

# Seasonal Climate Watch

May to September 2021

Date issued: May 04, 2021

## I. Overview

The El Niño-Southern Oscillation (ENSO) is currently in a weak La Niña state and the forecast indicates that it will most likely weaken and return to a neutral state for the whole of the winter season. The influence of ENSO on South Africa is however very limited during the winter season and is not expected to have a major impact on southern African weather systems on a seasonal timescale.

The multi-model rainfall forecast indicates mostly above-normal rainfall during early-, mid- and late-winter seasons (May-Jun-Jul, Jun-Jul-Aug, Jul-Aug-Sep). Above-normal rainfall is indicated in early-winter for the important winter rainfall region of the southwestern part of Western Cape, although the outlook for rainfall remains uncertain for the remainder of the winter season.

Above-normal minimum and maximum temperatures are expected across the country. Climatologically, the inland provinces are not typically associated with much rainfall at all in the winter months. The prospect of a forecast for above-normal rainfall over these regions is therefore not likely to be particularly significant.

The South African Weather Service 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

The South African Weather Service (SAWS) is currently recognised by the World Meteorological Organization (WMO) as the 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 (May-June-July) predictions for rainfall (Figure 1) and average temperature (Figure 2).

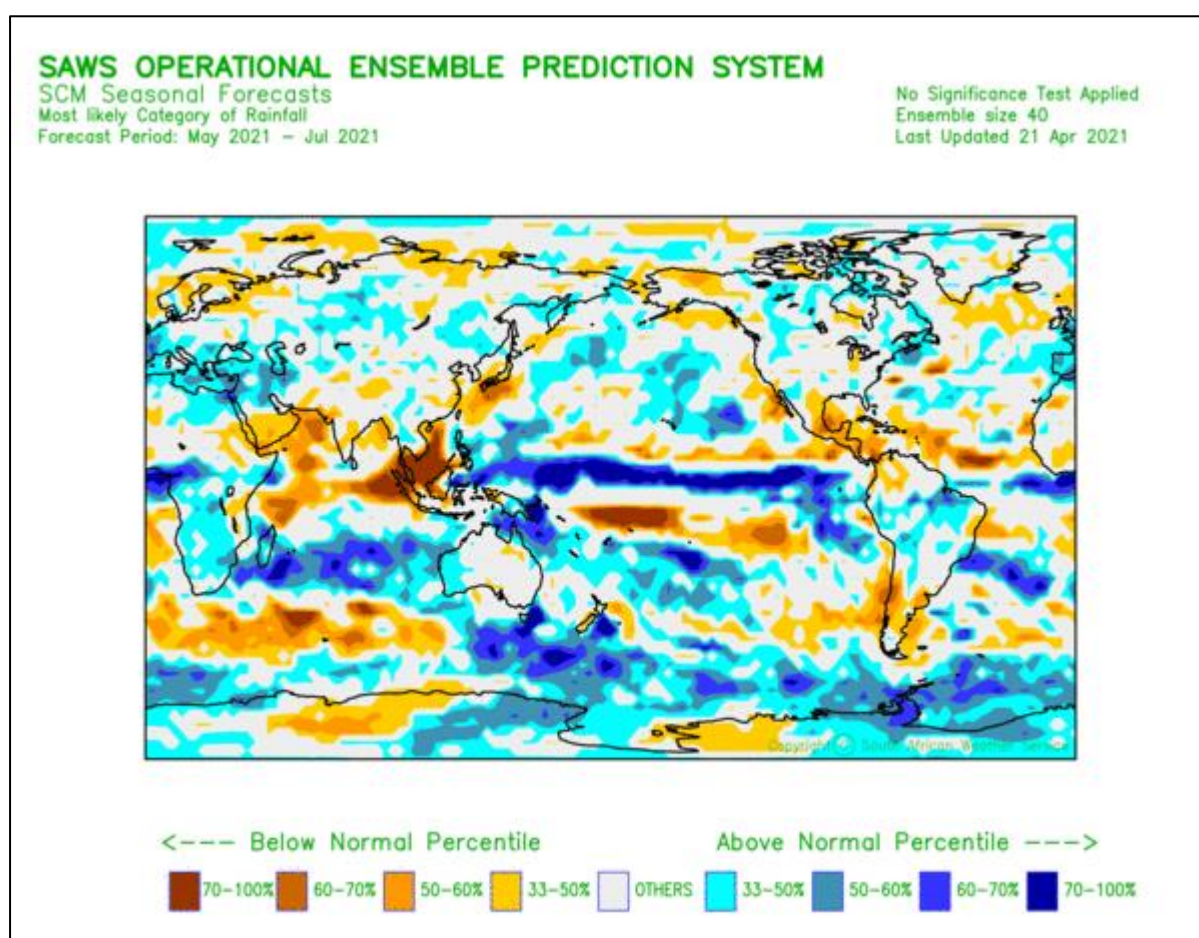
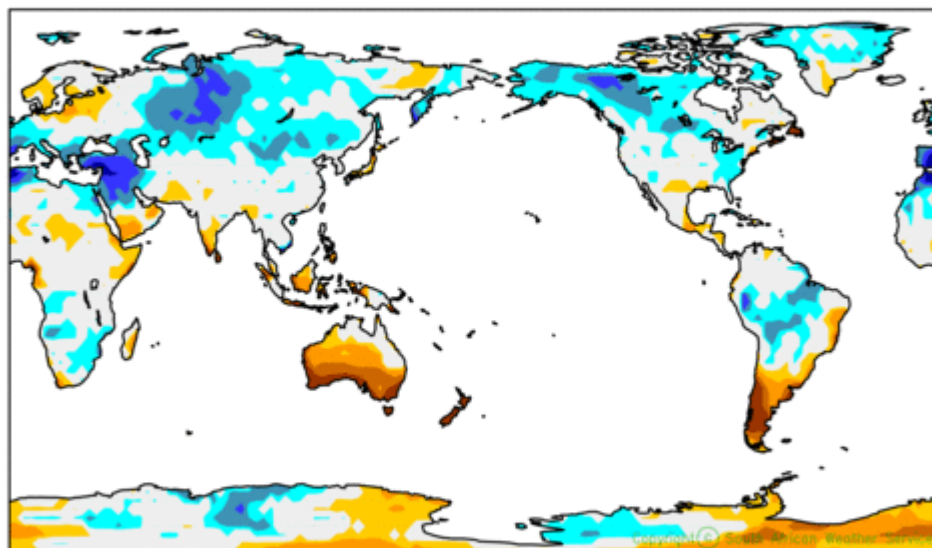


Figure 1: May-June-July global prediction for total rainfall probabilities.

## SAWS OPERATIONAL ENSEMBLE PREDICTION SYSTEM

SCM Seasonal Forecasts  
Most likely Category of 2m Temperature  
Forecast Period: May 2021 – Jul 2021

No Significance Test Applied  
Ensemble size 40  
Last Updated 21 Apr 2021



<--- Below Normal Percentile

Above Normal Percentile --->

70-100% 60-70% 50-60% 33-50% OTHERS 33-50% 50-60% 60-70% 70-100%

Figure 2: May-June-July 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 April 2021 initial conditions, and are presented below for South Africa.

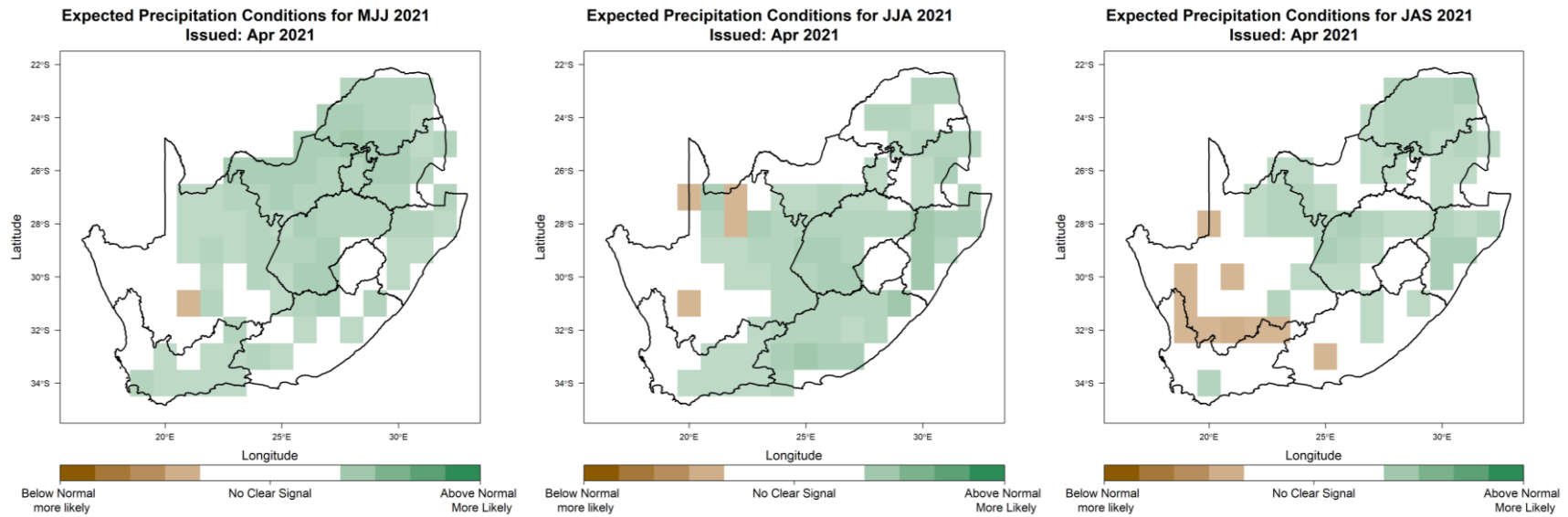


Figure 3: May-June-July 2021 (MJJ; left), June-July-August 2021 (JJA; middle), July-August-September 2021 (JAS; right) seasonal precipitation prediction. Maps indicate the highest probability from three probabilistic categories namely Above-Normal, Near-Normal and Below-Normal.

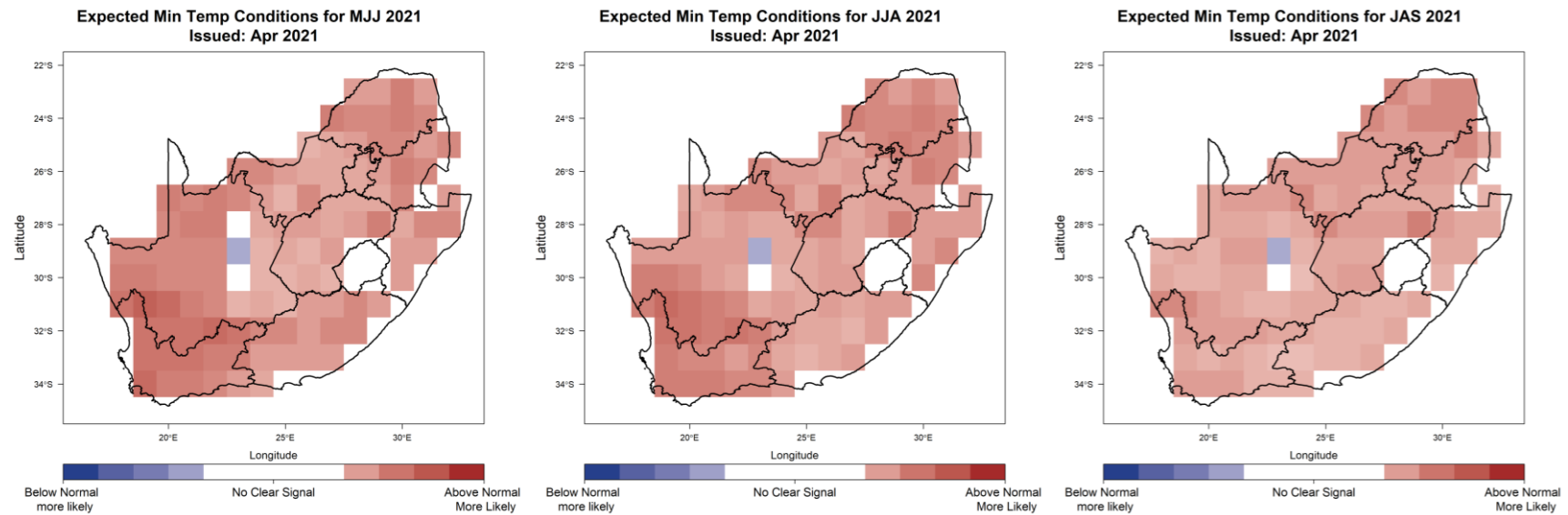


Figure 4: May-June-July 2021 (MJJ; left), June-July-August 2021 (JJA; middle), July-August-September 2021 (JAS; right) seasonal minimum temperature prediction. Maps indicate the highest probability from three probabilistic categories namely Above-Normal, Near-Normal and Below-Normal.

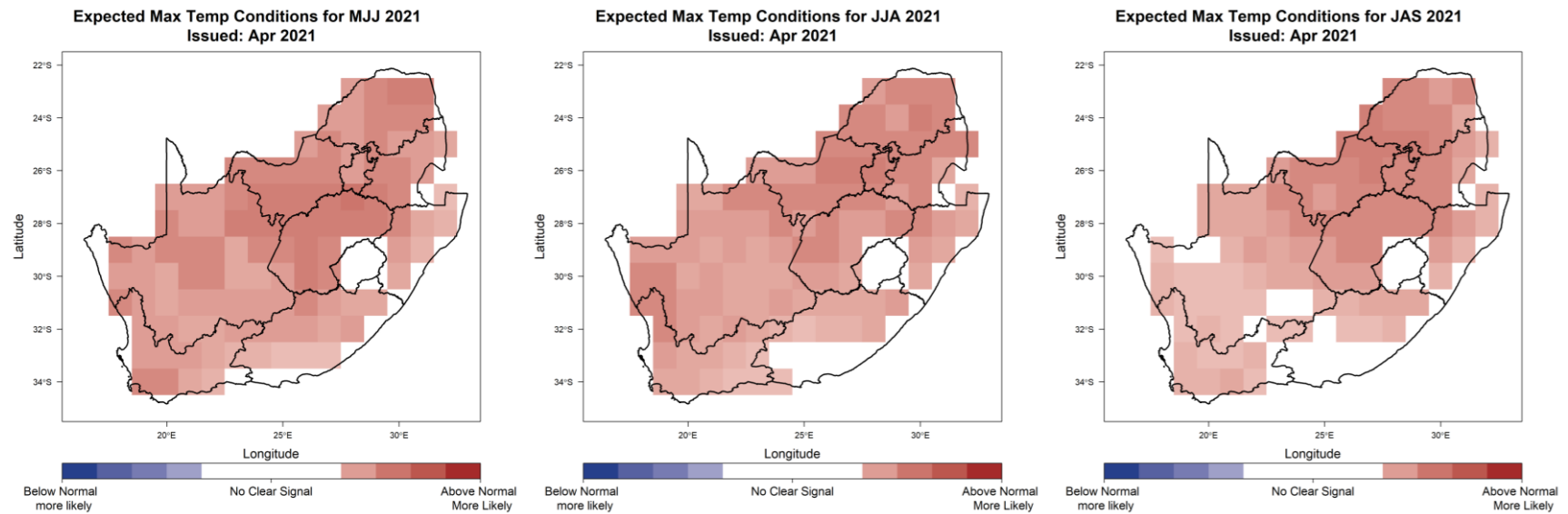


Figure 5: May-June-July 2021 (MJJ; left), June-July-August 2021 (JJA; middle), July-August-September 2021 (JAS; right) seasonal maximum temperature prediction. Maps indicate the highest probability from three probabilistic categories namely Above-Normal, Near-Normal and Below-Normal.

### **2.3. Climatological Seasonal Totals and Averages**

The following maps indicate the rainfall and temperature (minimum and maximum) climatology for the early-winter (May-Jun-Jul), mid-winter (Jun-Jul-Aug) and the late-winter (Jul-Aug-Sep). The rainfall and temperature climate is representative of the average rainfall and temperature conditions over a long period of time for the relevant 3-month seasons presented here.

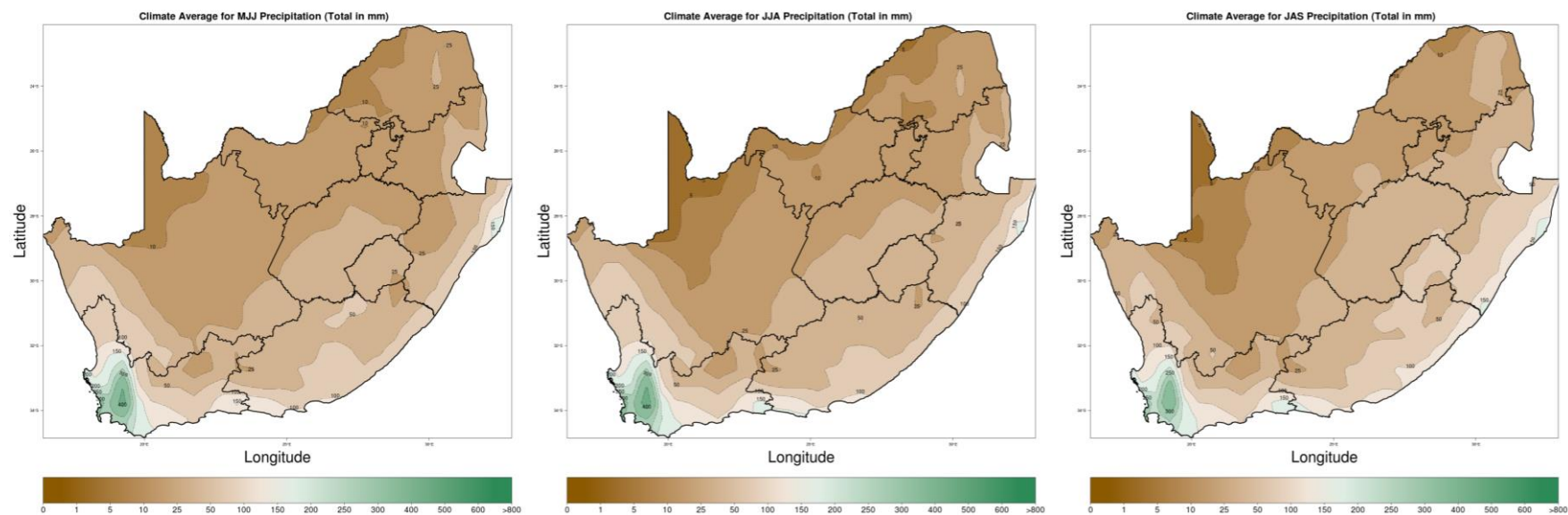


Figure 6: Climatological seasonal totals for precipitation during May-June-July (MJJ; left), June-July-August (JJA; middle) and July-August-September (JAS; right).

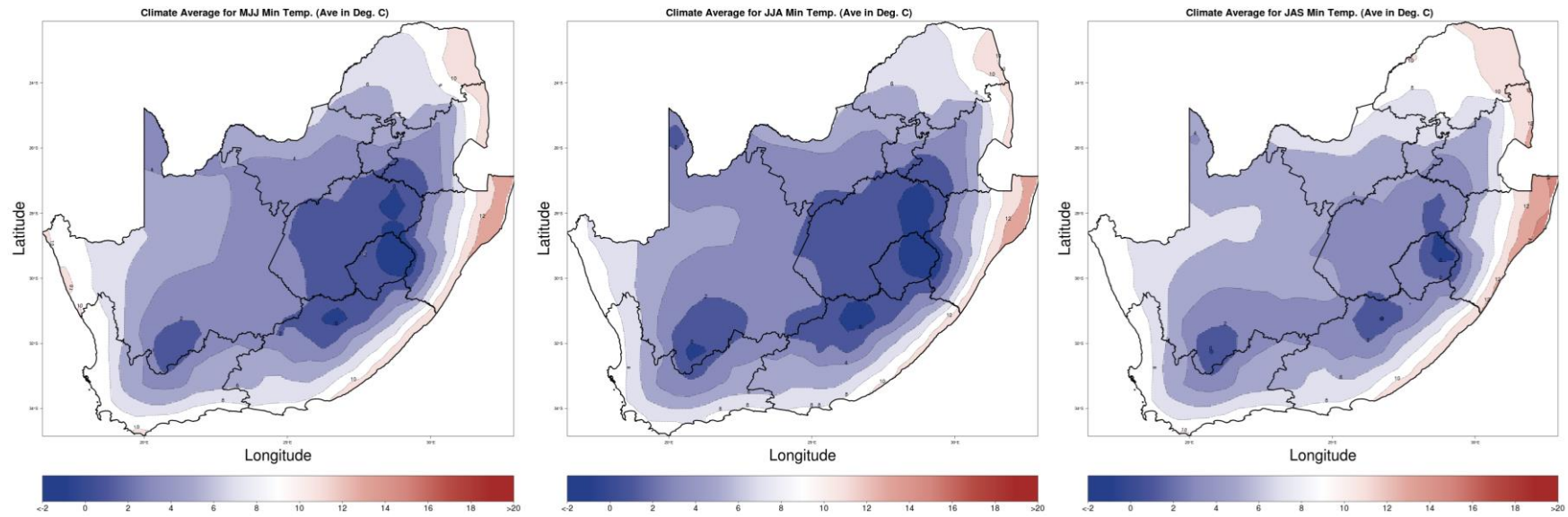


Figure 7: *Climatological seasonal averages for minimum temperature during May-June-July (MJJ; left), June-July-August (JJA; middle) and July-August-September (JAS; right).*

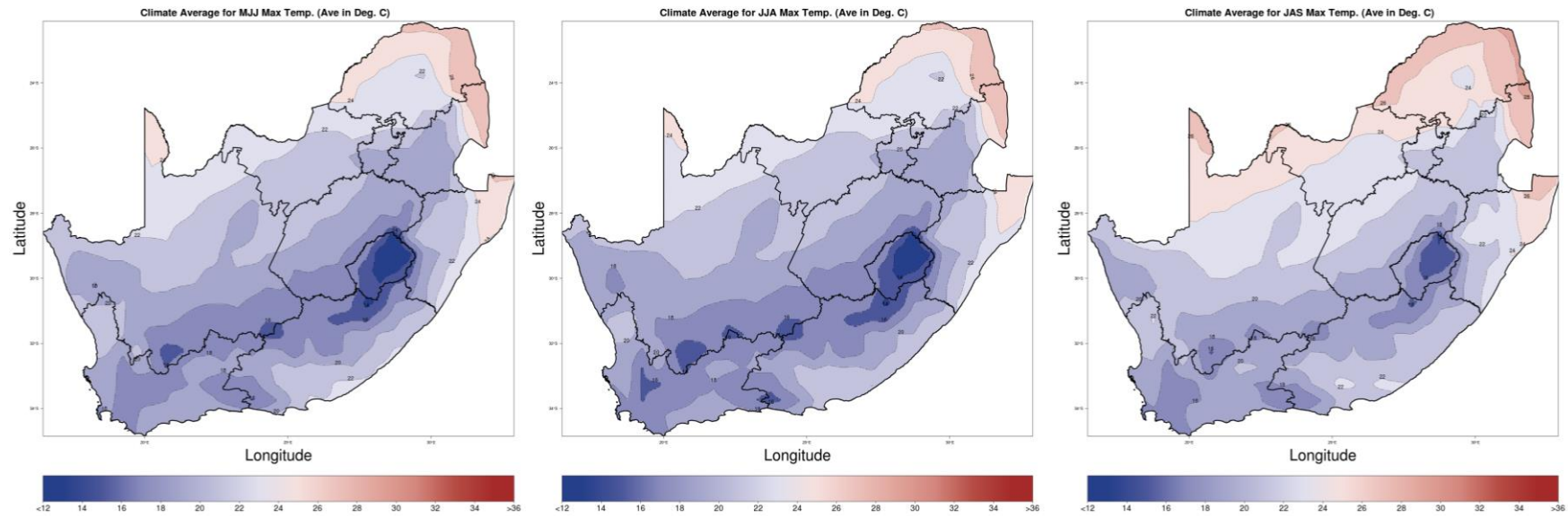


Figure 8: Climatological seasonal averages for maximum temperature during May-June-July (MJJ; left), June-July-August (JJA; middle) and July-August-September (JAS; right).

### **3. Summary implications to various economic sector decision makers**

#### **Water and Energy**

Enhanced probabilities for above-normal rainfall is predicted over large parts of the country, mainly during the MJJ and JJA seasons. While this might bring some relief for water resources in the south-eastern regions, the impact might remain minimal due to the already burdened water reservoirs as well as the on-going drought in the area. The predicted above-normal minimum temperatures over most of the country are likely to decrease energy demand for space heating from normal during winter. The relevant decision-makers may take note of the above-mentioned potential risks and advise the affected businesses and communities accordingly.

#### **Health**

The expected above-normal rainfall in early winter over the south-western parts of the country may cause flooding, particularly in flood-prone areas, resulting in immediate health consequences such as injuries, hypothermia, animal and mosquito bites as well as increased risks of water-related and vector-borne diseases. With exceptions to few regions in the Northern Cape, the forecasted above-normal minimum and maximum temperatures is likely to result in warm conditions with minimal health implications. Nevertheless, based on the World Health Organization (WHO) and World Meteorological Organization (WMO) ultraviolet radiation (UV) universal standard, UV levels during this reporting period are higher than 3, implying risks of UV related effects are imminent thus requiring sun protection in a form of seeking of shade, wearing of appropriate clothing that covers the body and application of sunscreen, mostly during midday hours.

#### **Agriculture**

A high probability of above-normal rainfall is expected over most parts of the summer rainfall regions during early-, mid- and late-winter seasons. Above-normal rainfall during winter months over these summer rainfall regions is not likely to be significant. However, above-normal rainfall is indicated in early-winter for the important winter rainfall region, south and south-western parts of the country, although the outlook for rainfall remains uncertain for the remainder of the winter season. Therefore, the relevant decision makers are encouraged to advise farmers in these regions to adopt proper drainage systems, water harvesting and storage where possible.

*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)

