

Monthly Drought Bulletin

January 2022

I. Overview

Rainfall received during January was above normal over the Northern Cape, the Free State, Mpumalanga, central KwaZulu-Natal and southern parts of North-West. Somewhat dry to severely dry conditions were experienced in the southern parts of the Eastern and Western Cape, central parts of the Limpopo Province and the eastern parts of North-West.

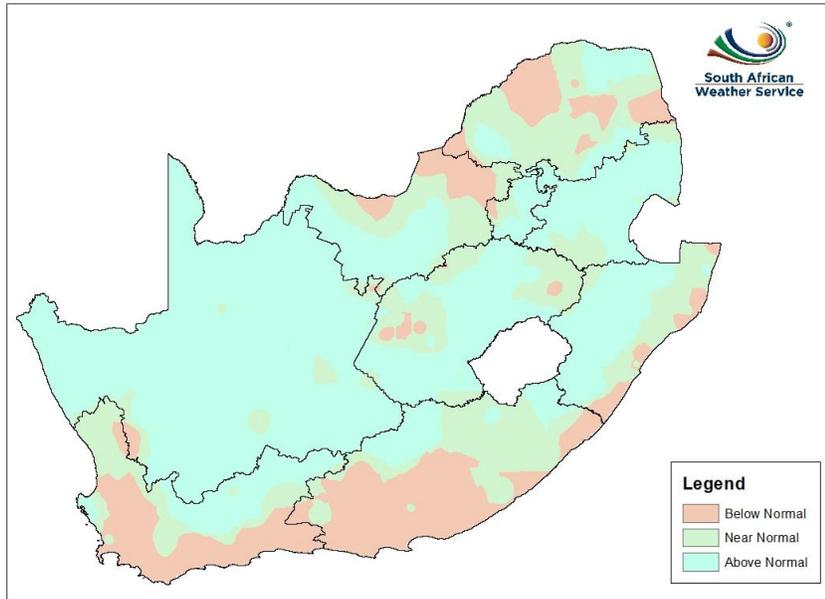
During the 3-month period from November 2021 to January 2022 the country in general received above-normal rainfall in isolated areas. Somewhat dry to moderate dry conditions were experienced in isolated areas along the coastal areas of KwaZulu-Natal.

During the 6-month period from August 2021 to January 2022, the country in general experienced somewhat dry conditions in isolated areas. Somewhat dry to moderately dry conditions were experienced in small isolated areas of the Eastern Cape and KwaZulu-Natal.

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 over the Eastern Cape and in small isolated areas of the Northern Cape. On the 24-month SPI map, moderate to severely dry conditions are still noticeable in isolated areas over the southwestern parts of the Eastern Cape.

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

Assessment of Rainfall for January 2022



Assessment of Rainfall for November 2021 to January 2022

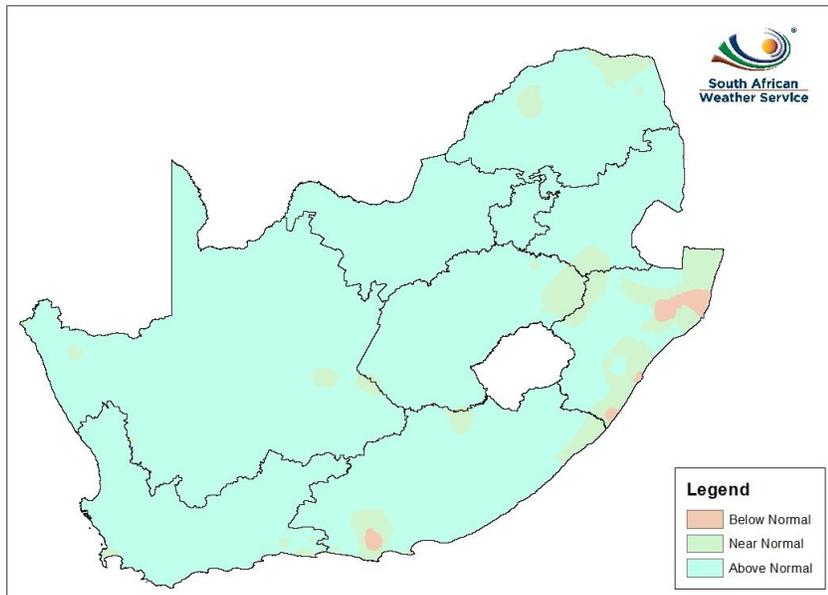


Figure 1: Assessment of rainfall maps for 1-month (January 2022; top) and for 3-month (November 2021 to January 2022; bottom)

3. Indications of Drought

3.1. Standardized Precipitation Index (SPI)

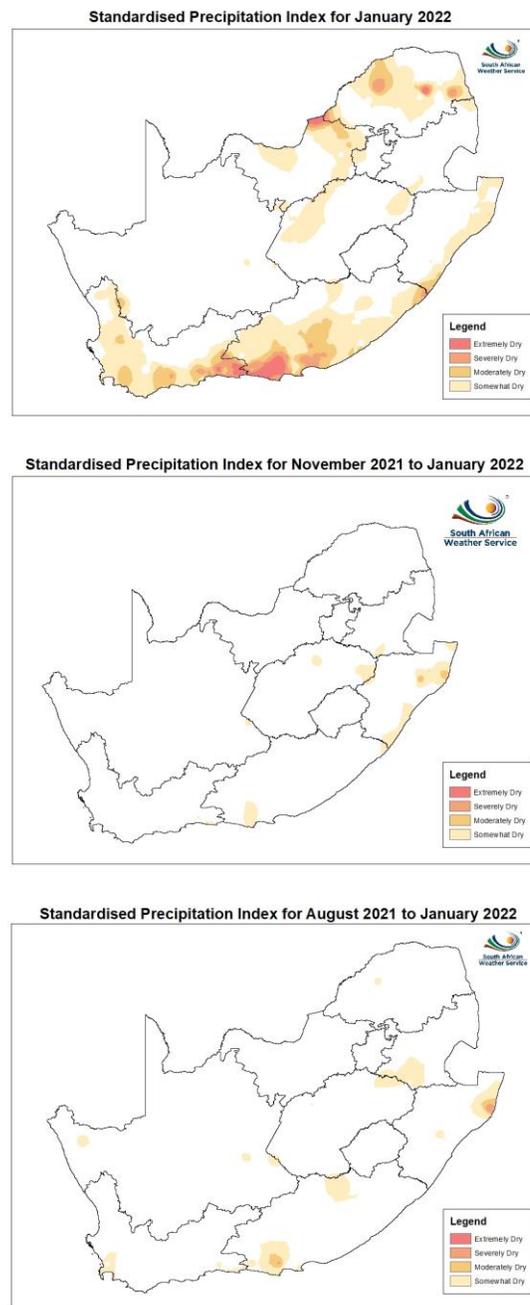
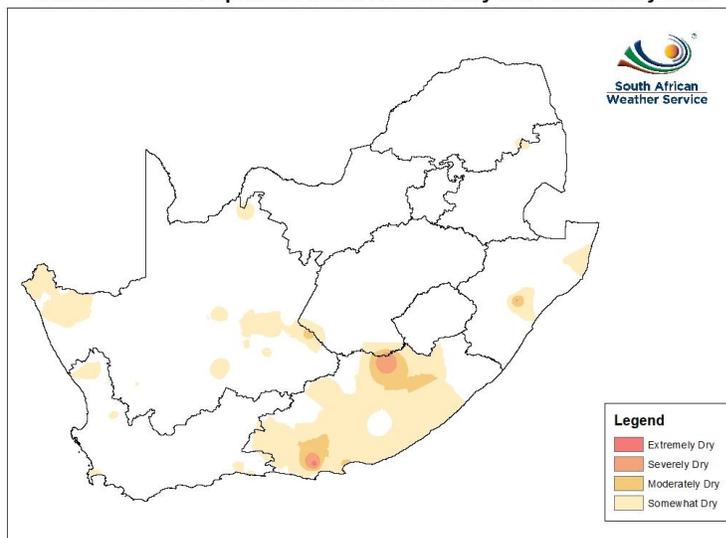


Figure 2: Short to medium term SPI Maps for 1-month (January 2022; top), 3-month (November 2021 to January 2022; middle) and 6-month (August 2021 to January 2022; bottom)

Standardised Precipitation Index for February 2021 to January 2022



Standardised Precipitation Index for February 2020 to January 2022

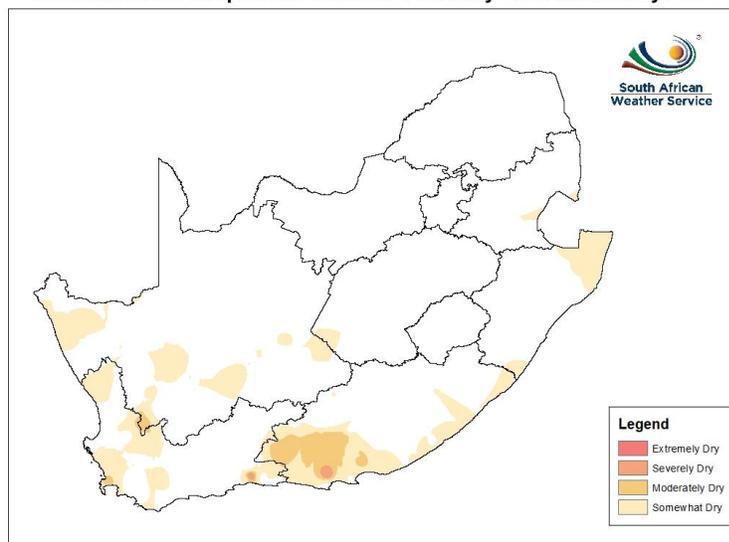


Figure 3: Long term 12-month SPI map (February 2021 to January 2022; top) and 24-month SPI map (February 2020 to January 2022; bottom).

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 Northern Cape, the Western Cape and the western parts of the Eastern Cape 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.

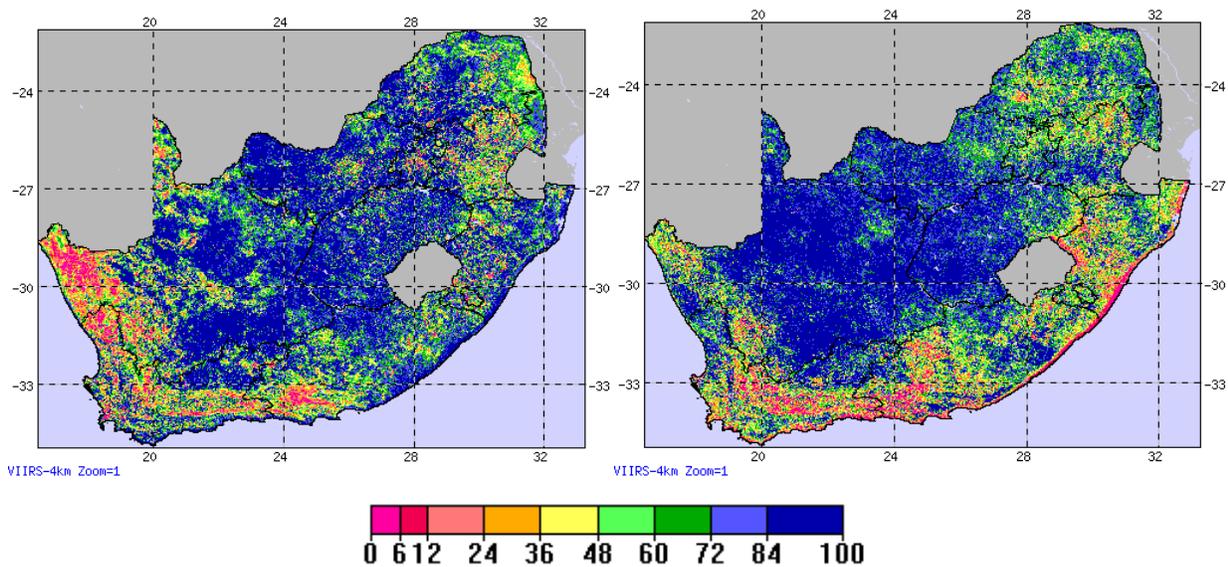


Figure 4: VCI (left) and TCI (right) in the week of the 7th of January 2022.

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. While the other previously drought-stricken areas are showing considerable improvement. 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, continues to experience extremely dry conditions despite recent rainfall. Figure 6 presents the SPI and SPEI at Willowmore at both 12 and 24 months.

Willowmore, representative of the western parts of the Eastern Cape, continues to experience dry conditions.

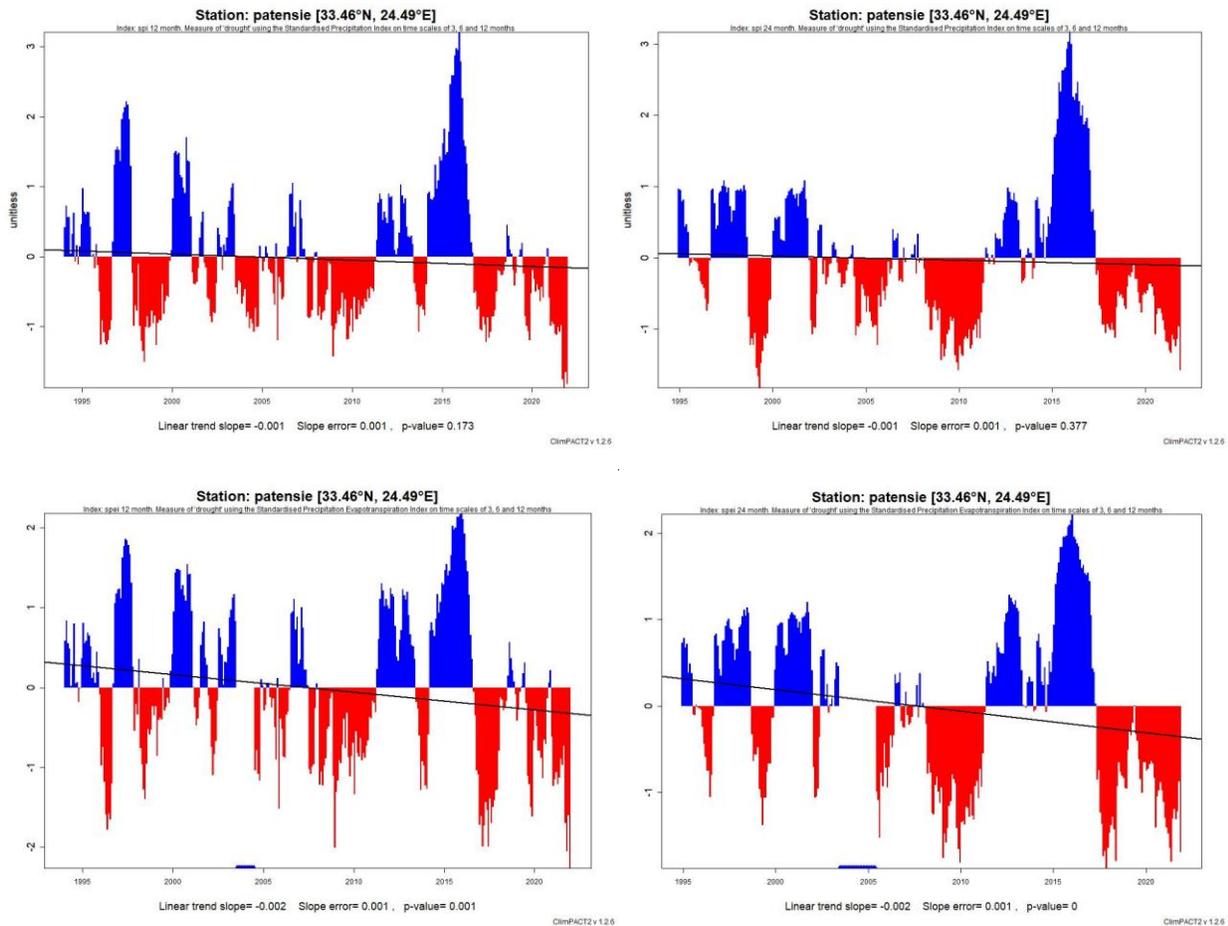


Figure 5: Time series plots for Patensie weather station for 12- and 24-month SPI (top) and SPEI (bottom).

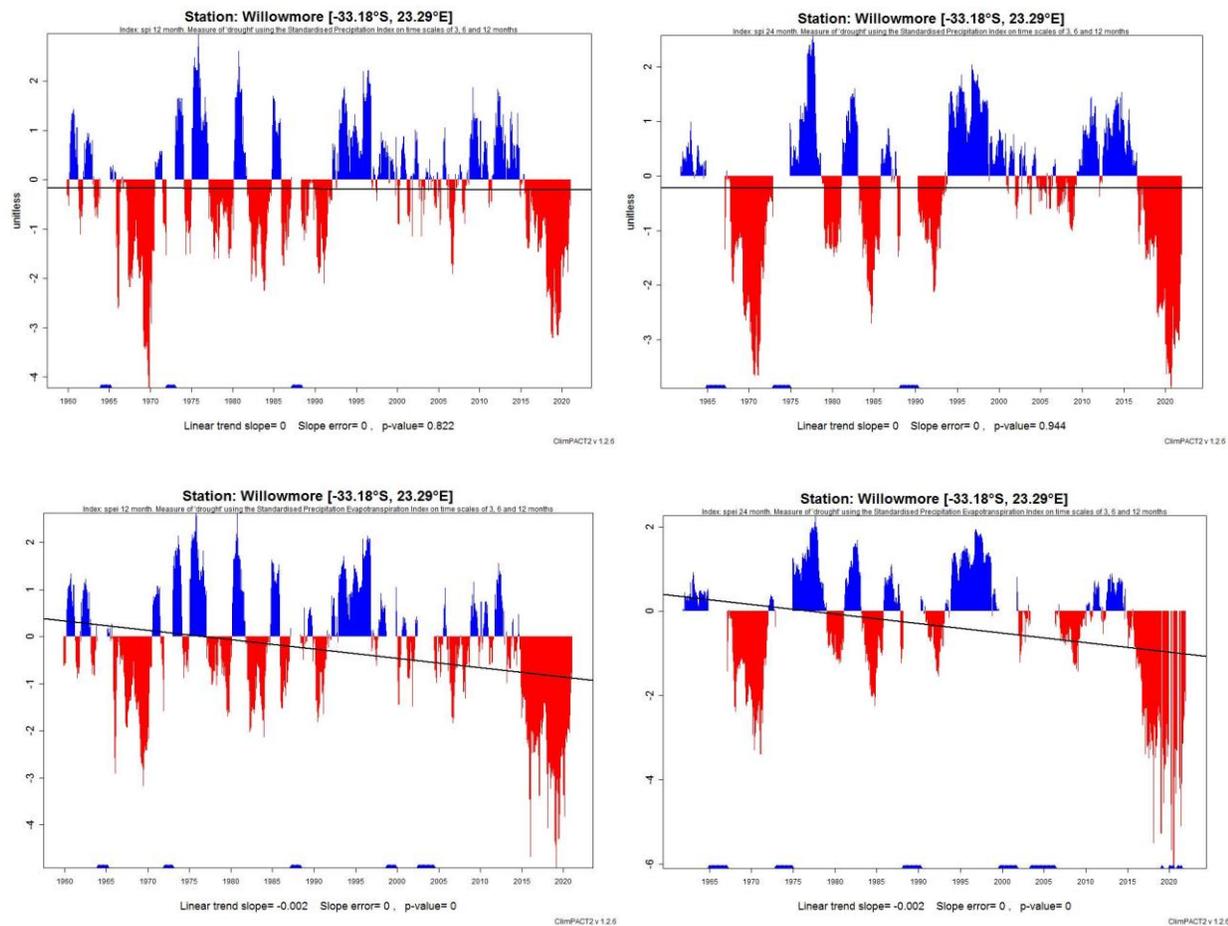


Figure 6: Time series plots for Willowmore weather station for 12- and 24-month SPI (top) and SPEI (bottom).

5. Dam levels

The table below show the average dam level per province for the week of the 07th of February 2022 compared to the same period the previous year. All the provinces are showing improved dam levels, with the exception of the Northern Cape, Northern Cape and Free State which have dropped by 15.92%, 3.75% and 0.29% respectively. The surface water storage nationally for this week is 94% of the full supply capacity (FSC), which is 7% higher compared to the same period last year with 49% of national dams at spilling or above 100% full capacity.

Table: Provincial Dam levels in the week of the 07th of February 2022 and for the same period in 2021 (Source: DWS).

Provincial	Last Year	07-Feb-22
	(%Full)	(%Full)
Eastern Cape	55.8	63.6
Free State	104	103.7
Gauteng	101.5	103.2
Kwazulu-Natal	67.6	87.3
Limpopo	81.2	89.3
Mpumalanga	84.5	93.4
Northern Cape	132.5	111.4
North West	79.9	76.9
Western Cape	62.5	72

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