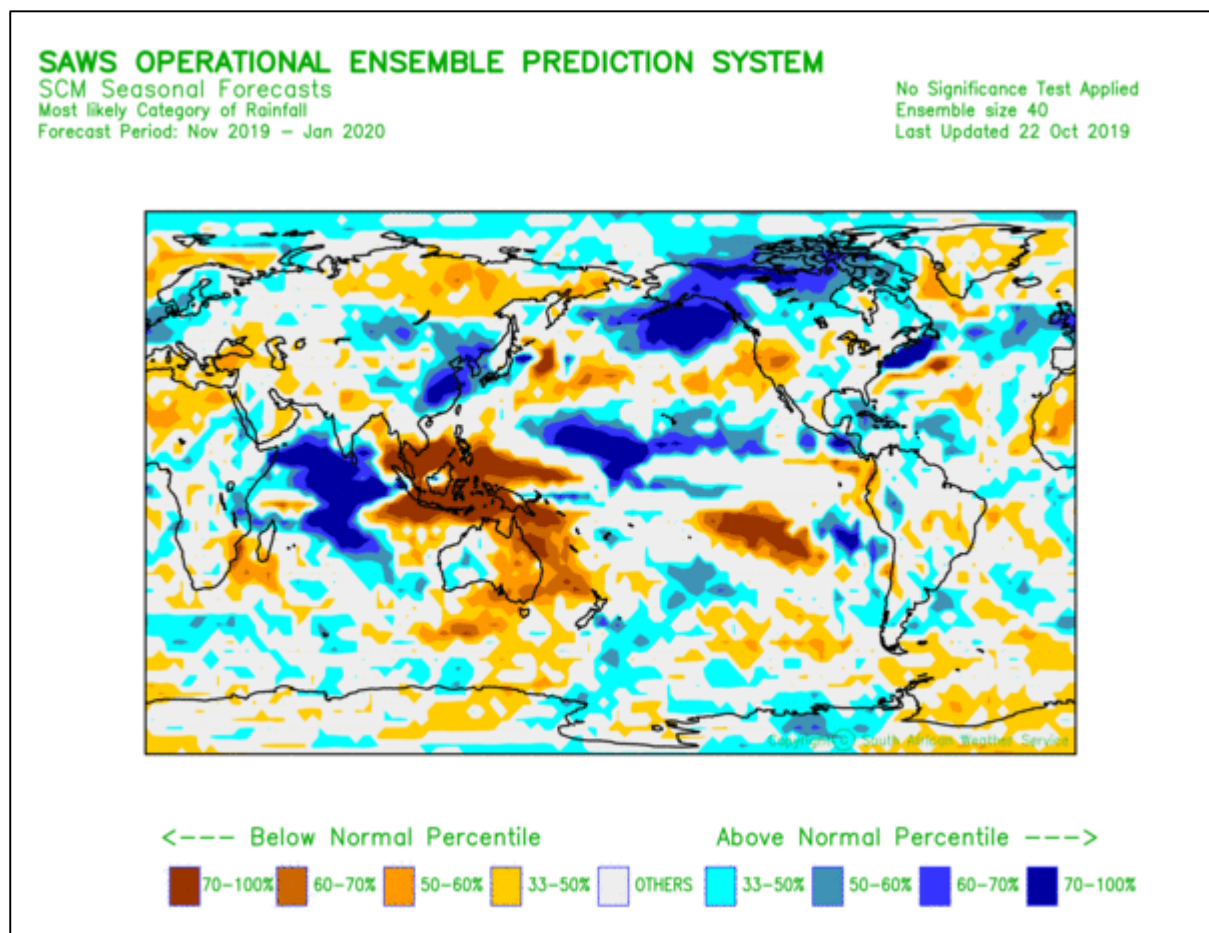
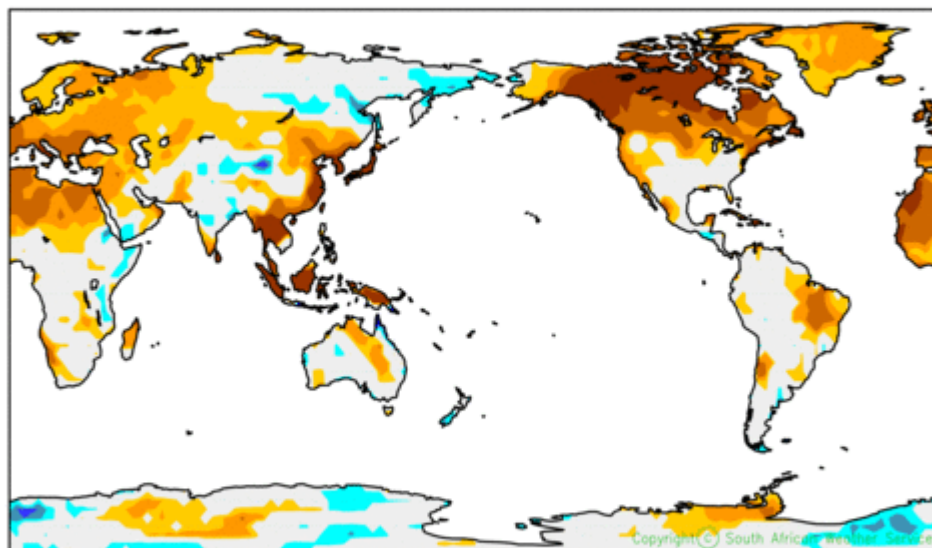


Figure 1: November-December-January global prediction for total rainfall probabilities.

SAWS OPERATIONAL ENSEMBLE PREDICTION SYSTEM

SCM Seasonal Forecasts
Most likely Category of 2m Temperature
Forecast Period: Nov 2019 – Jan 2020

No Significance Test Applied
Ensemble size 40
Last Updated 22 Oct 2019



<--- Below Normal Percentile

Above Normal Percentile --->

70-100% 60-70% 50-60% 33-50% OTHERS 33-50% 50-60% 60-70% 70-100%

Figure 2: November-December-January global prediction for average temperature probabilities.

2.2. Seasonal Forecasts for South Africa from the SAWS OAGCM

The above mentioned global forecasting system's forecasts for South Africa, issued with the October 2019 initial conditions, are presented below for South Africa.

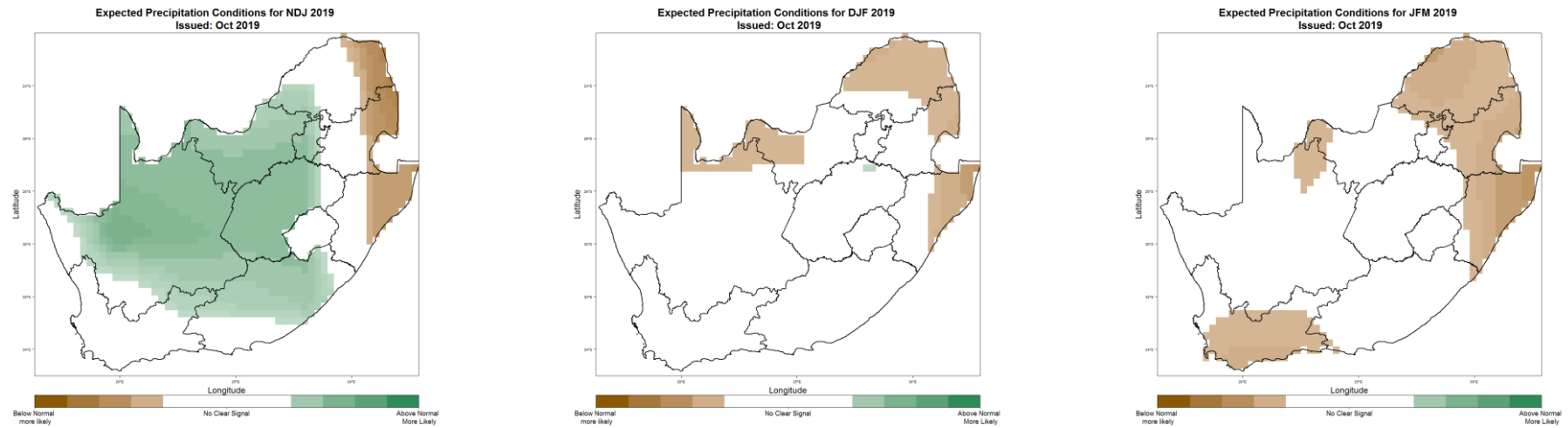


Figure 3: November-December-January 2019 (NDJ; left), December-January-February 2020 (DJF; middle), January-February-March 2020 (JFM; right) seasonal precipitation prediction. Maps indicate the highest probability from three probabilistic categories namely Above-normal, Near-Normal and Below-Normal.

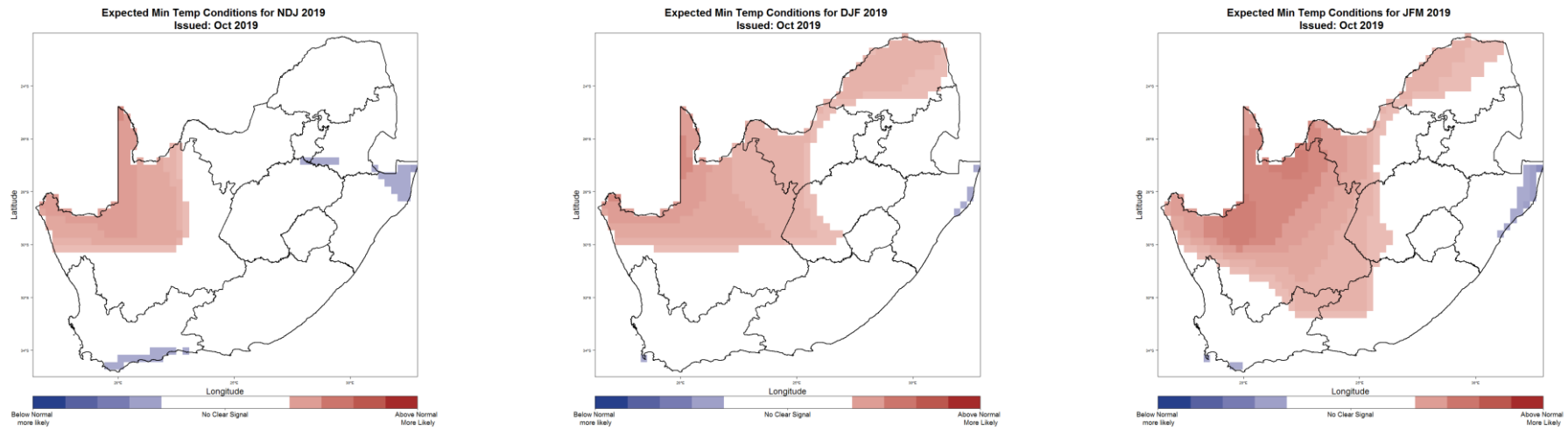


Figure 4: November-December-January 2019 (NDJ; left), December-January-February 2020 (DJF; middle), January-February-March 2020 (JFM; right) seasonal minimum temperature prediction. Maps indicate the highest probability from three probabilistic categories namely Above-normal, Near-Normal and Below-Normal.

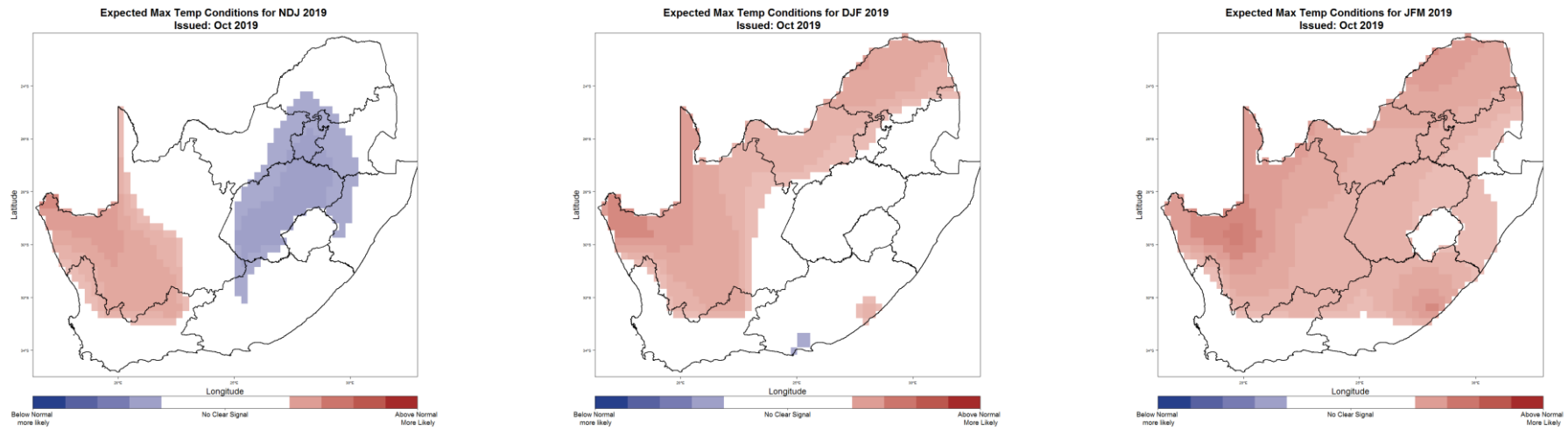


Figure 5: November-December-January 2019 (NDJ; left), December-January-February 2020 (DJF; middle), January-February-March 2020 (JFM; right) seasonal maximum temperature prediction. Maps indicate the highest probability from three probabilistic categories namely Above-normal, Near-Normal and Below-Normal.

2.3. Climatological Seasonal Totals and Averages

The following maps indicate the rainfall and temperature (minimum and maximum) climatology for the early-summer (Nov-Dec-Jan), mid-summer (Dec-Jan-Feb) and the late-summer (Jan-Feb-Mar). 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.

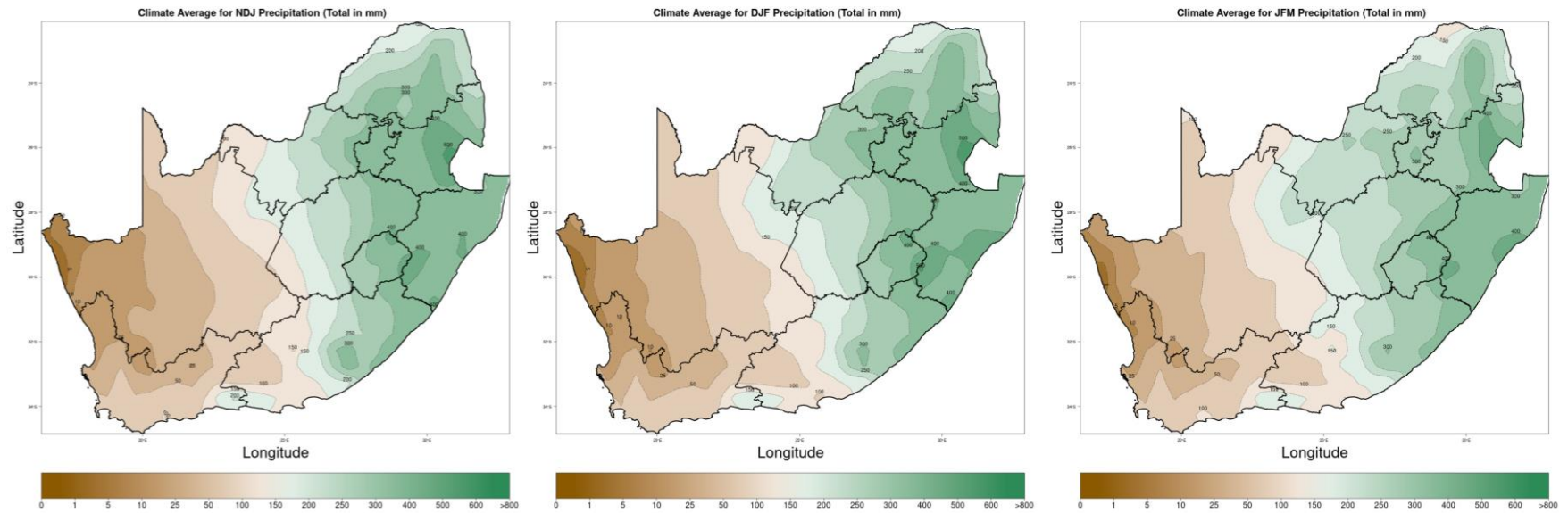


Figure 6: Climatological seasonal totals for precipitation during Nov-Dec-Jan (NDJ; left), Dec-Jan-Feb (DJF; middle) and Jan-Feb-Mar (JFM; right).

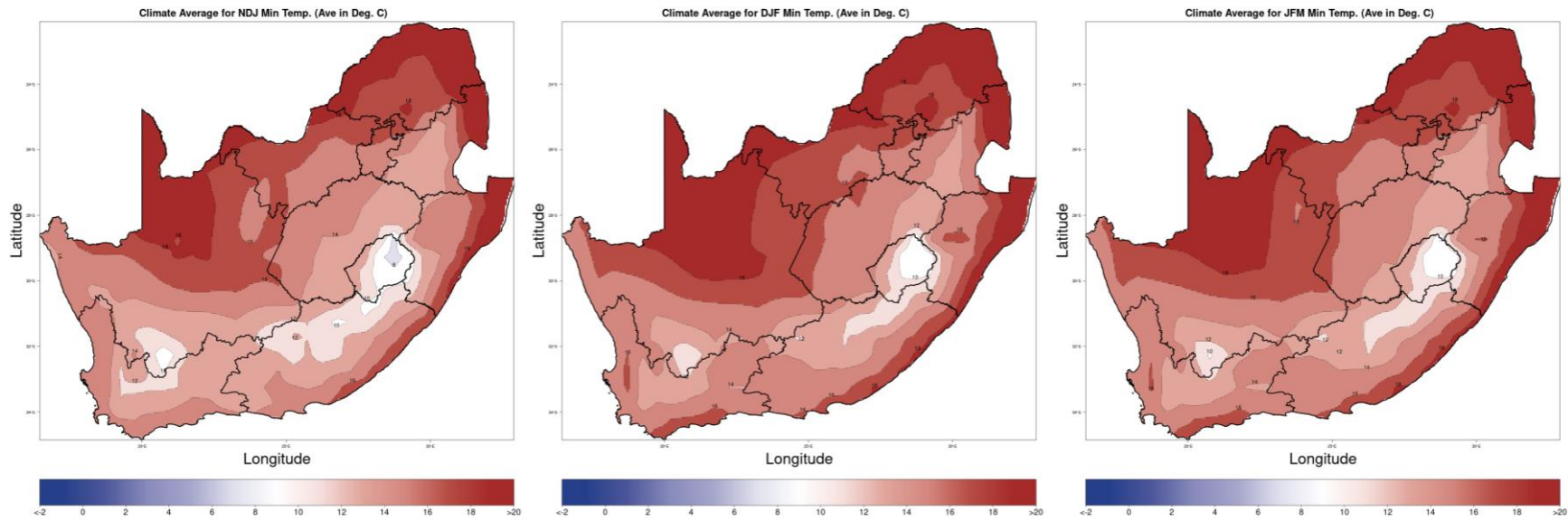


Figure 7: Climatological seasonal averages for minimum temperature during Nov-Dec-Jan (NDJ; left), Dec-Jan-Feb (DJF; middle) and Jan-Feb-Mar (JFM; right).

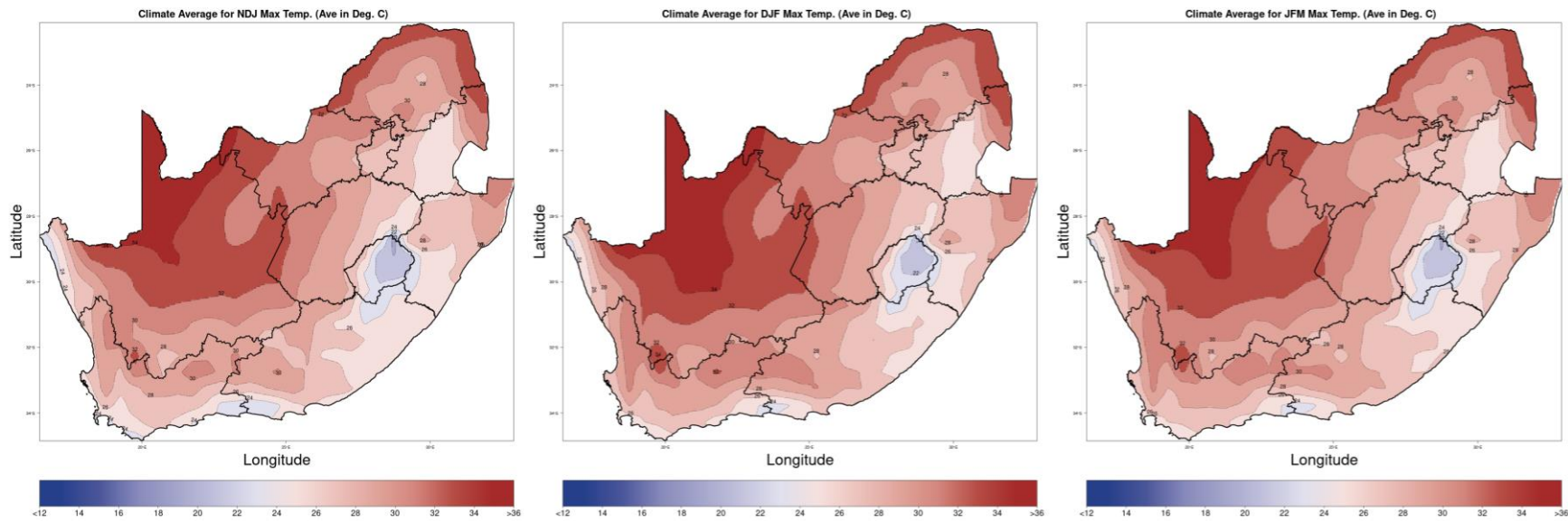


Figure 8: Climatological seasonal averages for maximum temperature during Nov-Dec-Jan (NDJ; left), Dec-Jan-Feb (DJF; middle) and Jan-Feb-Mar (JFM; right).

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)

