

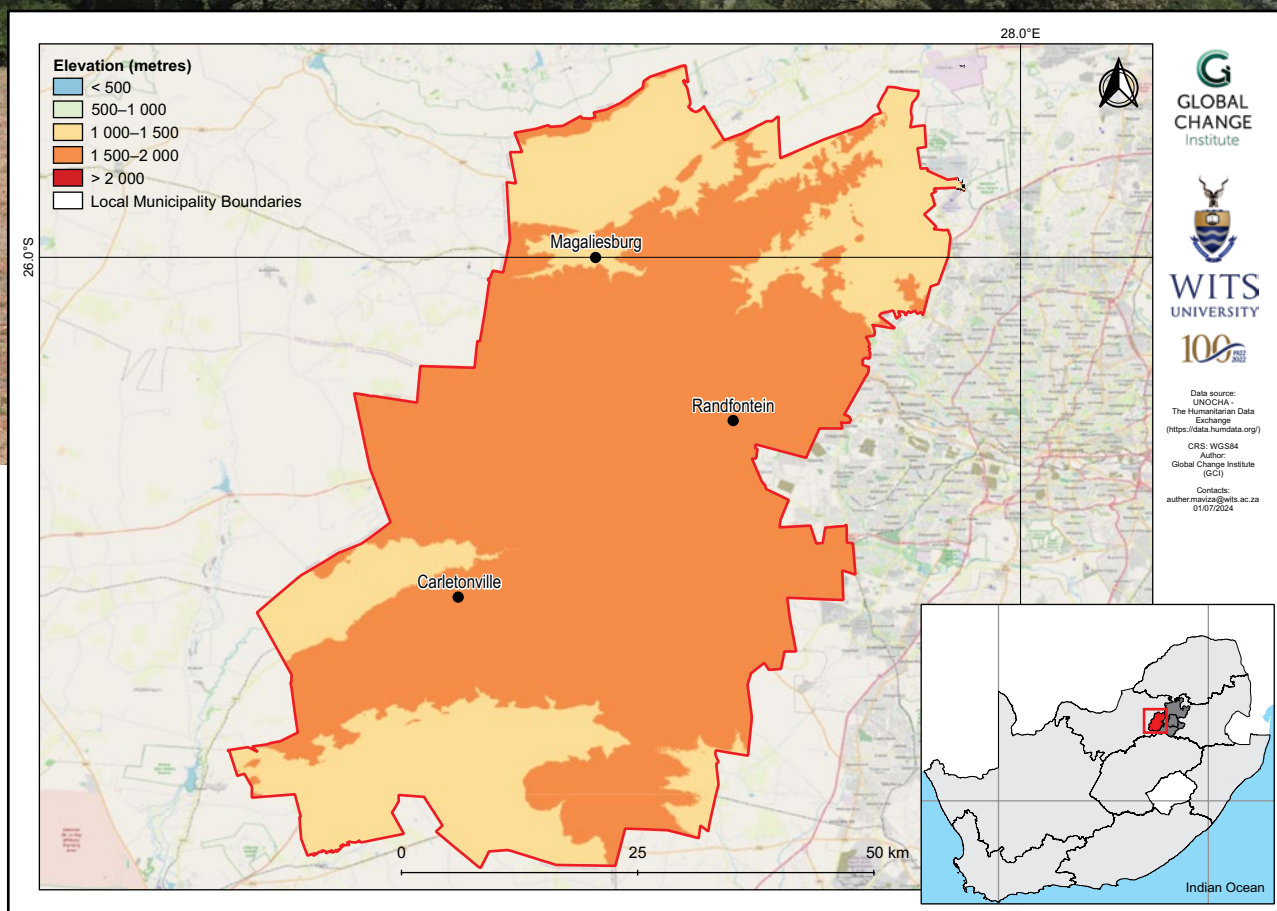
West Rand District Municipality climate change fact sheet

Gauteng, South Africa

MUNICIPAL

Introduction

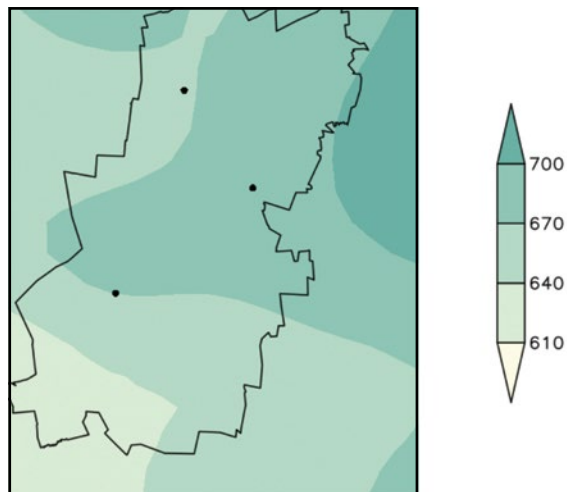
- This fact sheet is part of a series of district municipality fact sheets developed by the Wits GCI and SANBI. The fact sheets present a summary of observed and projected changes in climate over district municipalities in South Africa. They should be used together with the guidelines presented in the cover page.
- West Rand District Municipality covers an area of approximately 4 087 km² with an elevation ranging from 1 300 m over the gently sloping plains to 1 800 m above sea level in the higher ridges including the Magaliesberg range in the north.
- The district experiences a semi-arid to subtropical climate, with distinctly dry winters and rainy summers. Higher rainfall amounts occur in the elevated areas with frequent summer thunderstorms.



Observed climate: rainfall (1981–2000)

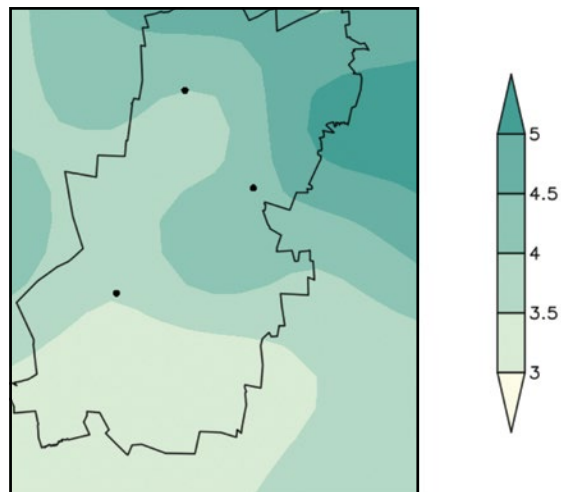
Mean annual rainfall

Mean annual rainfall ranges from 610 mm over the southern plains up to 700 mm over the central highveld and north-eastern parts of the district.



Extreme rainfall days

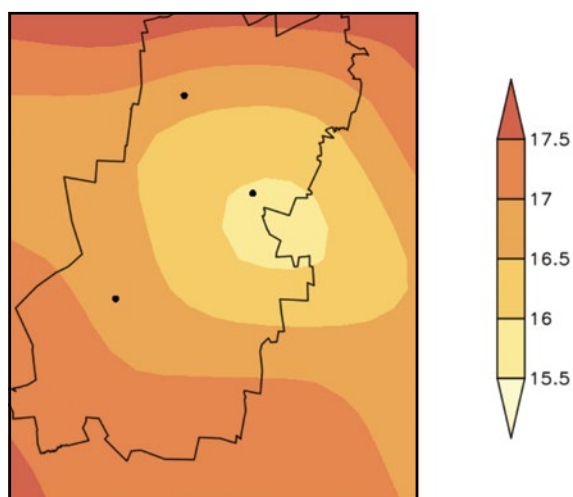
The number of extreme rainfall days range from 3 days over the southern parts to 5 days over northeastern parts of the district.



Observed climate: temperature (1981–2000)

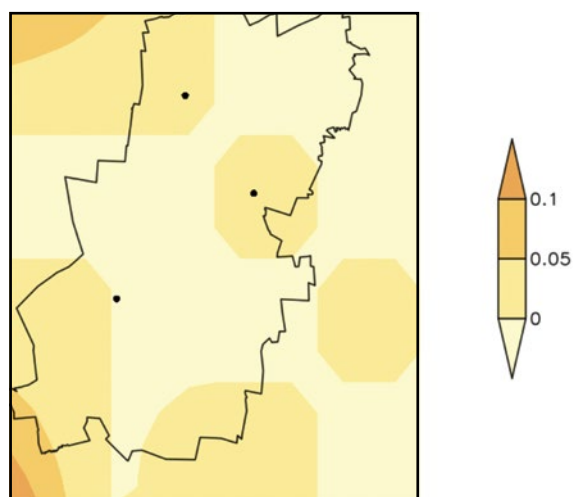
Mean annual temperature

Mean annual temperature ranges from 15 °C to 16 °C over the eastern and central highveld parts, to about 17.5 °C over the northern border parts.



Very hot days

Due to the high altitude, less than 1 very hot day occurs on average per year at a given location within the district.

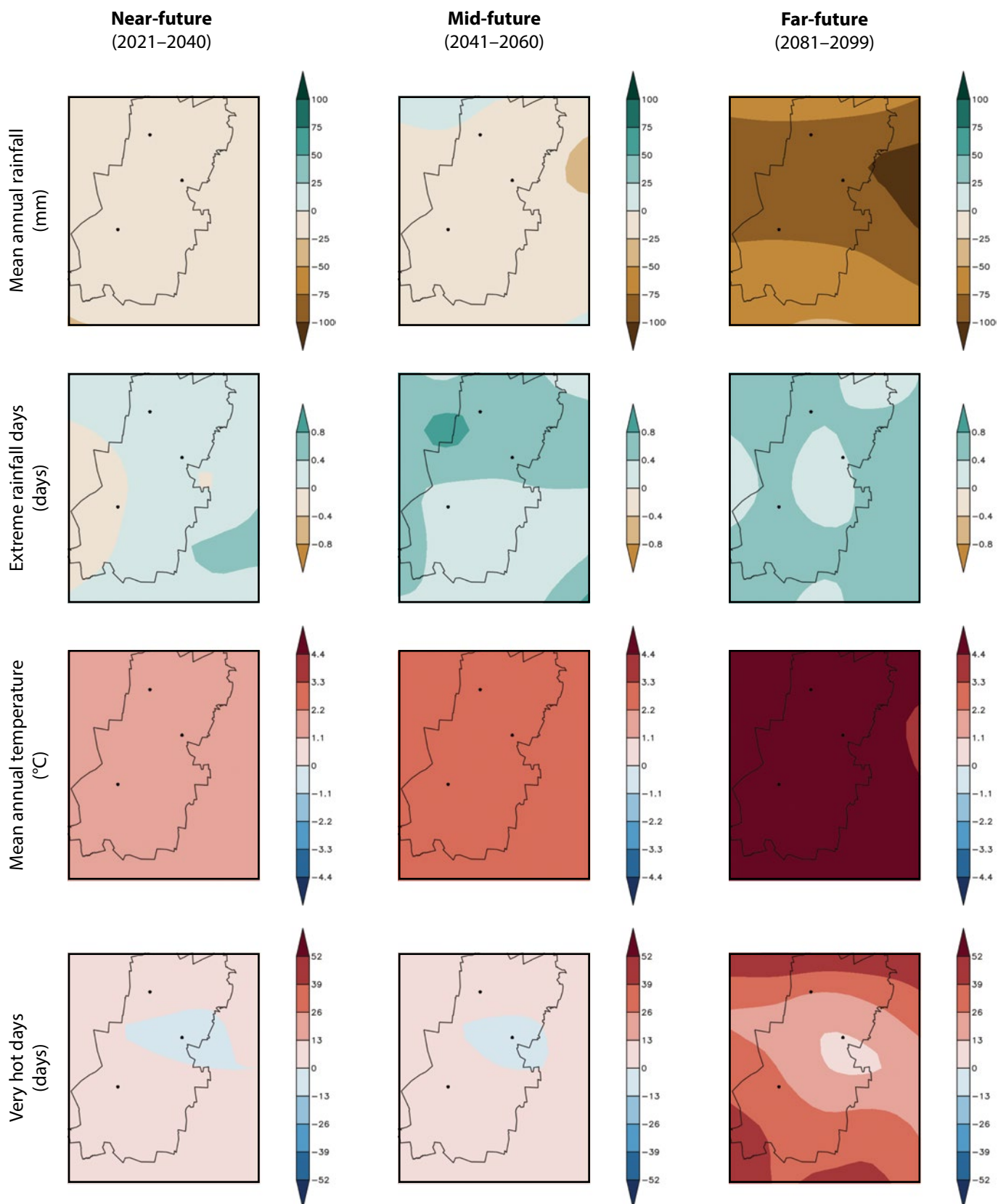


Observed climate trends (overview)

- 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 increase in meteorological and agricultural drought (*low confidence*).

Projected future climate change (overview)

- Projected 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*)

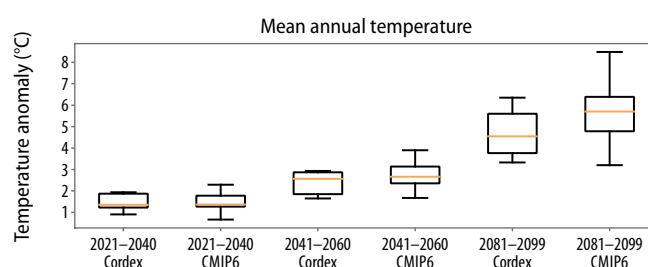
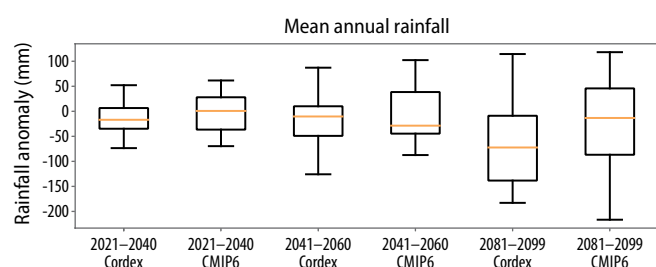
Near- and mid-future

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

Far-future

- Projected decrease in mean annual rainfall (*medium confidence*), with the largest decreases occurring over the central highveld region.
- Projected increases in extreme rainfall events over the entire district are *likely*.
- Projected increase in temperature and warm extremes (*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 district, rainfall decreases in the near- and mid-future are *more likely than not*.
- There is *medium confidence* of general rainfall decreases in the district 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 district 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:

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