Seasonal Climate Watch

April to August 2022

Date issued: Mar 31, 2022

1. Overview

The El Niño-Southern Oscillation (ENSO) is currently in a La Niña state, however, forecasts indicate that it will likely return to a neutral state during the coming seasons. During autumn and winter, the presence of ENSO has less of an impact. Thus, the presence of the current La Niña event is not expected to have any significant impact on rainfall in the coming seasons.

The multi-model rainfall forecast indicates above-normal rainfall for the north-east of the country and below-normal rainfall for the south-west during late-autumn (AMJ) through to early-winter (MJJ). Temperatures are expected to be above-normal for most of the country, with the exception of minimum temperatures over the southern parts.

The South African Weather Service (SAWS) will continue to monitor the weather and climatic conditions and provide updates on any future assessments that may provide more clarity on the current expectations for the coming season.

2. South African Weather Service Prediction System

2.1. Ocean-Atmosphere Global Climate Model

SAWS is currently recognised by the World Meteorological Organization (WMO) as a 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 is the first season (April-May-June) predictions for rainfall (Figure 1) and average temperature (Figure 2).

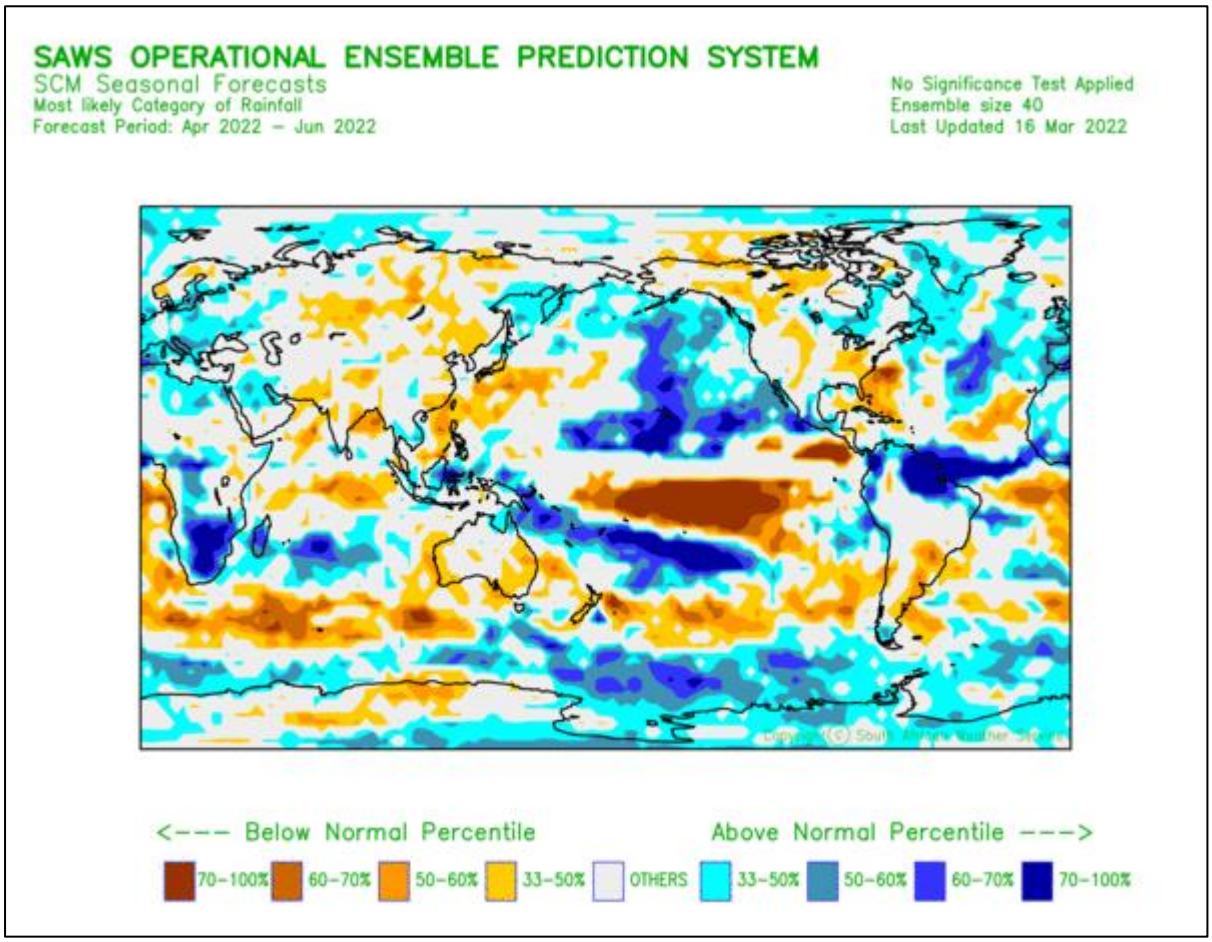

Figure 1: *April-May-June (2022) global prediction for total rainfall probabilities.*

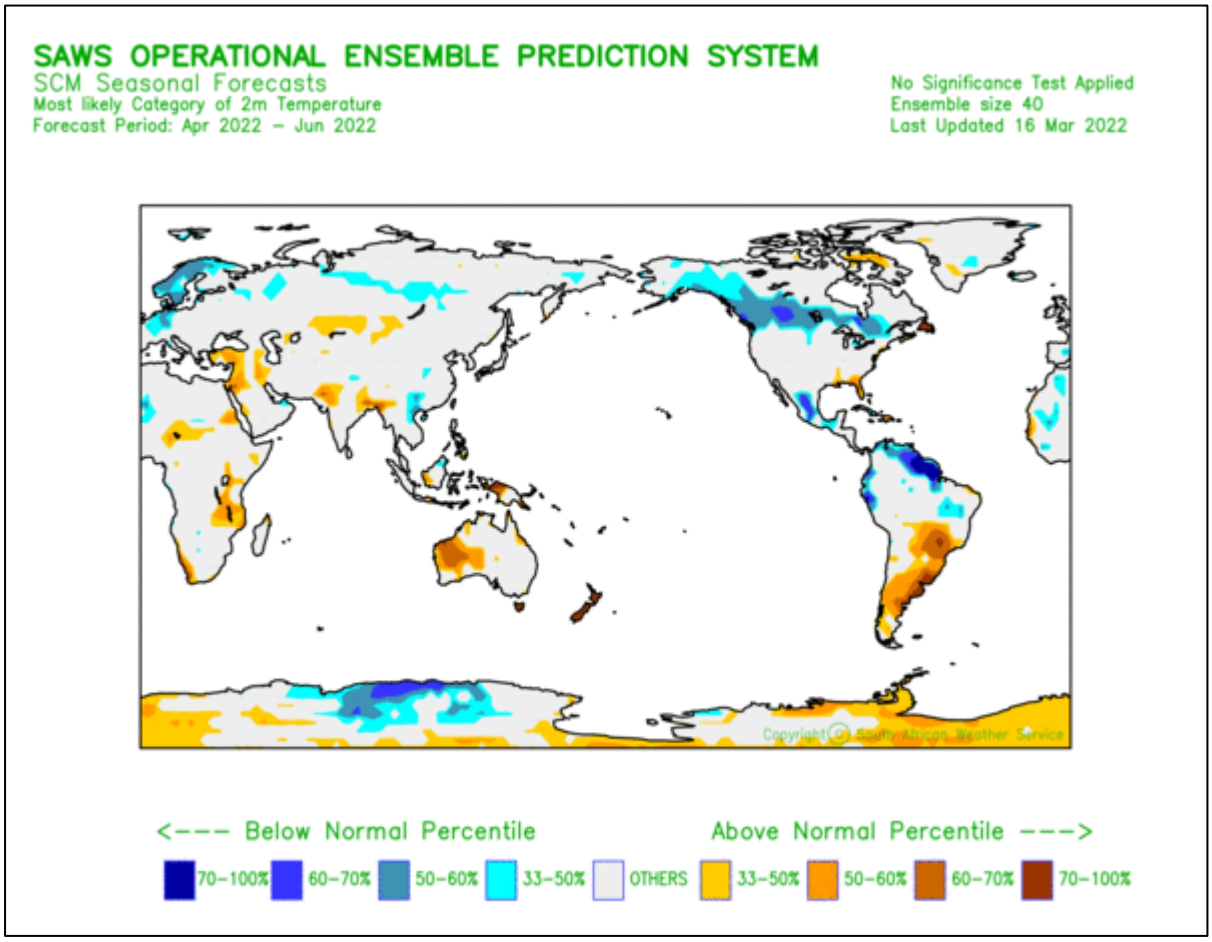

Figure 2: *April-May-June (2022) global prediction for average temperature probabilities.*

2.2. Seasonal Forecasts for South Africa from the SAWS OAGCM

The above-mentioned global forecasting systems' forecasts are combined with the GFDL-SPEAR and COLA-RSMAS-CCSM4 systems (part of the North American Multi-Model Ensemble System) for South Africa, as issued with the March 2022 initial conditions, and are presented below for South Africa.

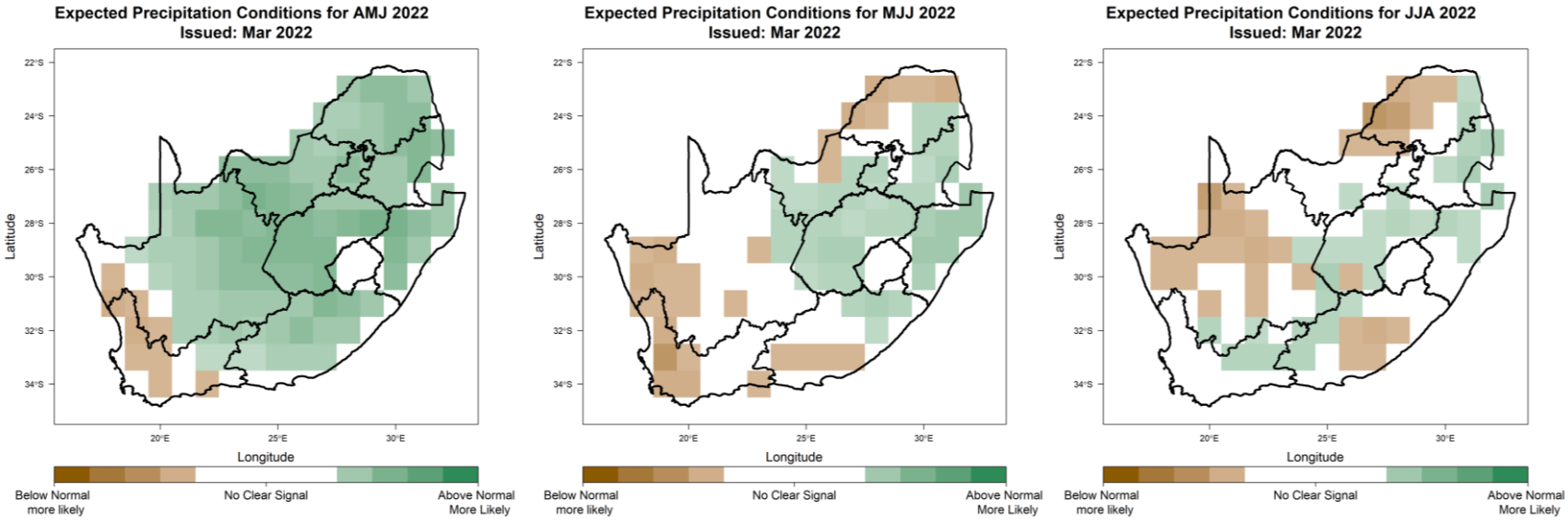

Figure 3: *April-May-June 2022 (AMJ; left), May-June-July 2022 (MJJ; middle), June-July-August 2022 (JJA; right) seasonal precipitation prediction. Maps indicate the highest probability from three probabilistic categories namely Above-Normal, Near-Normal and Below-Normal.*

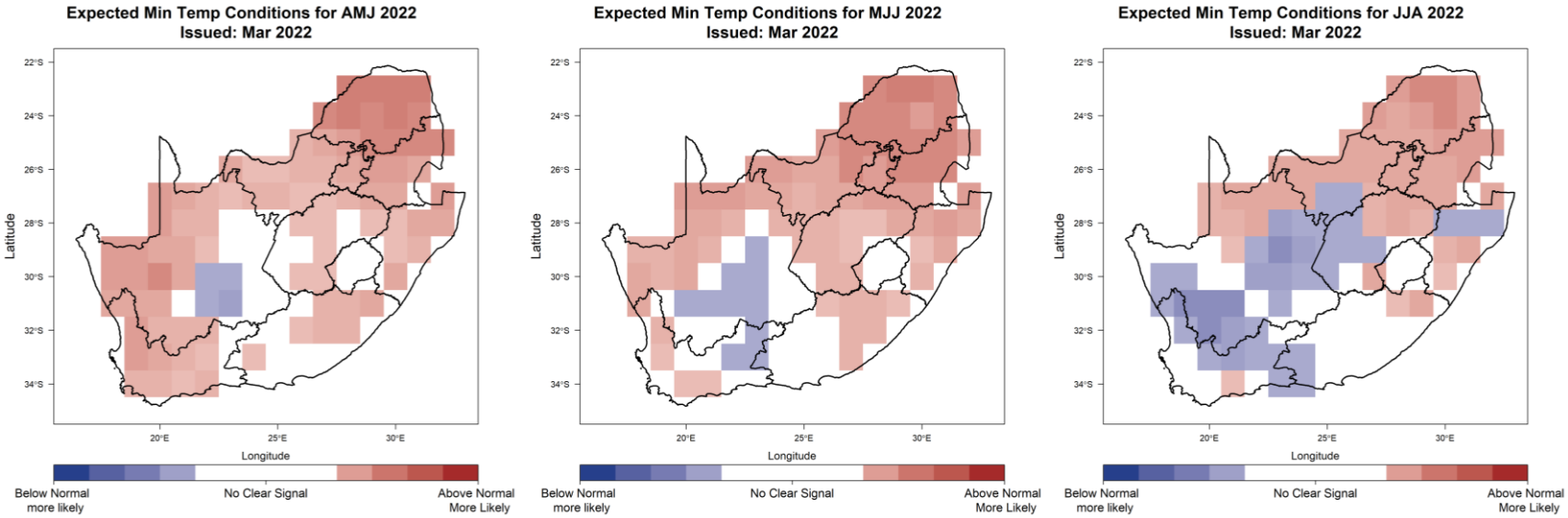

Figure 4: *April-May-June 2022 (AMJ; left), May-June-July 2022 (MJJ; middle), June-July-August 2022 (JJA; right) seasonal minimum temperature prediction. Maps indicate the highest probability from three probabilistic categories namely Above-Normal, Near-Normal and Below-Normal.*

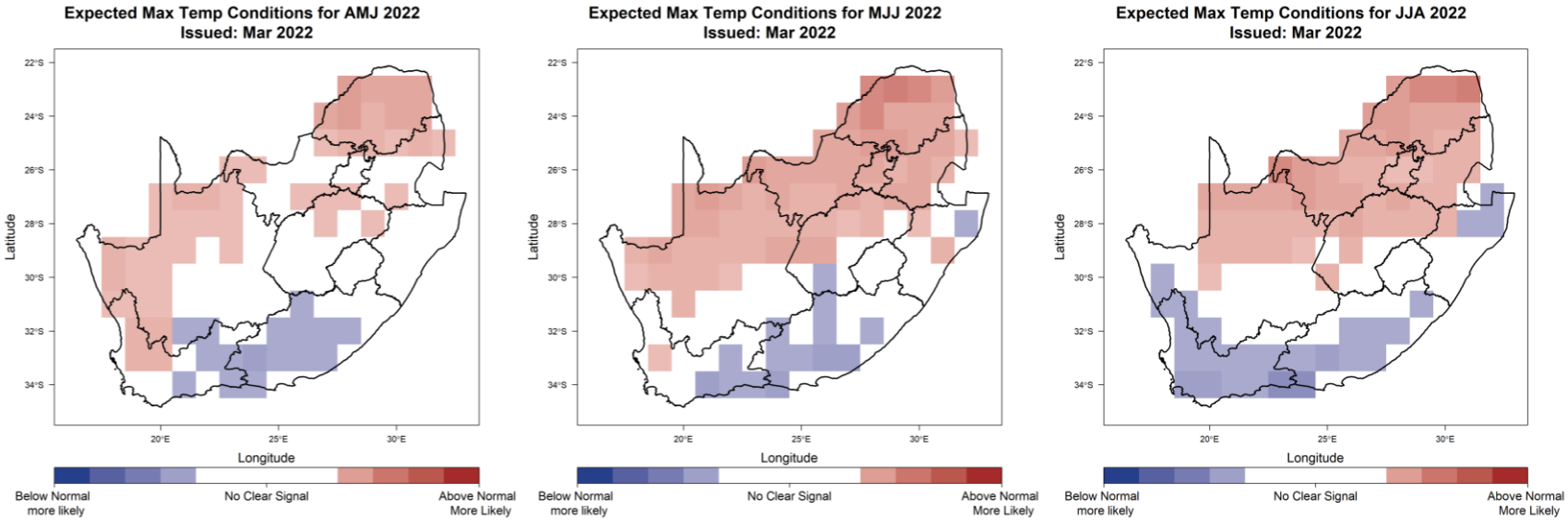

Figure 5: *April-May-June 2022 (AMJ; left), May-June-July 2022 (MJJ; middle), June-July-August 2022 (JJA; right) seasonal maximum temperature prediction. Maps indicate the highest probability from three probabilistic categories namely Above-Normal, Near-Normal and Below-Normal.*

2.3. Climatological Seasonal Totals and Averages

The following maps indicate the rainfall and temperature (minimum and maximum) climatology for the autumn (Apr-May-Jun), late-autumn (May-Jun-Jul) and early-winter (Jun-Jul-Aug). The rainfall and temperature climates are representative of the average rainfall and temperature conditions over a long period of time for the relevant 3-month seasons presented here.

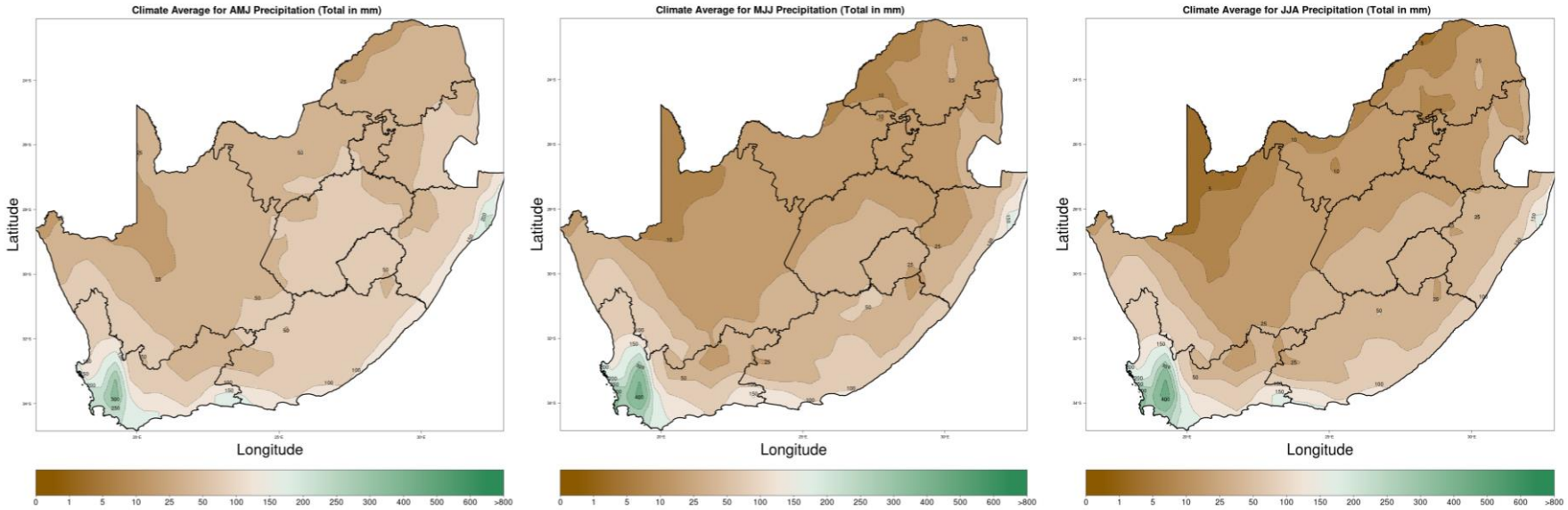

Figure 6: *Climatological seasonal totals for precipitation during April-May-June (AMJ; left), May-June-July (MJJ; middle) and June-July-August (JJA; right).*

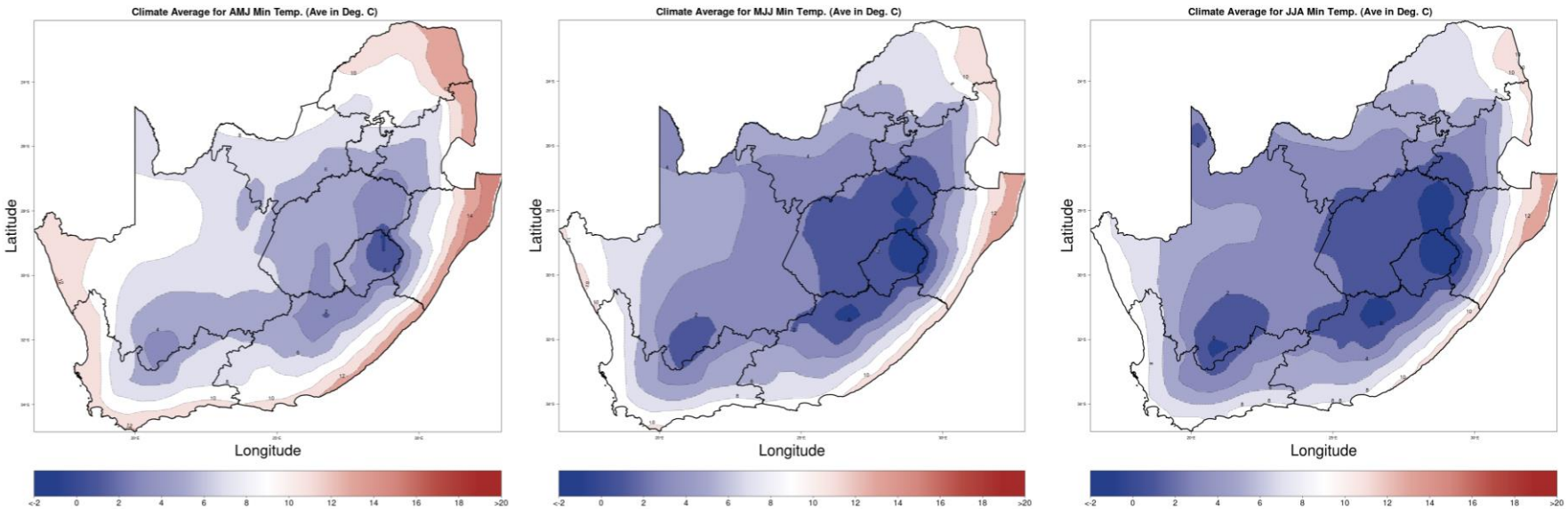

Figure 7: *Climatological seasonal averages for minimum temperature during April-May-June (AMJ; left), May-June-July (MJJ; middle) and June-July-August (JJA; right).*

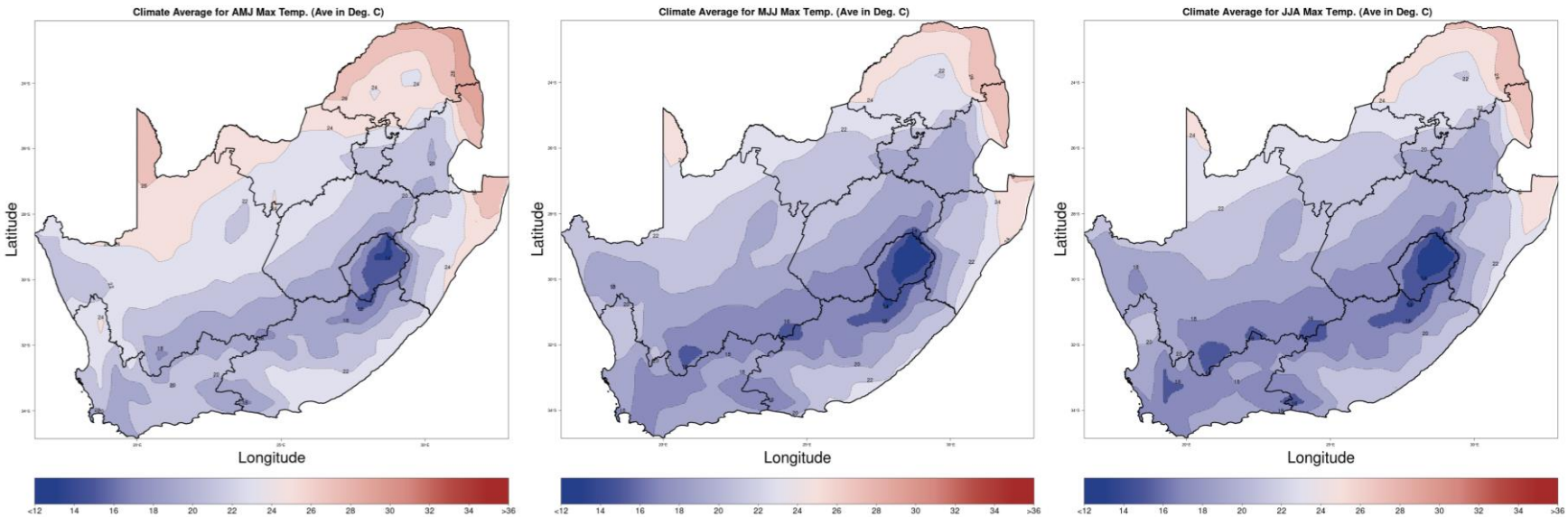

Figure 8: *Climatological seasonal averages for maximum temperature during April-May-June (AMJ; left), May-June-July (MJJ; middle) and June-July-August (JJA; right).*

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3. Summary implications to various economic sector decision makers

Water and Energy

The expected above-normal rainfall for the north-eastern parts of the country during late-autumn through to early-winter provides a good opportunity for water reservoirs to replenish in the summer rainfall regions. The expected above normal temperatures across the country are likely to reduce demand for cooling except for southern parts of the country, where the anticipated below-normal temperatures are likely to increase the heating demand. Relevant decision-makers should take note of the above-mentioned potential outcomes and advise the affected businesses and communities accordingly.

Health

The above-normal temperatures predicted throughout the country will generally lead to warm conditions. UV radiation levels during this period are mostly 3 and higher, and according to World Health Organization standards, sun protection measures such as staying in the shade and wearing sunscreen and protective clothes are recommended, particularly around midday. Water-borne diseases may also occur in impacted areas. The public is advised to heed local authorities' guidelines.

Agriculture

Above-normal rainfall is expected for the north-eastern parts of the country during the late-autumn and early-winter. There is an increased risk for water logging in areas receiving excessive rainfall that can cause crop damage. However, the south-western part, which normally receives significant rainfall during early-winter season, is expected to receive mostly below-normal rainfall during this period. Therefore, the relevant decision makers are encouraged to advise farmers in these regions to practice soil and water conservation, proper water harvesting and storage, and other appropriate farming practices.

This forecast is updated monthly and users are advised to monitor the updated forecasts as there is a possibility for especially the longer lead-time forecasts to change. Additionally, farmers are advised to keep monitoring the weekly and monthly forecasts issued by the South African Weather Service. Farmers are also advised to keep on monitoring advisories from the Department of Agriculture and make changes as required.

4. 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 and two models from the NMME. 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)

South African Weather Service