



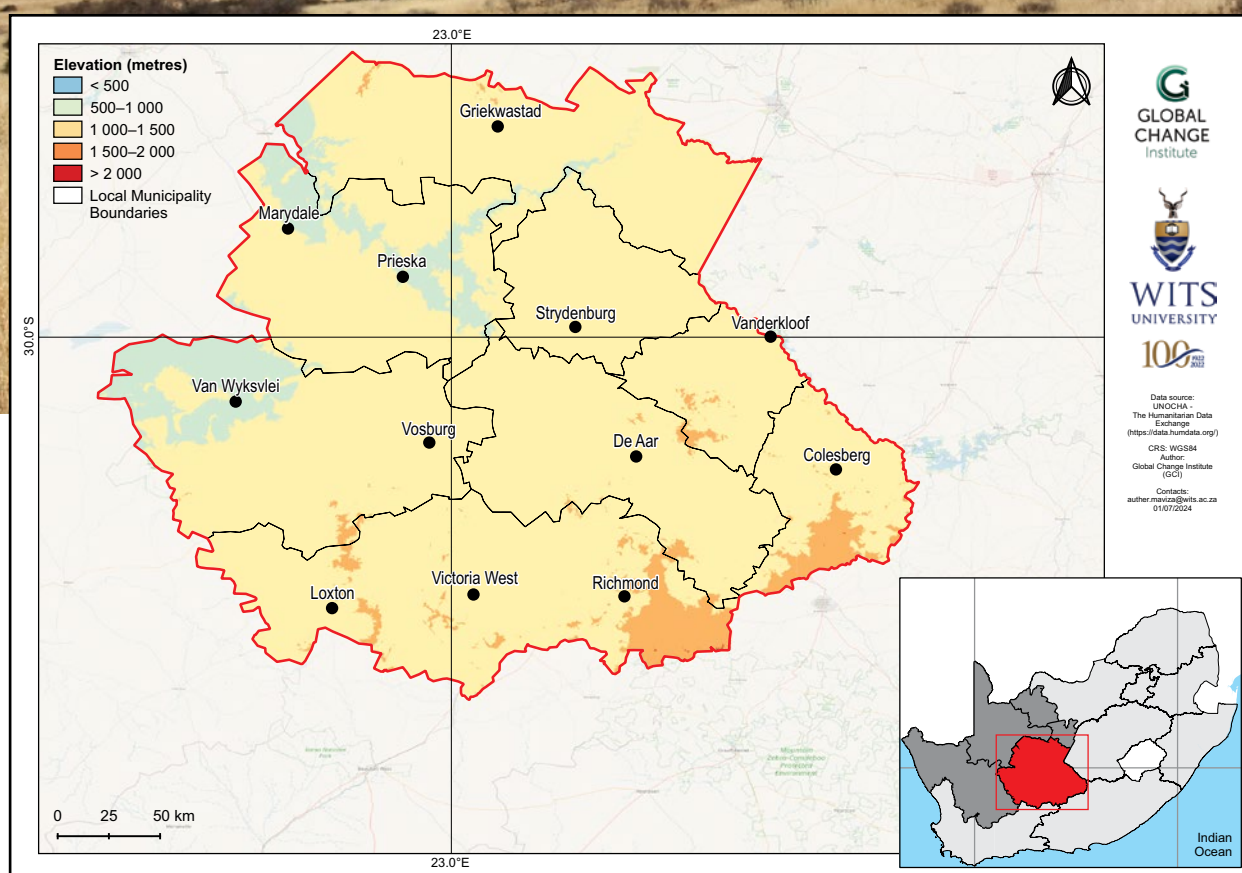
# Pixley Ka Seme District Municipality climate change fact sheet

## Northern Cape, South Africa

## MUNICIPAL

### Introduction

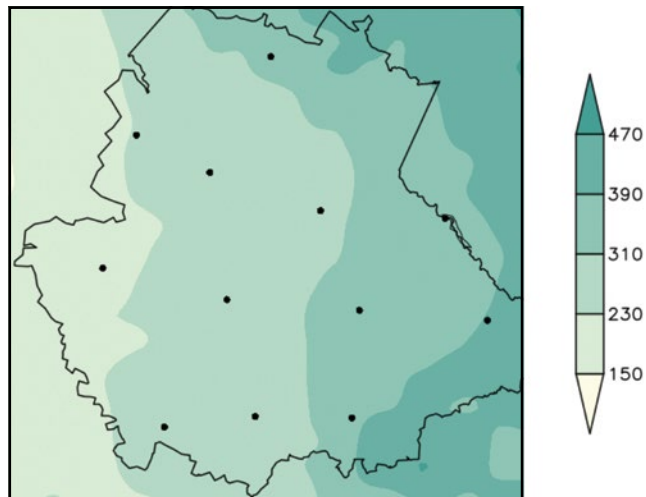
- This fact sheet is part of a series of district municipality fact sheets developed by the Wits GCI and SANBI. The fact sheets present a summary of observed and projected changes in climate over district municipalities in South Africa. They should be used together with the guidelines presented in the cover page.
- Pixley Ka Seme District Municipality covers an area of 102 727 km<sup>2</sup> with a predominantly flat topography, elevation ranging from 500 to 1 500 m above sea level in the mountainous parts along the southeastern border.
- The district experiences an arid to semi-arid climate, with hot summers and cold winters. Rainfall is sporadic and generally low, mainly occurring during the summer months.



## Observed climate: rainfall (1981–2000)

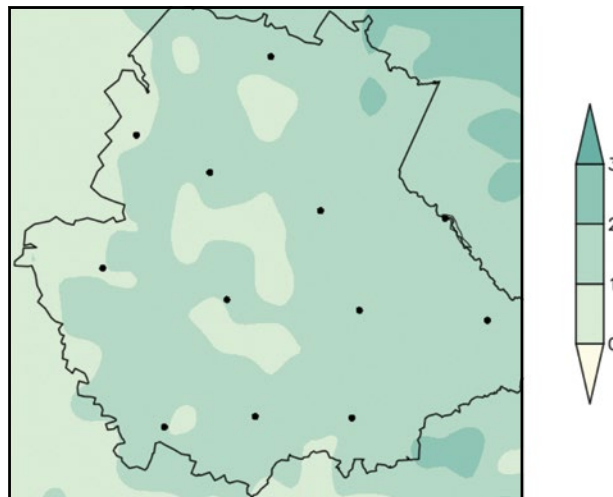
### Mean annual rainfall

Mean annual rainfall ranges from 150 mm in the western region to 470 mm in the southeastern region.



### Extreme rainfall days

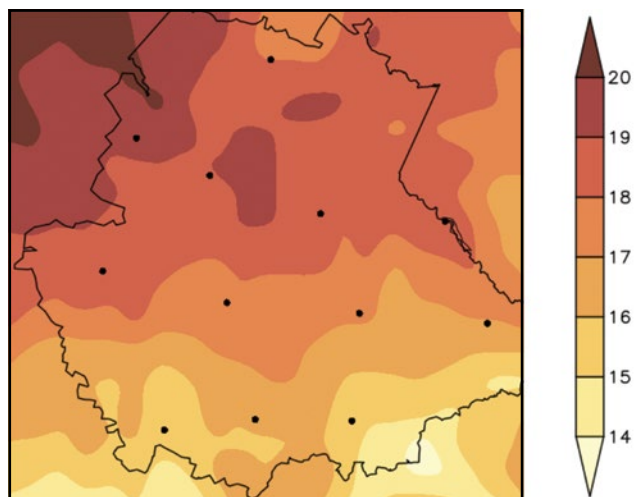
Observed average annual number of extreme rainfall days is generally between 1 to 2 days over the entire district.



## Observed climate: temperature (1981–2000)

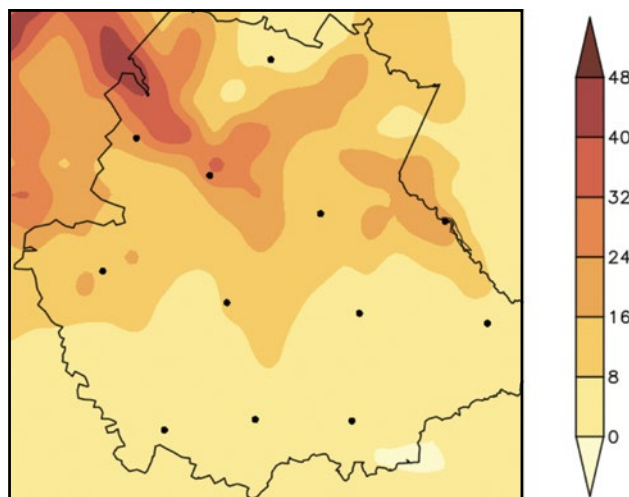
### Mean annual temperature

Mean annual temperature ranges from 14 °C over the southeastern border parts to 20 °C over the northwestern border and interior parts.



### Very hot days

Mean annual number of very hot days range from less than 8 days over the southern region to up to 40 days over the northwestern parts.

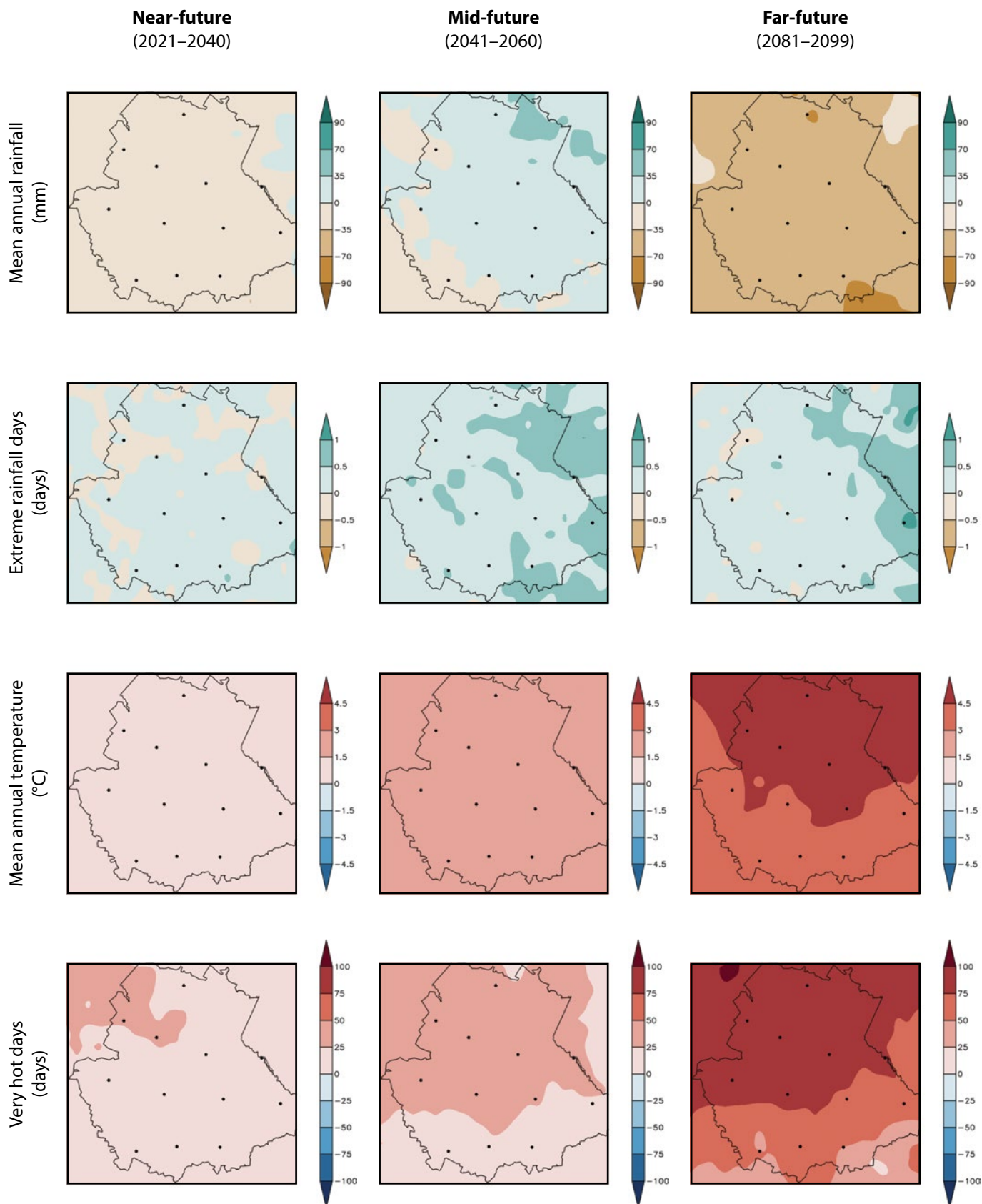


## Observed climate trends (overview)

- 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- and mid-future (*low confidence*) and in the far-future (*high confidence*).
- Projected increase in the frequency of extreme rainfall events (*high confidence*).
- Projected increase in mean annual temperature and extreme warm events (*virtually certain*).
- Projected increase in agricultural and meteorological drought (*high confidence*).



## Projected future climate change (*detailed*)

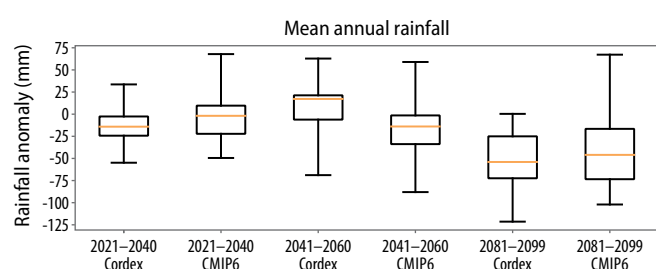
### Near- and mid-future

- Projected decrease in rainfall in the near- and mid-future (*low confidence*).
- Projected increases in extreme rainfall events (*likely*).
- Projected increase in temperature and warm extremes (*virtually certain*), with larger increases over the northern region.
- Projected increase in agricultural and meteorological drought (*likely*).

### Far-future

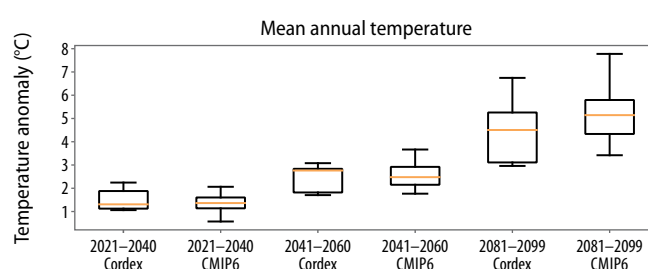
- Projected decrease in rainfall over the entire district (*very likely*).
- Projected increase in extreme rainfall events (*likely*).
- Projected increase in temperature and extreme warm events (*virtually certain*), with larger increases over the northern parts.
- Projected increase in agricultural 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- and mid-future (*low confidence*).
- 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- and 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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