Seasonal Climate Watch

February to April 2023

Date issued: Feb 7, 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). As ENSO remains in a La Niña state, late-summer and early autumn rainfall remains likely for above-normal rainfall over the summer rainfall areas. However, as summer comes to an end so does the typical impact of ENSO and it is to be monitored for the next summer season.

The multi-model rainfall forecast indicates above-normal rainfall for most parts of the country for all predicted seasons. 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 second season (February-March-April) predictions for rainfall (Figure 1) and average temperature (Figure 2).

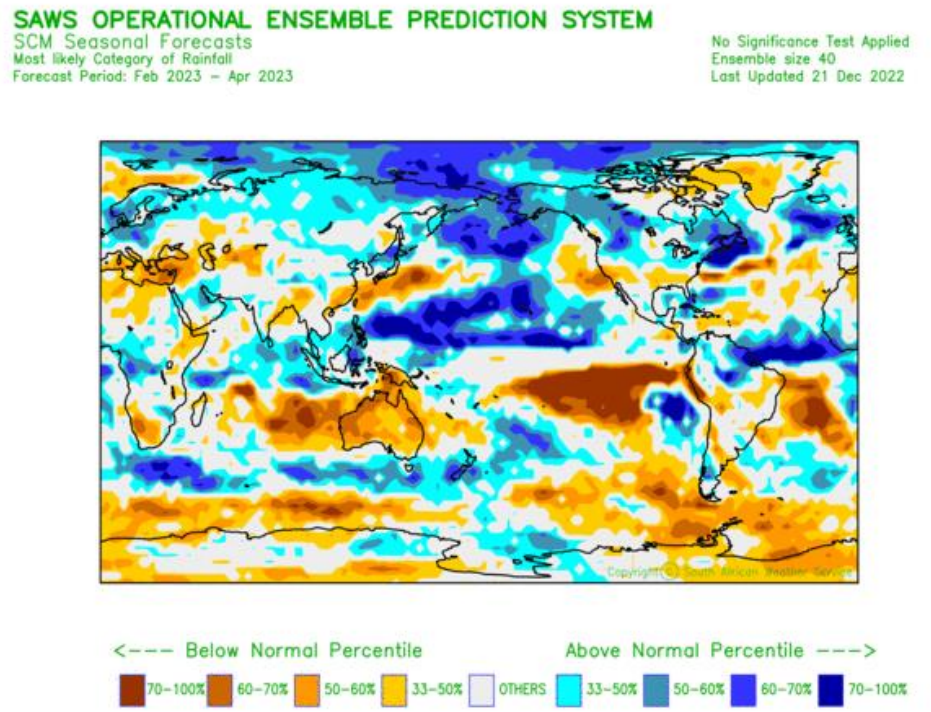

Figure 1: February-March-April, FMA (2023) global prediction for total rainfall probabilities

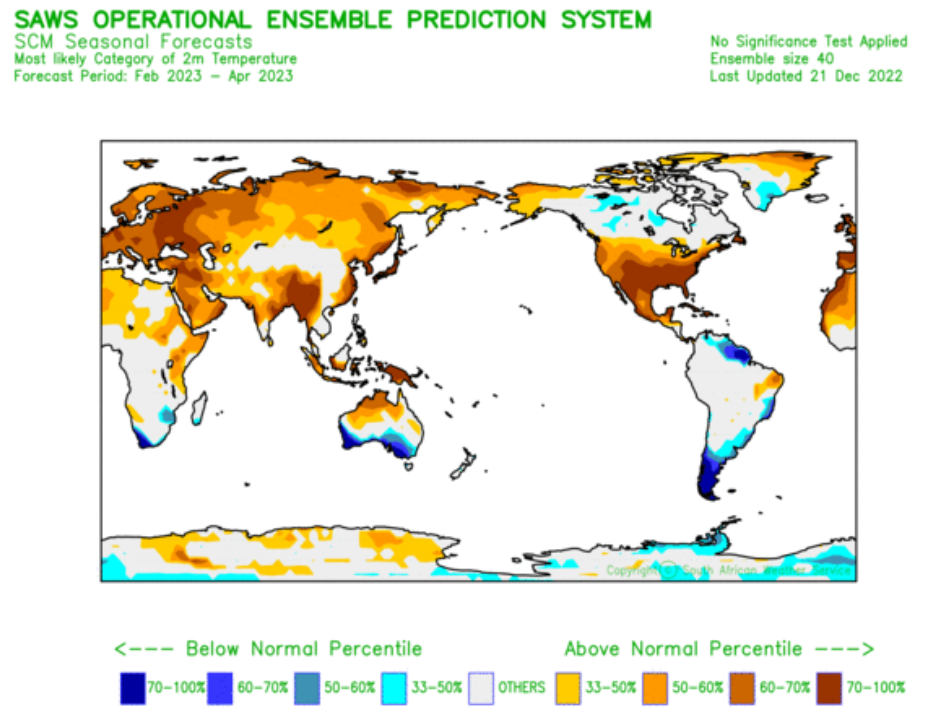

Figure 2: February-March-April, FMA (2023) global prediction for average temperature probabilities

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 January 2023 initial conditions, and are presented below:

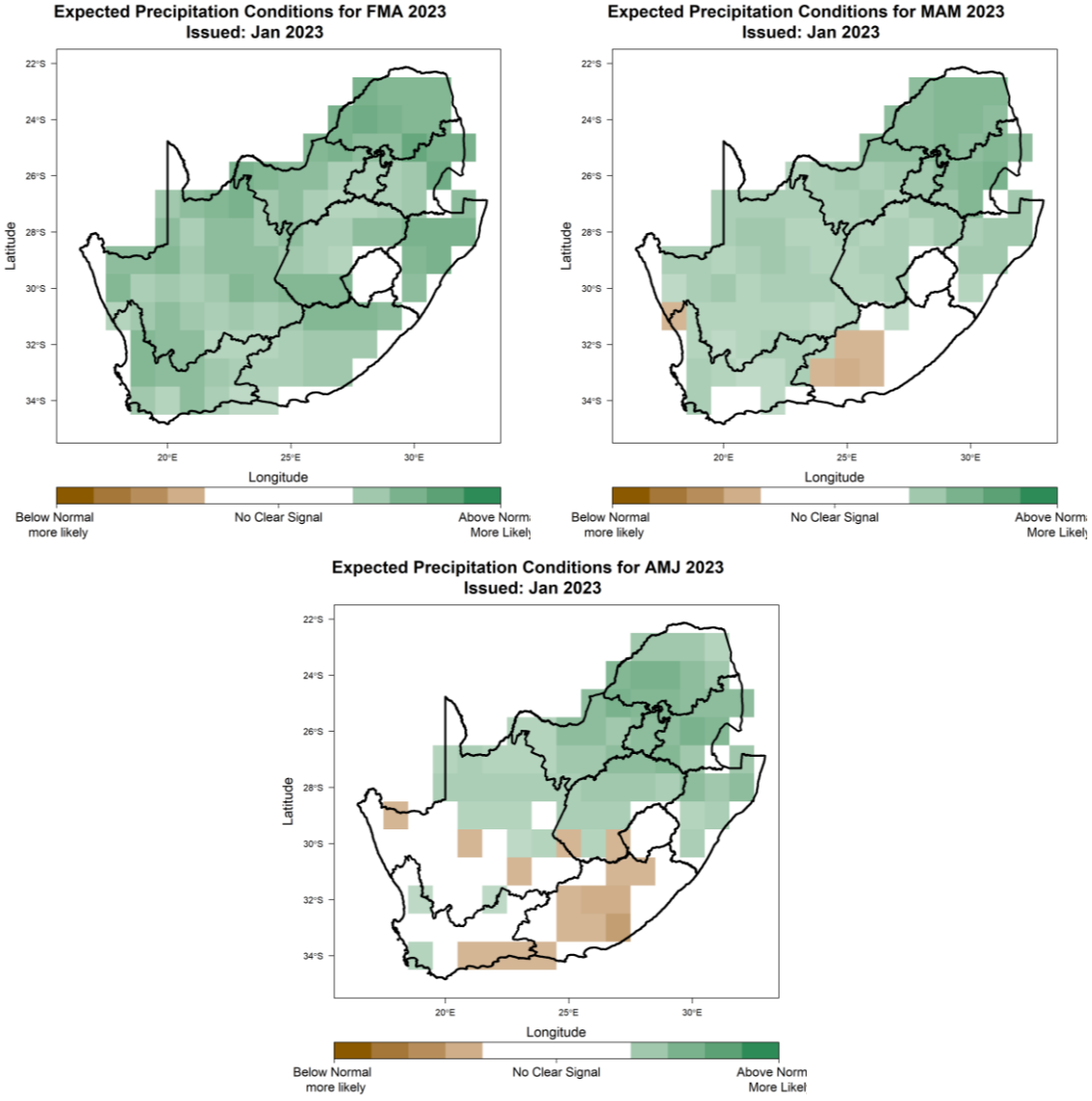

Figure 3: February-March-April 2023 (FMA; left), March-April-May 2023 (MAM; right), April-May-June 2023 (AMJ; bottom) seasonal precipitation prediction. Maps indicate the highest probability from three probabilistic categories, namely above-normal, near-normal and below-normal.

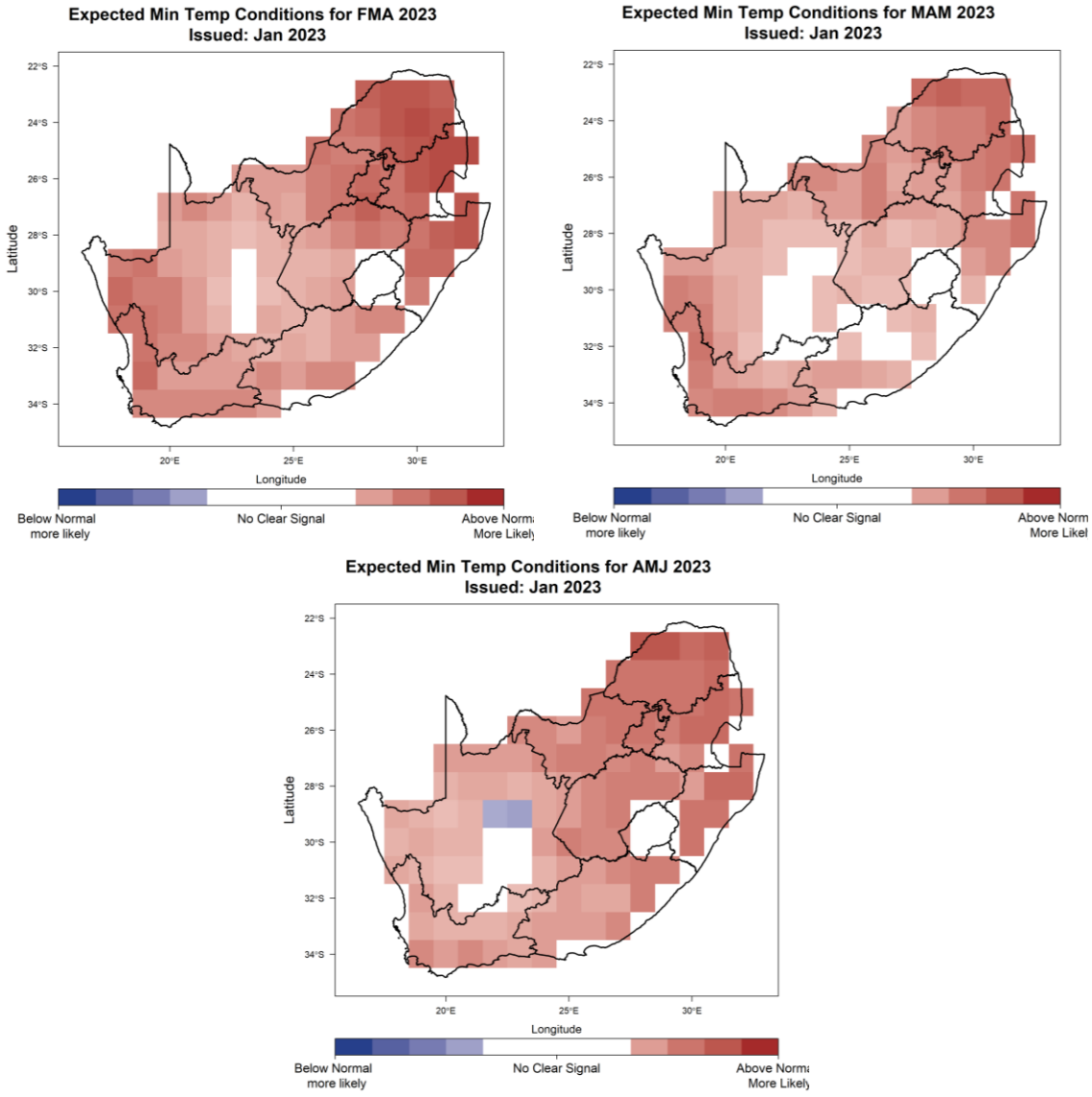

Figure 4: February-March-April 2023 (FMA; left), March-April-May 2023 (MAM; right), April-May-June 2023 (AMJ; bottom) seasonal minimum temperature prediction. Maps indicate the highest probability from three probabilistic categories, namely above-normal, near-normal and below-normal.

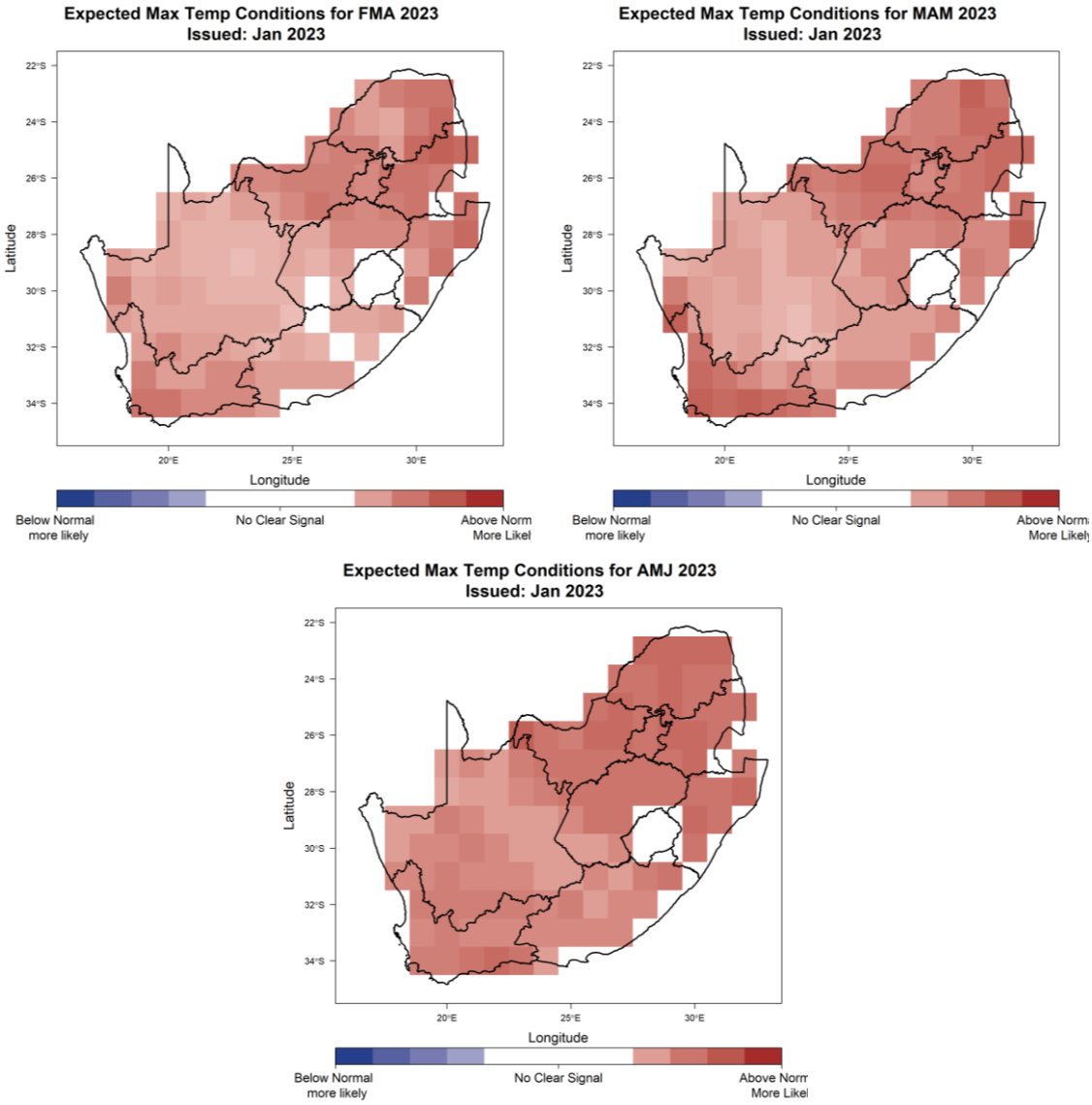

Figure 5: February-March-April 2023 (FMA; left), March-April-May 2023 (MAM; right), April-May-June 2023 (AMJ; bottom) seasonal maximum temperature prediction. Maps indicate the highest probability from three probabilistic categories, namely above-normal, near-normal and below-normal.

2.3. Climatological Seasonal Totals and Averages

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

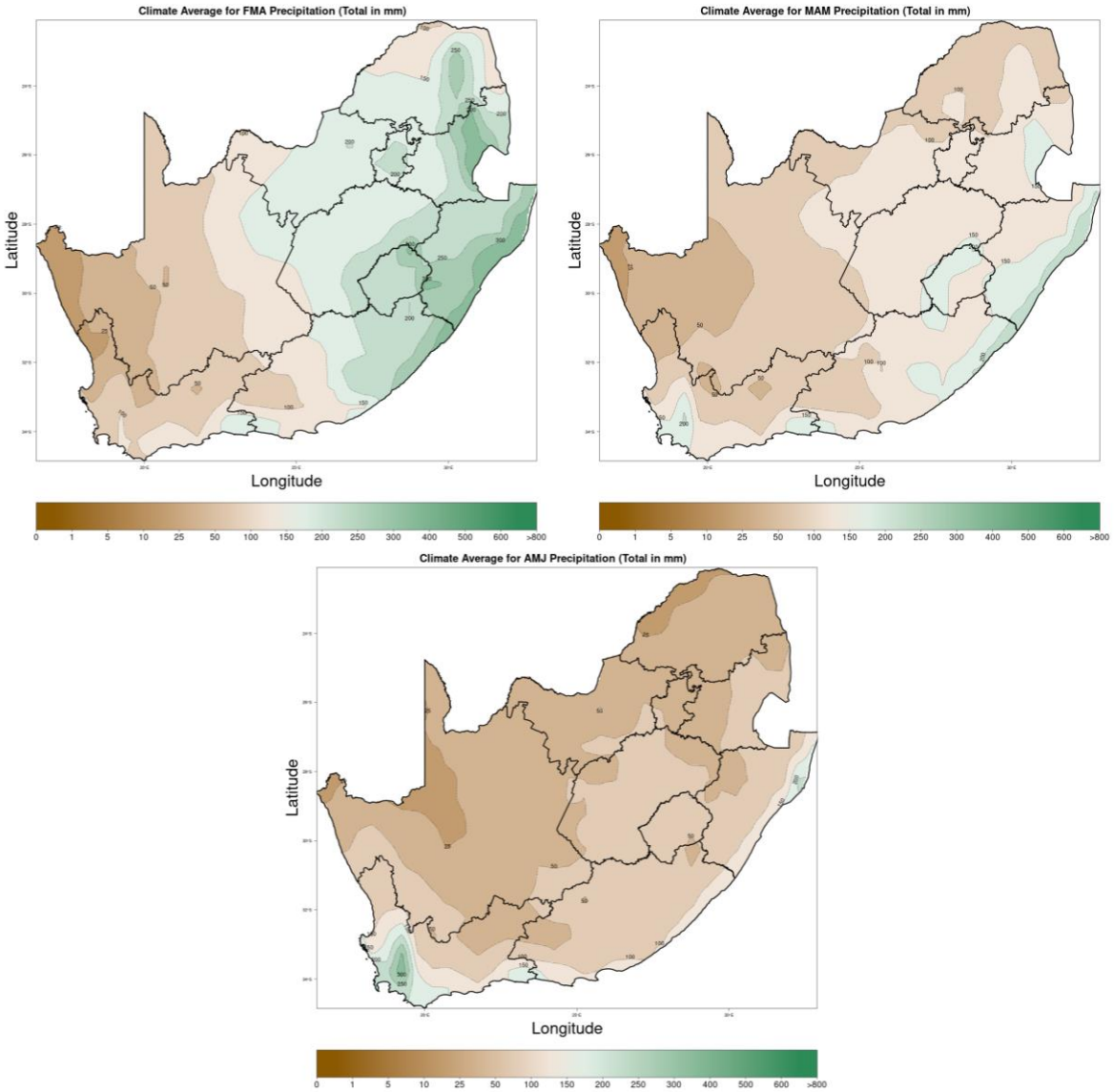

Figure 6: Climatological seasonal totals for precipitation during February-March-April (FMA; left), March-April-May (MAM; right) and April-May-June (AMJ; bottom).

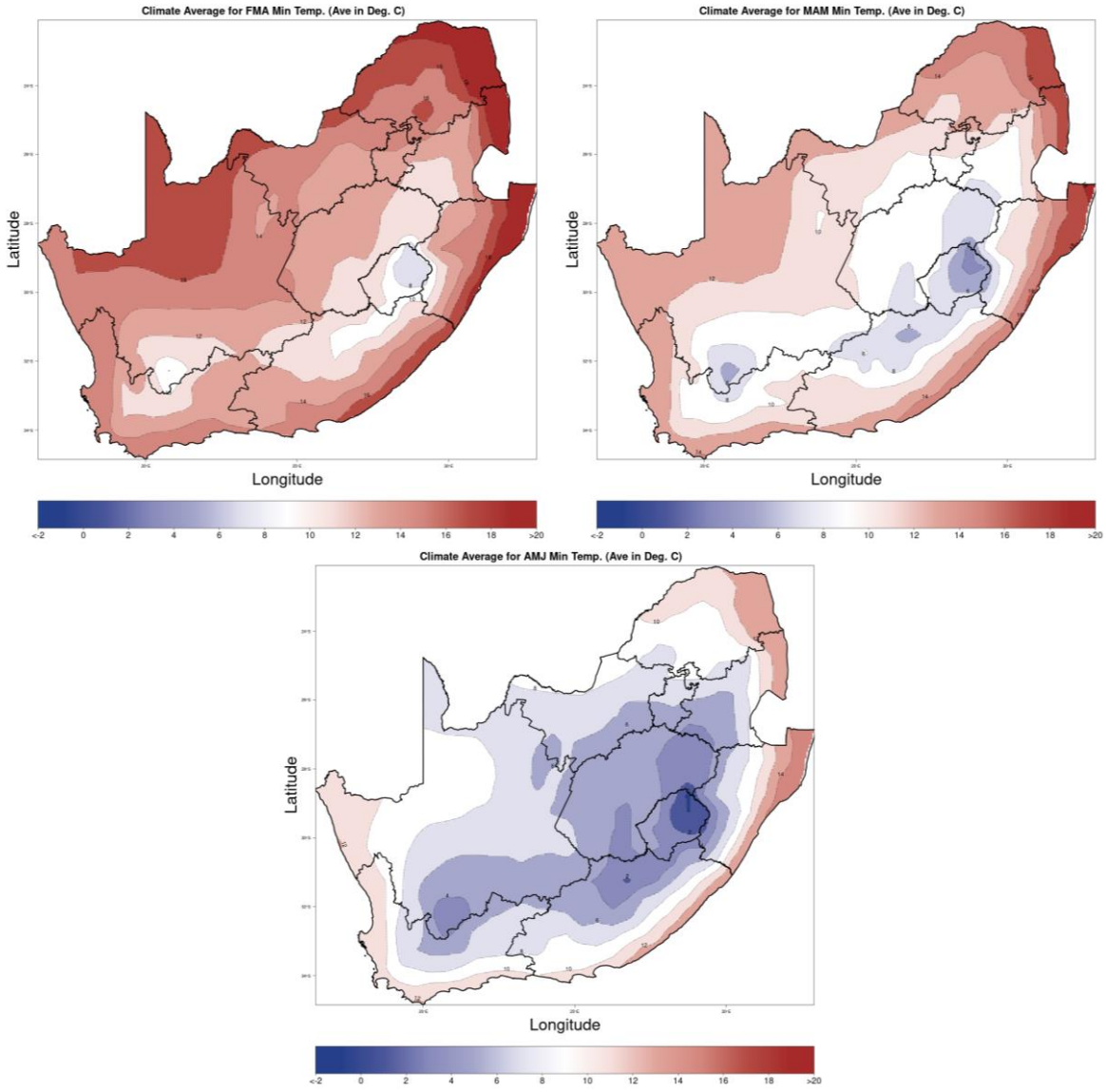

Figure 7: Climatological seasonal averages for minimum temperature during February-March-April (FMA; left), March-April-May (MAM; right) and April-May-June (AMJ; bottom).

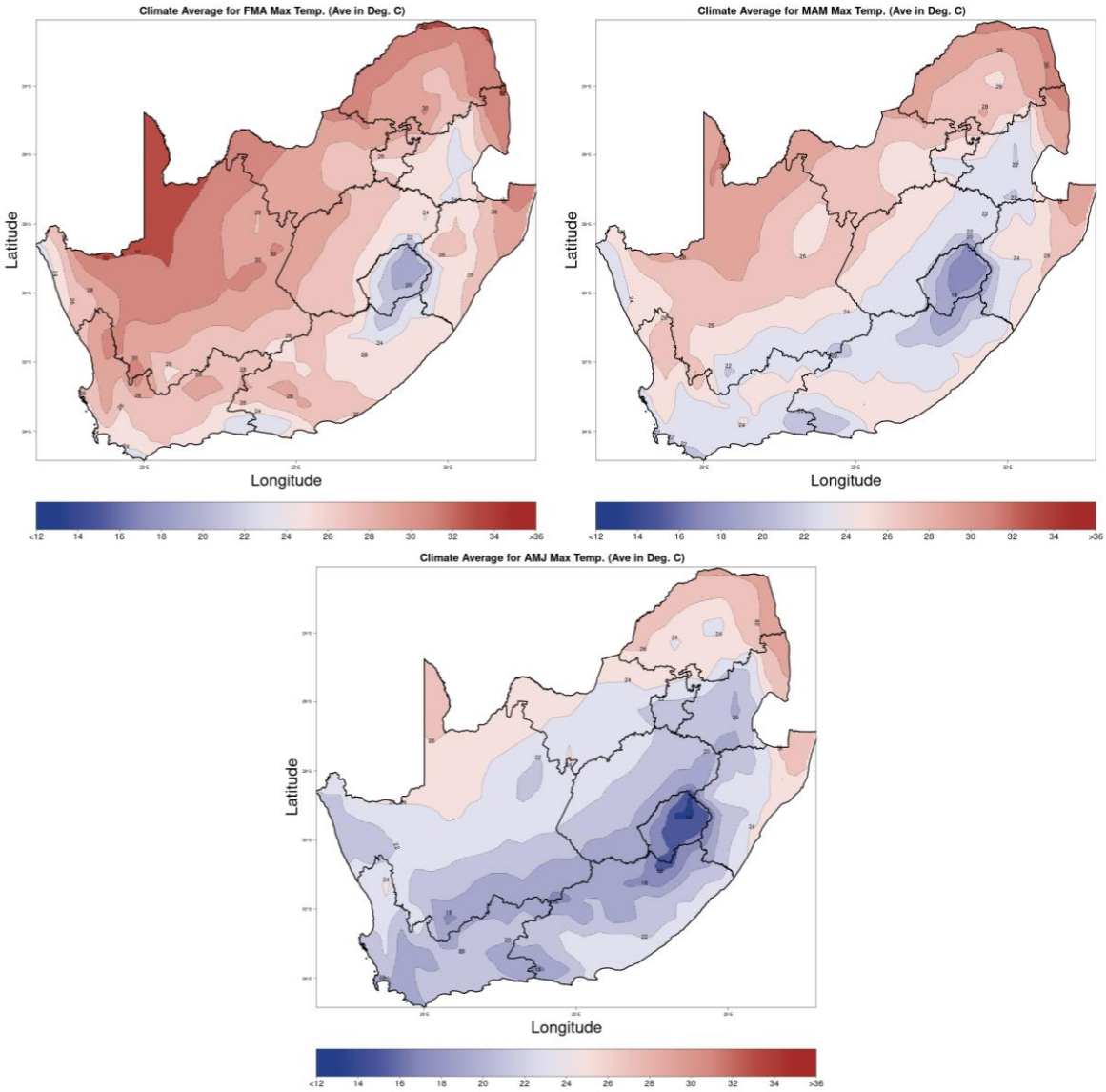

Figure 8: Climatological seasonal averages for maximum temperature during February-March-April (FMA; left), March-April-May (MAM; right) and April-May-June (AMJ; bottom).

3. Summary implications to various economic sector decision makers

Water and Energy

The expected above-normal rainfall for most parts of the country across the forecast seasons is likely to improve dam levels and benefit other water reservoirs, particularly in summer rainfall regions. Such conditions will have minor impacts in the south-eastern part of the country, mostly in the water-stressed areas of the Eastern Cape, due to drought impacts and the expected above-normal minimum and maximum temperatures. The anticipated rainfall conditions may also pose flooding risks in regions prone to floods, such as parts of KwaZulu-Natal, Gauteng and Limpopo. Furthermore, minimum and maximum temperatures are expected to be mostly above normal across the country for the forecast period and this will likely increase the demand for cooling. 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 across the country may 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 rainy 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 over most parts of the country during early-mid-and late autumn, which is likely to bring positive impacts for crop and livestock production. However, there is an increased risk for water logging that can cause crop damage in areas receiving excessive rainfall. Therefore, the relevant decision-makers may advise farmers to establish good drainage systems, practice soil and water conservation, 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)