Seasonal Climate Watch

August to December 2021

Date issued: Jul 31, 2021

1. Overview

The El Niño-Southern Oscillation (ENSO) is currently in a neutral state and the forecast indicates that it will most likely remain in a neutral state for spring, with a likely change to a weak La Niña during early-summer. As we move towards the spring and summer season, ENSO starts playing an important role in our summer rainfall. As such, the increased likelihood of a weak La Niña during early summer is expected to be favourable for above-normal rainfall in that period.

The multi-model rainfall forecast indicates mostly above-normal rainfall for the north-eastern half of the country throughout the spring to early summer seasons (ASO, SON and OND), whereas the south-western half, which falls outside the parts which receive summer rainfall, is mostly expected to receive below-normal rainfall Above-normal minimum and maximum temperatures are expected across the country.

The South African Weather Service (SAWS) will continue to monitor and provide updates on any future assessments that may provide more clarity on the current expectations for the coming seasons.

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 (August-September-October) predictions for rainfall (Figure 1) and average temperature (Figure 2).

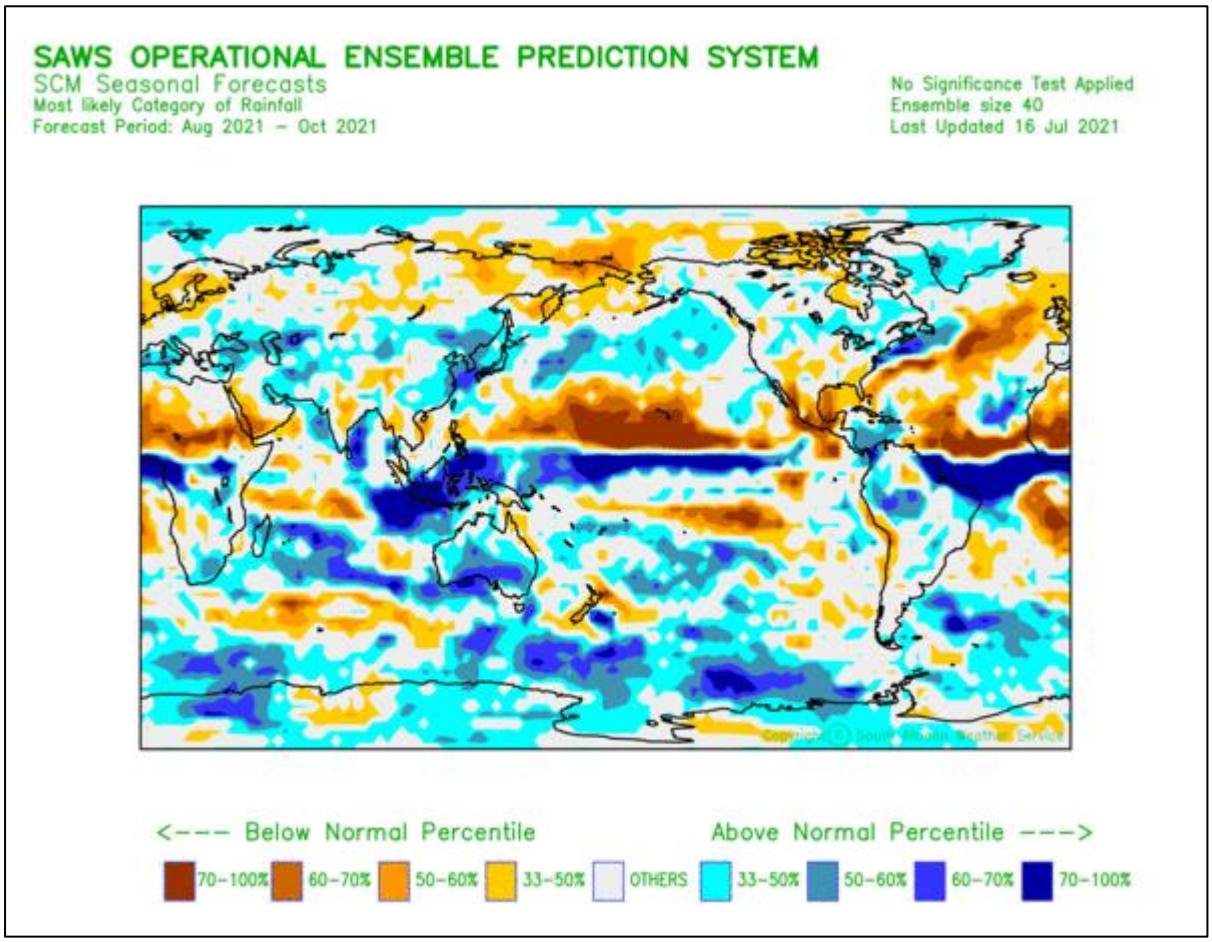

Figure 1: August-September-October global prediction for total rainfall probabilities.

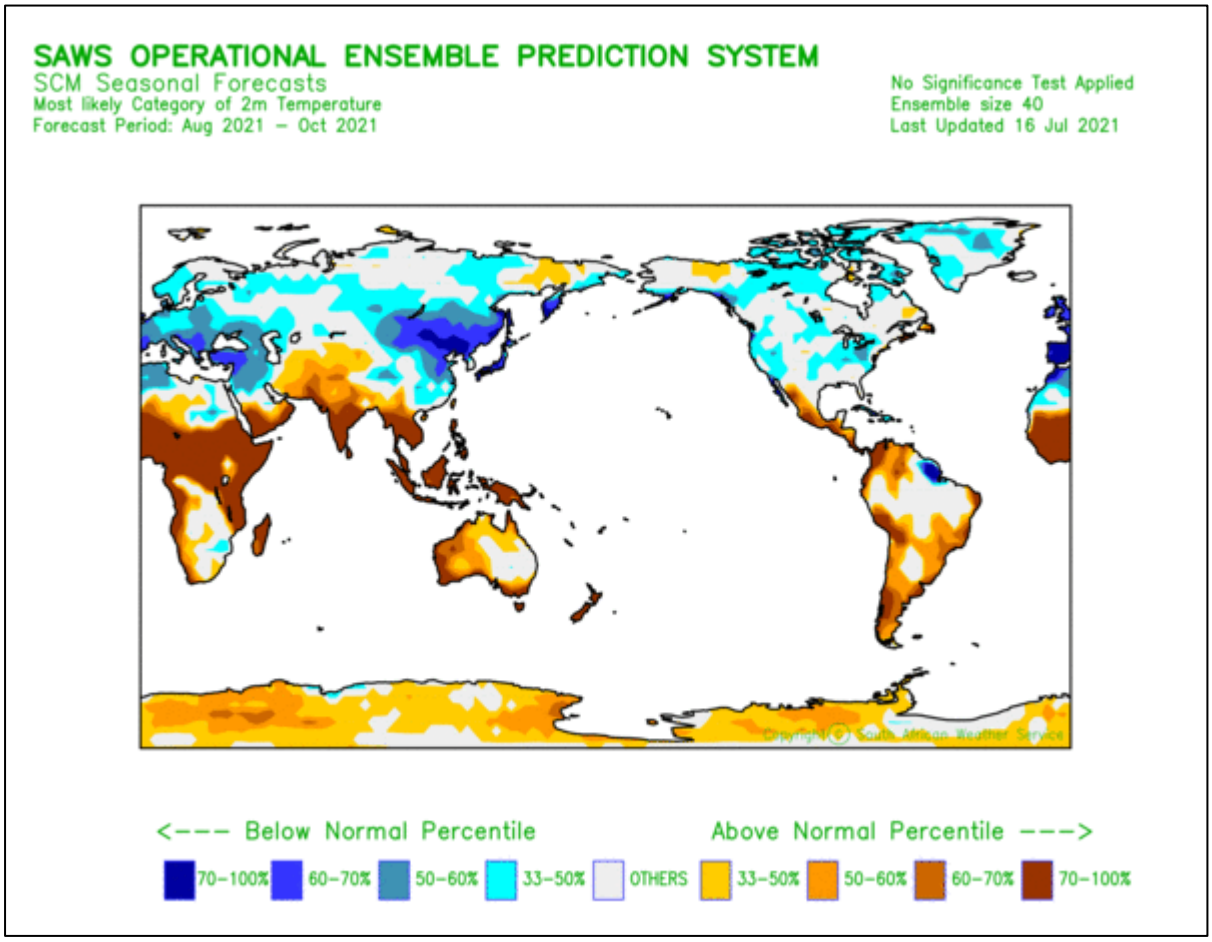

Figure 2: August-September-October global prediction for average temperature probabilities.

2.2. Seasonal Forecasts for South Africa from the SAWS OAGCM

The above-mentioned global forecasting system's 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 July 2021 initial conditions, and are presented below for South Africa.

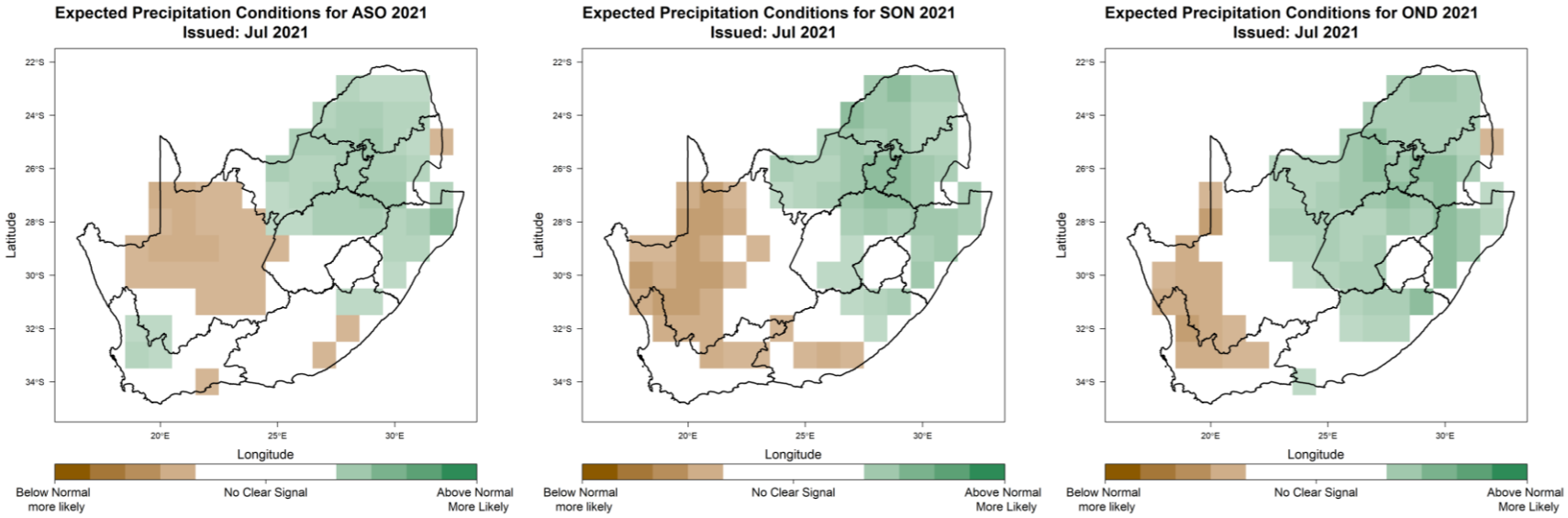

Figure 3: *August-September-October 2021 (ASO; left), September-October-November 2021 (SON; middle), October-November-December 2021 (OND; right) seasonal precipitation prediction. Maps indicate the highest probability from three probabilistic categories namely Above-Normal, Near-Normal and Below-Normal.*

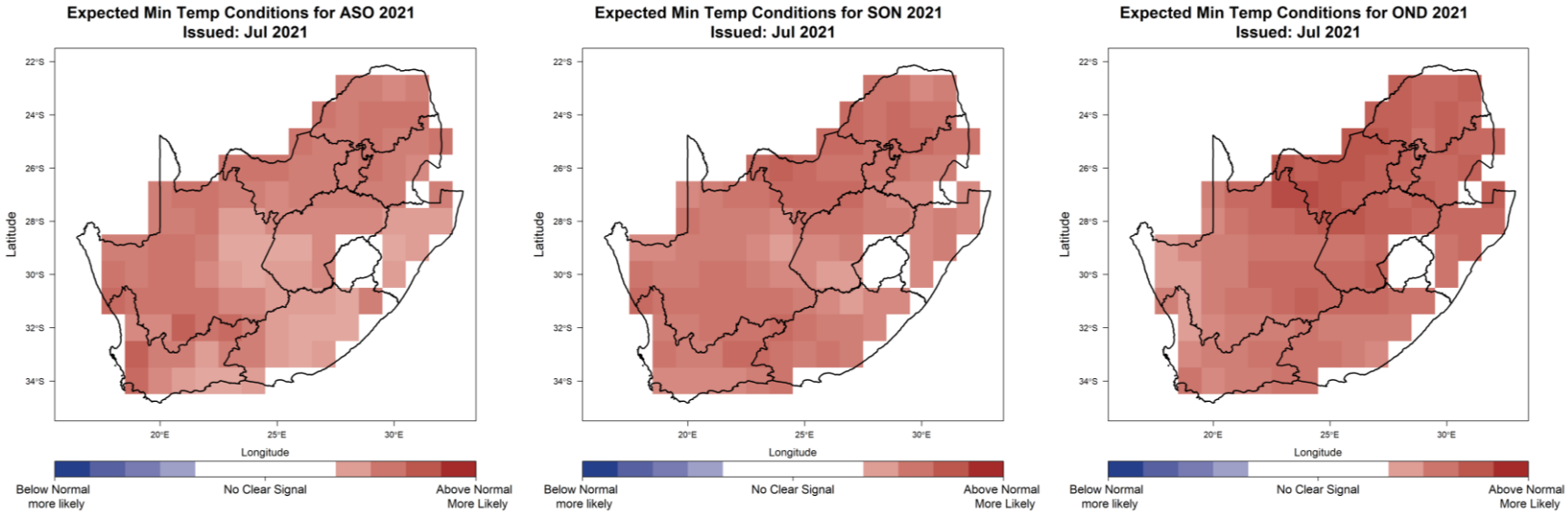

Figure 4: *August-September-October 2021 (ASO; left), September-October-November 2021 (SON; middle), October-November-December 2021 (OND; right) seasonal minimum temperature prediction. Maps indicate the highest probability from three probabilistic categories namely Above-Normal, Near-Normal and Below-Normal.*

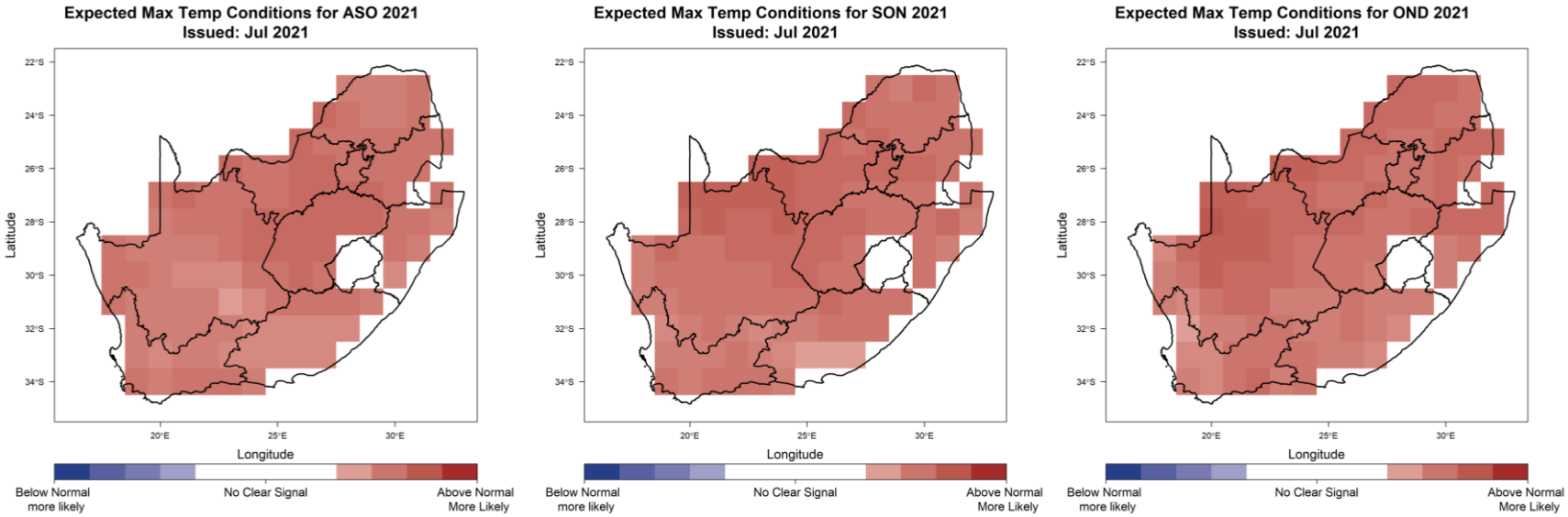

Figure 5: *August-September-October 2021 (ASO; left), September-October-November 2021 (SON; middle), October-November-December 2021 (OND; right) seasonal maximum temperature prediction. Maps indicate the highest probability from three probabilistic categories namely Above-Normal, Near-Normal and Below-Normal.*

2.3. Climatological Seasonal Totals and Averages

The following maps indicate the rainfall and temperature (minimum and maximum) climatology for the early-spring (Aug-Sep-Oct), spring (Sep-Oct-Nov) and the early-summer (Oct-Nov-Dec). 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.

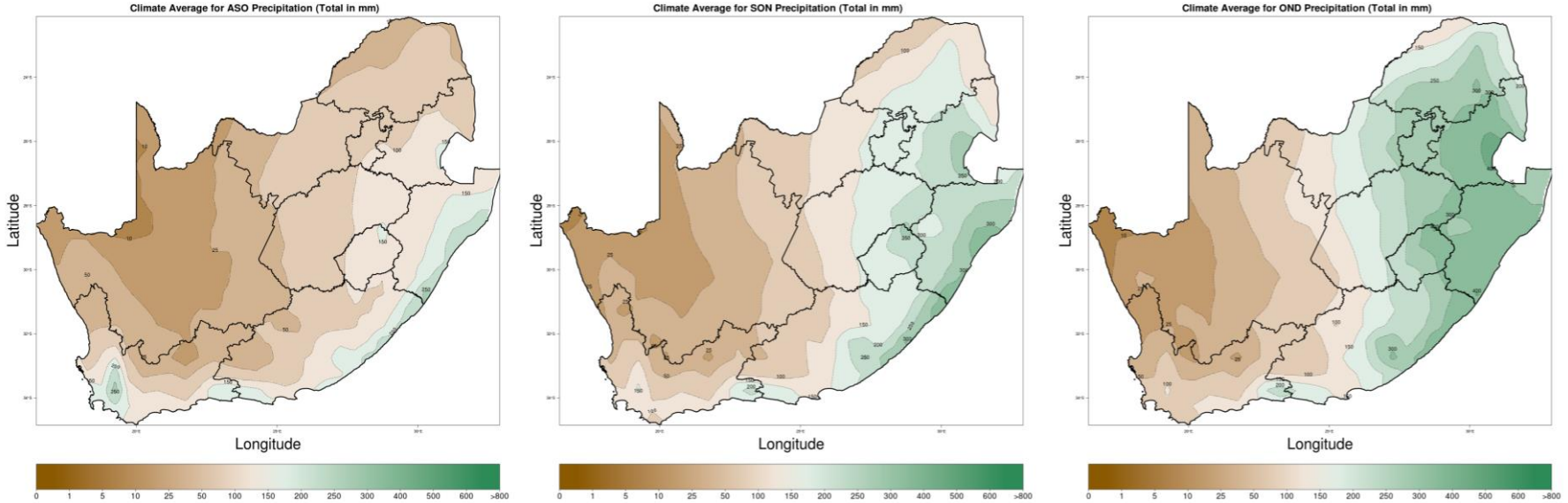

Figure 6: *Climatological seasonal totals for precipitation during August-September-October (ASO; left), September-October-November (SON; middle) and October-November-December (OND; right).*

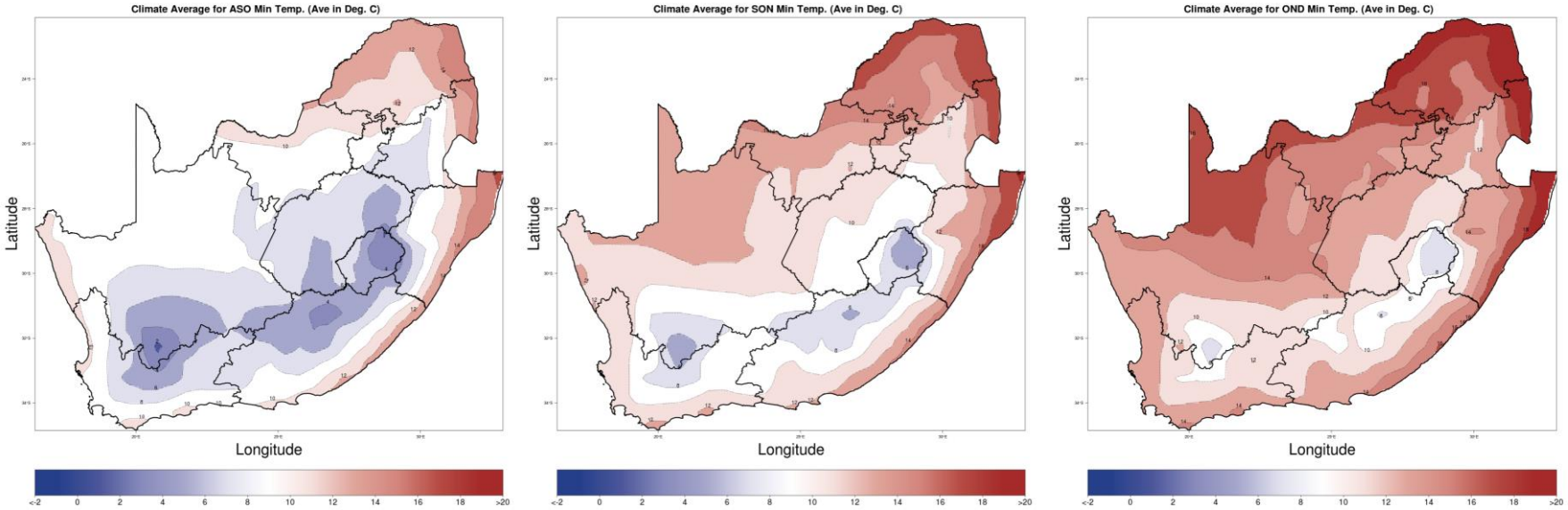

Figure 7: *Climatological seasonal averages for minimum temperature during August-September-October (ASO; left), September-October-November (SON; middle) and October-November-December (OND; right).*

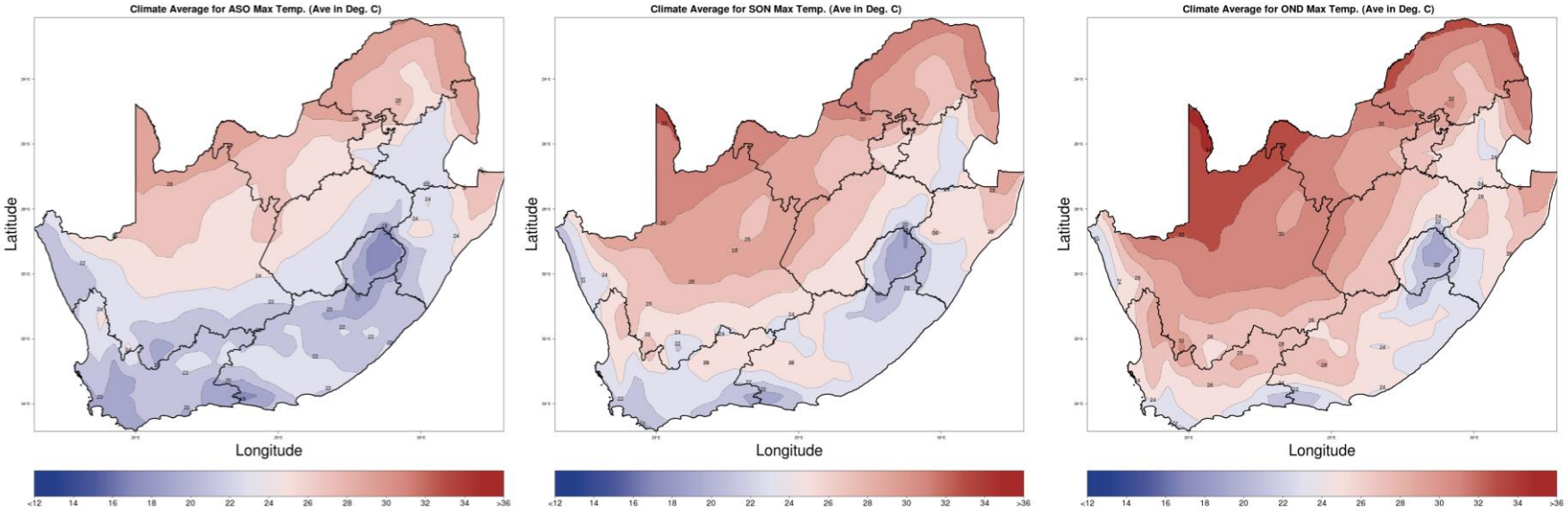

Figure 8: Climatological seasonal averages for maximum temperature during August-September-October (ASO; left), September-October-November (SON; middle) and October-November-December (OND; right).

.

3. Summary implications to various economic sector decision makers

Water and Energy

The anticipated above-normal rainfall during the spring season is likely to have minimal impact on water resources over the summer rainfall regions of the country. The below-normal rainfall expected over the south-western parts of the country will probably add pressure on water resources, particularly, in regions (e.g., Eastern Cape) where water reservoirs are already burdened due to the on-going drought. The high probabilities of above-normal minimum and maximum temperatures across the country are likely to increase demand for cooling. The relevant decision-makers may take note of the above-mentioned potential outcomes and advise the affected businesses and communities accordingly.

Health

The predicted above-normal temperatures during spring may contribute to an increase in health impacts attributed to heat, with high altitude regions likely to be the most affected. Due to more pollen discharge during this season, skin and eye allergies are also likely to rise. UVI exposure levels based on the global solar ultraviolet index standard set by the World Health Organization are likewise expected to be high. Therefore, key decision-makers are encouraged to advise the public to limit overexposure by staying in the shade and wearing appropriate sun-protective clothing. The public should be further encouraged to hydrate by drinking enough fluids. The anticipated above-normal rainfall in the north-eastern half of the country may result in possible flash floods in certain locations, particularly in areas with poor or inadequate drainage. Relevant authorities are encouraged to provide appropriate advice to affected communities.

Agriculture

Above-normal rainfall is expected over most parts of the summer rainfall regions during the spring season, which is likely to bring positive impacts for crop and livestock production. Decision makers may advise farmers practice soil and water conservation and establish good drainage systems.

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. 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)