

Seasonal Climate Watch

May to September 2022

Date issued: May 03, 2022

I. 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 below-normal rainfall for most parts of the country except for the central and eastern coastal areas in early winter (MJJ) and the eastern coastal areas during mid-and late-winter (JJA and JAS). Both maximum and minimum temperatures are expected to be above-normal for most of the country, except for parts of the Northern Cape and Eastern Cape where below-normal temperatures are expected.

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 are the first season (May-June-July) predictions for rainfall (Figure 1) and average temperature (Figure 2).

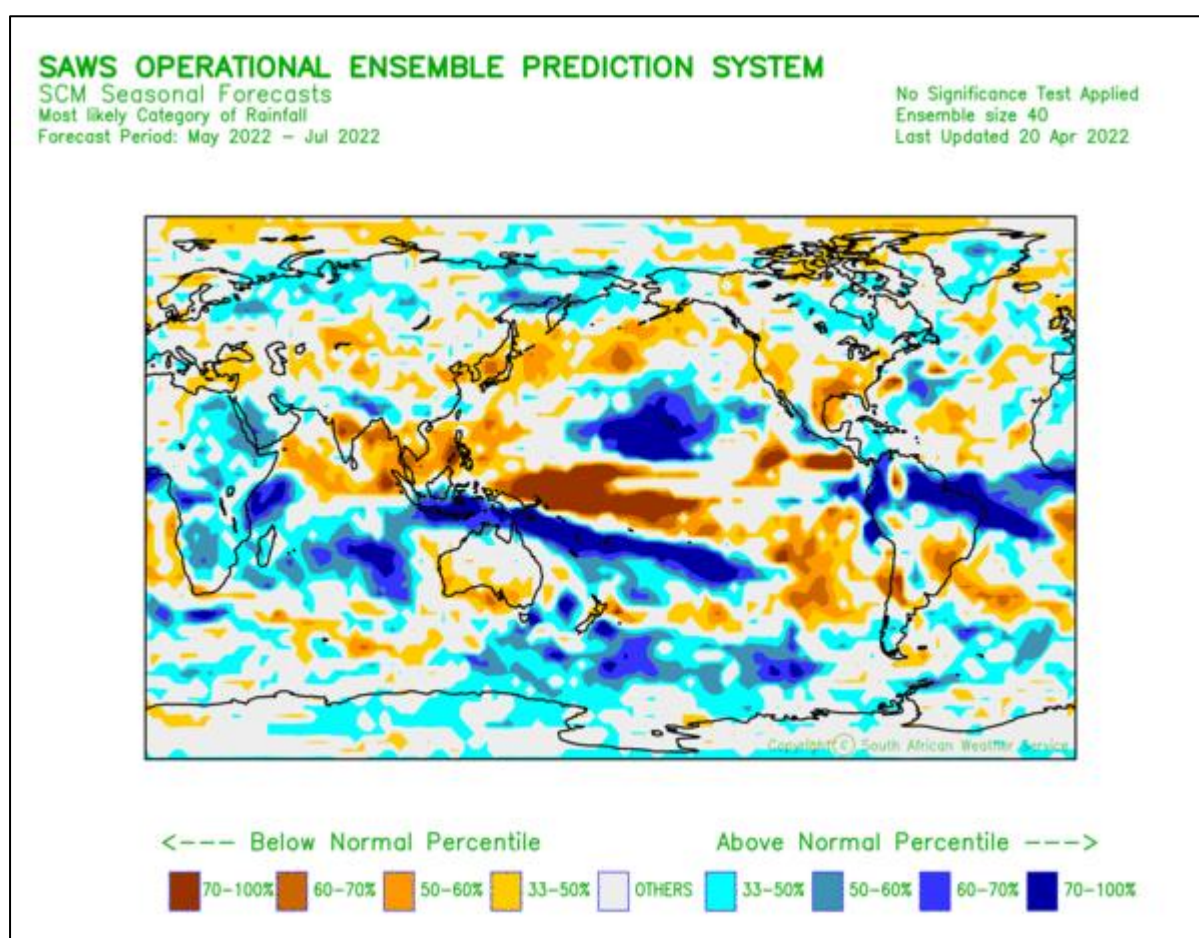
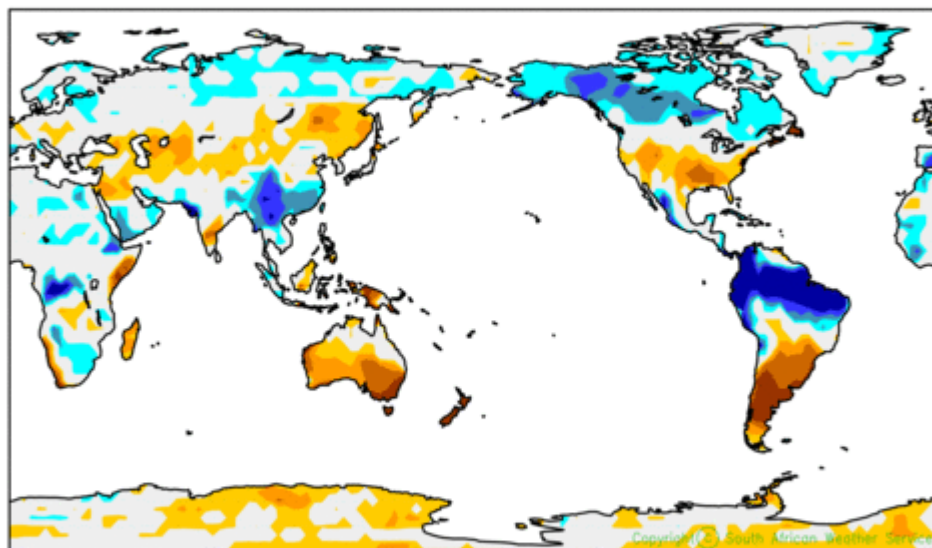


Figure 1: May-June-July (2022) global prediction for total rainfall probabilities.

SAWS OPERATIONAL ENSEMBLE PREDICTION SYSTEM

SCM Seasonal Forecasts
 Most likely Category of 2m Temperature
 Forecast Period: May 2022 – Jul 2022

No Significance Test Applied
 Ensemble size 40
 Last Updated 20 Apr 2022



<--- 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: May-June-July (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 April 2022 initial conditions, and are presented below for South Africa.

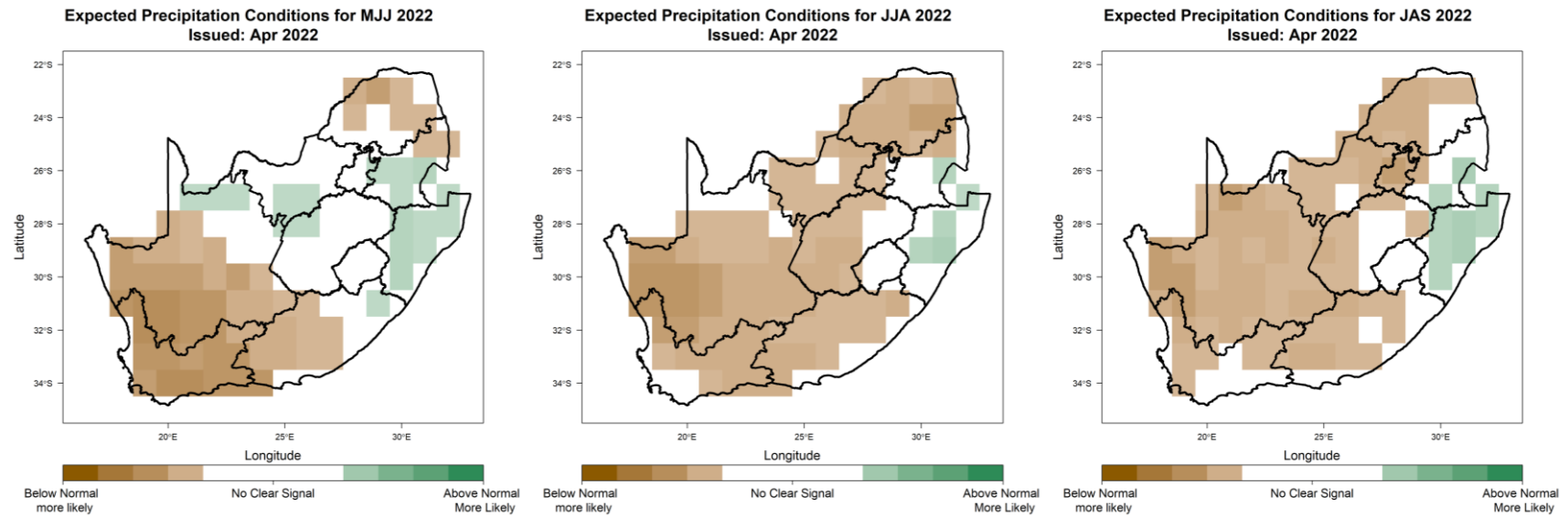


Figure 3: May-June-July 2022 (MJJ; left), June-July-August 2022 (JJA; middle), July-August-September 2022 (JAS; right) seasonal precipitation prediction. Maps indicate the highest probability from three probabilistic categories namely Above-Normal, Near-Normal and Below-Normal.

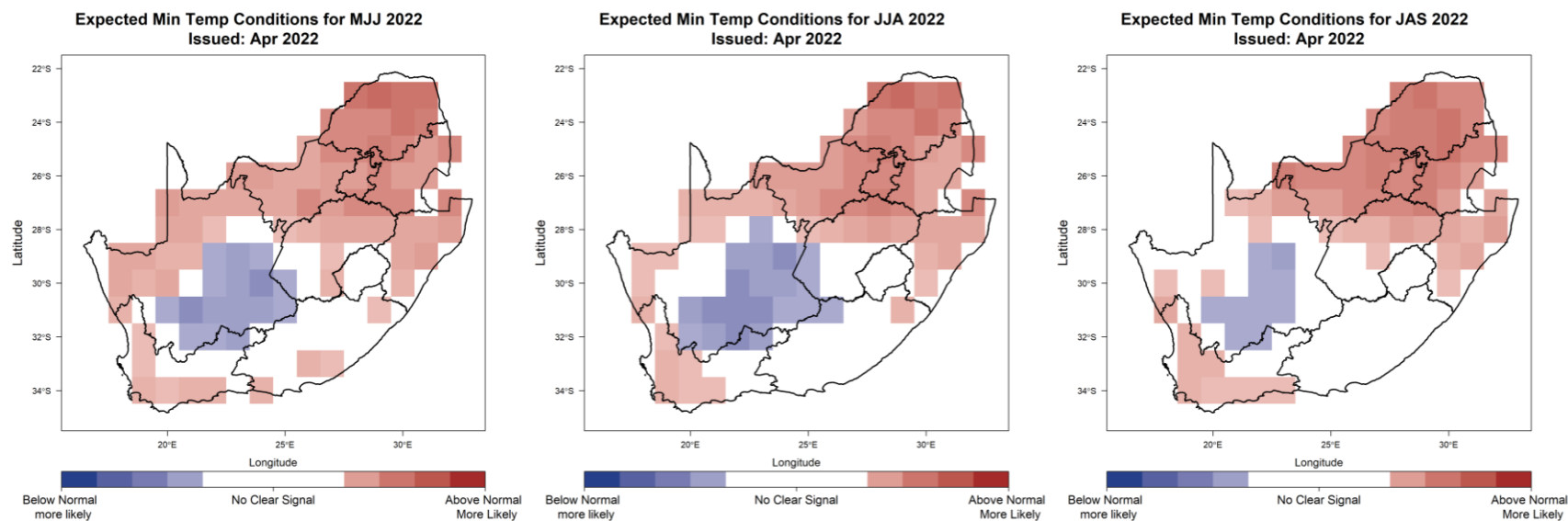


Figure 4: May-June-July 2022 (MJJ; left), June-July-August 2022 (JJA; middle), July-August-September 2022 (JAS; right) seasonal minimum temperature prediction. Maps indicate the highest probability from three probabilistic categories namely Above-Normal, Near-Normal and Below-Normal.

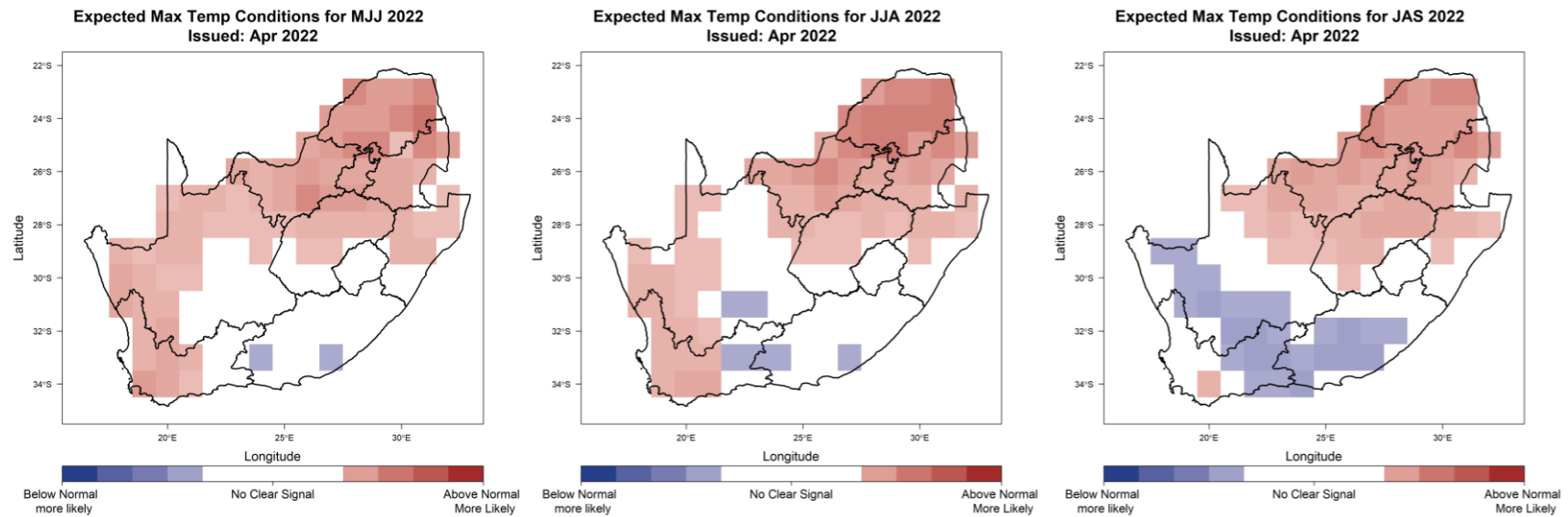


Figure 5: May-June-July 2022 (MJJ; left), June-July-August 2022 (JJA; middle), July-August-September 2022 (JAS; right) seasonal maximum temperature prediction. Maps indicate the highest probability from three probabilistic categories namely Above-Normal, Near-Normal and Below-Normal.

2.3. Climatological Seasonal Totals and Averages

The following maps indicate the rainfall and temperature (minimum and maximum) climatology for the early-winter (May-Jun-Jul), mid-winter (Jun-Jul-Aug) and late-winter (Jul-Aug-Sep). 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.

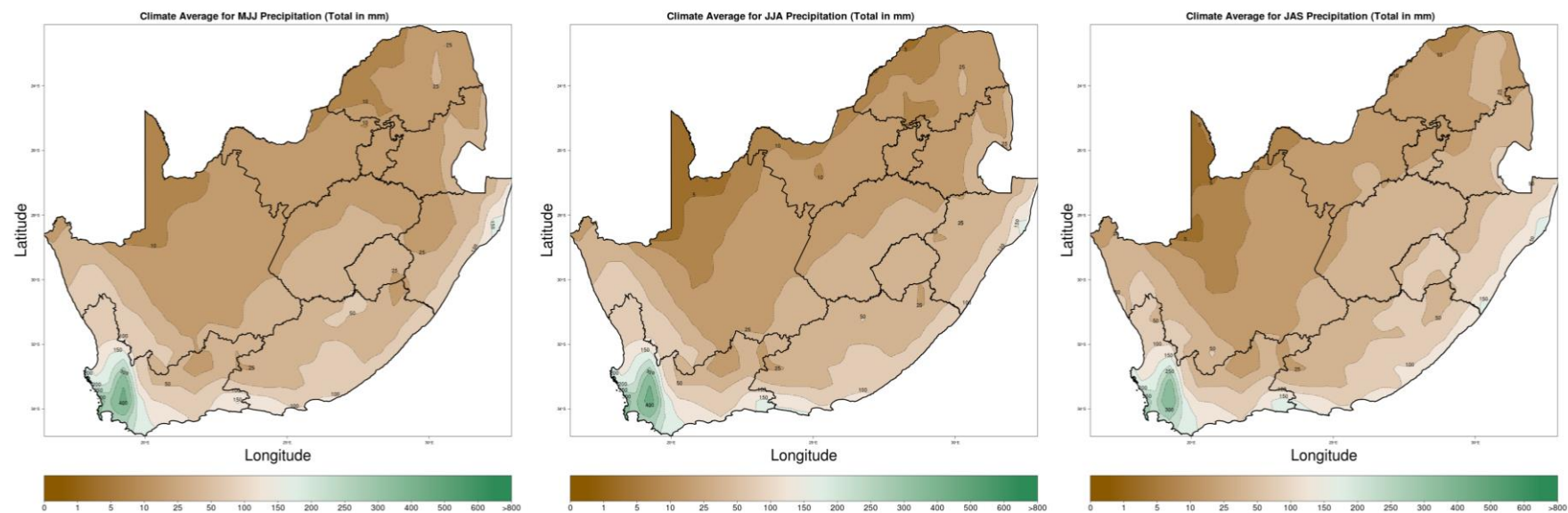


Figure 6: *Climatological seasonal totals for precipitation during May-June-July (MJJ; left), June-July-August (JJA; middle) and July-August-September (JAS; right).*

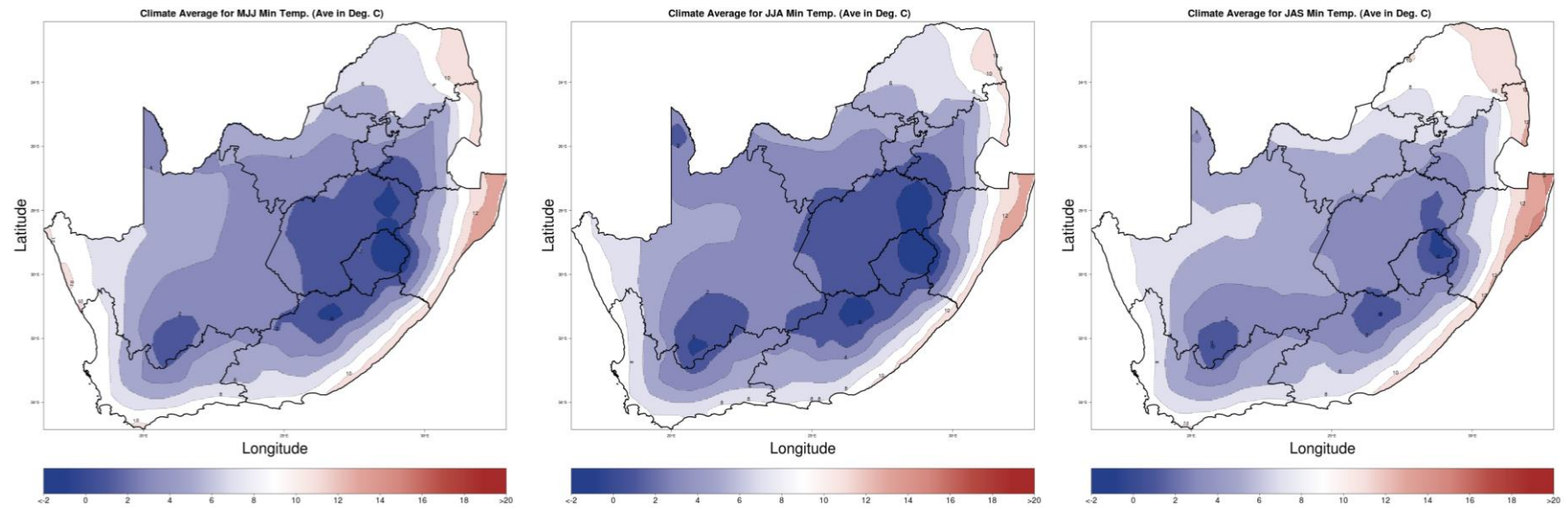


Figure 7: *Climatological seasonal averages for minimum temperature during May-June-July (MJJ; left), June-July-August (JJA; middle) and July-August-September (JAS; right).*

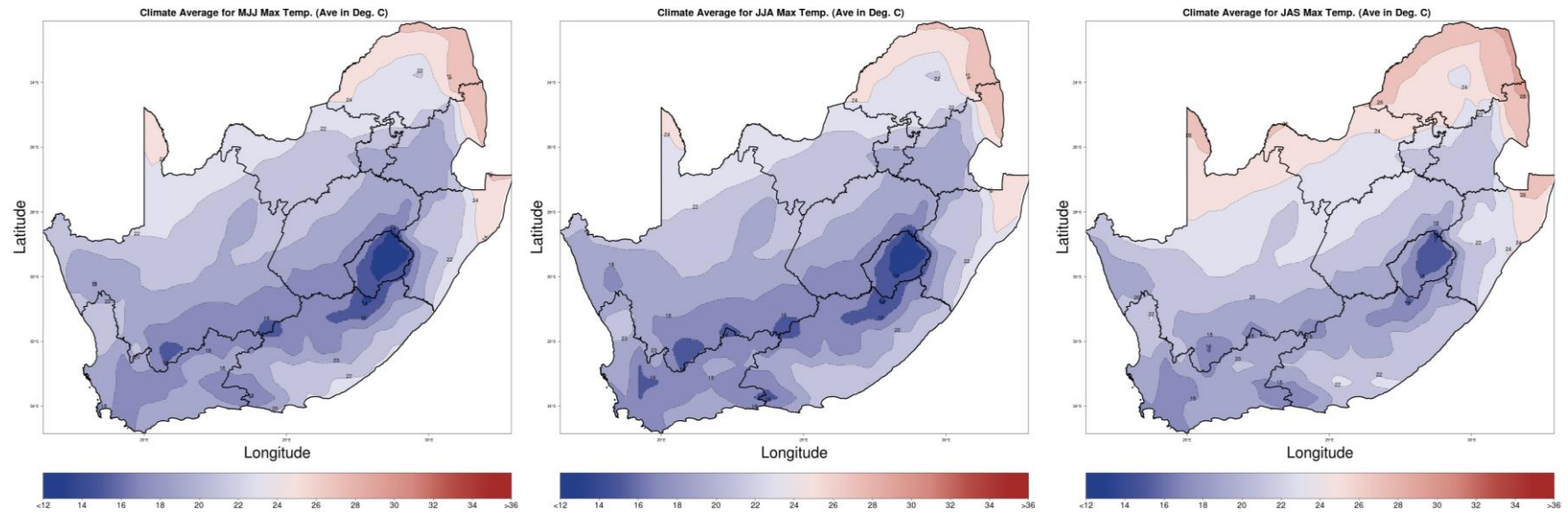


Figure 8: Climatological seasonal averages for maximum temperature during May-June-July (MJJ; left), June-July-August (JJA; middle) and July-August-September (JAS; right).

3. Summary implications to various economic sector decision makers

Water and Energy

The anticipated below-normal rainfall during mid- and late-winter may lead to water scarcity, particularly in the Eastern Cape, Limpopo, and Northern Cape where dams are at critical storage levels. There is a high risk of flooding in the south-eastern regions, covering KwaZulu-Natal, due to the expected above-normal rainfall during early- and late-winter. The expected above normal temperatures across the country are not likely to increase the demand for heating except for the central and 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 predicted above-normal minimum and maximum temperatures will likely result in warm conditions, with minimal health implications. The ultraviolet radiation (UV) levels during this reporting period are more than 3, indicating that the risk of UV-related effects is imminent, necessitating sun protection in the form of seeking shade, wearing appropriate clothing that covers your body, and using sunscreen, especially during the midday hours. The public is advised to take precautions and abide by the advice and recommendations of local authorities.

Agriculture

Below-normal rainfall is expected for most parts of the country except for the central and eastern coastal areas in early winter and the eastern coastal areas during mid- and late-winter. However, the south-western part, which normally receives significant rainfall during the 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 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)

