Monthly Drought Bulletin

April 2022

1. Overview

Rainfall received during April was above-normal over large parts of the country. Below-normal rainfall was received mainly over the Western Cape extending to adjacent areas of the Northern Cape as well as in isolated areas of the Limpopo Province and the Eastern Cape. Moderately dry to severely dry conditions were experienced in isolated areas over the Western, Northern and the Eastern Cape.

During the 3-month period from February to April 2022, the country in general received above-normal rainfall and below to near-normal rainfall in isolated areas across the country except KwaZulu-Natal. Somewhat dry, with moderately dry conditions in isolated areas, were experienced in the Western Cape and in parts of the eastern-half of Mpumalanga and the Limpopo Province as well as isolated areas of the Eastern and Northern Cape.

During the 6-month period from November 2021 to April 2022, the country experienced somewhat dry conditions in isolated areas. Severely dry to extremely dry conditions were experienced in small isolated areas over the Limpopo Province.

The 12- and 24-month SPI maps give an indication of areas where prolonged droughts exist, in other words, where below-normal rainfall occurred over a period of one year or longer. On the 12-month SPI map, somewhat dry to severely dry conditions are still visible in parts over the southern parts of the Eastern Cape and far northwest parts of the Limpopo Province. On the 24-month SPI map, somewhat dry conditions are still noticeable over the southern parts of the Eastern Cape. This situation indicated that substantial rainfall is necessary to alleviate the dry conditions in these regions.

2. *Rainfall assessment (1- and 3-monthly maps)*

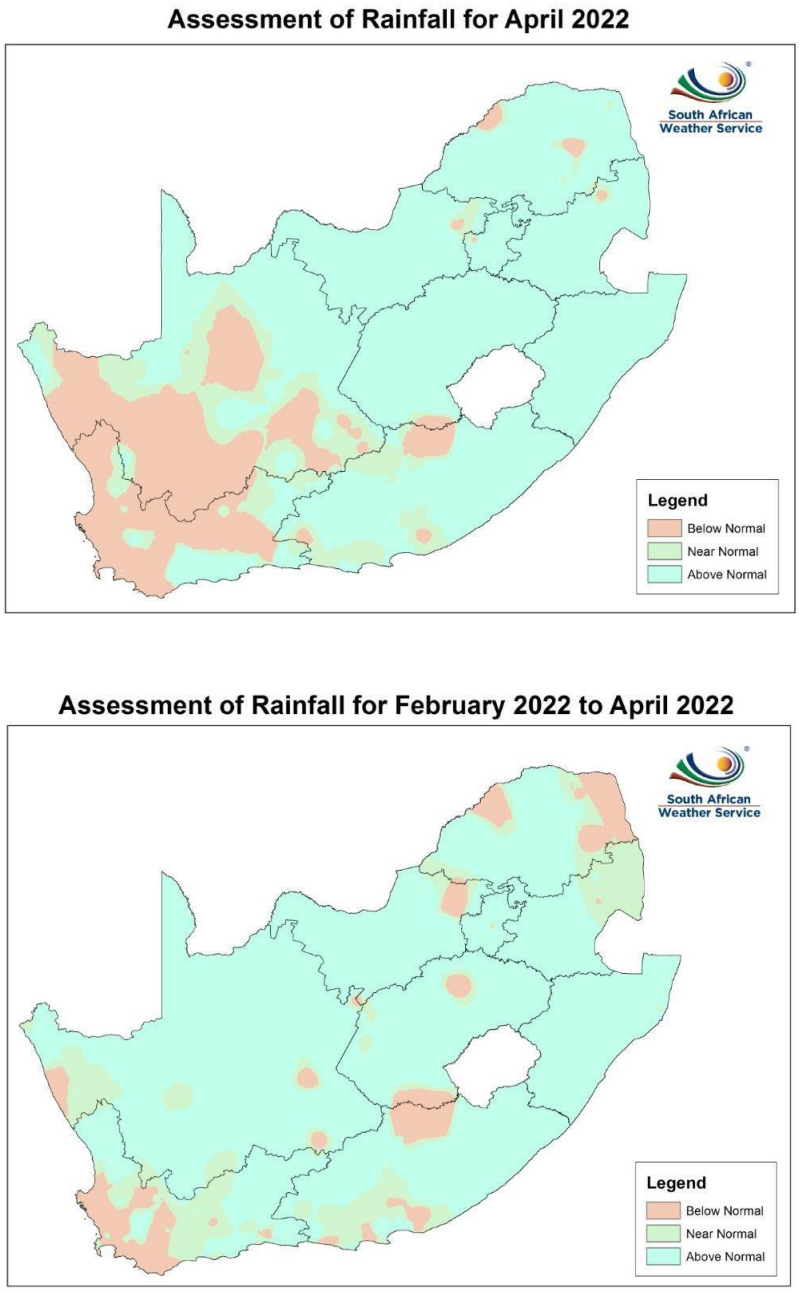

Figure 1: Assessment of rainfall maps for 1-month (April 2022; top) and for 3-month (February 2022 to April 2022; bottom)

3. Indications of Drought

3.1. Standardized Precipitation Index (SPI)

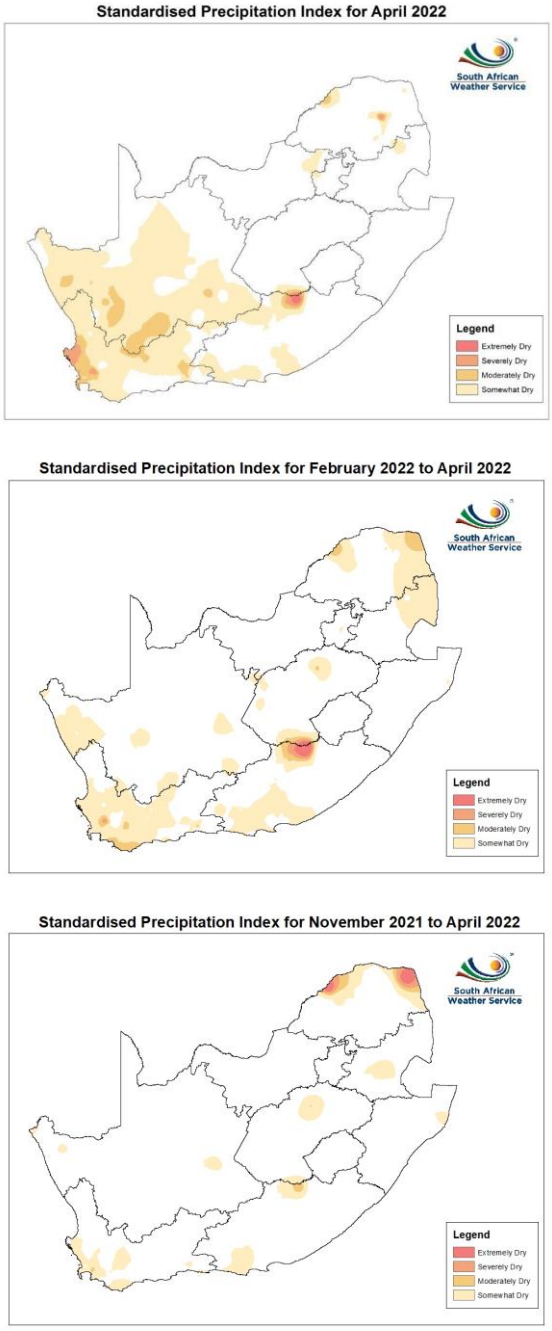

Figure 2: Short to medium term SPI Maps for 1-month (April 2022; top), 3-month (February 2022 to April 2022; middle) and 6-month (November 2021 to April 2022; bottom)

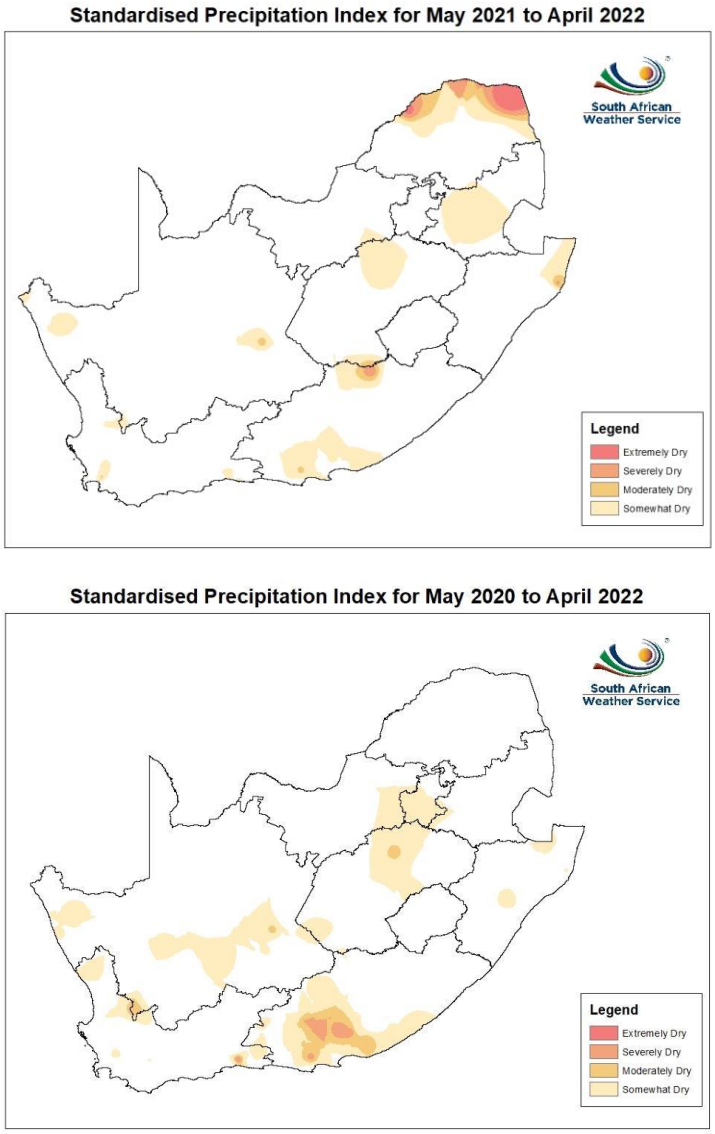

Figure 3: Long term 12-month SPI map (May 2021 to April 2022; top) and 24-month SPI map (May 2020 to April 2022; bottom)

3.2 Vegetation Condition Index (VCI) and Temperature Condition Index (TCI)

The use of VCI and TCI help to monitor the severity of drought by comparing the current vegetation state with same period the previous year. Low and high values indicate bad and good vegetation state conditions respectively.

Figure 4 show the state of vegetation in South Africa. The Cape regions and some isolated parts of Limpopo and Mpumalanga provinces are experiencing stressed vegetation conditions compared to the same period the previous year. The rest of the country is showing improved vegetation conditions compared to the same period the previous year.

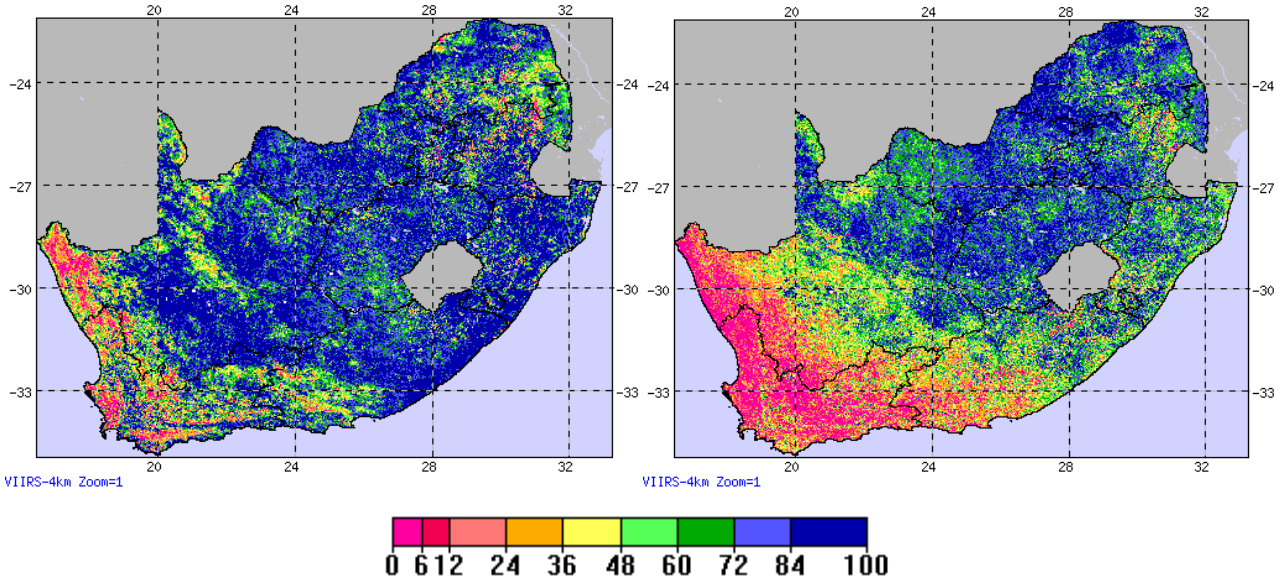

Figure 4: VCI (left) and TCI (right) in the week of the 9th of May 2021

4. Drought stricken regions

4.1 SPI and SPEI

Based on the SPI maps shown in Figure 3, dry conditions persist in the south-western parts of the Eastern Cape and north-western parts of the Limpopo Province. To further investigate the severity of the drought we use the SPEI alongside SPI. The SPEI consider both the precipitation and potential evapotranspiration in determining drought. Unlike the SPI, SPEI captures the impact of increased temperatures on water demand.

Figure 5 presents the SPI and SPEI at Patensie at both 12 and 24 months. Patensie, representative of the south-western parts of the Eastern Cape, continue to experience some-what dry conditions despite recent rainfall.

Figure 6 presents 12 and 24 months SPI at Tom Burke SAPS, representative of the north-western parts of Limpopo Province. The SPI time series show that the north-western part of Limpopo have been experiencing moderate to severely dry conditions in recent months. Figure 7 presents 12 and 24 months SPI at Punda Maria, representative of the north-eastern parts of Limpopo Province. The SPI time series show that the north-eastern part of Limpopo have also been experiencing moderate to severely dry conditions in recent months.

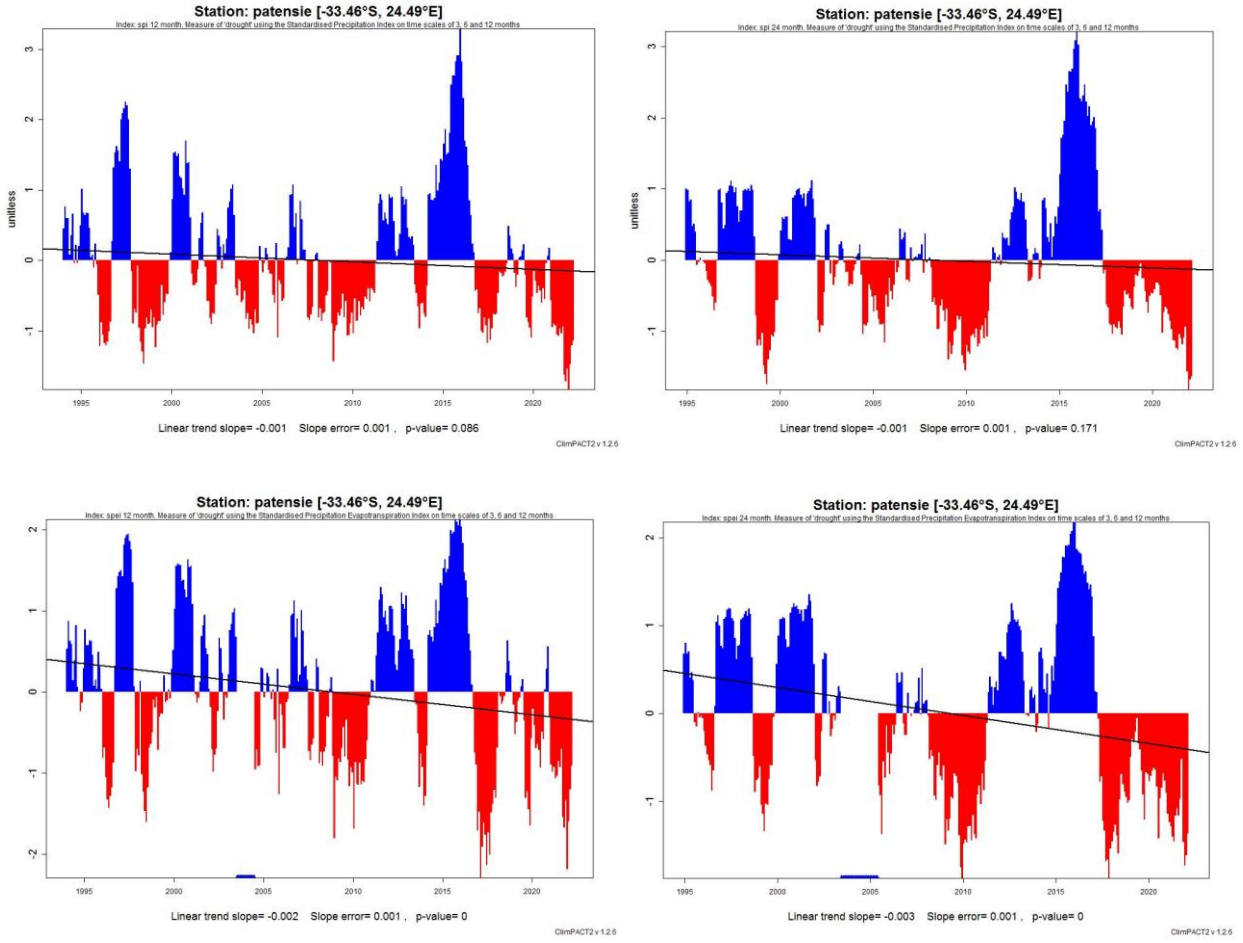

Figure 5: Time series plots for Patensie weather station for 12- and 24-month SPI (top) and SPEI (bottom).

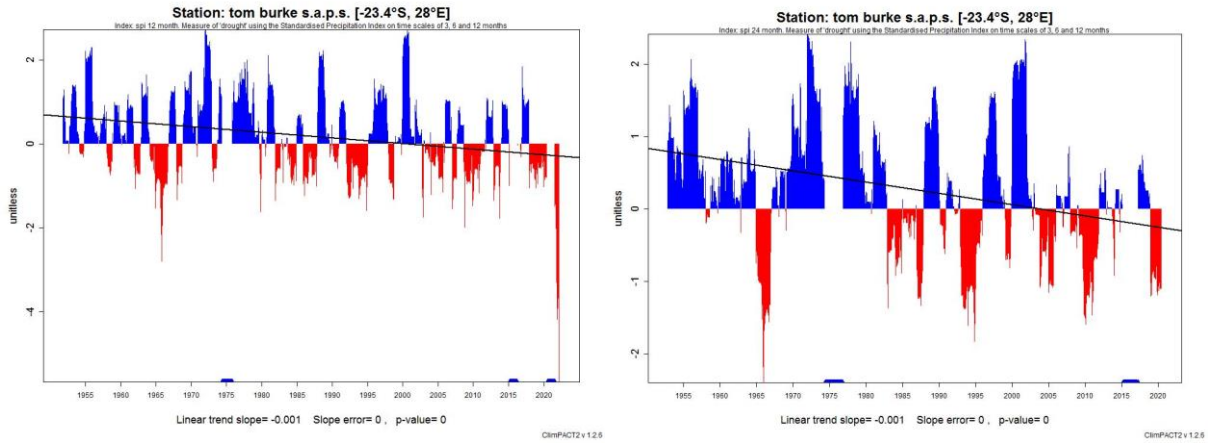

Figure 6: Time series plots for Tom Burke SAPS weather station for 12- and 24-month SPI (top) and SPEI (bottom).

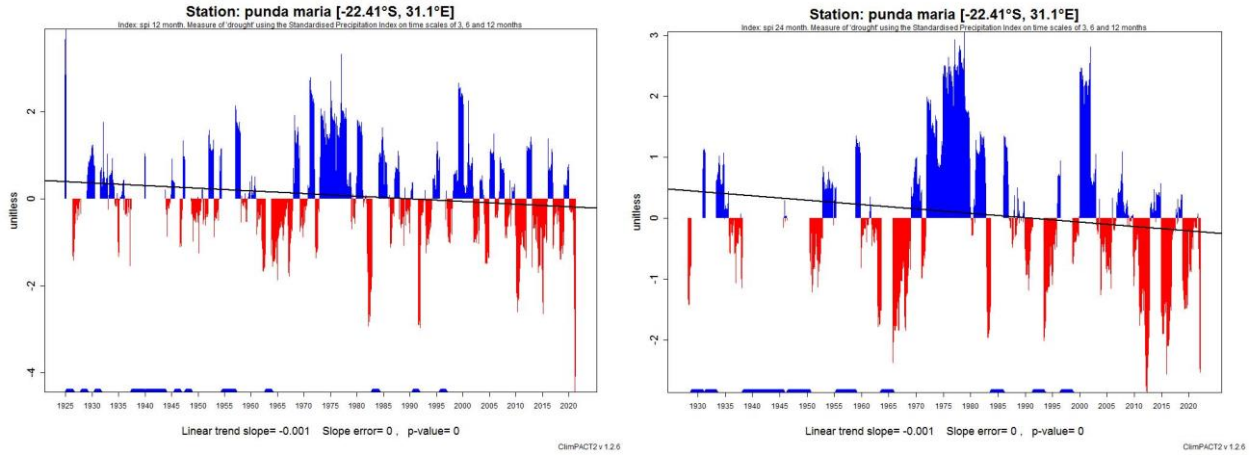

Figure 7: Time series plots for Punda Maria weather station for 12- and 24-month SPI (top) and SPEI (bottom).

5. Dam levels

The table below show the average dam level per province for the week of the 09th of May 2022 compared to the same period the previous year. All the provinces are showing improved dam levels, except for North West which is 4.5% lower. The surface water storage nationally for this week is at 94.4% of the full supply capacity (FSC), which is 9.7% higher than the same period last year. The Western Cape storage levels continue to decline and is currently at 53.4%, which is 4.6% higher than the same period last year.

Table: Provincial Dam levels in the week of the 09th of May 2022 and for the same period in 2021 (Source: DWS).

Provincial	Last Year (%Full)	09 May 22 (%Full)
Eastern Cape	54.6	67.2
Free State	98.2	103.4
Gauteng	99.7	101.5
KwaZulu-Natal	73.6	92
Limpopo	87.1	88.8
Mpumalanga	87.2	95.3
Northern Cape	97.9	110.9
North West	83	78.5
Western Cape	48.8	53.4

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