



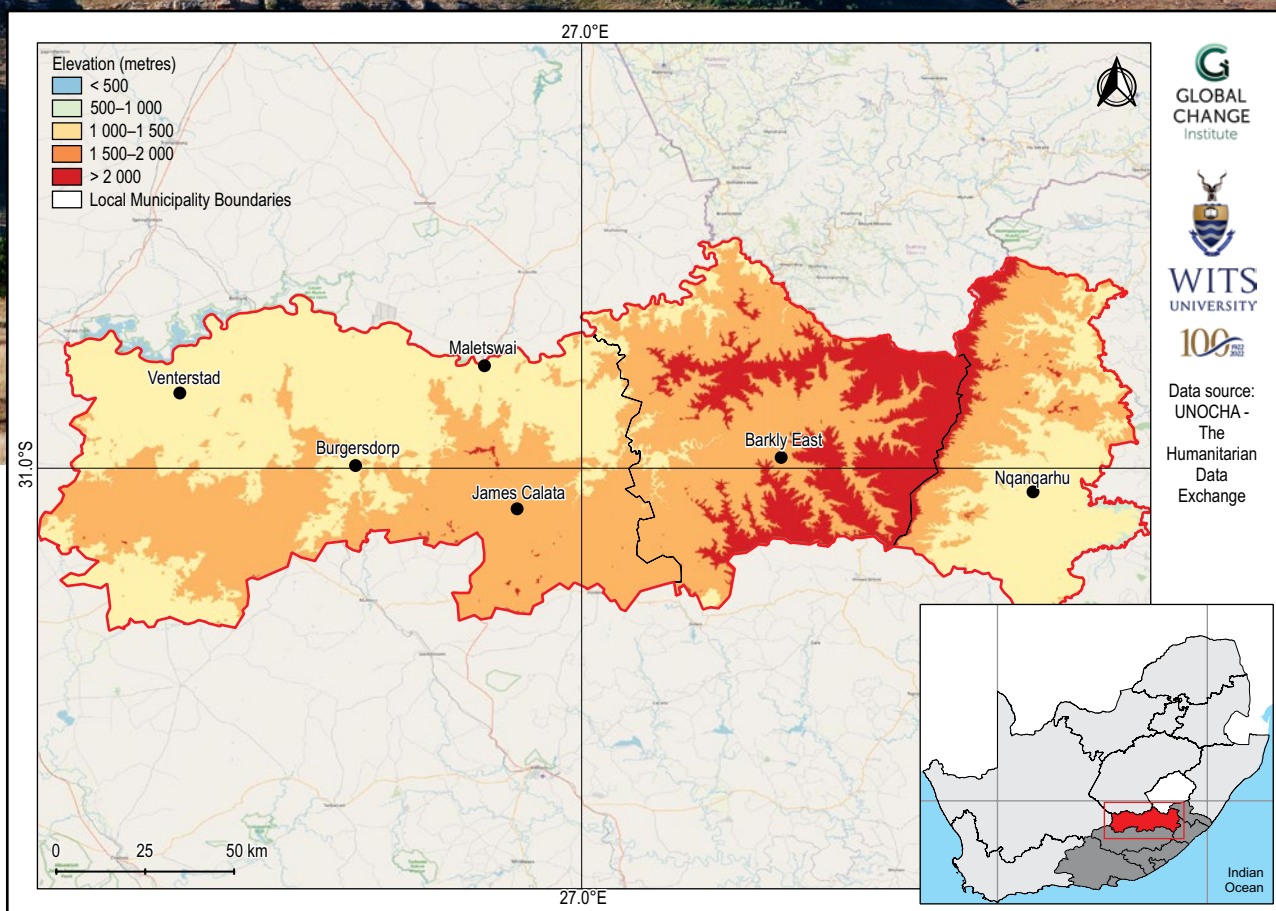
Joe Gqabi District Municipality climate change fact sheet

Eastern Cape, 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.
- Joe Gqabi District Municipality covers an area of approximately 25 663 km², with elevations ranging from 1 000 m above sea level in the northwestern lowlands, which include the Orange River Valley, to just over 2 500 m above sea level in the Drakensberg escarpment in the east.
- The district is in South Africa's summer-rainfall region and typically experiences warm, wet summers and cool, dry winters. The cooler high-altitude regions in the east occasionally experience snowfall in winter.



Observed climate: rainfall (1981–2000)

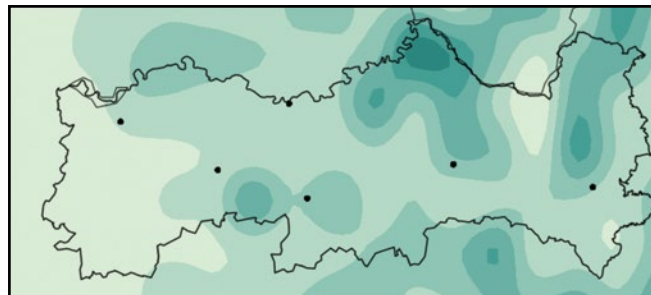
Mean annual rainfall

Mean annual rainfall ranges from 400 mm in the drier western parts to 800 mm in the eastern mountainous parts.



Extreme rainfall days

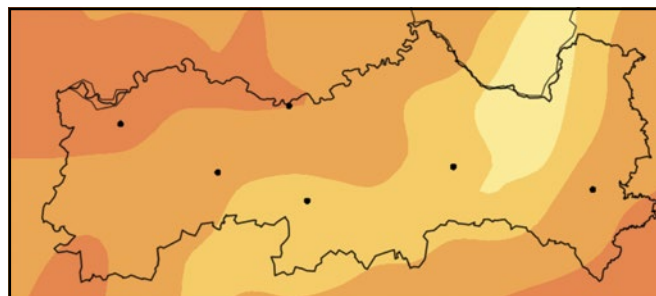
The mean annual number of extreme rainfall days range from 1 day in the west to as many as 7 days in the northern mountains.



Observed climate: temperature (1981–2000)

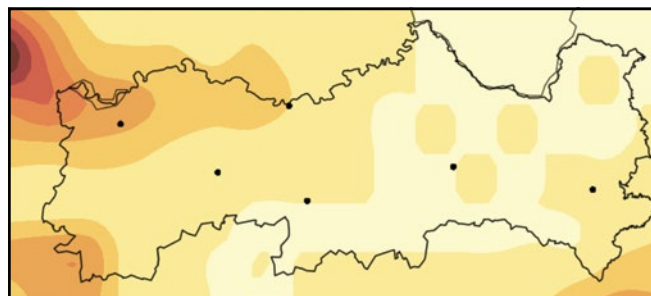
Mean annual temperature

Mean annual temperature ranges from 10 °C over the eastern Drakensberg region to 18 °C in the northwestern Orange River Valley.



Very hot days

Mean annual number of very hot days range from 0 days over the southern border and mountainous regions in the east, to 3 days in the northwestern Orange River Valley.



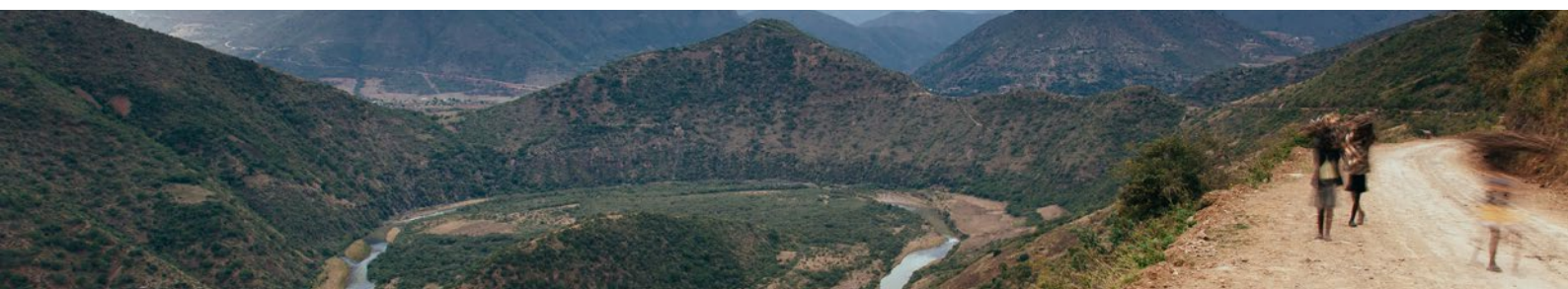
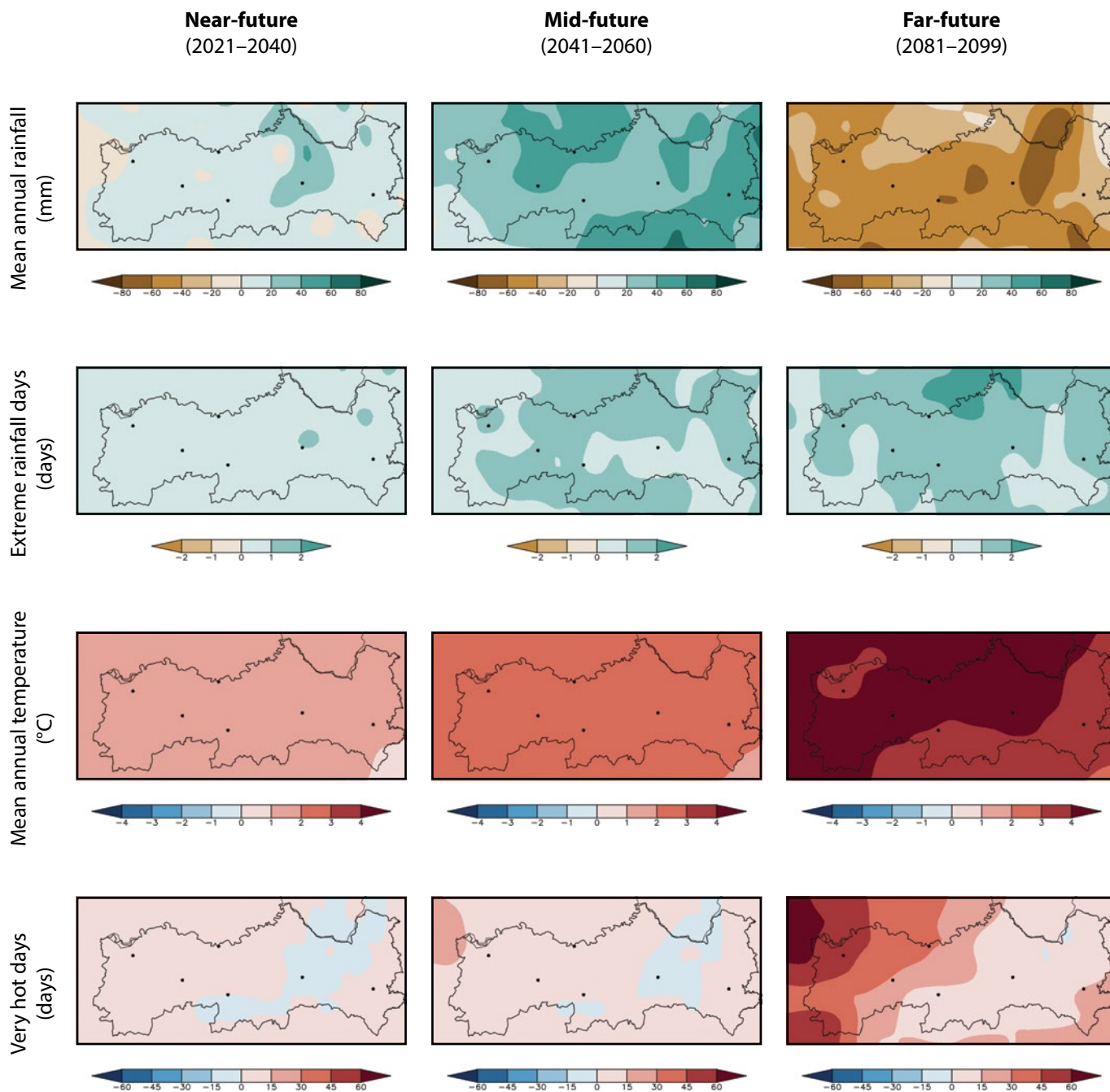
Observed climate trends (overview)

- Observed increase in mean annual rainfall over the Drakensberg (*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 changes in mean annual rainfall are *uncertain*. Rainfall reductions are *likely* in the far-future.
- Projected increase in the frequency of extreme rainfall events (*high confidence*).
- Projected increase in mean annual temperatures and warm extremes (*virtually certain*); decrease in cold extremes (*high confidence*).
- Projected increase in agricultural and meteorological drought in the far-future (*high confidence*).



Projected future climate change (*detailed*)

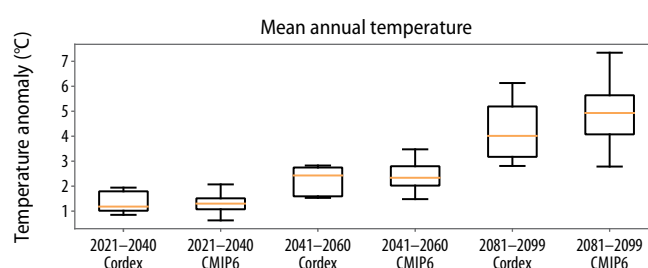
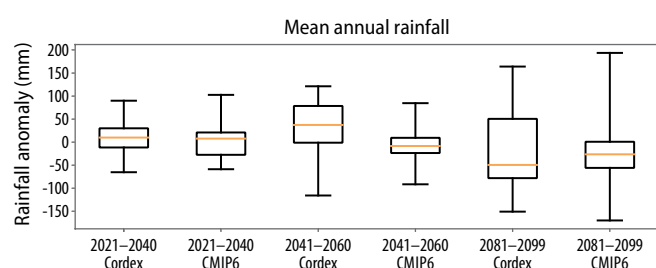
Near- and mid-future

- Projected increase in rainfall (*low confidence*).
- 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 (*low confidence*).

Far-future

- Projected decrease in rainfall (*likely*).
- Projected increase in the frequency of 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 (*likely*).

Climate model projections: model agreement and uncertainties



Mean annual rainfall

- Averaged across the district, projected changes in rainfall for the near- and mid-future are *uncertain*.
- General rainfall decreases are *likely* 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 near- and mid-future (*low confidence*) and far-future (*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 2.5 °C in the mid-future and 5.0 °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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