



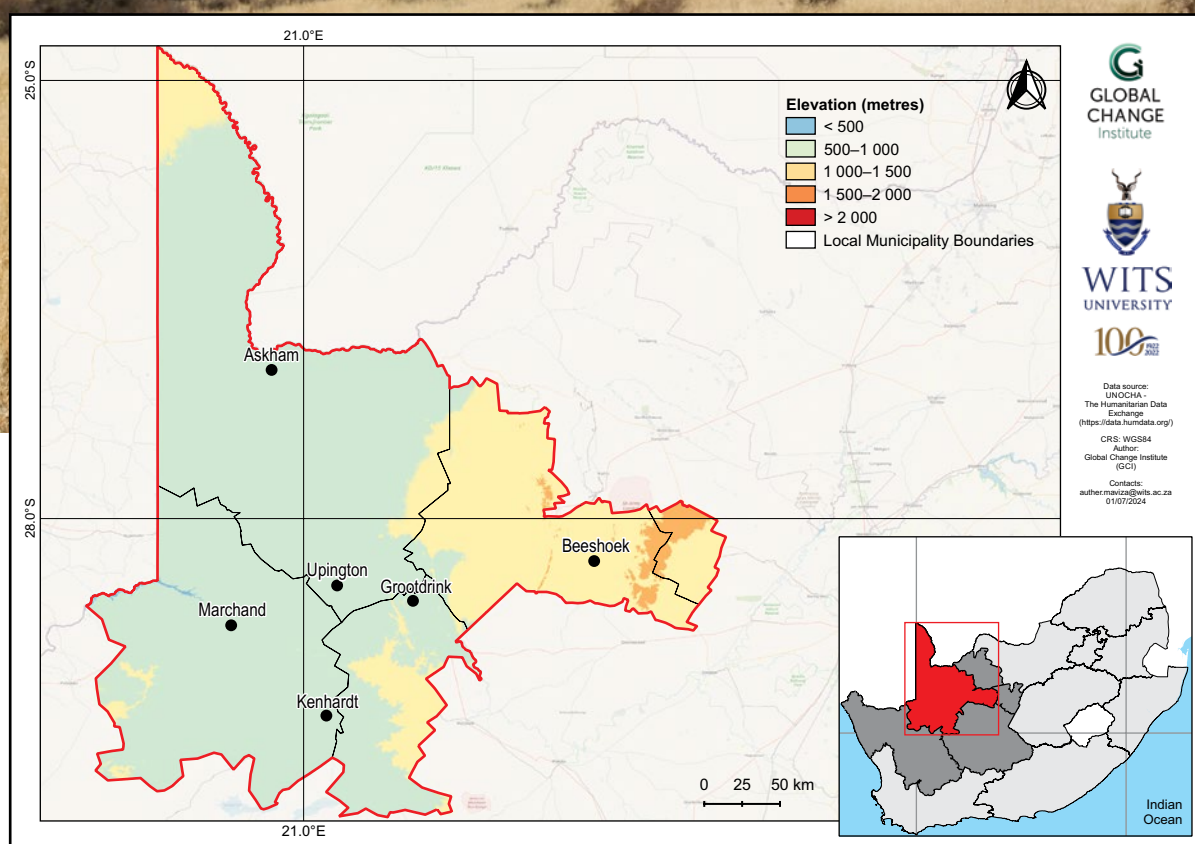
# Zwelentlanga Fatman Mgcawu District Municipality climate change fact sheet

## Northern Cape, South Africa

## MUNICIPAL

### Introduction

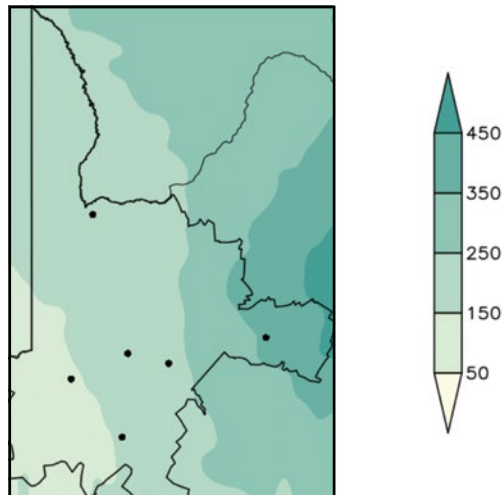
- This fact sheet is part of a series of district municipality fact sheets developed by the Wits GCI and SANBI. The fact sheets present a summary of observed and projected changes in climate over district municipalities in South Africa. They should be used together with the guidelines presented in the cover page.
- ZF Mgcawu District Municipality covers an area of approximately 102 484 km<sup>2</sup>, with elevation ranging from 800 to 1 200 m above sea level, comprising mostly flat or gently undulating plains with some hilly areas in the southern and eastern parts.
- The district experiences an arid to semi-arid climate, with very hot summers and mild winters. Rainfall is typically low and sporadic, mainly occurring during the summer months.



## Observed climate: rainfall (1981–2000)

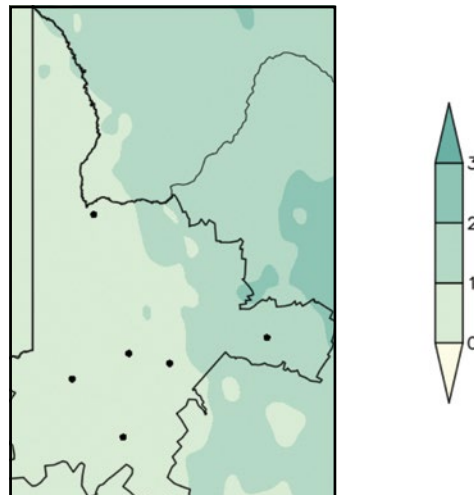
### Mean annual rainfall

Mean annual rainfall ranges from 50 mm over southwestern parts to 450 mm over the easternmost higher elevation parts.



### Extreme rainfall days

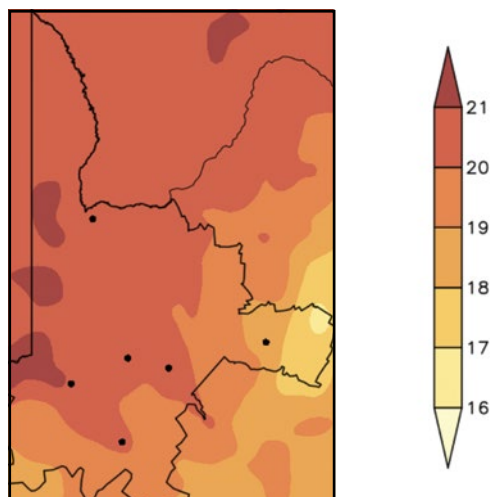
Observed average annual number of extreme rainfall days range from less than 1 day over central to western parts to 2 days over the eastern parts.



## Observed climate: temperature (1981–2000)

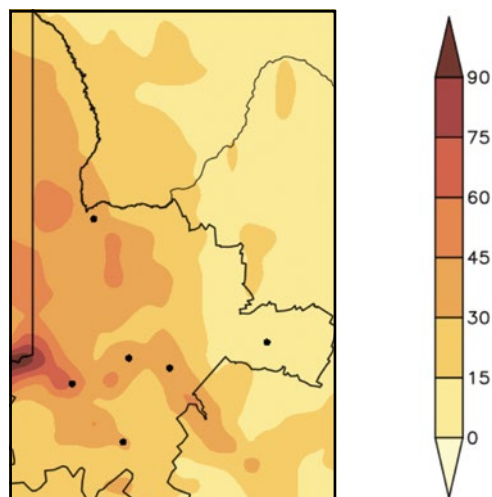
### Mean annual temperature

Mean annual temperature ranges from 16 °C over the eastern parts to 21 °C over the central to westernmost parts.



### Very hot days

On average, less than 15 very hot days occur per year in the eastern parts, with more than 45 days occurring in the Orange River valley in the west and north of the district.

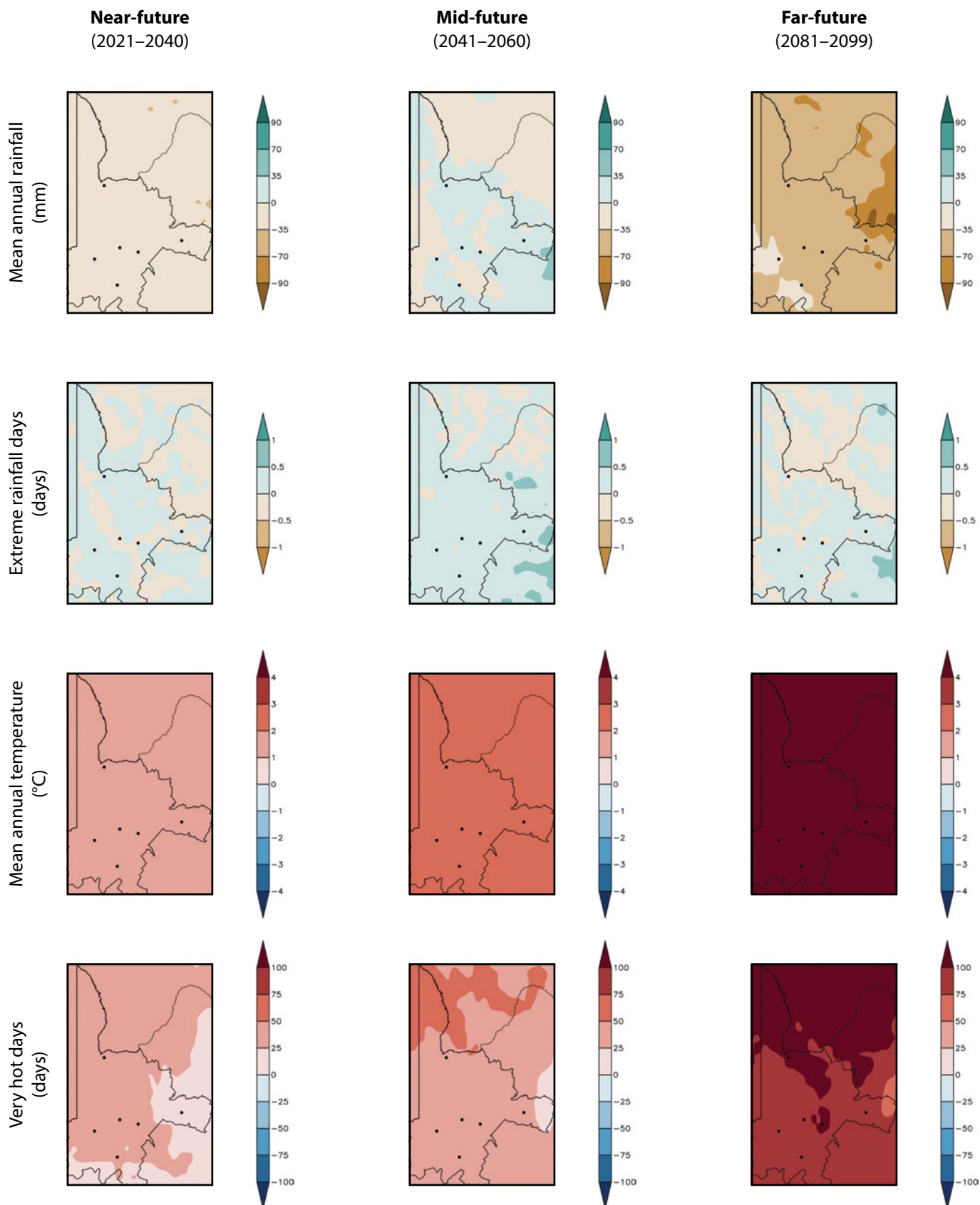


## Observed climate trends (overview)

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

## Projected future climate change (overview)

- Projected decrease in mean annual rainfall in the near-future (*medium confidence*) and mid- and far-future (*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*)

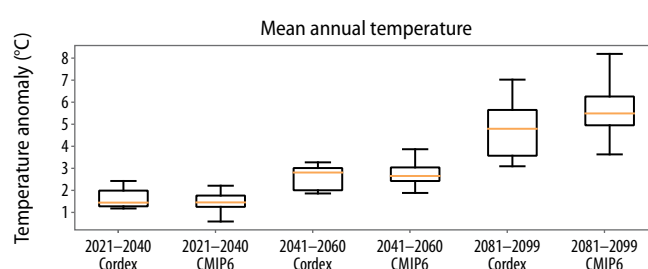
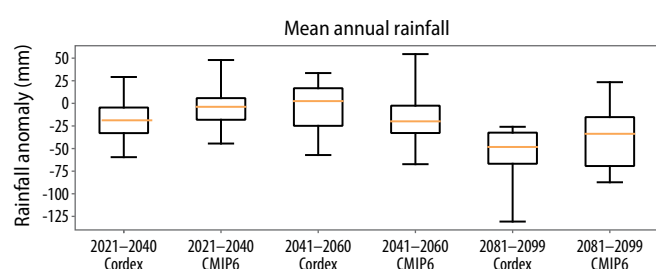
### Near- and mid-future

- Projected decrease in rainfall in the near-future (*medium confidence*) and in the mid-future (*likely*).
- Projected increase in extreme rainfall events (*likely*).
- Projected increase in temperature and warm extremes (*virtually certain*).
- Projected increase in agricultural and meteorological drought (*likely*).

### Far-future

- Projected decrease in rainfall over the entire district (*very likely*).
- Projected increase in extreme rainfall events (*likely*).
- Projected increase in temperature and warm extremes (*virtually certain*), with drastic increases over the northern region.
- Projected increase in agricultural and meteorological drought (*very likely*).

## Climate model projections: model agreement and uncertainties



### Mean annual rainfall

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