Seasonal Climate Watch

March to July 2022

Date issued: Mar 5, 2022

1. Overview

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

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 mid-autumn (MAM) through to early-winter (MJJ). Temperatures are expected to be quite variable during the coming season, however, the majority of the forecasts indicate mostly above-normal temperatures over the central and north-eastern parts and below-normal temperatures over the south-west.

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 (March-April-May) predictions for rainfall (Figure 1) and average temperature (Figure 2).

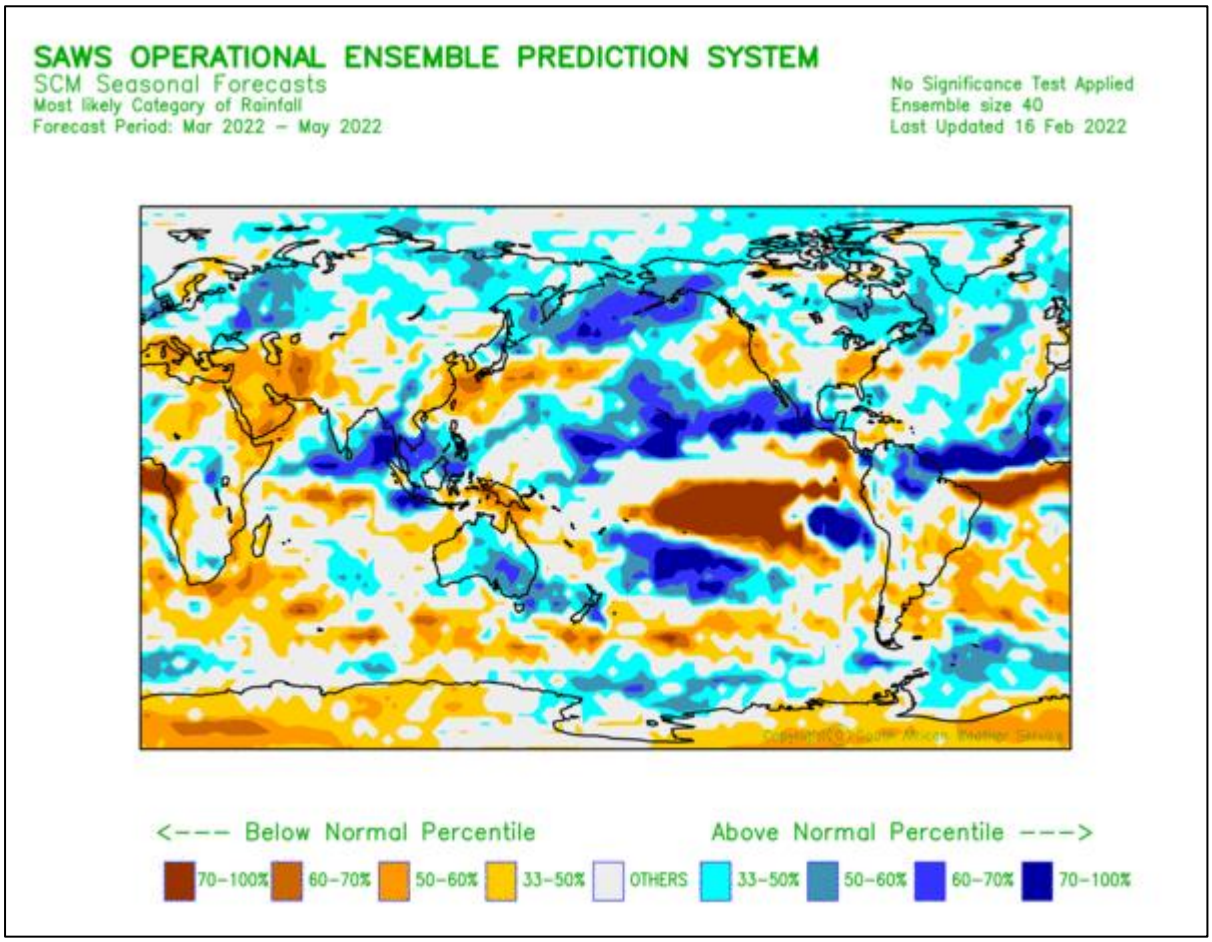

Figure 1: *March-April–May (2022) global prediction for total rainfall probabilities.*

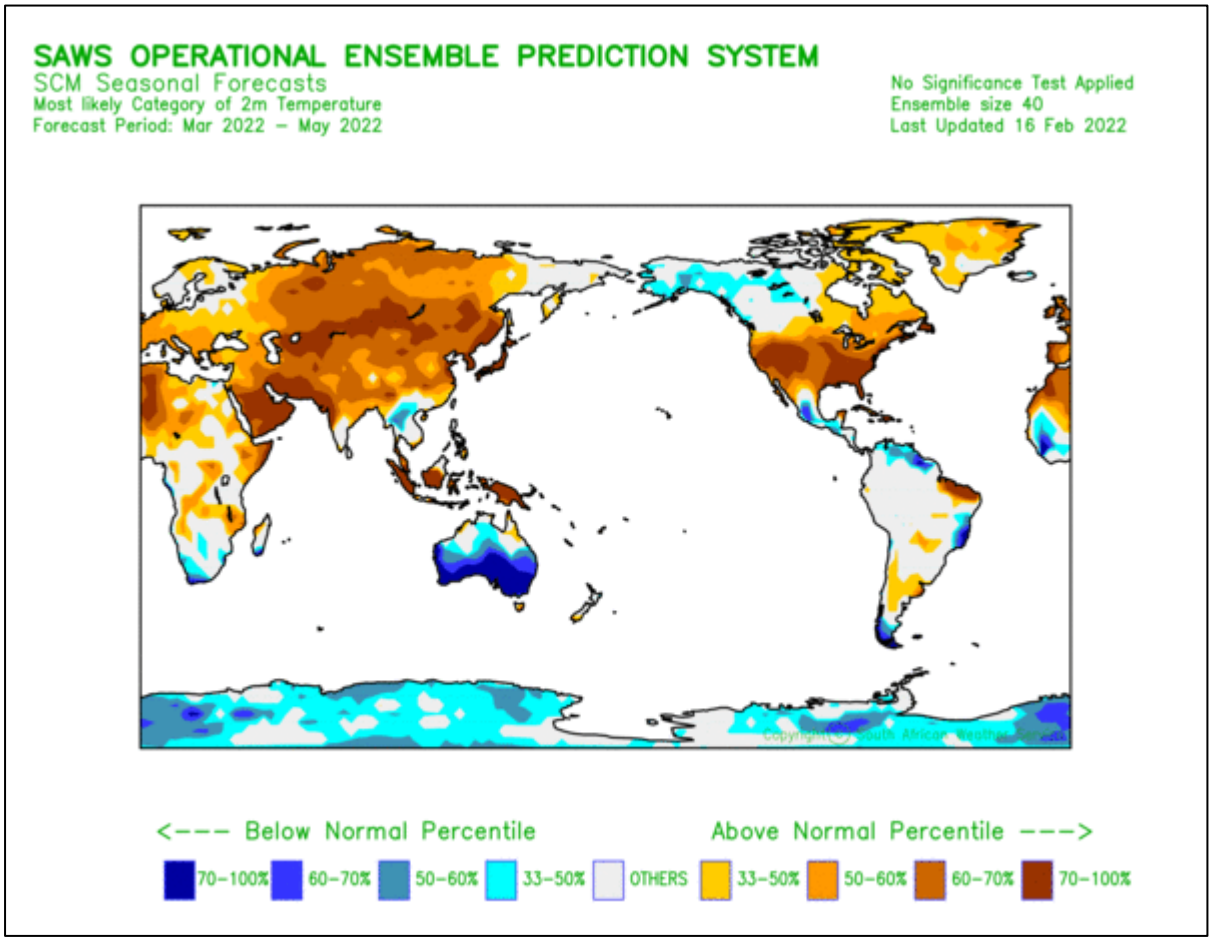

Figure 2: *March-April-May (2022) global prediction for average temperature probabilities.*

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 February 2022 initial conditions, and are presented below for South Africa.

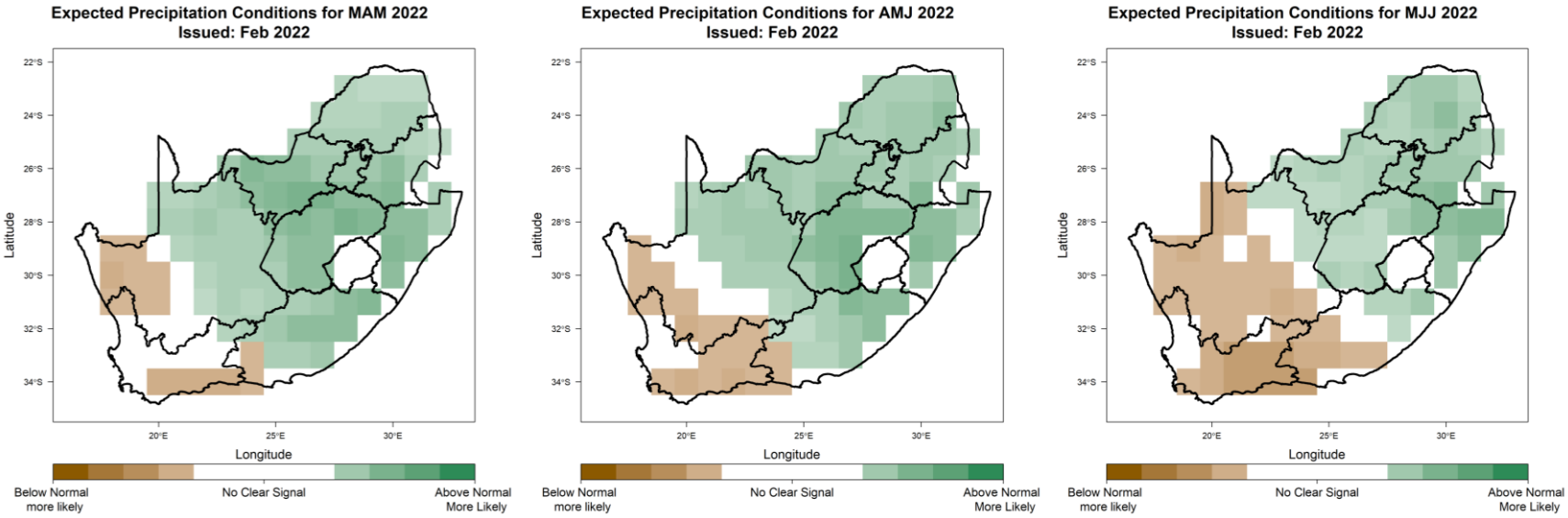

Figure 3: *March-April-May 2022 (MAM; left), April-May-June 2022 (AMJ; middle), May-June-July 2022 (MJJ; right) seasonal precipitation prediction. Maps indicate the highest probability from three probabilistic categories namely Above-Normal, Near-Normal and Below-Normal.*

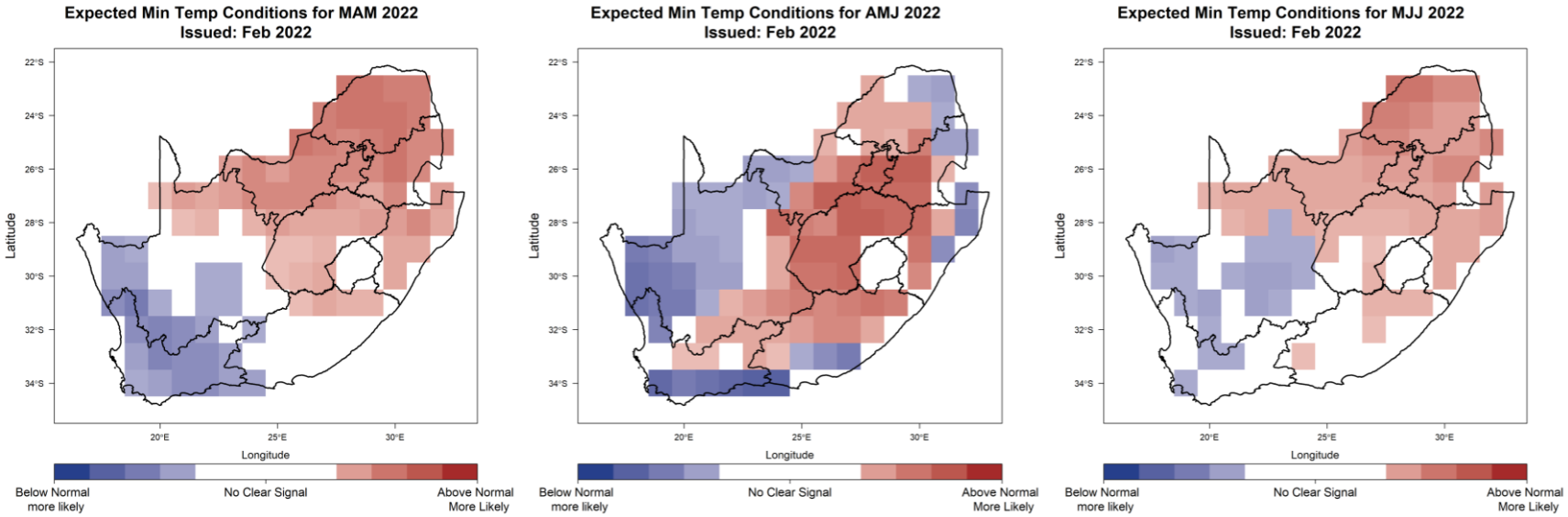

Figure 4: *March-April-May 2022 (MAM; left), April-May-June 2022 (AMJ; middle), May-June-July 2022 (MJJ; right) seasonal minimum temperature prediction. Maps indicate the highest probability from three probabilistic categories namely Above-Normal, Near-Normal and Below-Normal.*

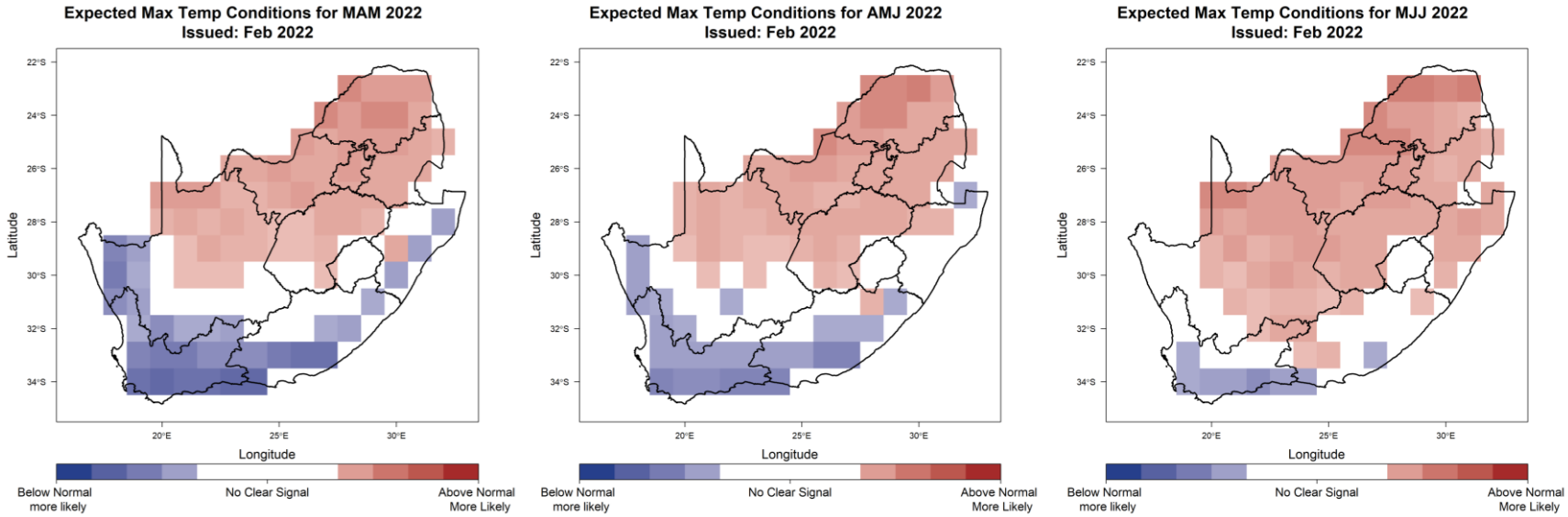

Figure 5: *March-April-May 2022 (MAM; left), April-May-June 2022 (AMJ; middle), May-June-July 2022 (MJJ; right) seasonal maximum temperature prediction. Maps indicate the highest probability from three probabilistic categories namely Above-Normal, Near-Normal and Below-Normal.*

2.3. Climatological Seasonal Totals and Averages

The following maps indicate the rainfall and temperature (minimum and maximum) climatology for the autumn (Mar-Apr-May), late-autumn (Apr-May-Jun) and early-winter (May-Jun-Jul). 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.

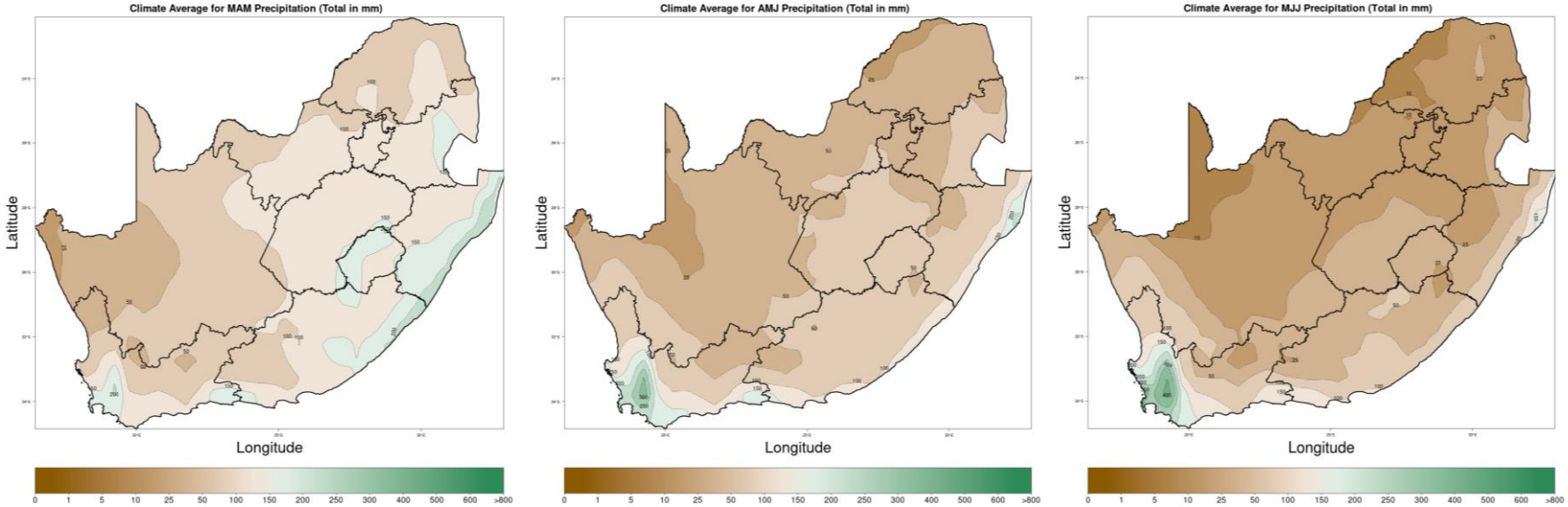

Figure 6: *Climatological seasonal totals for precipitation during March-April-May (MAM; left), April-May-June (AMJ; middle) and May-June-July (MJJ; right).*

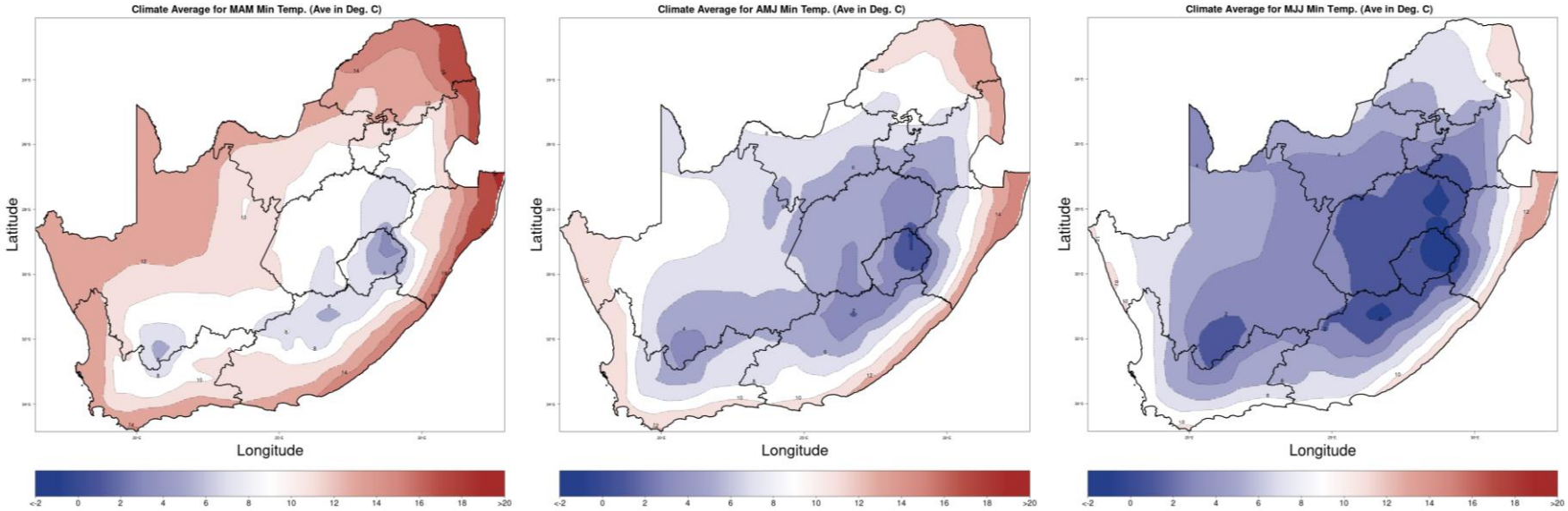

Figure 7: *Climatological seasonal averages for minimum temperature during March-April-May (MAM; left), April-May-June (AMJ; middle) and May-June-July (MJJ; right).*

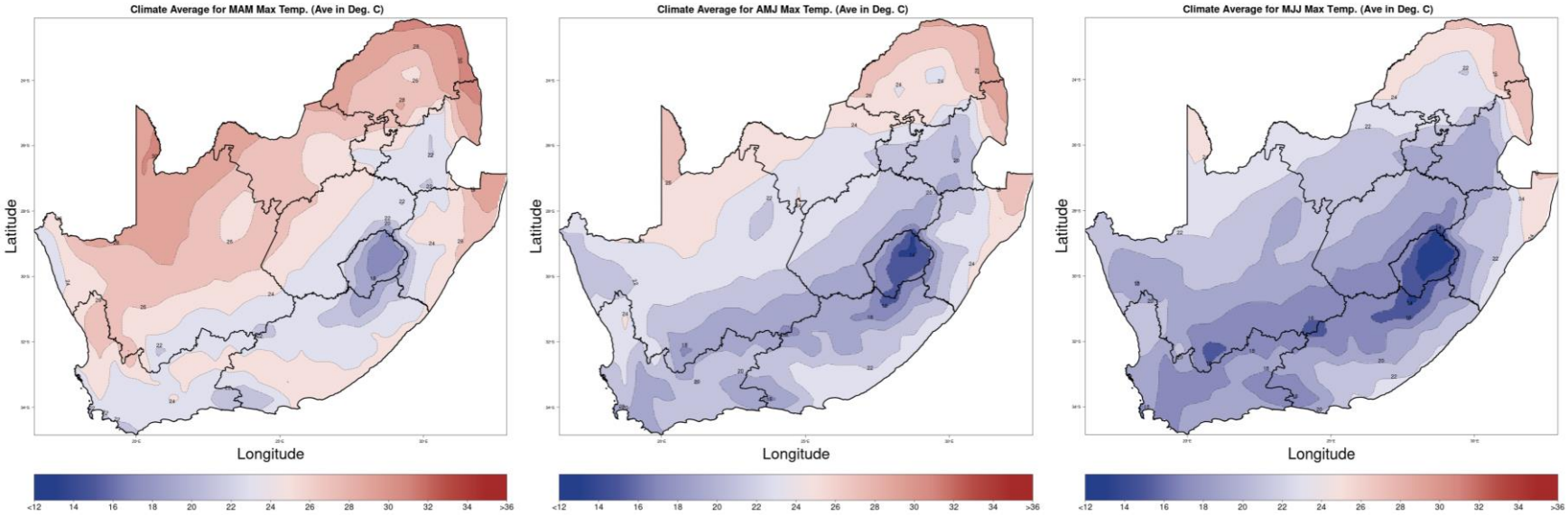

Figure 8: *Climatological seasonal averages for maximum temperature during March-April-May (MAM; left), April-May-June (AMJ; middle) and May-June-July (MJJ; right).*

.

3. Summary implications to various economic sector decision makers

Water and Energy

The expected above-normal rainfall for most of the north-eastern parts of the country during mid-autumn through to the early-winter season provides a good opportunity for water reservoirs' recharge, particularly in the summer rainfall regions. Such conditions may also pose a risk of flash floods. Furthermore, temperatures are expected to vary across the country. The mostly above-normal maximum temperatures in the central and north-eastern parts (Gauteng, Northwest, Mpumalanga, Limpopo, and part parts of the Northern Cape and Free State) and below-normal minimum temperatures in the south-western parts of the country, are likely not to increase the demand for cooling. 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 rainfall, mainly for the north-east of the country during the mid-autumn (MAM) and early-winter seasons, may increase the danger of flash floods in some regions, particularly in flood-prone areas. This predicted above-normal rainfall may increase waterborne infections and water-related injuries and accidents. It is recommended that the public take precautions and abide by the advice and recommendations from local authorities. The forecasted above-normal minimum and maximum temperatures in the central and north-eastern parts will likely result in warm conditions, with minimal health implications. However, 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 and early afternoon hours.

Agriculture

Above-normal rainfall is expected for the north-eastern parts of the country during mid-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 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