

Seasonal Climate Watch

April to August 2023

Date issued: Apr 03, 2023

1. Overview

The El Niño-Southern Oscillation (ENSO) is currently in a La Niña state, and forecasts indicate that it will likely return to a neutral state by autumn (Mar-Apr-May). However, ENSO's impact is limited for the coming seasons until the next summer season which may be impacted by an El Niño state if early predictions are correct. Caution is advised however as changes in the ENSO prediction may change during winter and only monitoring is advised at this stage.

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 all predicted seasons. As most of the rainfall during winter is expected in the far south-west, the below-normal rainfall conditions in those areas are expected to have a significant impact.

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 (April-May-June) 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: Apr 2023 – Jun 2023

No Significance Test Applied
Ensemble size 40
Last Updated 22 Feb 2023

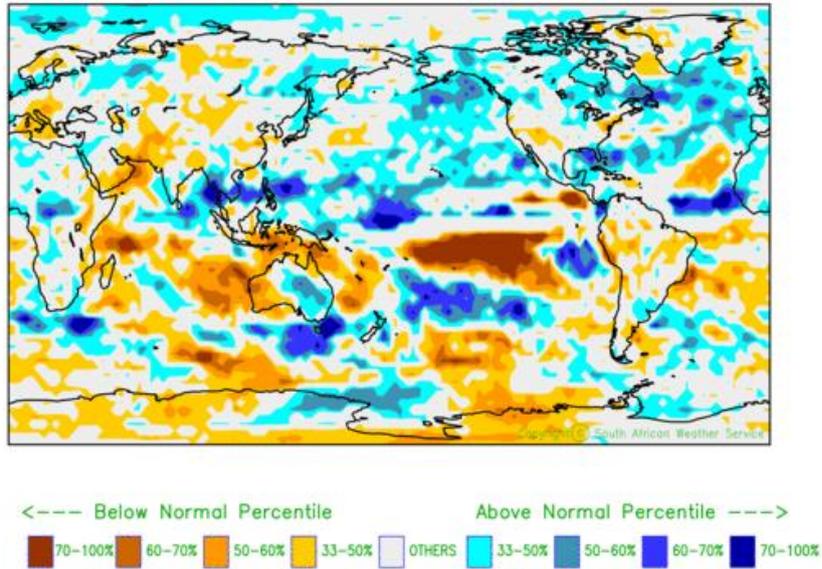


Figure 1: April-May-June, AMJ (2023) global prediction for total rainfall probabilities

SAWS OPERATIONAL ENSEMBLE PREDICTION SYSTEM

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

No Significance Test Applied
Ensemble size 40
Last Updated 22 Feb 2023

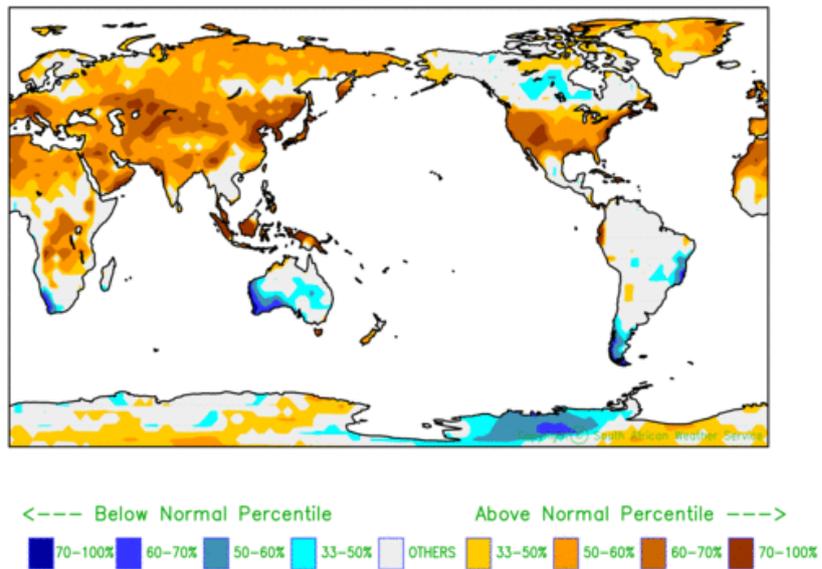


Figure 2: April-May-June, AMJ (2023) global prediction for average temperature probabilities

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 March 2023 initial conditions, and are presented below:

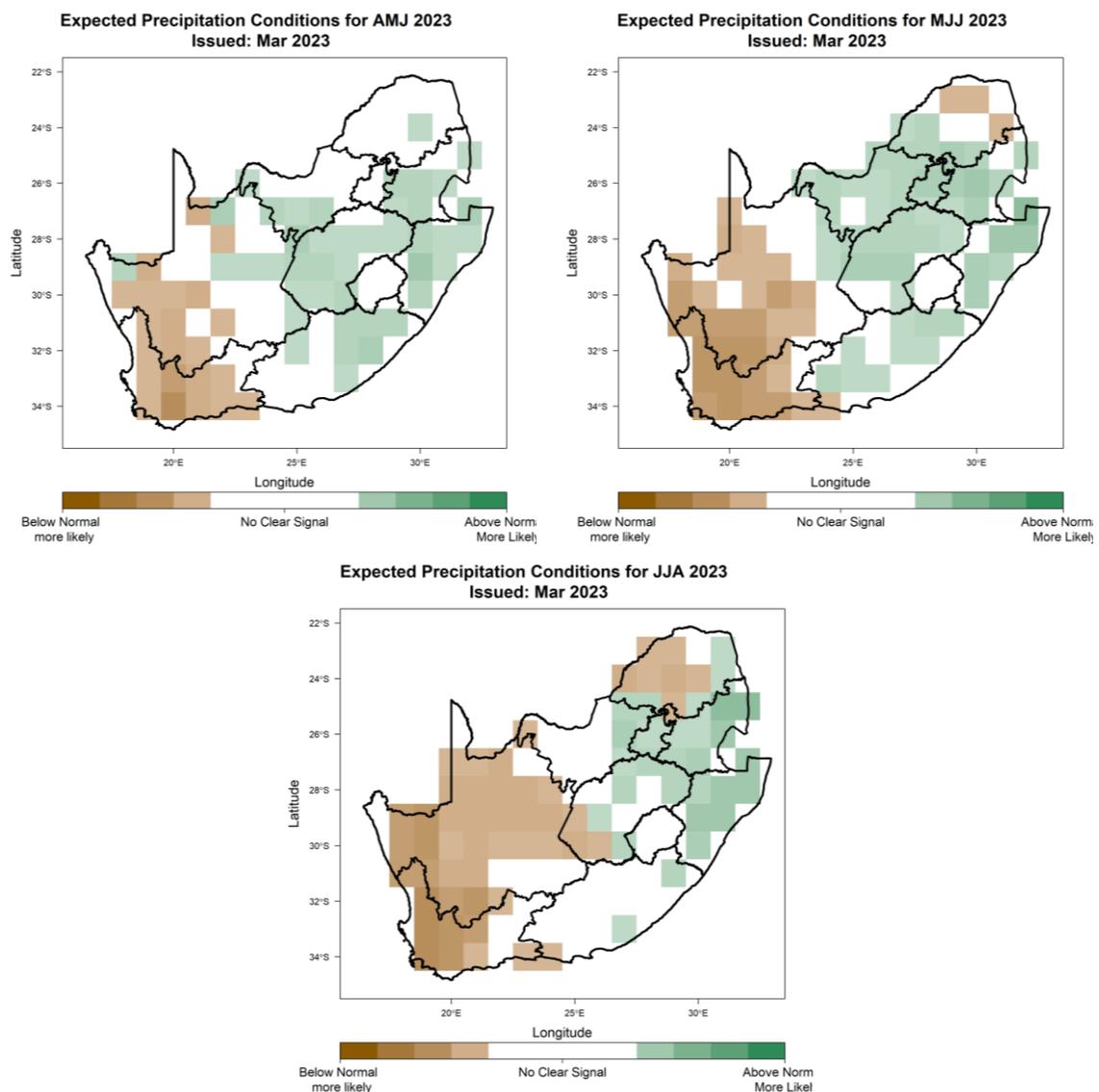


Figure 3: April-May-June 2023 (AMJ; left), May-June-July 2023 (MJJ; right), June-July-August 2023 (JJA; bottom) seasonal precipitation prediction. Maps indicate the highest probability from three probabilistic categories, namely above-normal, near-normal and below-normal.

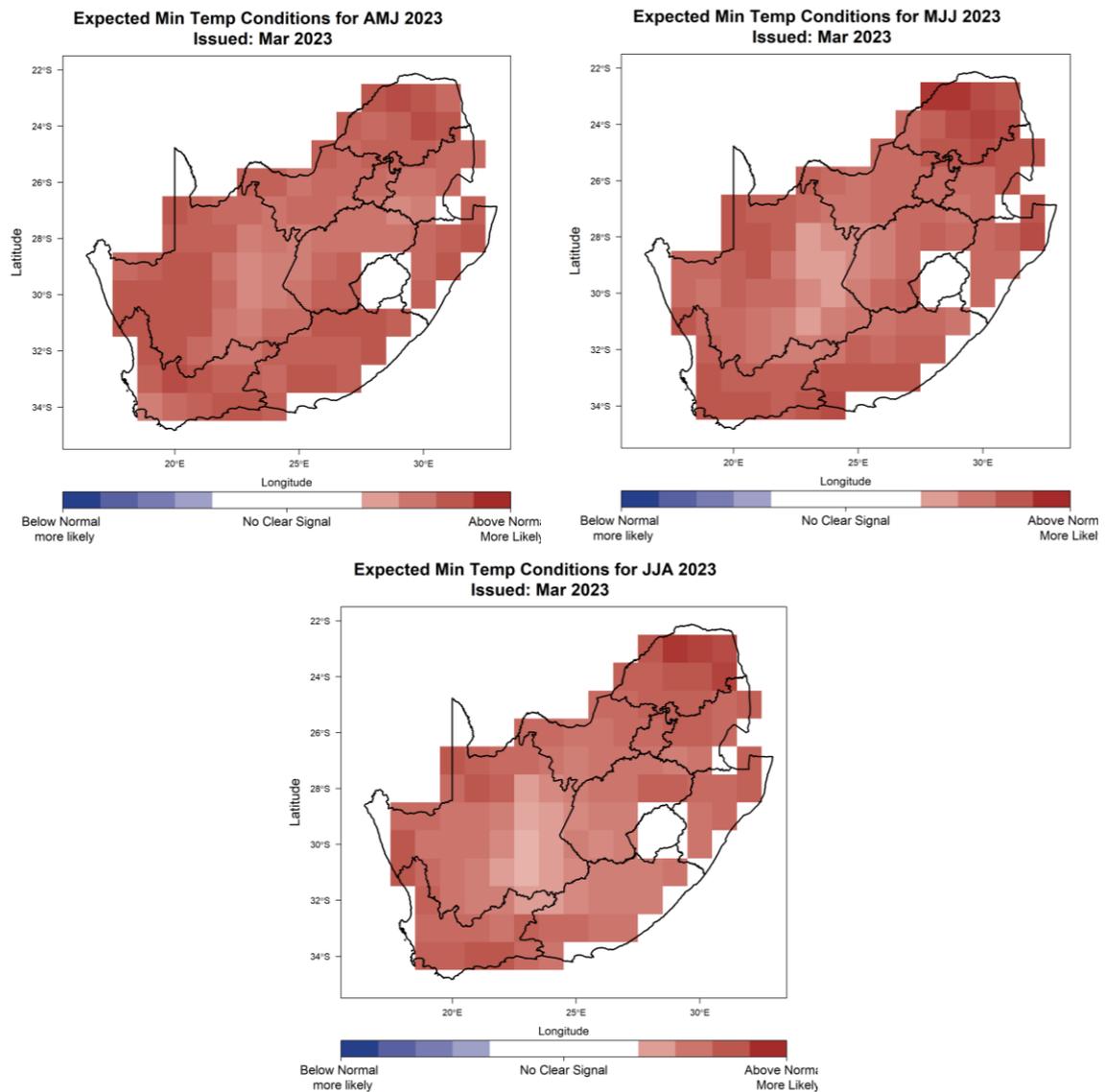


Figure 4: April-May-June 2023 (AMJ; left), May-June-July 2023 (MJJ; right), June-July-August 2023 (JJA; bottom) seasonal minimum temperature prediction. Maps indicate the highest probability from three probabilistic categories, namely above-normal, near-normal and below-normal.

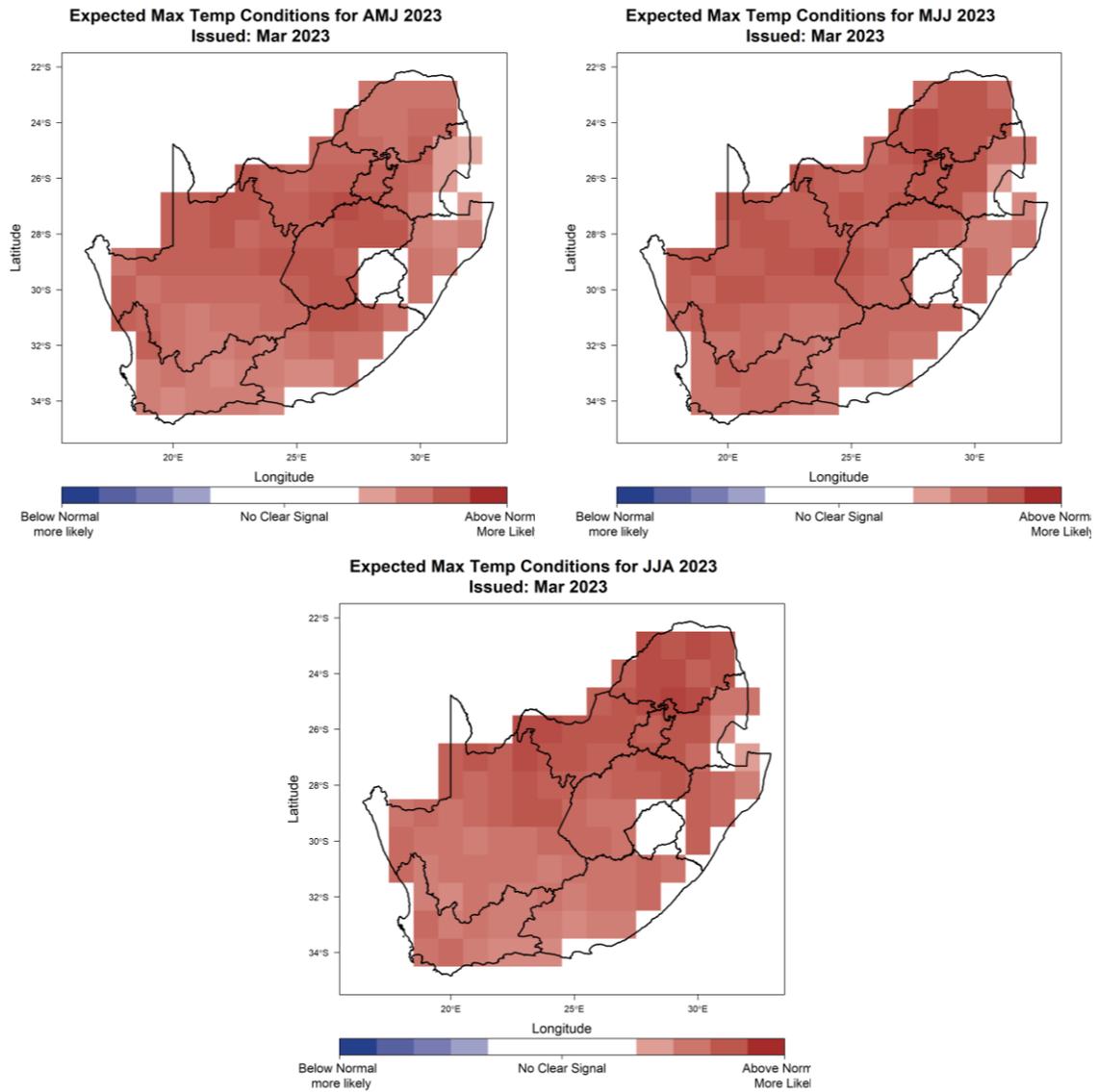


Figure 5: April-May-June 2023 (AMJ; left), May-June-July 2023 (MJJ; right), June-July-August 2023 (JJA; bottom) seasonal maximum temperature prediction. Maps indicate the highest probability from three probabilistic categories, namely above-normal, near-normal and below-normal.

2.3. Climatological Seasonal Totals and Averages

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

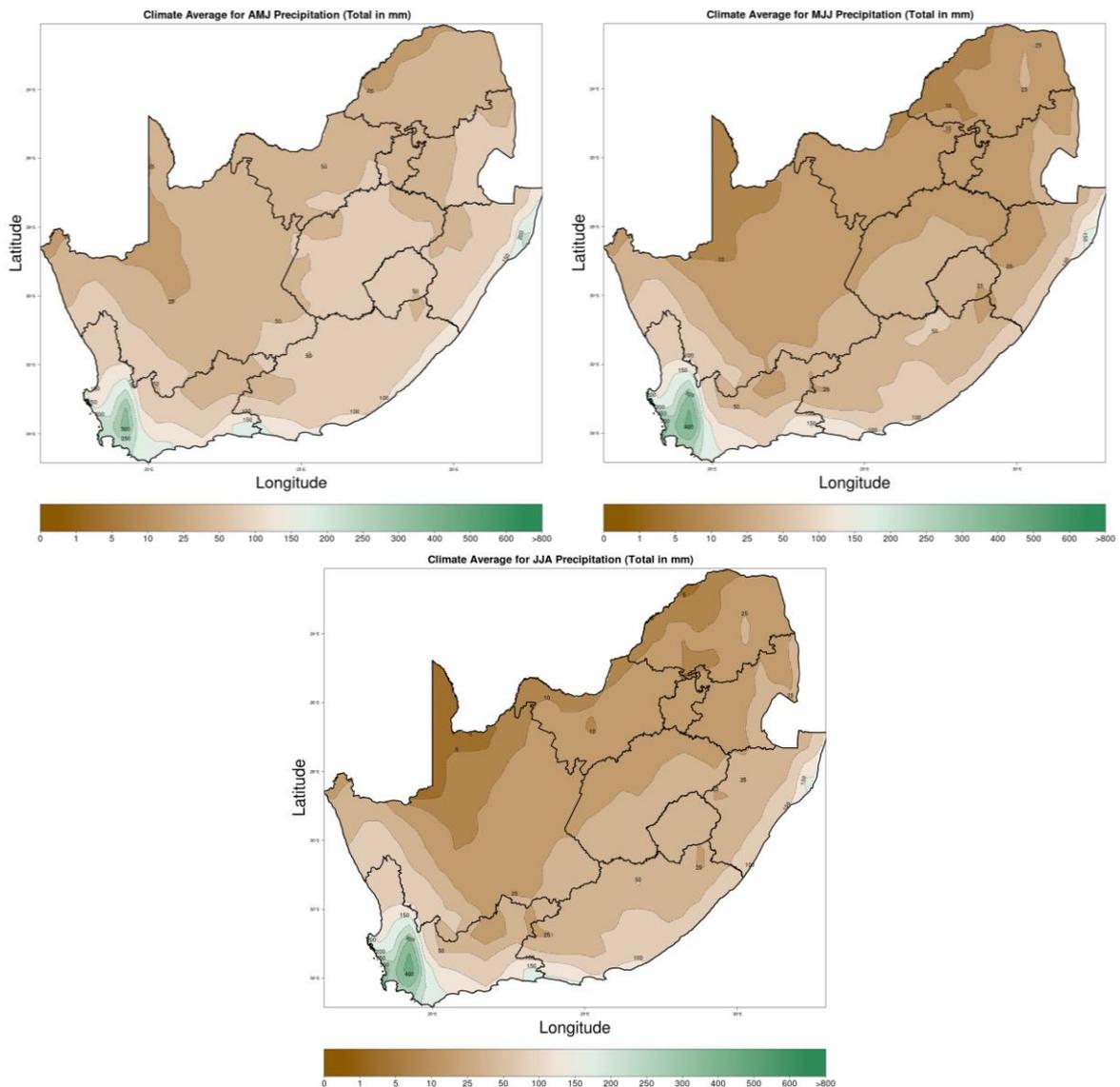


Figure 6: Climatological seasonal totals for precipitation during April-May-June (MAM; left), May-June-July (MJJ; right) and June-July-August (JJA; bottom).

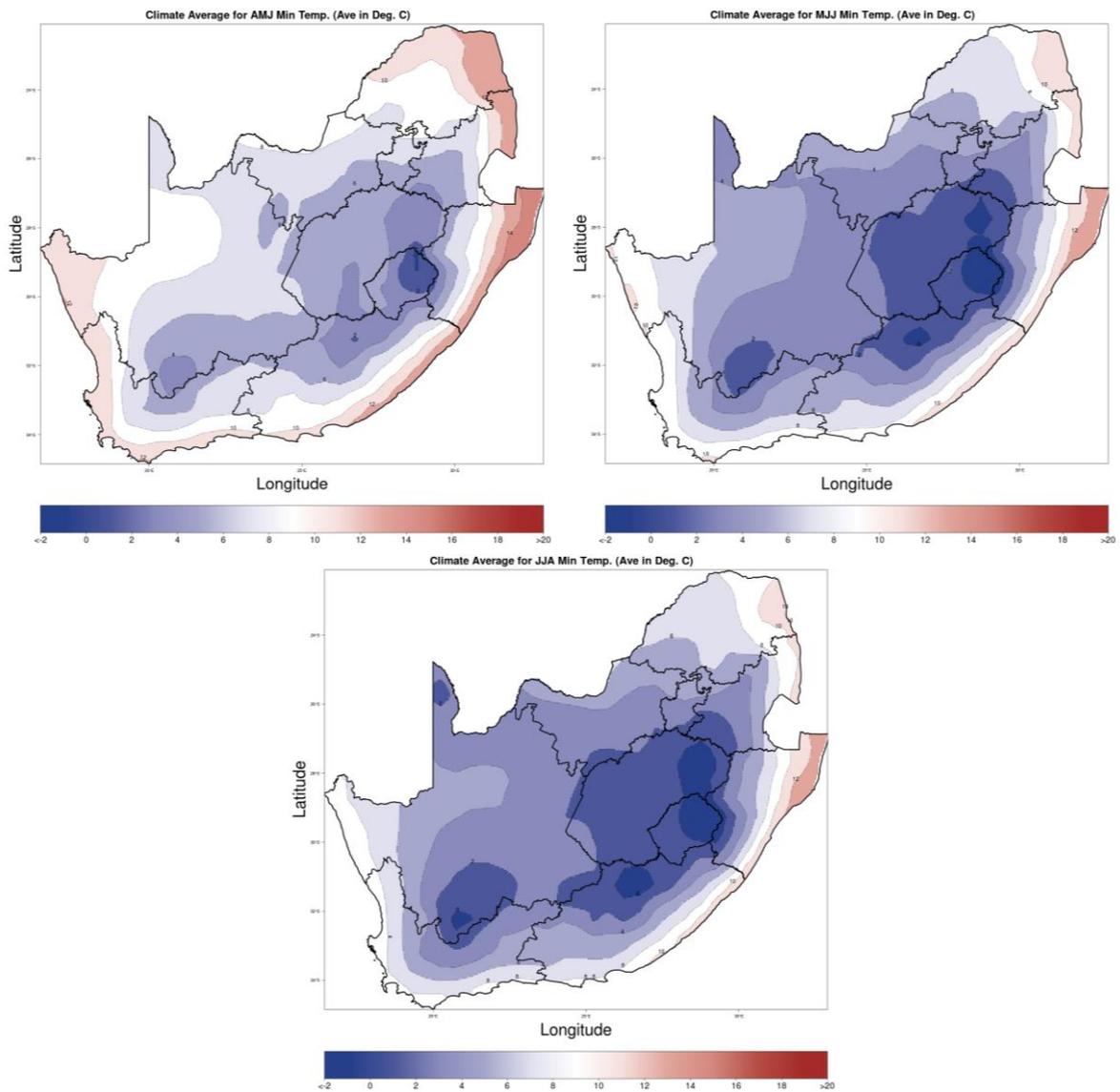


Figure 7: Climatological seasonal averages for minimum temperature during April-May-June (MAM; left), May-June-July (MJJ; right) and June-July-August (JJA; bottom).

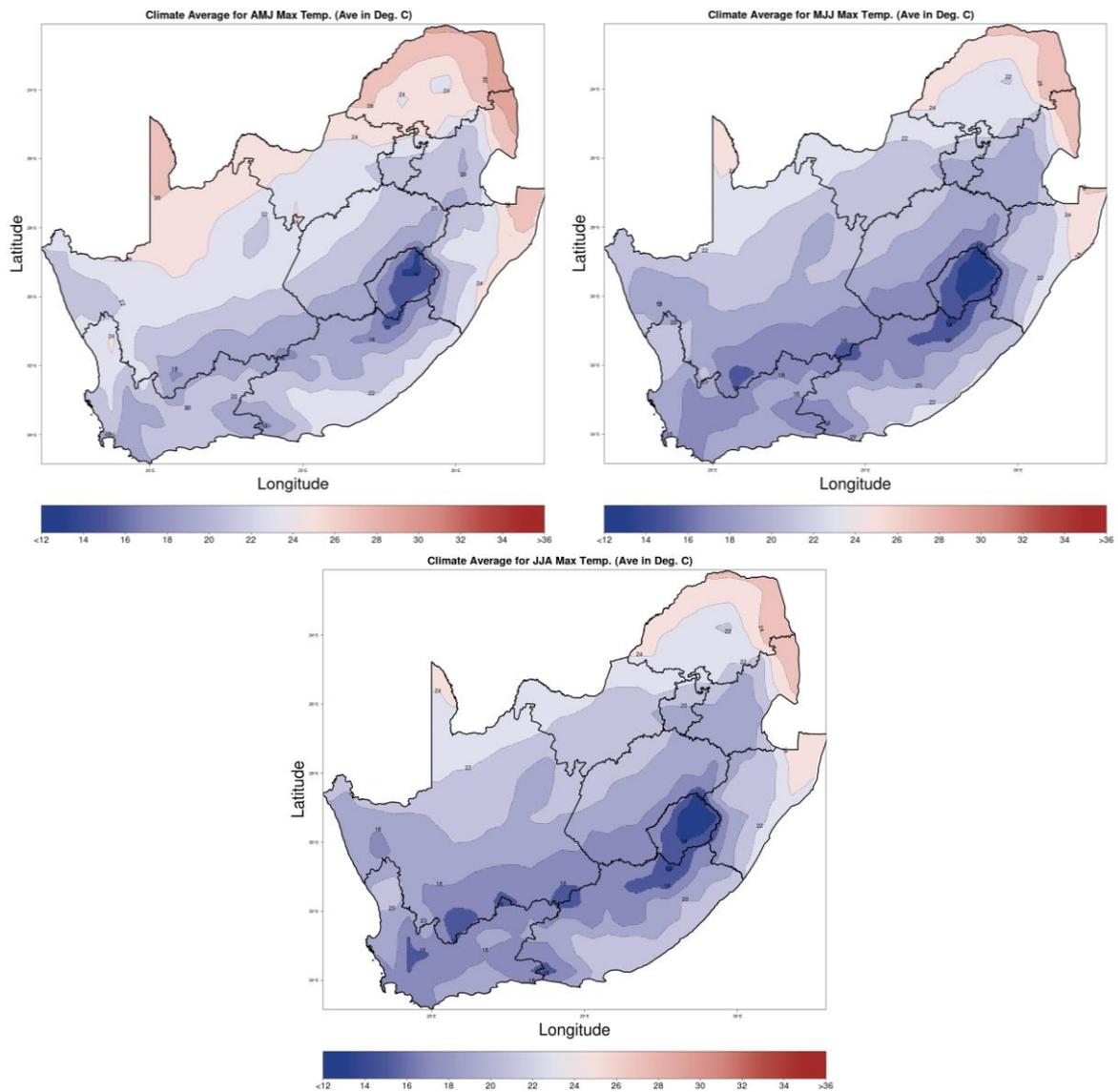


Figure 8: Climatological seasonal averages for maximum temperature during April-May-June (MAM; left), May-June-July (MJJ; right) and June-July-August (JJA; bottom).

3. Summary implications to various economic sector decision makers

Water and Energy

The expected above-normal rainfall may improve dam levels and benefit other water reservoirs in the north-east of the country. On the other hand, water reservoirs are likely to be significantly impacted in the south-west of the country due to the expected below-normal rainfall conditions coupled with above-normal minimum and maximum temperatures. Although minimum and maximum temperatures are expected to be mostly above-normal countrywide for the forecast period, demand for space heating will likely increase during late autumn and winter periods. Relevant decision-makers are encouraged to take note of these possible outcomes and communicate to affected businesses and communities.

Health

The projected above-normal rainfall in the north-east of the country may result in more flooding and increase the potential of flash floods in certain regions, particularly in flood-prone areas with inadequate drainage systems. Waterborne infections, as well as water-related injuries and accidents, are likely to be exacerbated by these conditions. The public is advised to exercise caution and adhere to the recommendations and guidance of local authorities. The projected minimum and maximum temperatures may result in warmer conditions with varying implications depending on the sensitivity and general health of impacted individuals. The danger of UV-related health impacts is significant throughout this reporting period, and the public is encouraged to take appropriate sun protection measures such as seeking shade, wearing clothing that covers the body, and applying sunscreen, particularly at midday.

Agriculture

Above-normal rainfall is expected for the north-eastern parts of the country during late-autumn and early-winter seasons. 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 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**

