



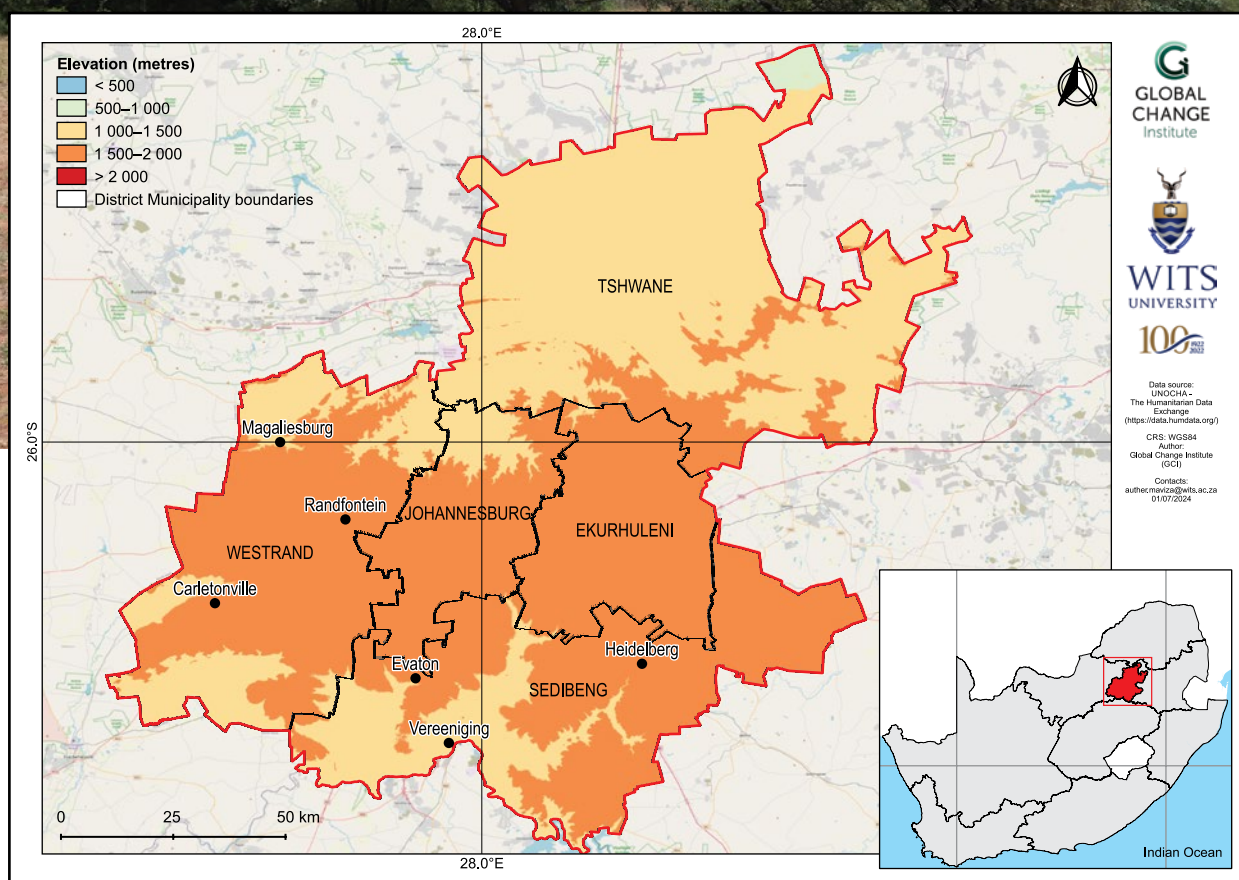
Gauteng climate change fact sheet

South Africa

PROVINCIAL

Introduction

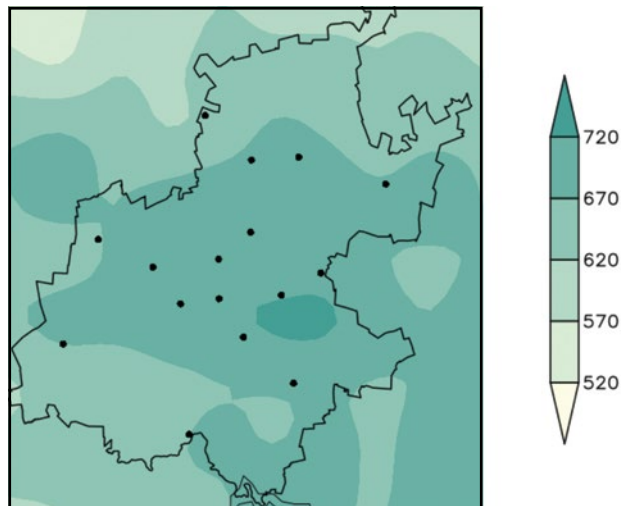
- This fact sheet is part of a series of provincial fact sheets developed by the Wits GCI and SANBI. The fact sheets present a summary of observed and projected changes in climate over the provinces of South Africa. They should be used together with the guidelines presented in the cover page.
- Gauteng is the smallest province in South Africa by land area, covering an area of approximately 18 176 km², with elevation ranging from 820 to 1 900 m above sea level. The highest parts are on the highveld plateau of the central and western parts of the province, complemented by the low parallel ridges and undulating hills of the Magaliesberg range.
- The province has a subtropical highland climate, characterised by warm, wet summers and cool, dry winters. Thunderstorms occurring within tropical-temperate cloud bands contribute to most of the summer rainfall.



Observed climate: rainfall (1981–2000)

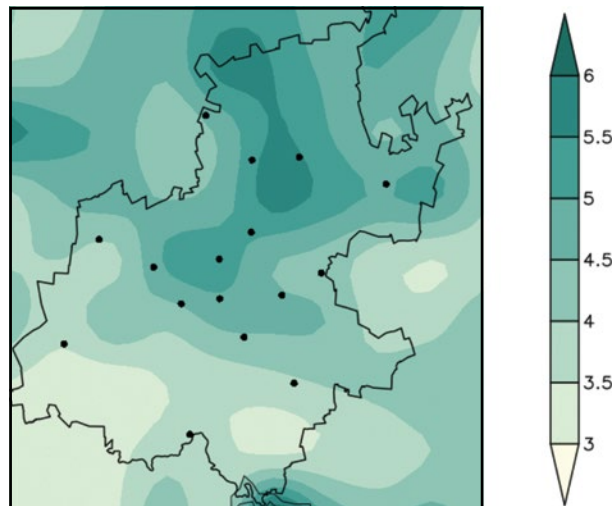
Mean annual rainfall

Mean annual rainfall ranges from 620 mm in the northern and southern parts of the province to 720 mm over the greater part of the central highveld plateau.



Extreme rainfall days

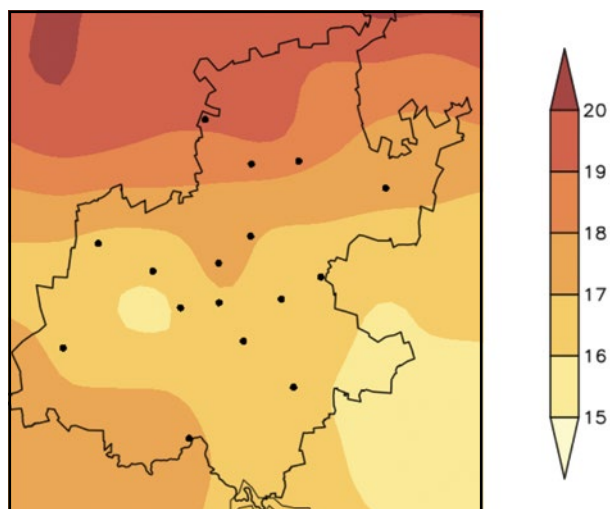
Observed number of extreme rainfall days range from 3 to 4.5 days over the southern highlands and to 6 days in the northern and central parts.



Observed climate: temperature (1981–2000)

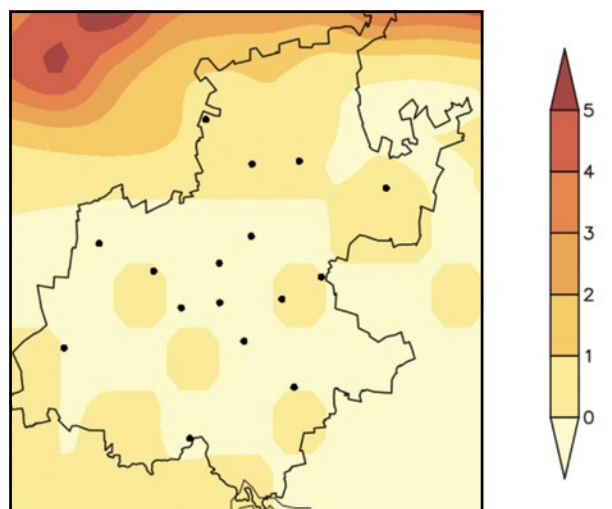
Mean annual temperature

Mean annual temperature ranges from 15 °C to 17 °C in the central highveld plateau and to 20 °C over the northern lower elevation areas.



Very hot days

Mean annual number of very hot days range from 0 to 1 over the central highveld plateau and to 2 days over the northern parts of the province.

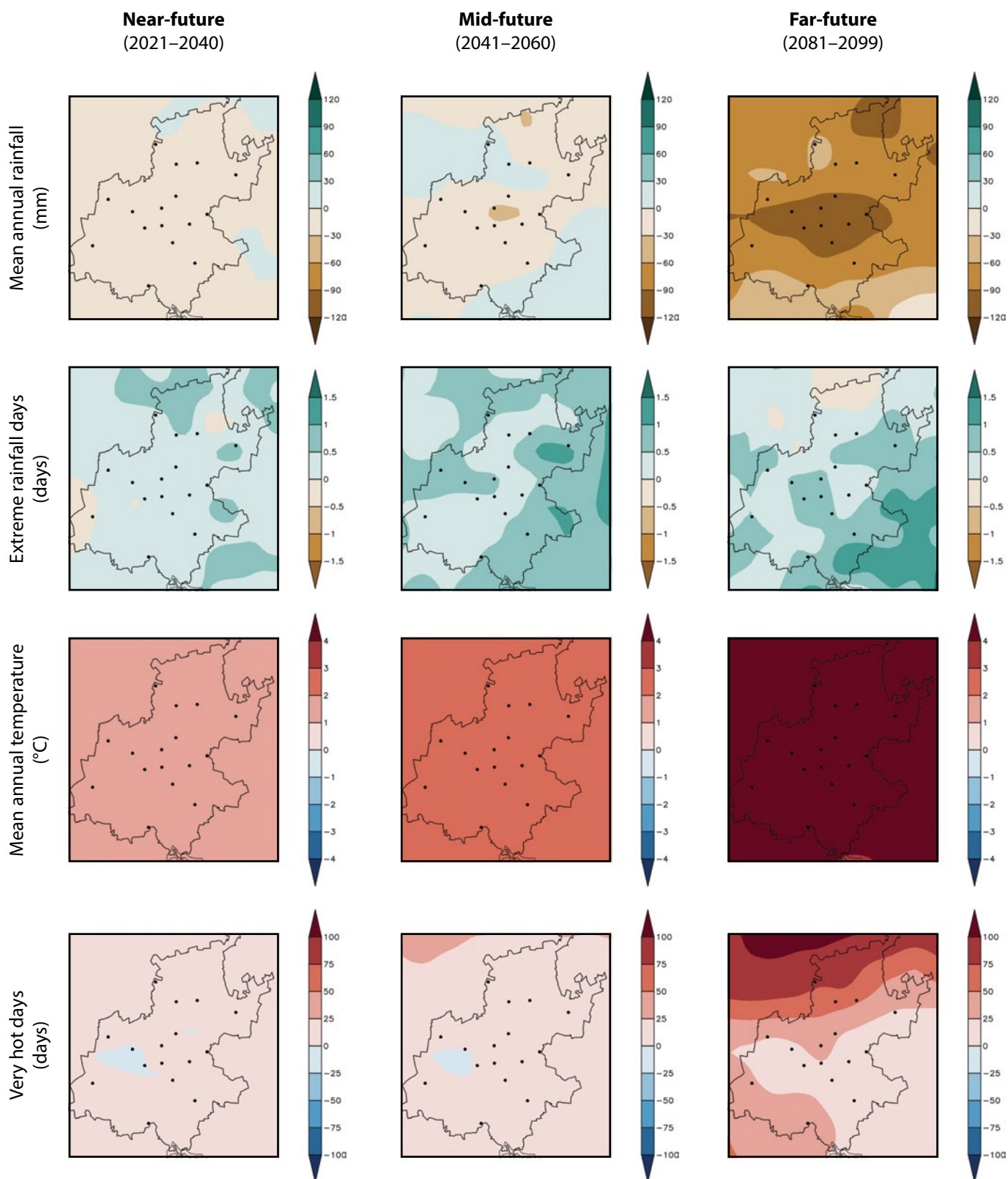


Observed climate trends (overview)

- 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 in the near- and mid-future (*low confidence*) and far-future (*medium confidence*).
- 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 near- to mid-future (*low to medium confidence*) and far-future (*medium to high confidence*).



Projected future climate change (*detailed*)

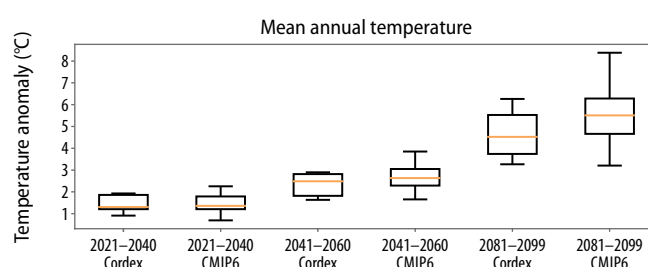
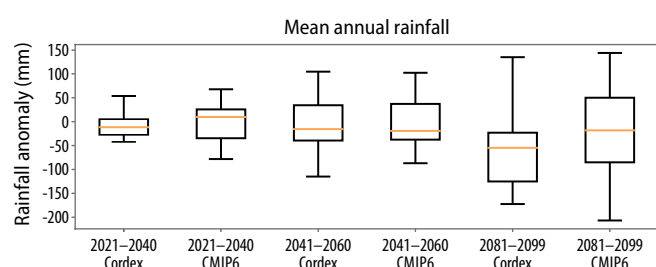
Near- and mid-future

- Projected general decrease in rainfall over most of the province in the near- and mid-future (*low confidence*).
- Projected increases in extreme rainfall events are *likely*.
- Projected increase in temperature and warm extremes (*virtually certain*), with decreases in cold extremes (*very likely*).
- Projected increase in agricultural (*medium confidence*) and meteorological drought (*low confidence*).

Far-future

- Projected decrease in rainfall over the entire province (*medium confidence*), with the largest decreases occurring over the central highveld plateau.
- Projected increases in extreme rainfall events are *likely*.
- Projected increase in temperature and warm extremes over the entire province (*virtually certain*).
- Projected increase in agricultural (*high confidence*) and meteorological drought (*medium confidence*).

Climate model projections: model agreement and uncertainties



Mean annual rainfall

- Averaged across the province, rainfall decreases in the near- and mid-future are *more likely than not*.
- There is *medium confidence* of general rainfall decreases 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 (*high confidence*).

Mean annual temperature

- Temperature increases averaged across the province are *virtually certain* in the near-future and may be as high as 1.9 °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*).

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