

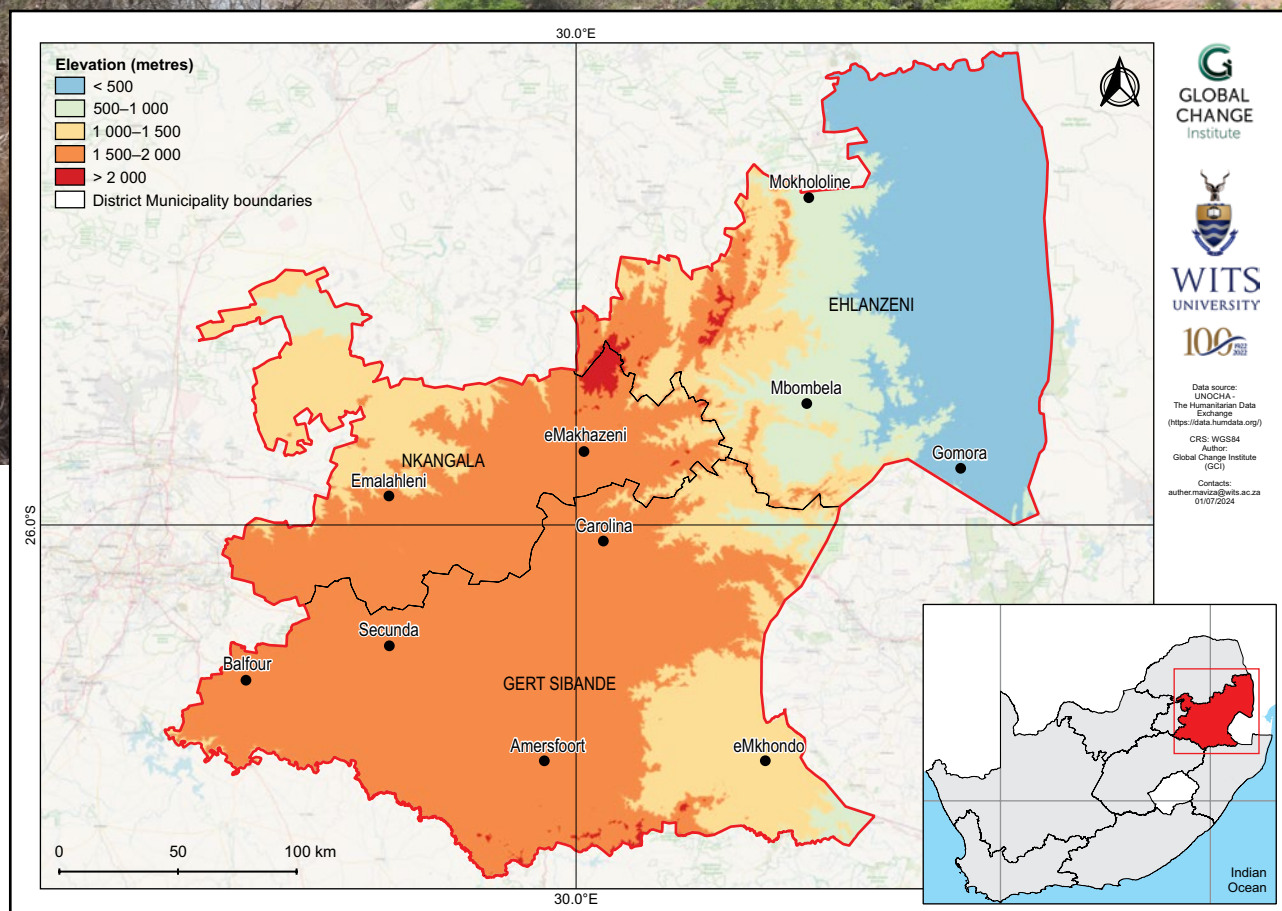
Mpumalanga climate change fact sheet

South Africa

PROVINCIAL

Introduction

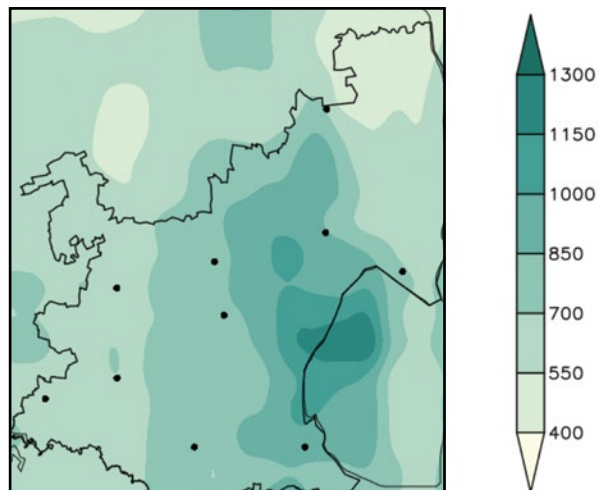
- This fact sheet is part of a series of provincial fact sheets developed by the Wits GCI and SANBI. The fact sheets present a summary of observed and projected changes in climate over the provinces of South Africa. They should be used together with the guidelines presented in the cover page.
- Mpumalanga covers an area of approximately 76 495 km², with elevation ranging from 250 m above sea level in the Lowveld to 2 000 m above sea level in the Highveld (plateau).
- The province is a summer-rainfall region and climate varies substantially in space. The Highveld (plateau) has a continental climate with cold winters and hot summers. Rainfall totals are highest over the escarpment and decrease over the Lowveld, which is semi-arid in the north.



Observed climate: rainfall (1981–2000)

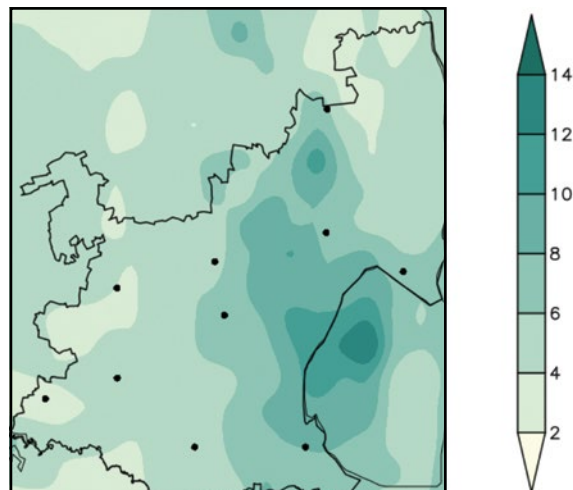
Mean annual rainfall

Mean annual mean rainfall ranges from less than 550 mm in the Lowveld in the north to more than 1 000 mm over the eastern escarpment regions.



Extreme rainfall days

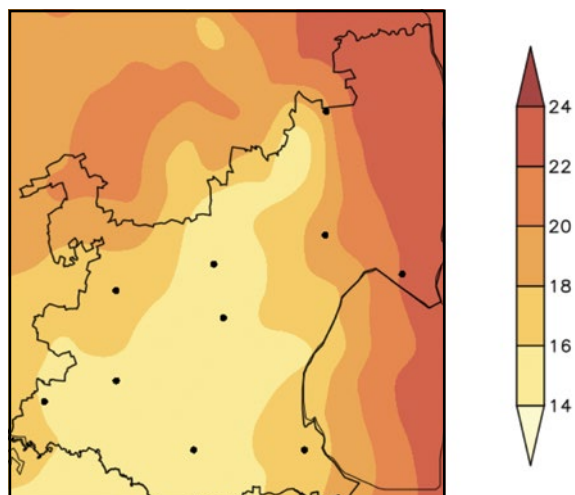
Mean annual number of extreme rainfall days range from 2 to 4 over the western Highveld regions, and from 10 to 12 over parts of the eastern escarpment.



Observed climate: temperature (1981–2000)

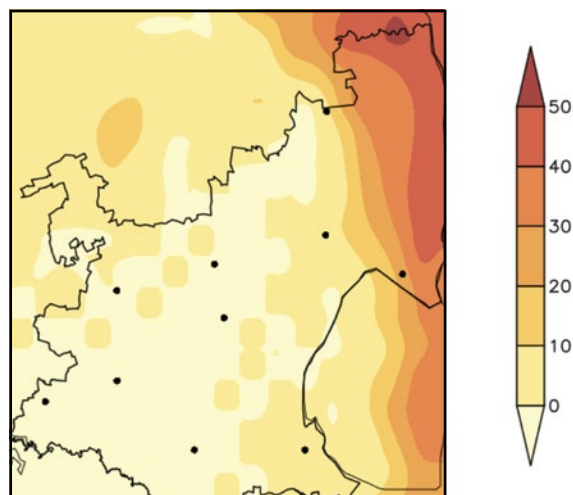
Mean annual temperature

Mean annual temperature ranges from 14 °C over the Highveld, to more than 22 °C over the Lowveld.



Very hot days

The mean annual number of very hot days range from 0 over the Highveld to more than 40 over the Lowveld.

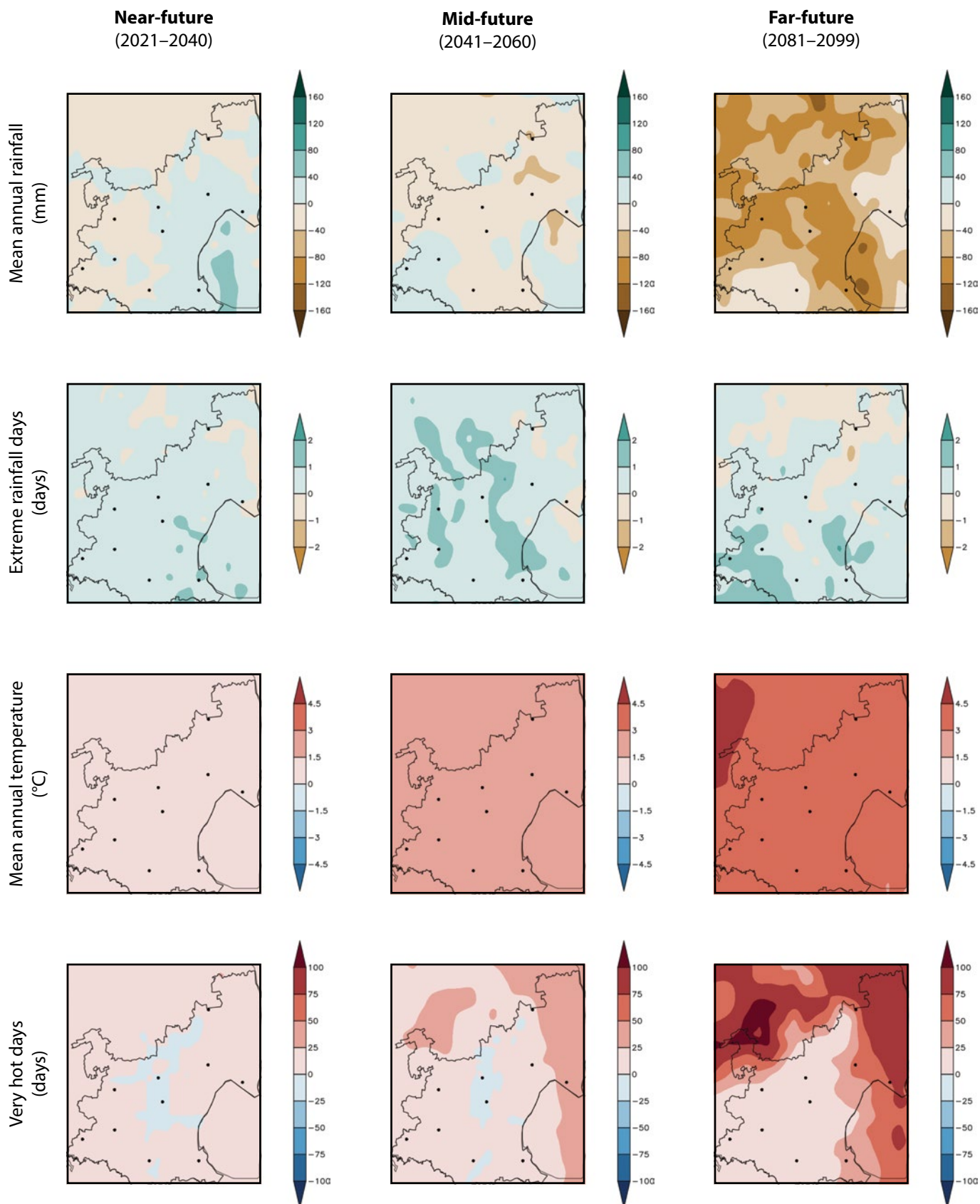


Observed climate trends (overview)

- Observed decrease in mean annual rainfall (*low confidence*).
- Observed increase in the frequency of extreme rainfall events over the Highveld (*low confidence*) but with decreases over the Lowveld (*low 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 changes in mean annual rainfall are *uncertain* in the near- and mid-future, but there is *high confidence* in decreases in the far-future.
- Projected general 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 in the far-future (*high confidence*).



Projected future climate change (*detailed*)

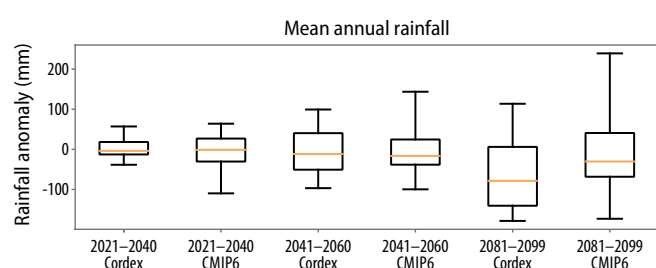
Near- and mid-future

- Projected changes in rainfall in the near- and mid-future are *uncertain*.
- Projected increase in extreme rainfall events (*likely*).
- Projected increase in temperature and warm extremes (*virtually certain*); decrease in cold extremes (*very likely*).
- Projected increase in meteorological and agricultural drought (*low confidence*).

Far-future

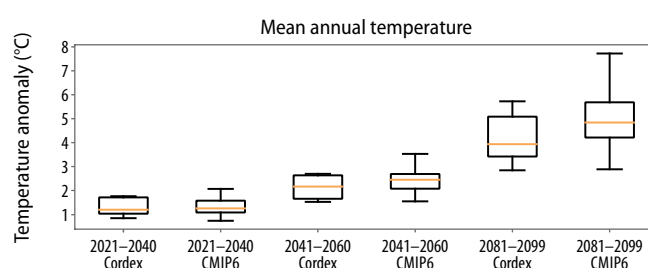
- Projected decrease in rainfall (*very likely*).
- Projected increase in extreme rainfall events (*likely*).
- Projected increase in temperature and warm extremes (*virtually certain*); decrease in cold extremes (*very likely*).
- Projected increase in agricultural and meteorological drought (*very likely*).

Climate model projections: model agreement and uncertainties



Mean annual rainfall

- Averaged across the province, rainfall projections in the near- and mid-future are *uncertain*.
- Rainfall decreases are *very likely* in the province in the far-future under low mitigation scenarios.
- Partially in response to *virtually certain* temperature increases, agricultural drought is to occur more frequently in the far-future (*very likely*).



Mean annual temperature

- Temperature increases averaged across the province are *virtually certain* in the near-future and may be as high as 2.0 °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