

Seasonal Climate Watch

June to October 2023

Date issued: June 02, 2023

1. Overview

The El Niño-Southern Oscillation (ENSO) is currently in a Neutral state, and forecasts indicate that it will likely move into weak El Niño state during late-winter and early-spring and eventually strengthening into a strong El Niño state for the remainder of the summer season. Caution is advised though, ENSO predictions during this time is less skilful than other times of the year. It is advised that the ENSO forecasts be monitored from now until we reach August/September when ENSO forecasts have significantly higher skill levels. ENSO's impact is limited for the current forecast period until the summer season starts which will likely be impacted by a strong El Niño state if early predictions are correct.

The multi-model rainfall forecast indicates above-normal rainfall for most of the country during winter (Jun-Jul-Aug) through to early-spring (Aug-Sep-Oct). This is still only relevant for the south-western parts of the country during winter but also relevant for the eastern coastal areas during spring.

Minimum and maximum temperatures are expected to be mostly above-normal countrywide for the forecast period.

The South African Weather Service (SAWS) will continue to monitor the weather and climate 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 (June-July-August) predictions for rainfall (Figure 1) and average temperature (Figure 2).

SAWS OPERATIONAL ENSEMBLE PREDICTION SYSTEM

SCM Seasonal Forecasts
Most likely Category of Rainfall
Forecast Period: Jun 2023 – Aug 2023

No Significance Test Applied
Ensemble size 40
Last Updated 30 May 2023

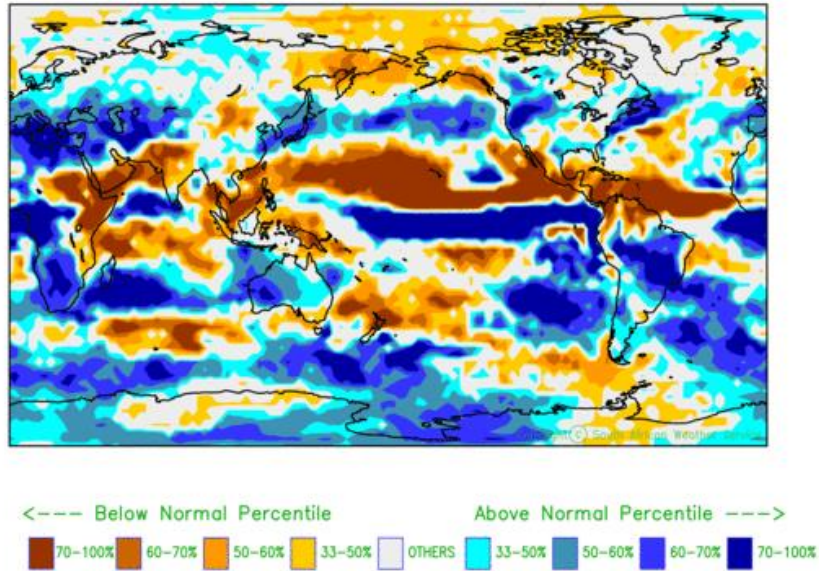


Figure 1: June-July-August, JJA (2023) global prediction for total rainfall probabilities

SAWS OPERATIONAL ENSEMBLE PREDICTION SYSTEM

SCM Seasonal Forecasts
Most likely Category of 2m Temperature
Forecast Period: Jun 2023 – Aug 2023

No Significance Test Applied
Ensemble size 40
Last Updated 30 May 2023

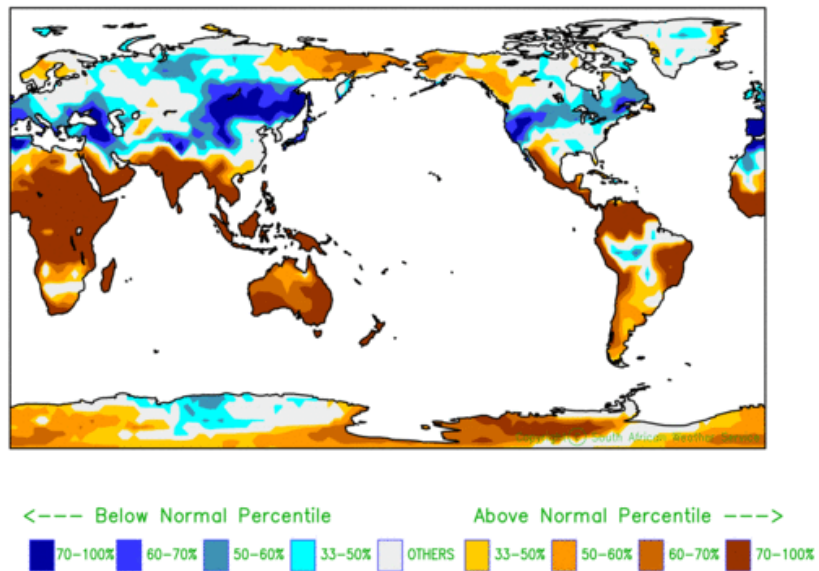


Figure 2: June-July-Aug, JJA (2023) global prediction for average temperature probabilities

2.2. Seasonal Forecasts for South Africa from the SAWS seasonal prediction system

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 2023 initial conditions, and are presented below:

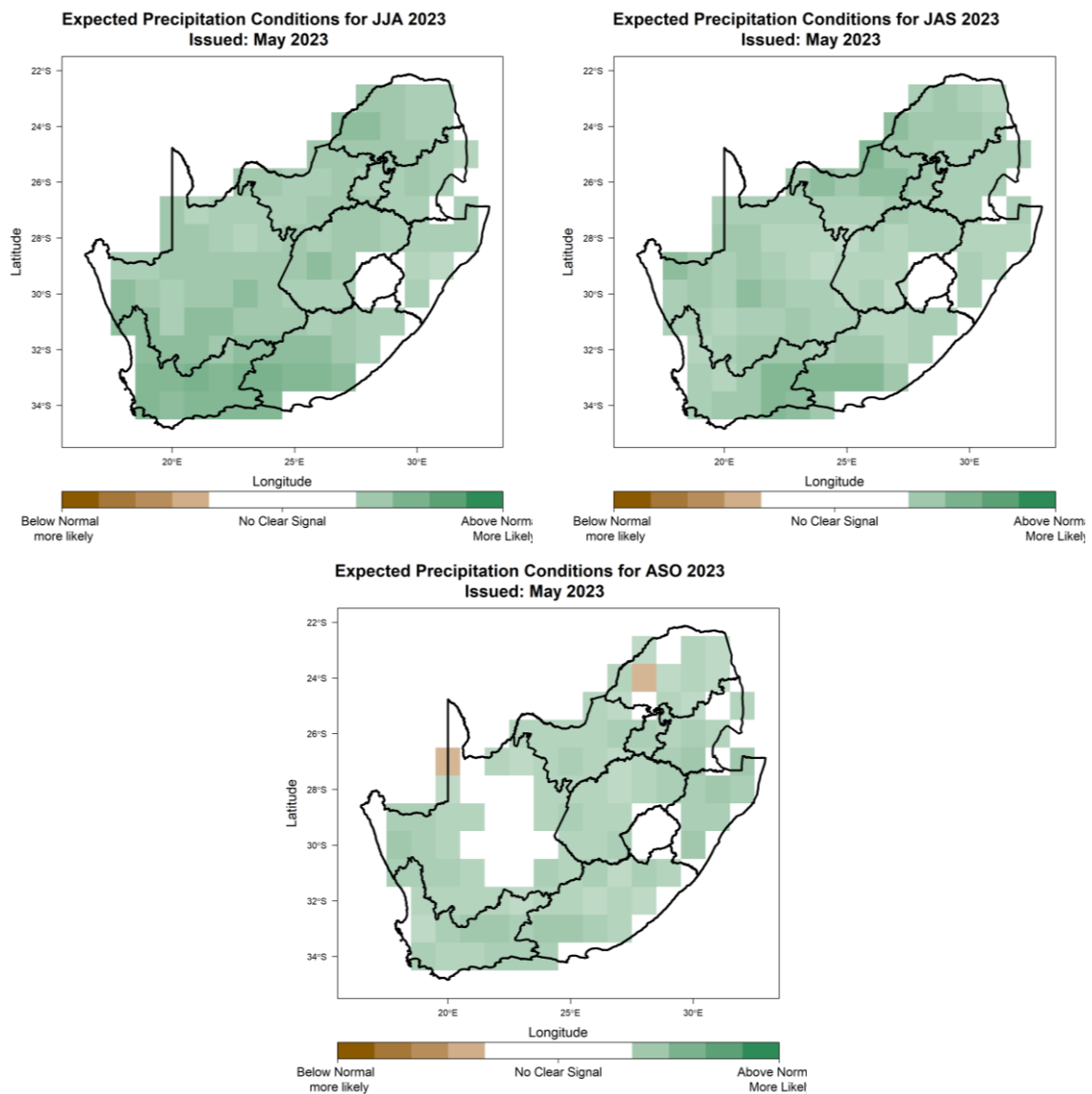


Figure 3: June-July-August 2023 (JJA; left), July-August-September 2023 (JAS; right), August-September-October 2023 (ASO; bottom) seasonal precipitation prediction. Maps indicate the highest probability from three probabilistic categories, namely above-normal, near-normal and below-normal.

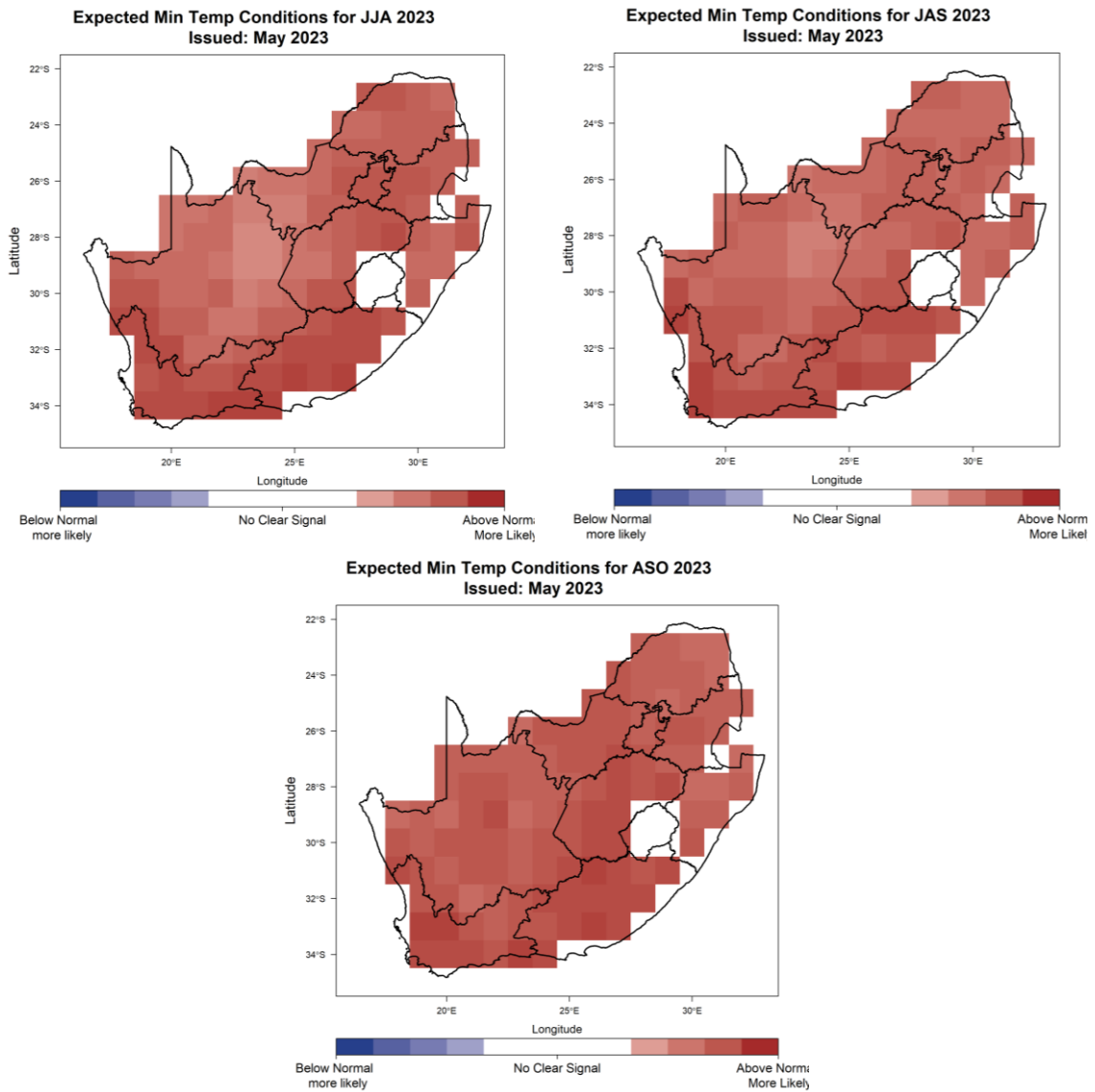


Figure 4: June-July-August 2023 (JJA; left), July-August-September 2023 (JAS; right), August-September-October 2023 (ASO; bottom) seasonal minimum temperature prediction. Maps indicate the highest probability from three probabilistic categories, namely above-normal, near-normal and below-normal.

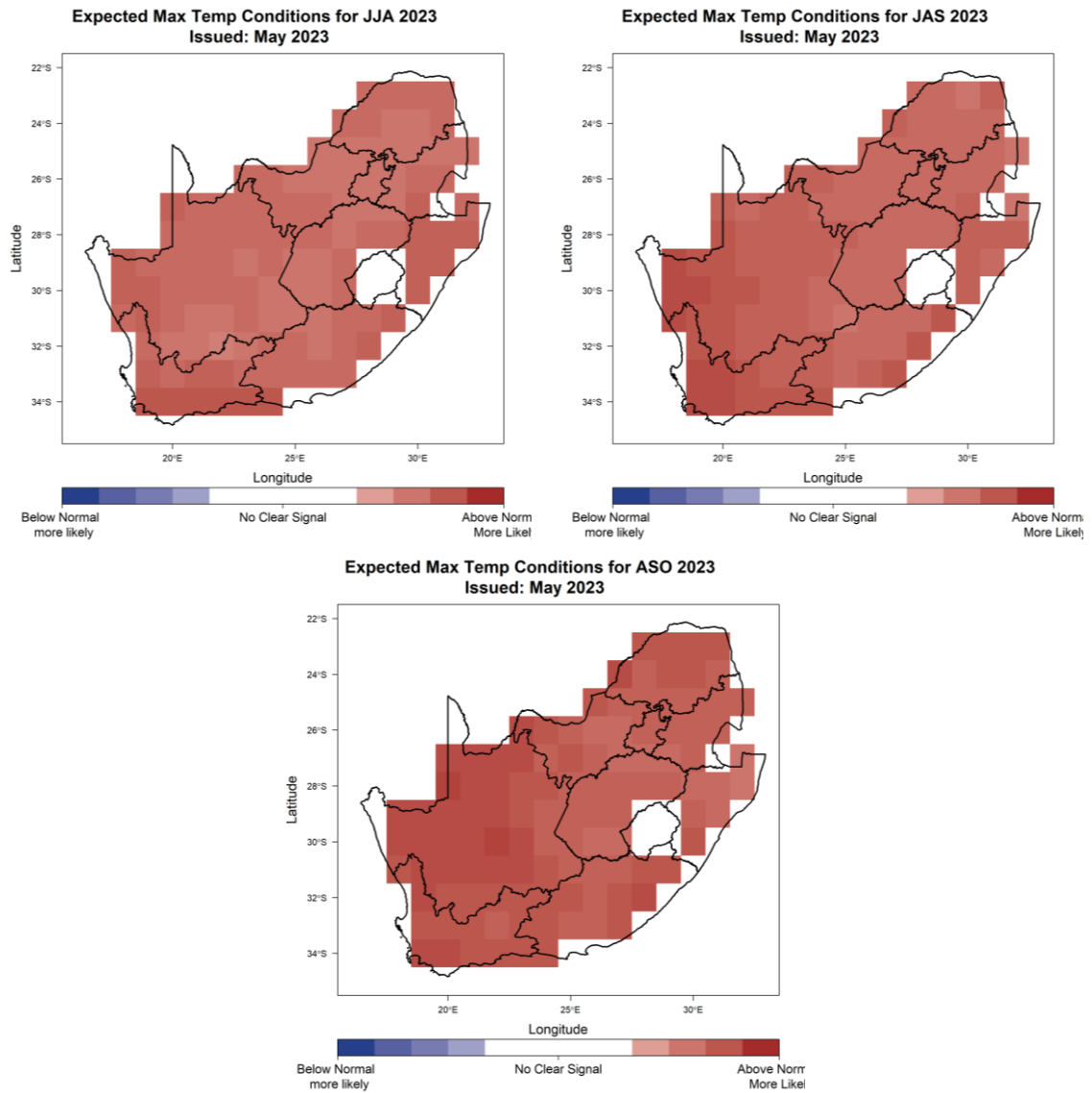


Figure 5: June-July-August 2023 (JJA; left), July-August-September 2023 (JAS; right), August-September-October 2023 (ASO; bottom)) seasonal maximum temperature prediction. Maps indicate the highest probability from three probabilistic categories, namely above-normal, near-normal and below-normal.

2.3. Climatological Seasonal Totals and Averages

The following maps indicate the rainfall and temperature (minimum and maximum temperature) climatology for the June-July-August, July-August-September and August-September-October seasons. 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.

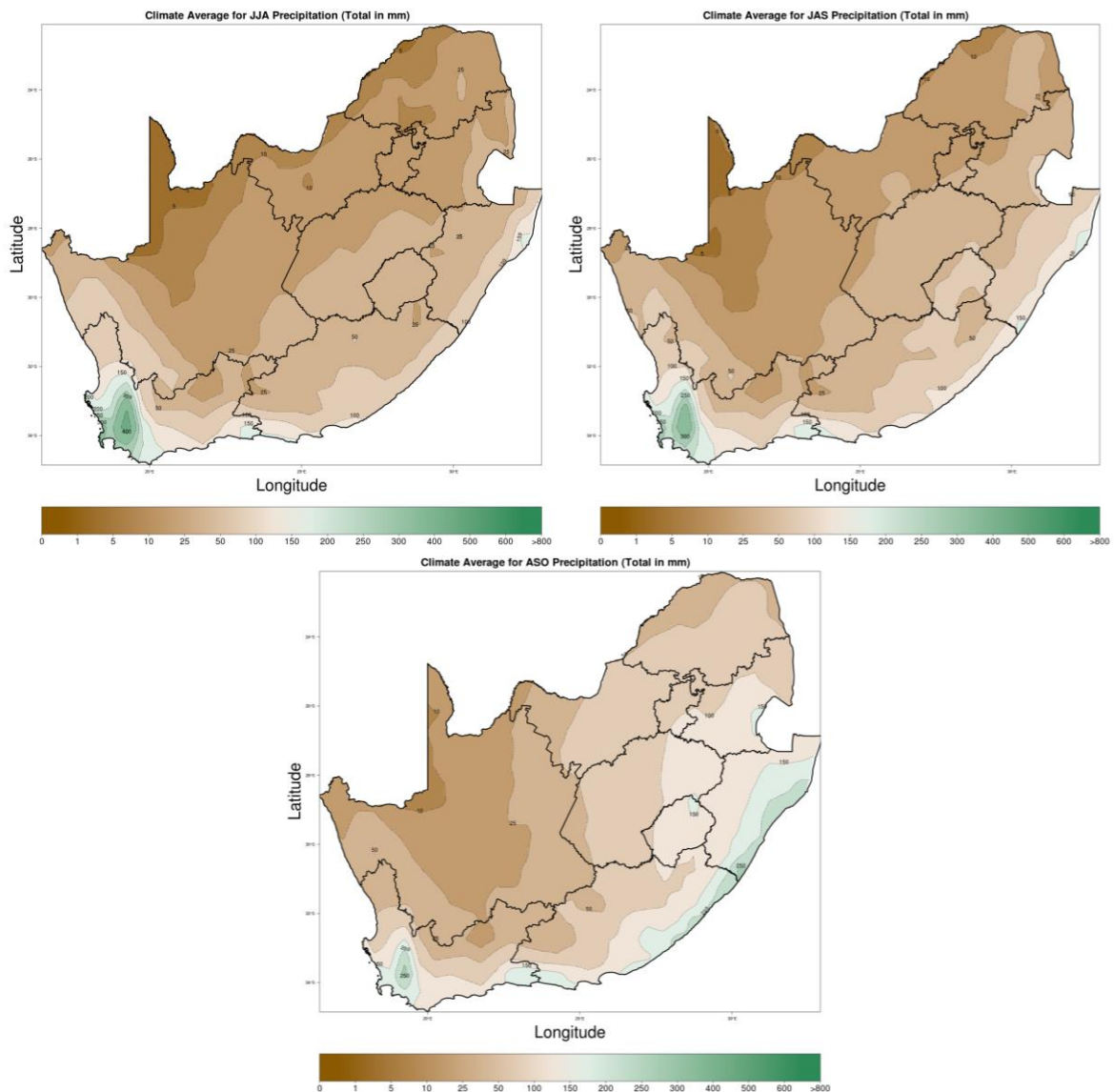


Figure 6: Climatological seasonal totals for precipitation during June-July-August (JJA; left), July-August-September (JAS; right) and August-September-October (ASO; bottom).

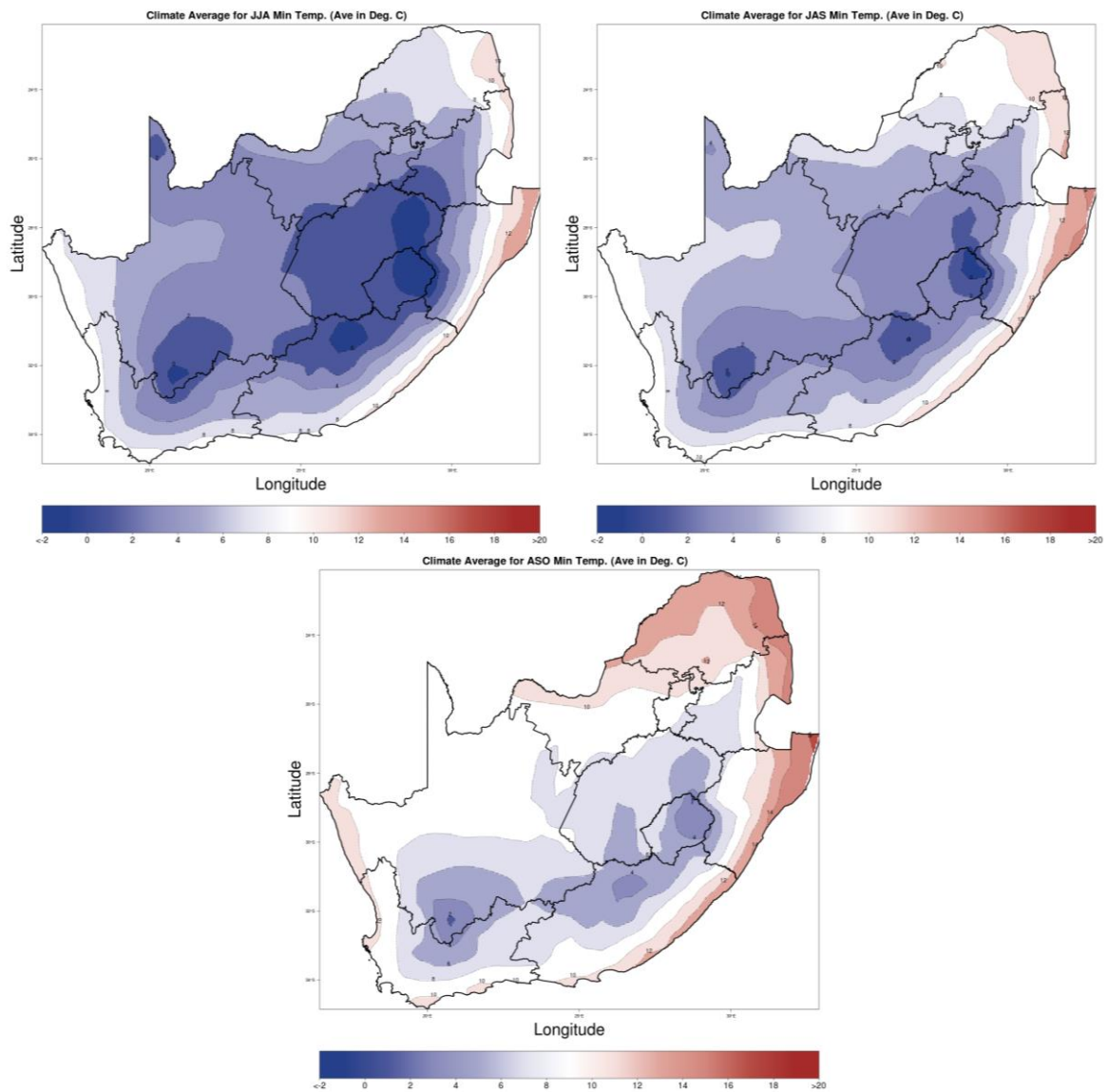


Figure 7: Climatological seasonal averages for minimum temperature during June-July-August (JJA; left), July-August-September (JAS; right) and August-September-October (ASO; bottom).

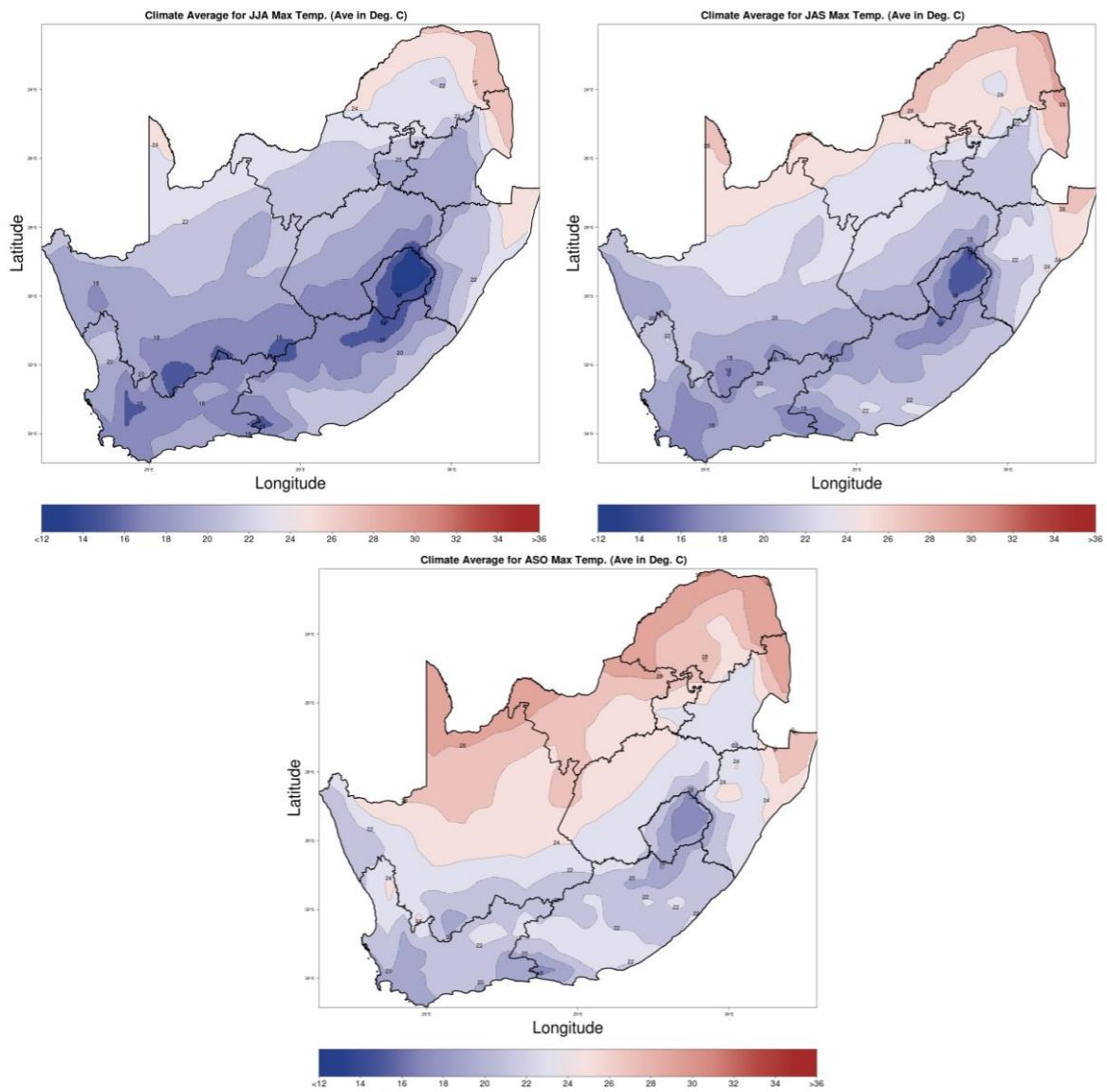


Figure 8: Climatological seasonal averages for maximum temperature during June-July-August (JJA; left), July-August-September (JAS; right) and August-September-October (ASO; bottom).

3. Summary implications to various economic sector decision makers

Water and Energy

The above-normal rainfall expected for most of the country provides a good opportunity for the recharge of dams and other water reservoirs, particularly in the south-western and eastern coastal areas of the country during winter and spring, respectively. Such conditions are likely to increase the risk of flooding in flood-prone areas. In addition, the expected mostly above-normal minimum and maximum temperatures across the country will not likely increase the demand for space heating during winter season. Relevant decision-makers are encouraged to take note of these possible outcomes and communicate to affected businesses and communities.

Health

The country is predicted to experience above-normal rainfall throughout the predicted seasons, which may lead to an increased risk of flash floods in certain regions, particularly in flood-prone areas and areas with inadequate drainage systems. These wet conditions can also contribute to waterborne infections, as well as water-related injuries and accidents. It is strongly advised that the public take necessary precautions and follow the guidance and recommendations provided by local authorities. Furthermore, the expected minimum and maximum temperatures are likely to result in relatively warmer conditions, especially during the nighttime. It is important to note that the ultraviolet radiation (UV) levels during this reporting period remain above the threshold that necessitates the adoption of appropriate sun protection measures. These measures include seeking shade, wearing protective clothing that covers the body, and applying sunscreen, particularly during midday hours. By taking these precautions, individuals can mitigate the potential risks of adverse health effects related to UV exposure.

Agriculture

Above-normal rainfall is expected for most parts of the country during winter and early-spring seasons. This above-normal rainfall forecast is particularly important for the winter rainfall region, south and south-western parts of the country, which will likely have a positive impact on crop and livestock production. However, above-normal rainfall during winter months over the summer rainfall regions is not likely to be significant. Therefore, the relevant decision-makers are encouraged to advise farmers in these regions to practice soil and water conservation, proper water harvesting and storage, establishing good drainage systems, 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 them to change, especially the longer lead-time forecasts. Moreover, farmers are advised to

keep monitoring the weekly and monthly forecasts issued by the South African Weather Service (SAWS). 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**

