



Image: 18 July 2023 courtesy of NASA

STATE OF THE CLIMATE IN NAMIBIA 2023

ABSTRACT

Namibia's average temperature for 2023 was a modest warming of 21.5 °C, 0.3 above the 1991-2020 level. The bulk of the country observed less rainfall during the year 2023 than usual.

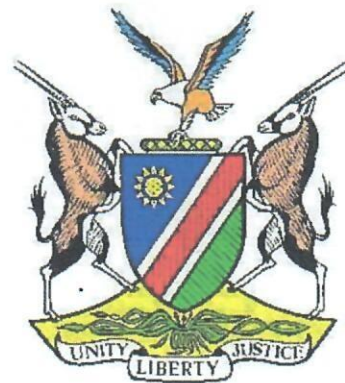


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Foreword

The Meteorological Service of Namibia is a division under the Department of Transport in the Ministry of Works and Transport, responsible for providing Weather and Climate information to the Namibian Nation. At a time when Climate Change is no longer a myth but a global reality that can only be addressed through global efforts of mitigation and adaptation. It is towards this goal that the Meteorological Service of Namibia issues the State of the Climate in Namibia report as an insert into the Global State of Climate report.

Climate monitoring must be up scaled in Namibia by modernizing and expanding the observation network. An observation network that is representative and captures the dynamics of the country's climate, while avoiding data gaps to guide decision-making based on scientific information.

This State of the Climate in Namibia 2023 report is the second edition following the first edition in 2022. It provides information on the past and current weather and climate of Namibia and highlights the impact of extreme weather events and their socioeconomic impact on Namibian society.

I take this opportunity to congratulate the officials of the Meteorological Service of Namibia and thank the Ministry of Agriculture, Water, and Land Reform for their support in the production of this report with climate data.


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Esther N. Kaapanda
EXECUTIVE DIRECTOR

19.01.2024



State of the climate report in Namibia 2023

1. Temperature Analysis

As the world is declaring 2023 as the warmest calendar year on planet Earth, Namibia's average temperature for 2023 was a modest warming of 21.5 °C, 0.3 above the 1991-2020 level. The bulk of the warming was observed during April, October and November. November 2023 was the warmest month during the year at 25.6 °C, 1.7 °C above the 1991-2020 average followed by October 2023 with 24.8 °C or 1.1 °C above the 1991-2020 long-term average.

The warming towards the end of the year can largely be attributed to the ever-increasing concentration of greenhouse gases; El Niño phenomena and to a lesser extent to the warm phase of the solar cycle.

This analysis was done with hourly data from 26 stations throughout the country and supplemented with data from Copernicus/ECMWF.

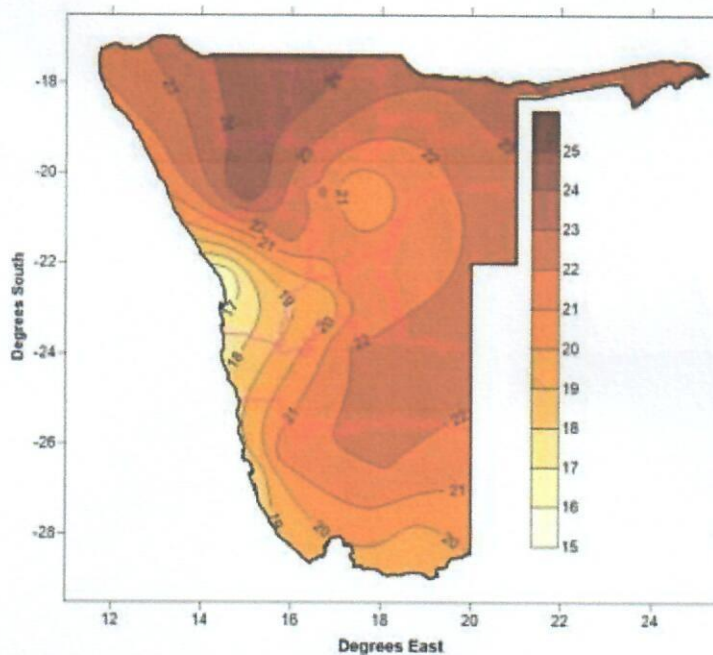


Figure 1: Average annual temperature (°C) for 2023.

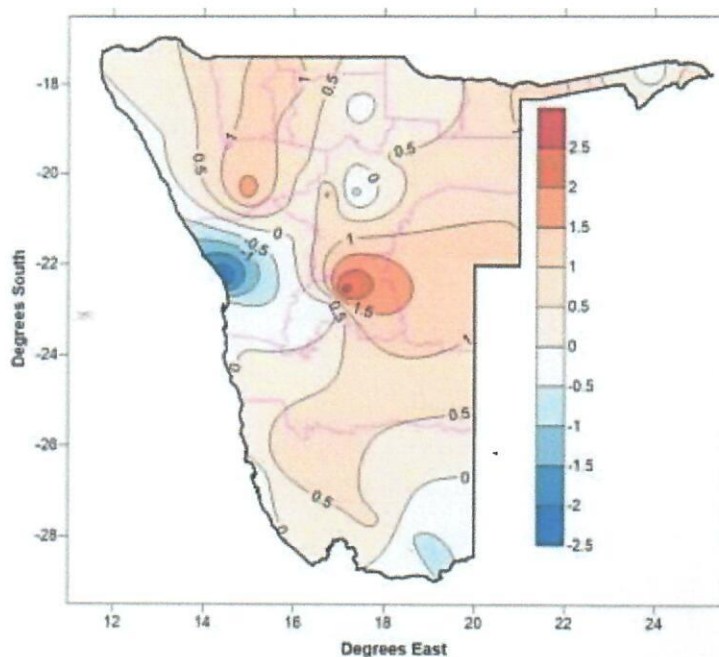


Figure 2: Annual Temperature Anomaly for 2023 based on the 1991–2020 reference period.

2. Precipitation Analysis

The bulk of the country (brown color in Fig.4) received less rainfall during the year 2023 than usual, while above-average rainfall was observed over very limited area. However, average rainfall was confined to eastern Khomas, western Otjozondjupa and northern regions, but over 80% of this rainfall was observed during the period November to December 2023.

The 2022/2023 rainfall season ending in April 2023 was generally a failure with Omusati, Oshana Kunene, Erongo, western Khomas, western Hardap, western Karas and western Omaheke regions experiencing below-average rainfall. This was the second consecutive rainfall season of poor rainfall in the Oshana, Omusati and Kunene regions. Although January 2023 was wetter than usual in the northern regions, the period from February to April 2023 was below average and led to the failure of the 2022/2023 rainfall season.

This analysis was done with daily rainfall measurements from 110 stations throughout the country from the Ministry of Agriculture, Water and Land Reform and Namibia Meteorological Service.

3. Extreme weather events

Flood waters from neighboring Angola invaded western areas of the Ohangwena region during the third week of January 2023 and disrupted livelihoods including the crop season. Over four hundred households were affected and close to 150 households were relocated to higher ground. Furthermore, some schools in the area were temporarily closed, while the cropping season was disrupted with little to no activity during and immediately after the event and insignificant rain in subsequent months.

The 2022/23 rainfall season ended as a failure in April 2023 with the western and southern parts of the country receiving below-average rainfall. Most of the western areas reported either extreme drought or severe drought on decile rankings. This led to the Government launching the drought relief program which consists of food supplies, water provision and livestock support to address the drought impacts. The number of people projected to be affected by food insecurity is estimated at 695,000 (26% of the population) during the period October 2023 to March 2024 for N\$ 892,4 million.

4. Datasets used and endnote

1. Hersbach, H., Bell, B., Berrisford, P., Biavati, G., Horányi, A., Muñoz Sabater, J., Nicolas, J., Peubey, C., Radu, R., Rozum, I., Schepers, D., Simmons, A., Soci, C., Dee, D., Thépaut, J.-N. (2023): ERA5 monthly averaged data on single levels from 1940 to present. Copernicus Climate Change Service (C3S) Climate Data Store (CDS), DOI: [10.24381/cds.f17050d7](https://doi.org/10.24381/cds.f17050d7) (Accessed on 07-01-2024).
2. Temperature and rainfall in situ data provided by the Ministry of Agriculture, Water and Land Reform.
3. Cover image: We acknowledge the use of imagery from NASA's Land, Atmosphere Near real-time Capability for EOS (LANCE) system (<https://earthdata.nasa.gov/lance>), part of NASA's Earth Observing System Data and Information System (EOSDIS).
4. Nandi-Ndaitwah, N. 2023. Motivation for budget allocation for vote 02: office of the prime minister on the appropriation bill, 2023. 23 March 2023. The parliament of the Republic of Namibia, Windhoek.
5. Press statement by I-Ben Natangwe Nashandi, Livelihood Vulnerability Assessment and Analysis (VAA) and the Integrated Food Security Phase Classification (IPC) acute food insecurity communication report, 2023/2024, (2023). [online] Available at: https://opm.gov.na/documents/1150081/1981473/VAA+REPORT_merged.pdf/20

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