

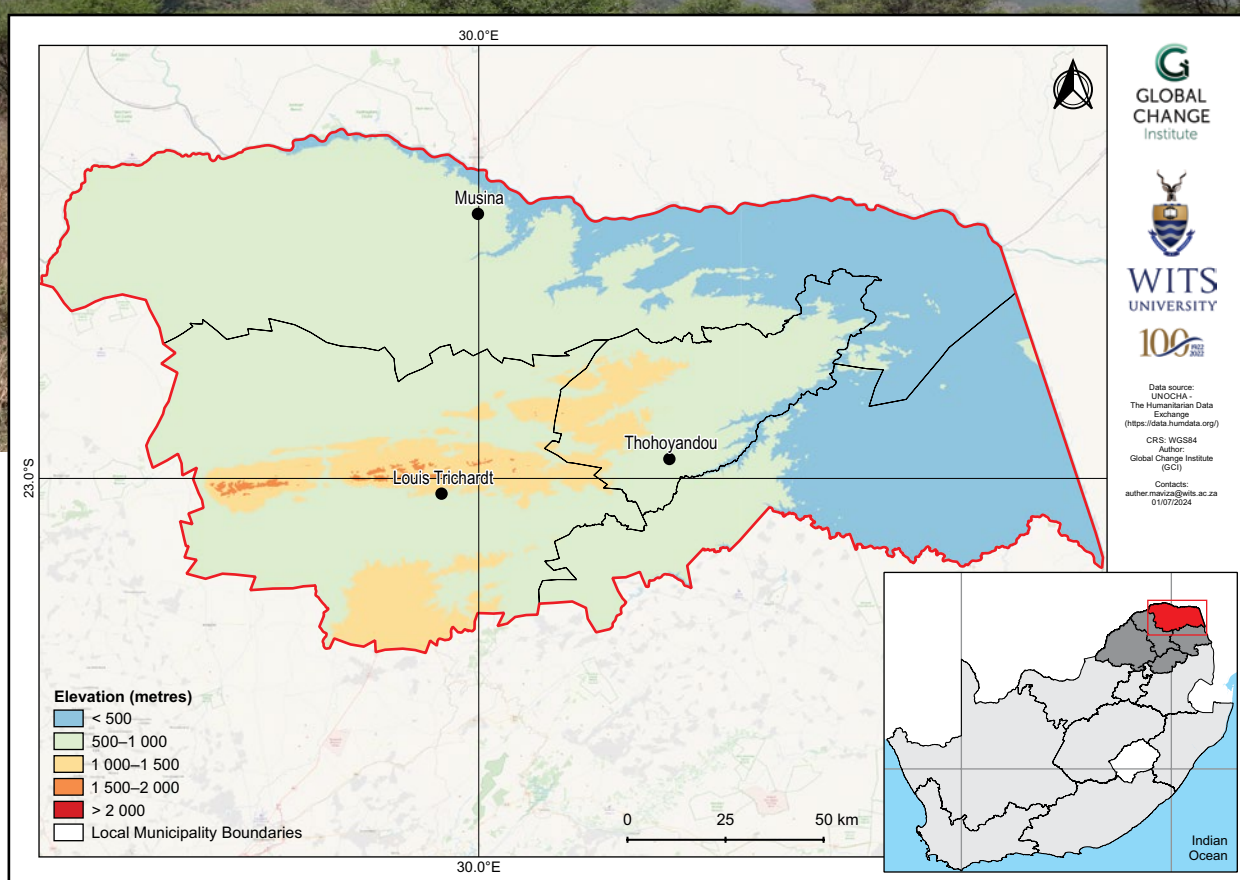
Vhembe District Municipality climate change fact sheet

Limpopo, South Africa

MUNICIPAL

Introduction

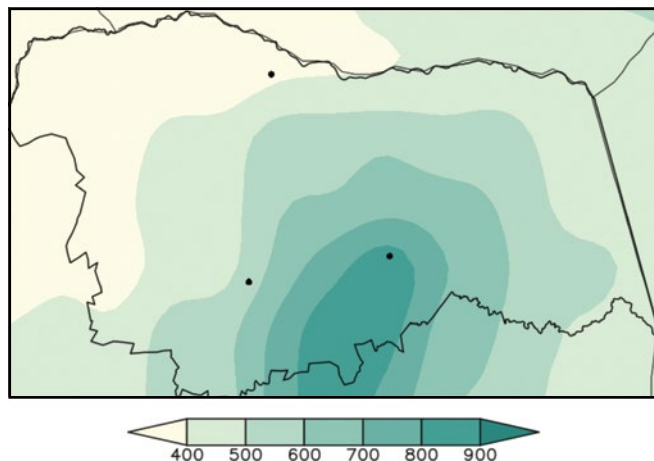
- This fact sheet is part of a series of district municipality fact sheets developed by the Wits GCI and SANBI. The fact sheets present a summary of observed and projected changes in climate over district municipalities in South Africa. They should be used together with the guidelines presented in the cover page.
- Vhembe District Municipality covers an area of approximately 25 597 km², with elevation ranging from less than 500 m above sea level in the eastern lowlands of the Limpopo River valley, to over 1 500 m above sea level in mountains regions, including the Soutpansberg.
- The district experiences a semi-arid climate in the north, but with higher rainfall totals over the southern mountainous region. The climate exhibits distinct wet-dry seasonality, where summers can be hot and humid, while winters are generally mild.



Observed climate: rainfall (1981–2000)

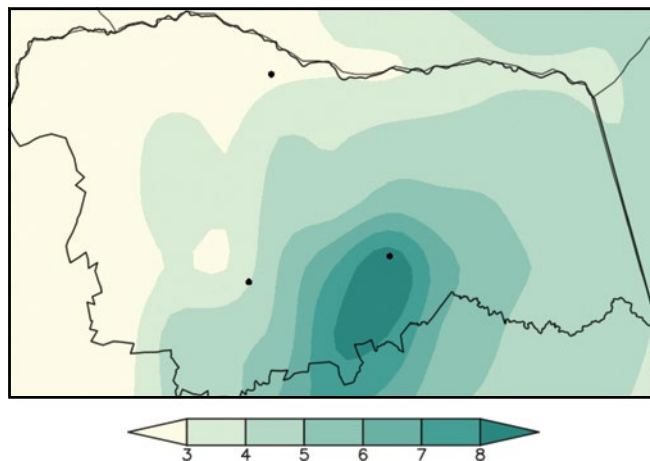
Mean annual rainfall

Mean annual rainfall ranges from 400 mm in the northwestern parts to 900 mm over the southern parts, especially over the mountainous area.



Extreme rainfall days

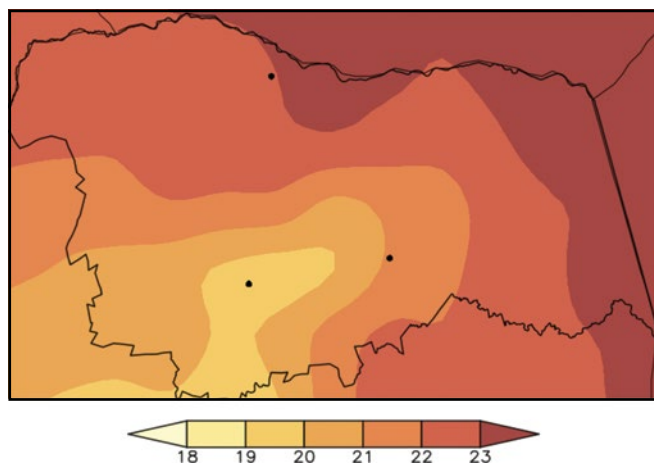
Mean annual number of extreme rainfall days range from less than 3 days over the northwestern parts to more than 8 days over the southern highlands.



Observed climate: temperature (1981–2000)

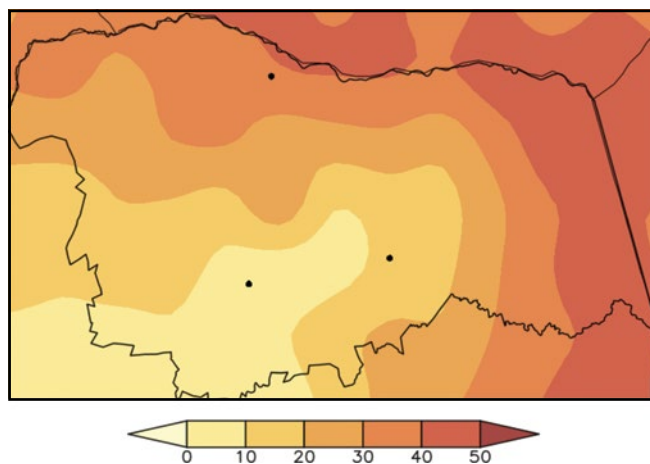
Mean annual temperature

Mean annual temperature ranges from 18 °C in the southern highlands to 23 °C over the Limpopo River valley.



Very hot days

Mean annual number of very hot days range from less than 10 days over the southern parts, to 50 days over the Limpopo River valley.

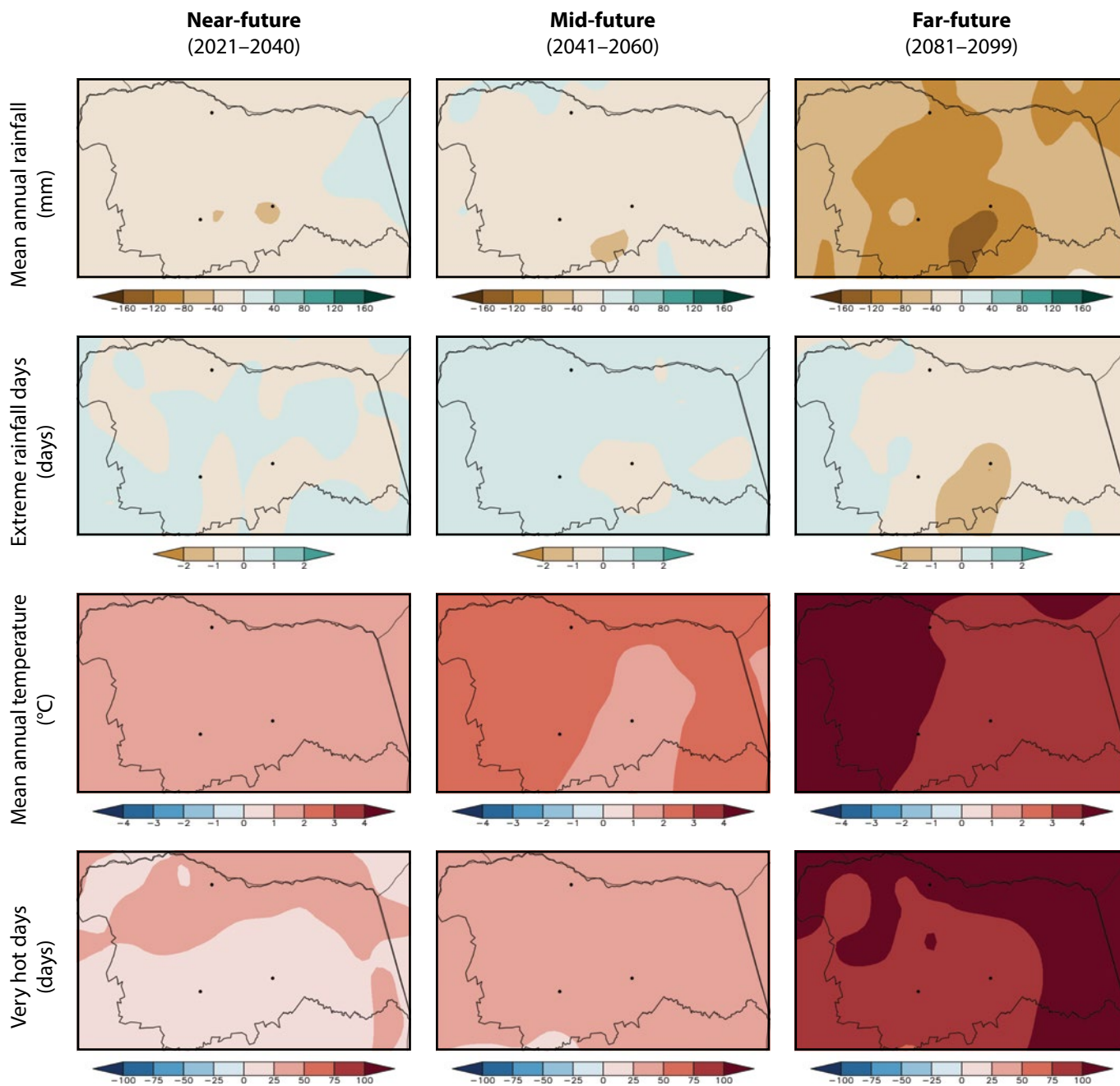


Observed climate trends (overview)

- Observed decrease in mean annual rainfall (*low confidence*).
- Observed increase in the frequency of extreme rainfall events (*high confidence*).
- Observed increase in mean annual temperature and warm extremes (*virtually certain*).
- Observed increases in meteorological and agricultural drought (*low confidence*).

Projected future climate change (overview)

- Projected general decrease in mean annual rainfall (*high confidence*).
- Projected increase in the frequency of extreme rainfall events (*high confidence*).
- Projected increase in mean annual temperature and warm extremes (*virtually certain*).
- Projected increase in agricultural and meteorological drought (*high confidence*).



Projected future climate change (*detailed*)

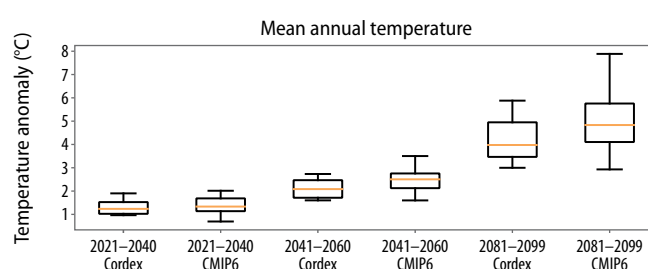
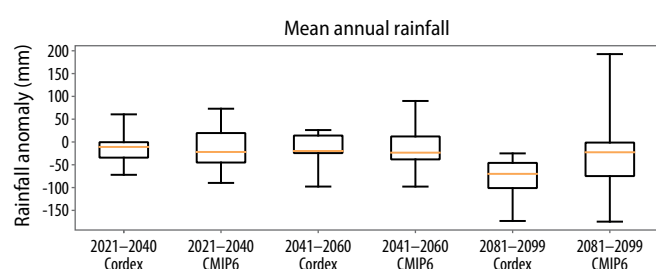
Near- and mid-future

- Projected decreases in mean annual rainfall (*likely*).
- Projected general increase in extreme rainfall events (*likely*).
- Projected increase in temperature and warm extremes (*virtually certain*), with higher warming over the western parts and Limpopo River valley in the east.
- Projected increase in agricultural and meteorological drought (*likely*).

Far-future

- Projected decrease in rainfall (*very likely*), with corresponding increases in agricultural and meteorological drought (*very likely*).
- Projected general increase in extreme rainfall events (*likely*).
- Projected increase in temperature and warm extremes (*virtually certain*), with drastic increases over the northern parts and Limpopo River valley.

Climate model projections: model agreement and uncertainties



Mean annual rainfall

- Averaged across the district, rainfall is projected to decrease in the near- and mid-future (*likely*).
- Further rainfall decreases are projected in the far-future under low mitigation scenarios (*very likely*).
- Partially in response to *virtually certain* temperature increases, agricultural droughts are to occur more frequently in the near- and mid-future (*likely*) and far-future (*very likely*).

Mean annual temperature

- Temperature increases averaged across the district in the near-future are *virtually certain* and may be as high as 1.5 °C.
- Under low mitigation, further temperature increases are *virtually certain* and may approach 3.0 °C in the mid-future and 6.0 °C in the far-future.
- Increases in average temperature will be accompanied by increases in warm temperature extremes such as heatwaves and high fire danger days (*virtually certain*).

Citation:

Engelbrecht, F.A., Maviza, A., Steinkopf, J., Vogel, C., Von Maltitz, G., Yose, P. & Barnett, M. 2025. *Sub-national climate change fact sheets for South Africa*. © South African National Biodiversity Institute (SANBI) and University of the Witwatersrand – Global Change Institute (WITS-GCI). DOI: <https://doi.org/10.5281/zenodo.16962181>.

This work is licensed under CC BY-NC-ND 4.0 (Attribution-NonCommercial-NoDerivatives 4.0 International).

<https://creativecommons.org/licenses/by-nc-nd/4.0/deed.en>.

Contact

- Global Change Institute (GCI), University of the Witwatersrand, Johannesburg, South Africa. Website: www.wits.ac.za/gci
- South African National Biodiversity Institute (SANBI). Website: www.sanbi.org