

Overview of Climate Change in Australia and its implications for the Barossa region

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Department for Environment
and Water

CLIMATE CHANGE - THE BASICS

Greenhouse effect (natural)

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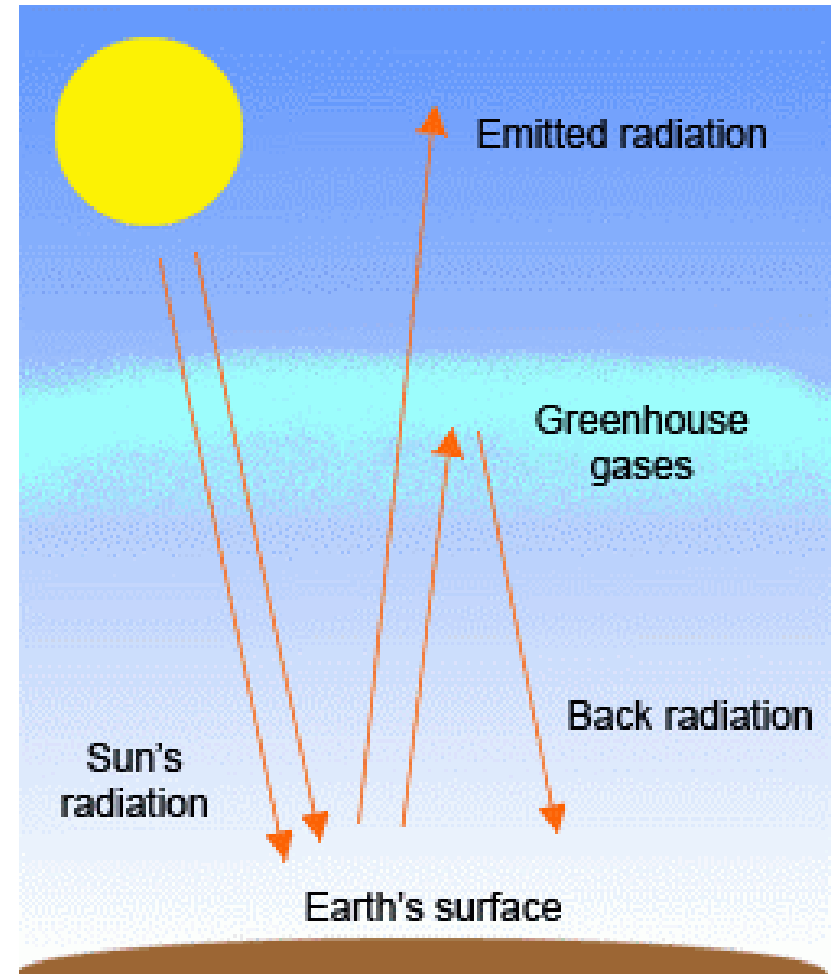
Additional greenhouse gases
(approx. 37 Gt/y) (unnatural)



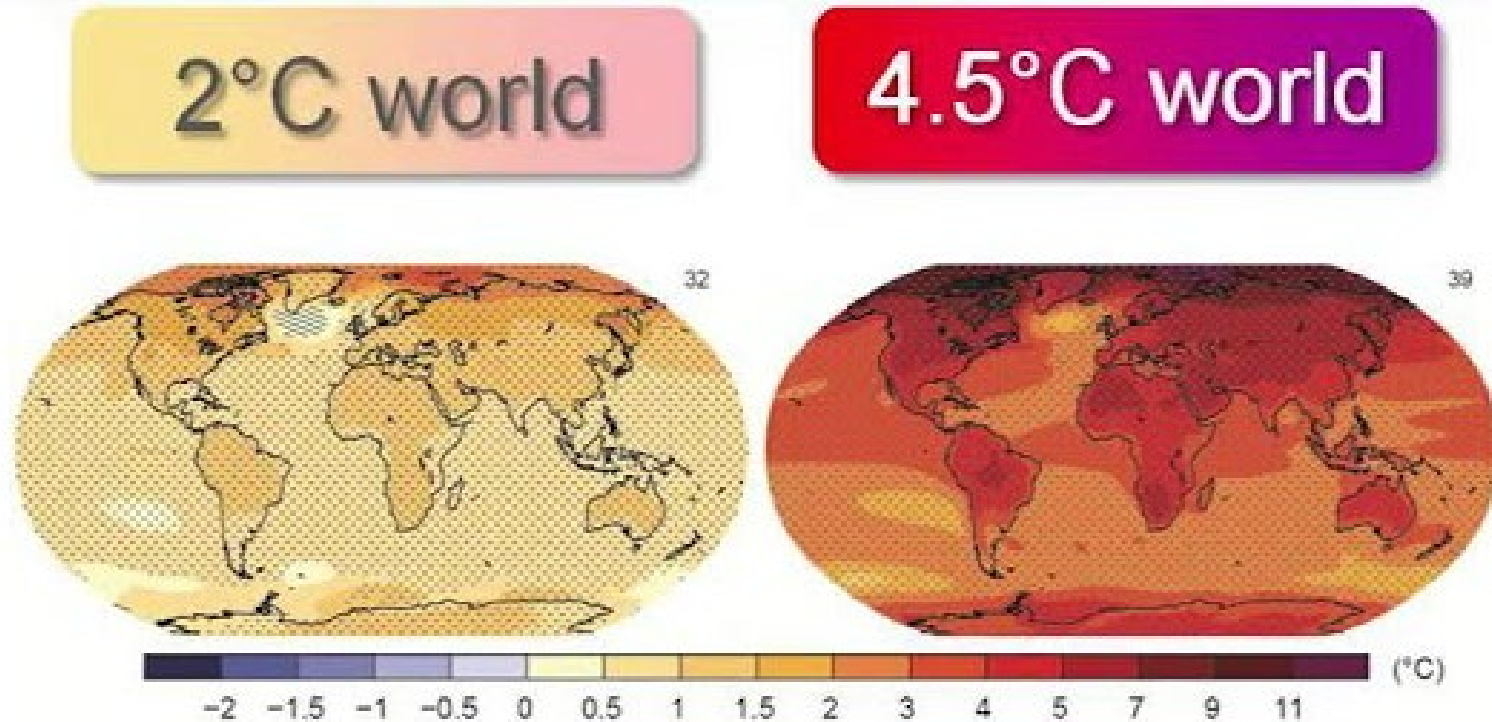
Global warming



Regional climate change

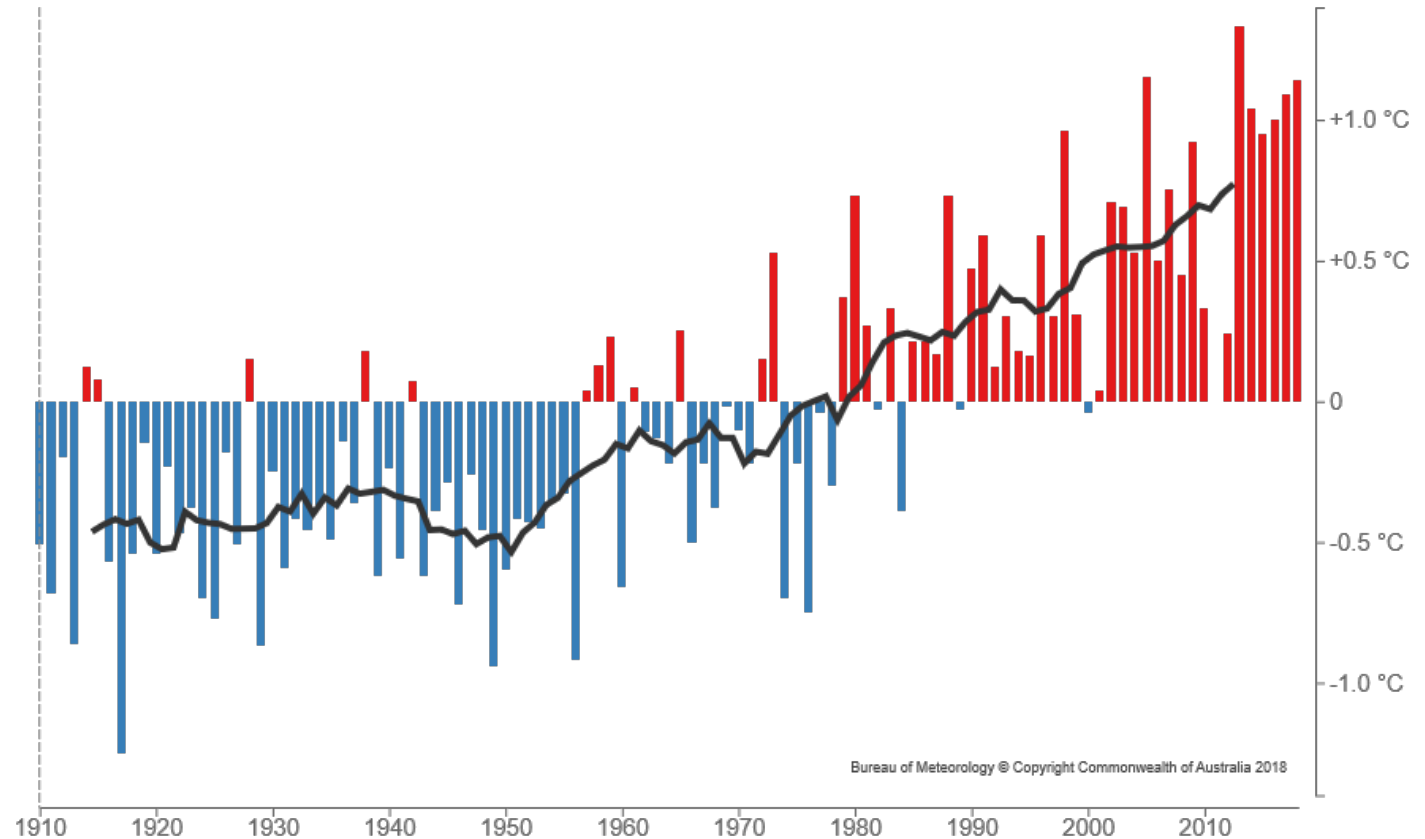


Temperature projections – global



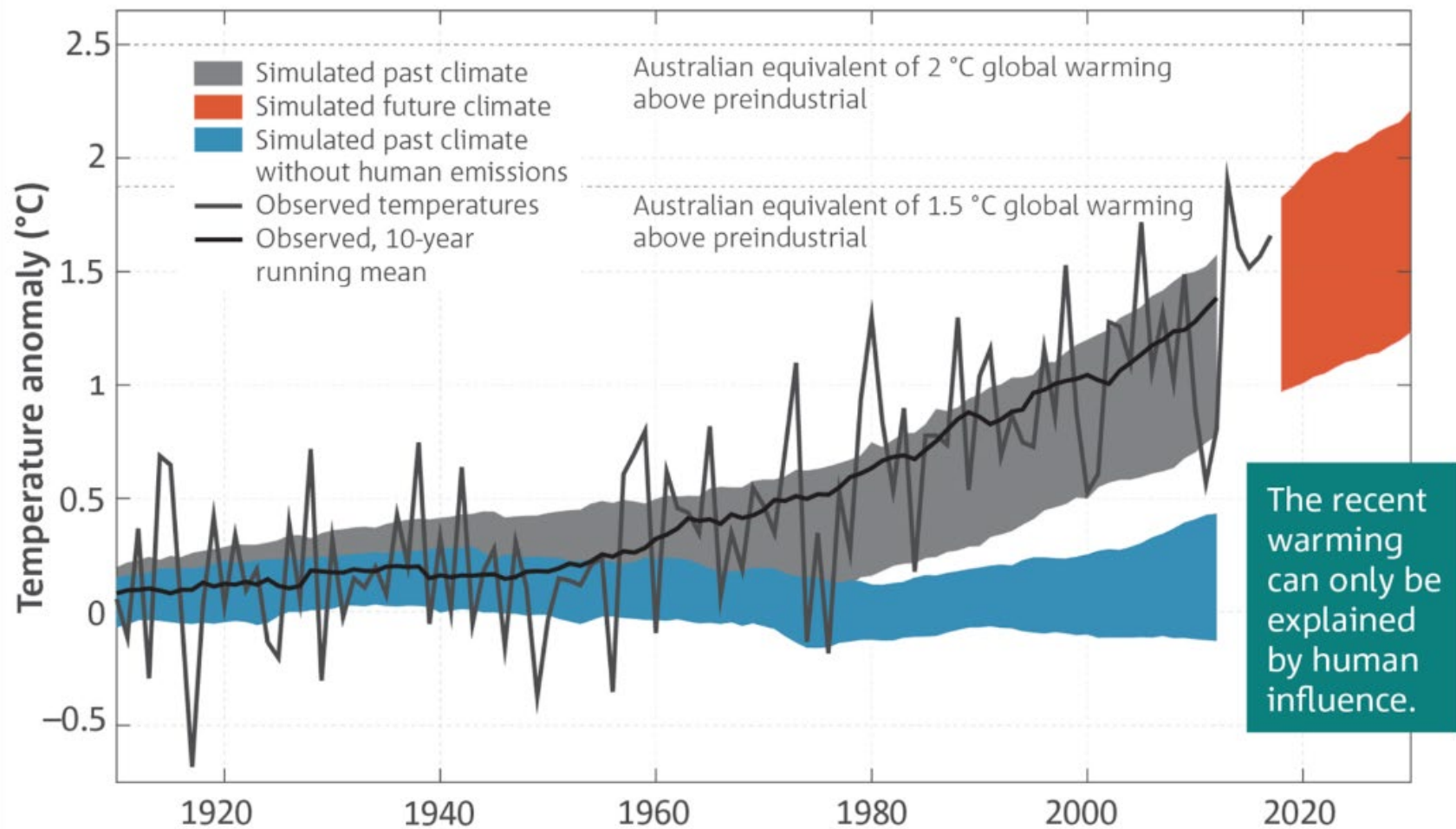
Australian mean temperature anomaly

Australian continent
average annual
temperature anomalies
1910 – 2018
(compared with
1961-1990 average)



Mean temperature anomalies averaged over Australia (as calculated from the 1961-1990 average). The black line shows the 11-year moving average. Roll over or touch each year to view the anomaly.

Source: Bureau of Meteorology 2019



(CSIRO – BoM State of the Climate report 2018)

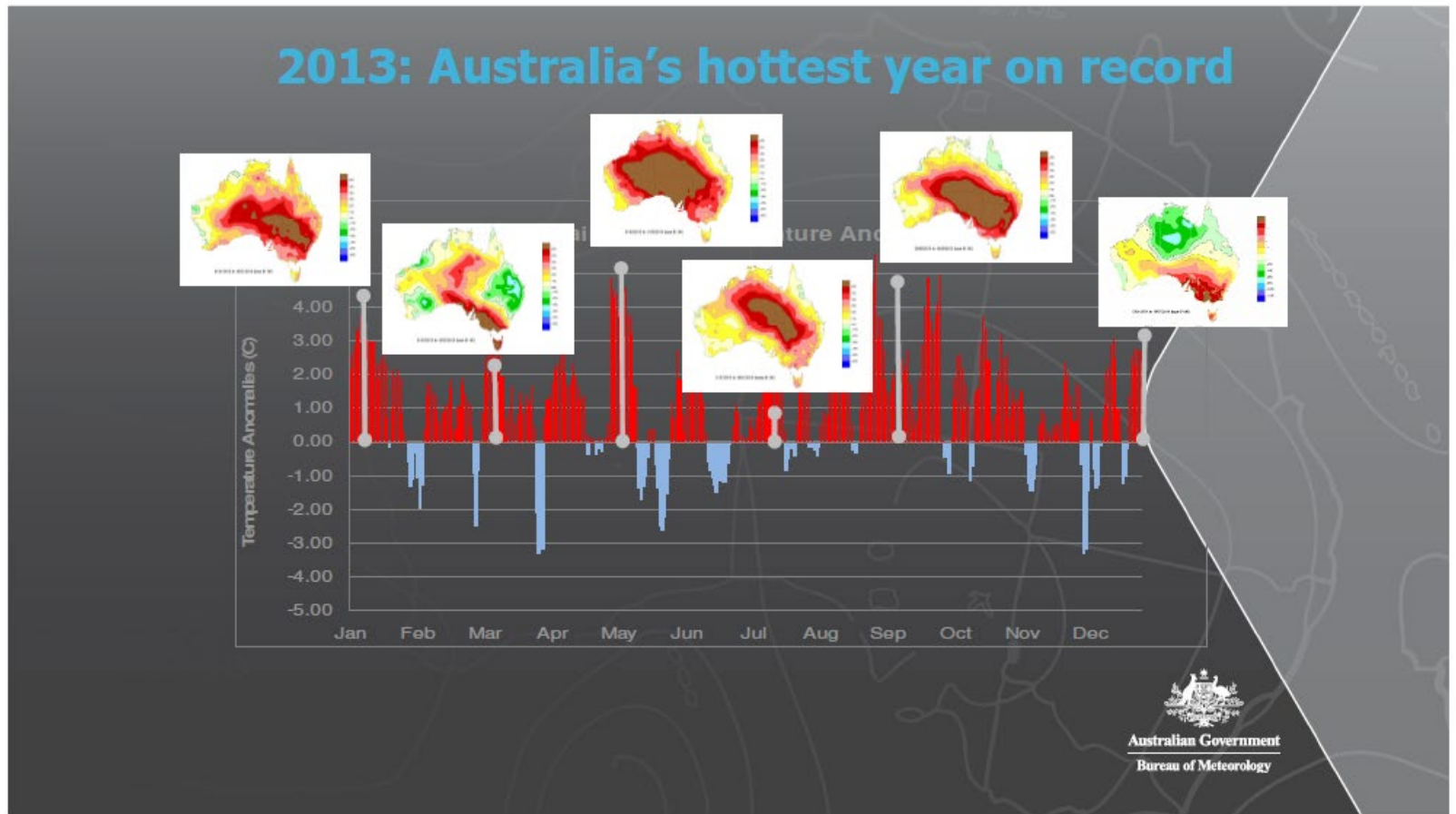
Temperature projections – Adelaide and Mt Lofty Ranges

Projected average annual temperature changes compared with 1986 – 2005



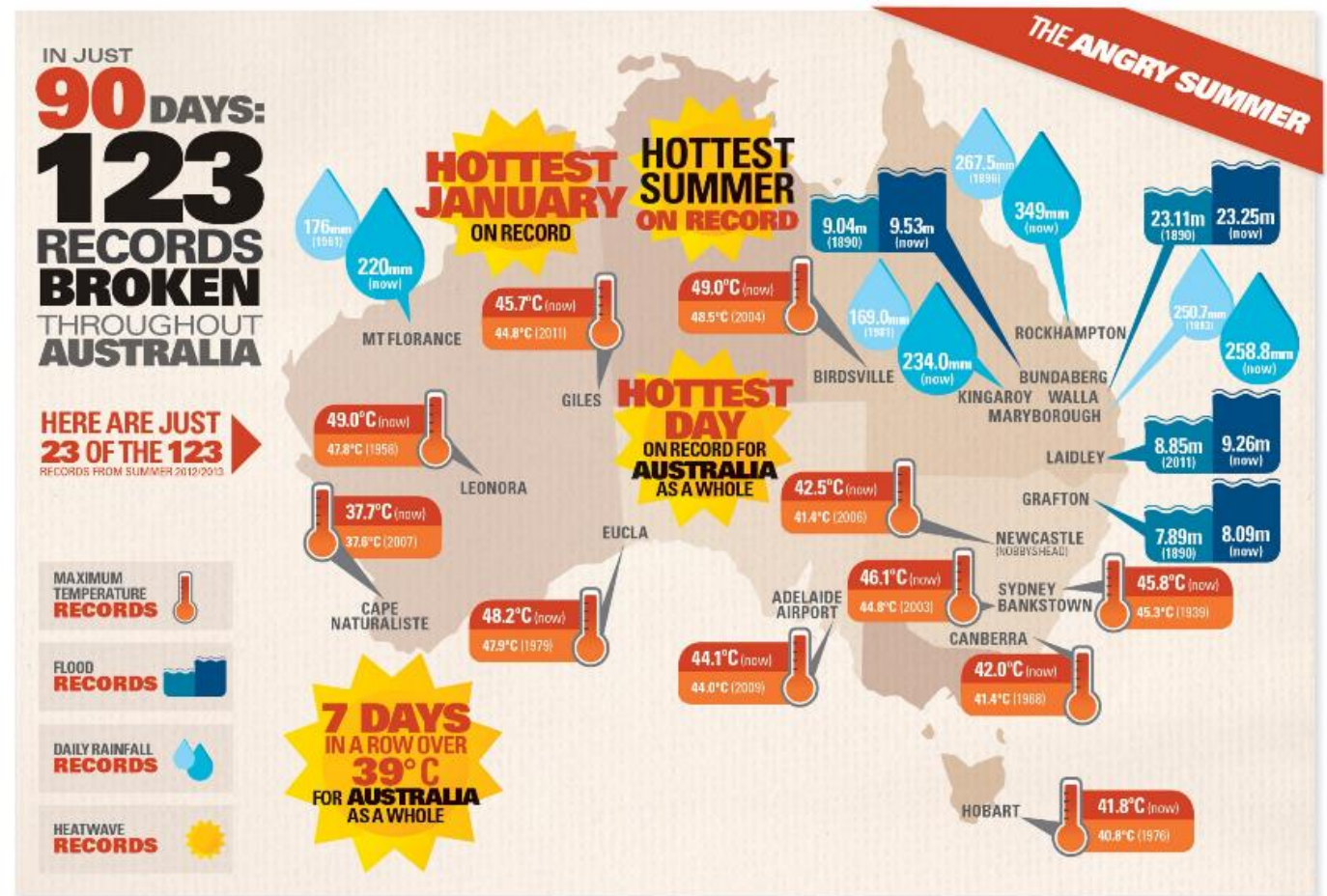
(Source: SA Climate Ready)

2013 Australia's
hottest year on
record



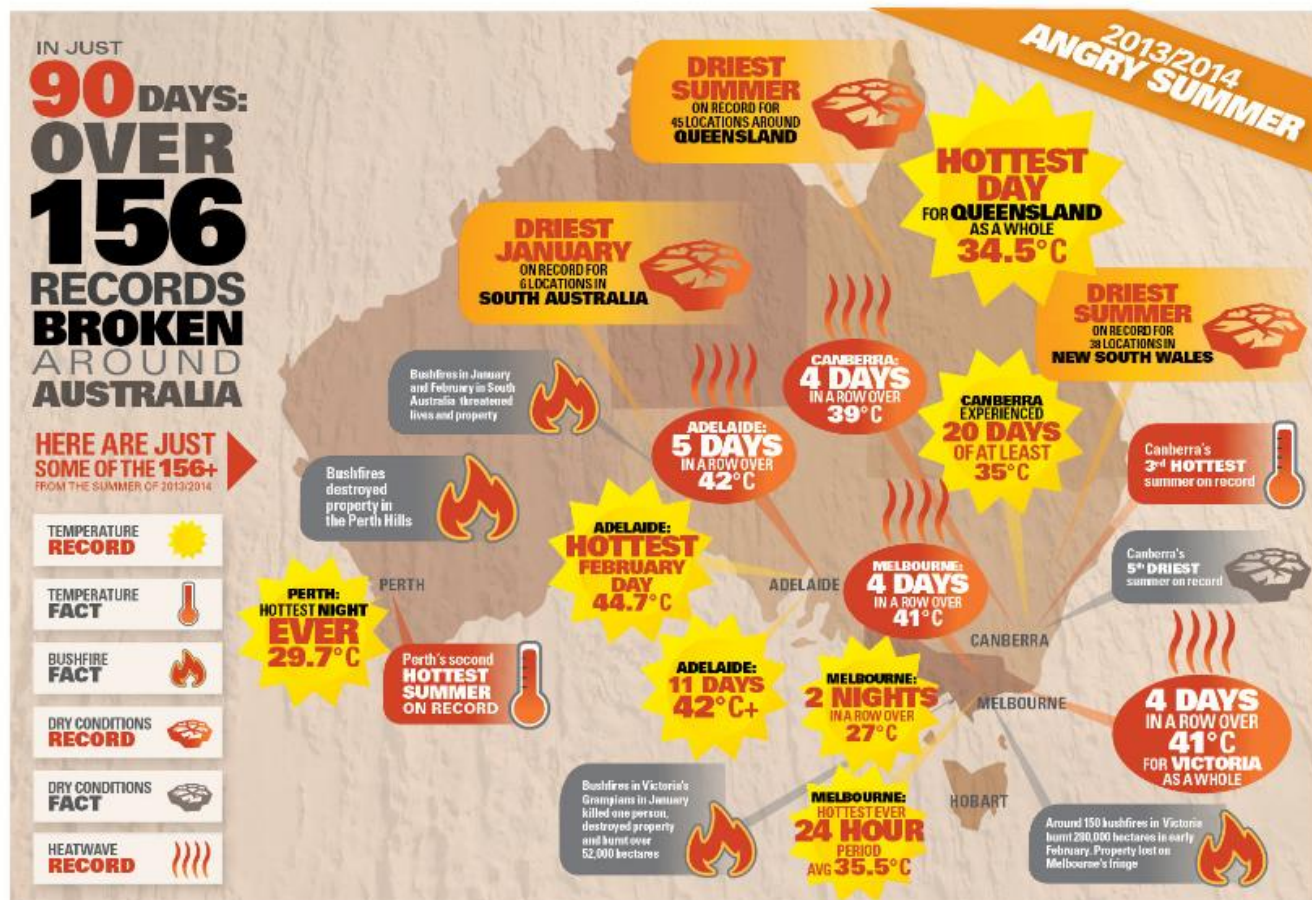
Source: Dr Karl Braganza, Director of Climate Monitoring, Bureau of Meteorology

Summer of 2012/13
Australia's
hottest summer on record
(until 2018/19)



DATA SOURCES: BoM (2013a), Special Climate Statement 43 – extreme heat in January 2013; BoM (2013b), Special Climate Statement 44 – extreme rainfall and flooding in coastal Queensland and New South Wales.

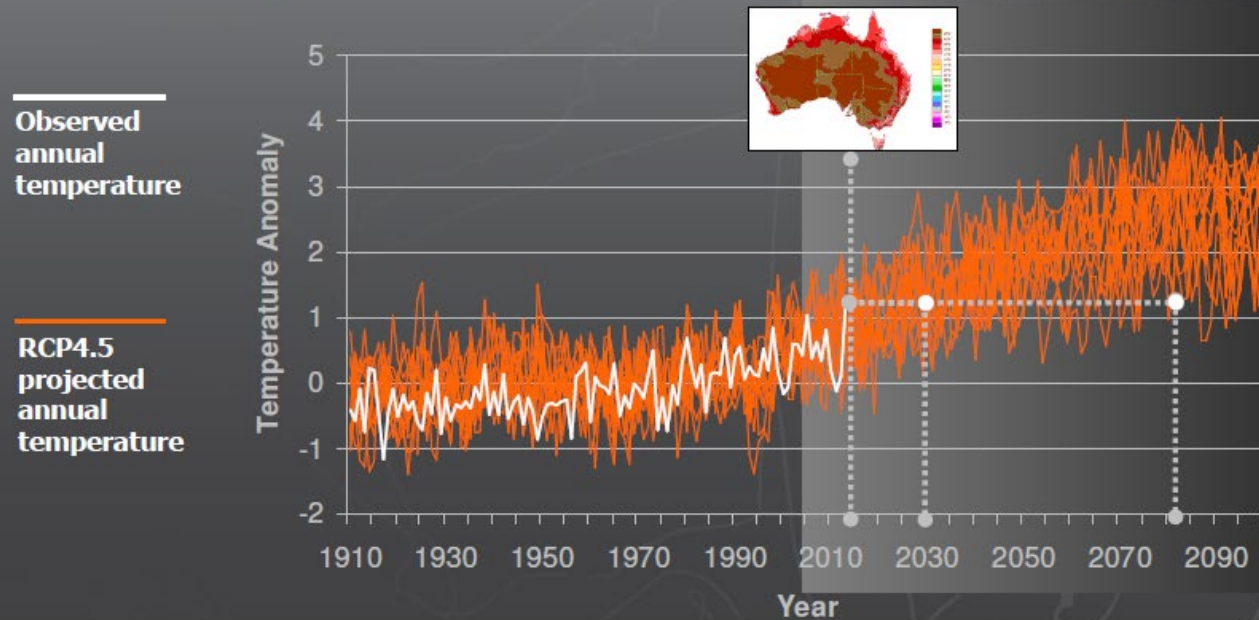
2013/14 – Another
'angry summer'



Source: BoM 2014a–h; The Age 18 January 2014; The Age 11 February 2014

www.climatecouncil.org.au

Projections of Australian annual temperature

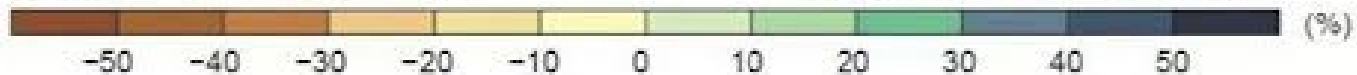
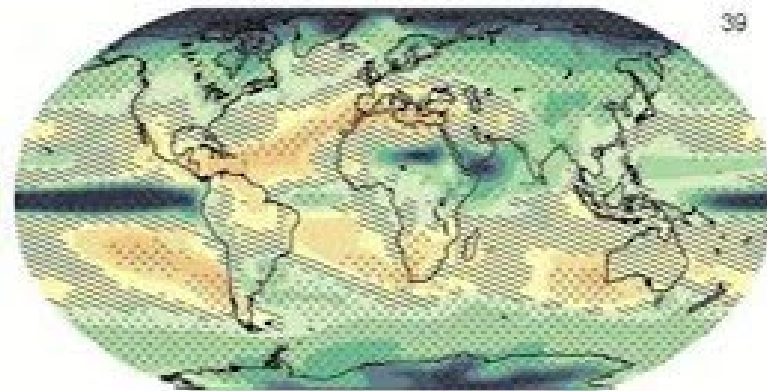
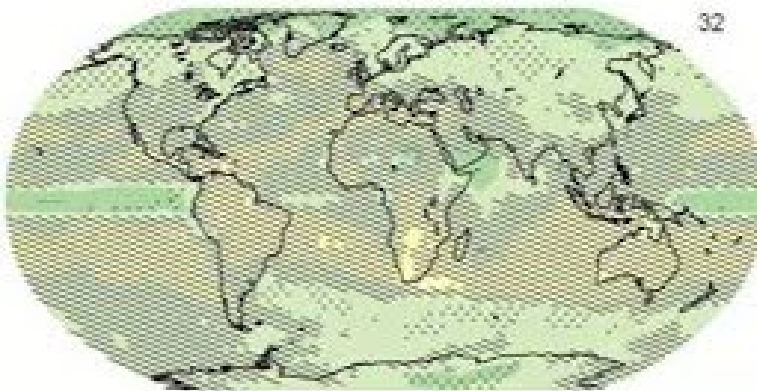


Source: Dr Karl Braganza, Director of Climate Monitoring, Bureau of Meteorology

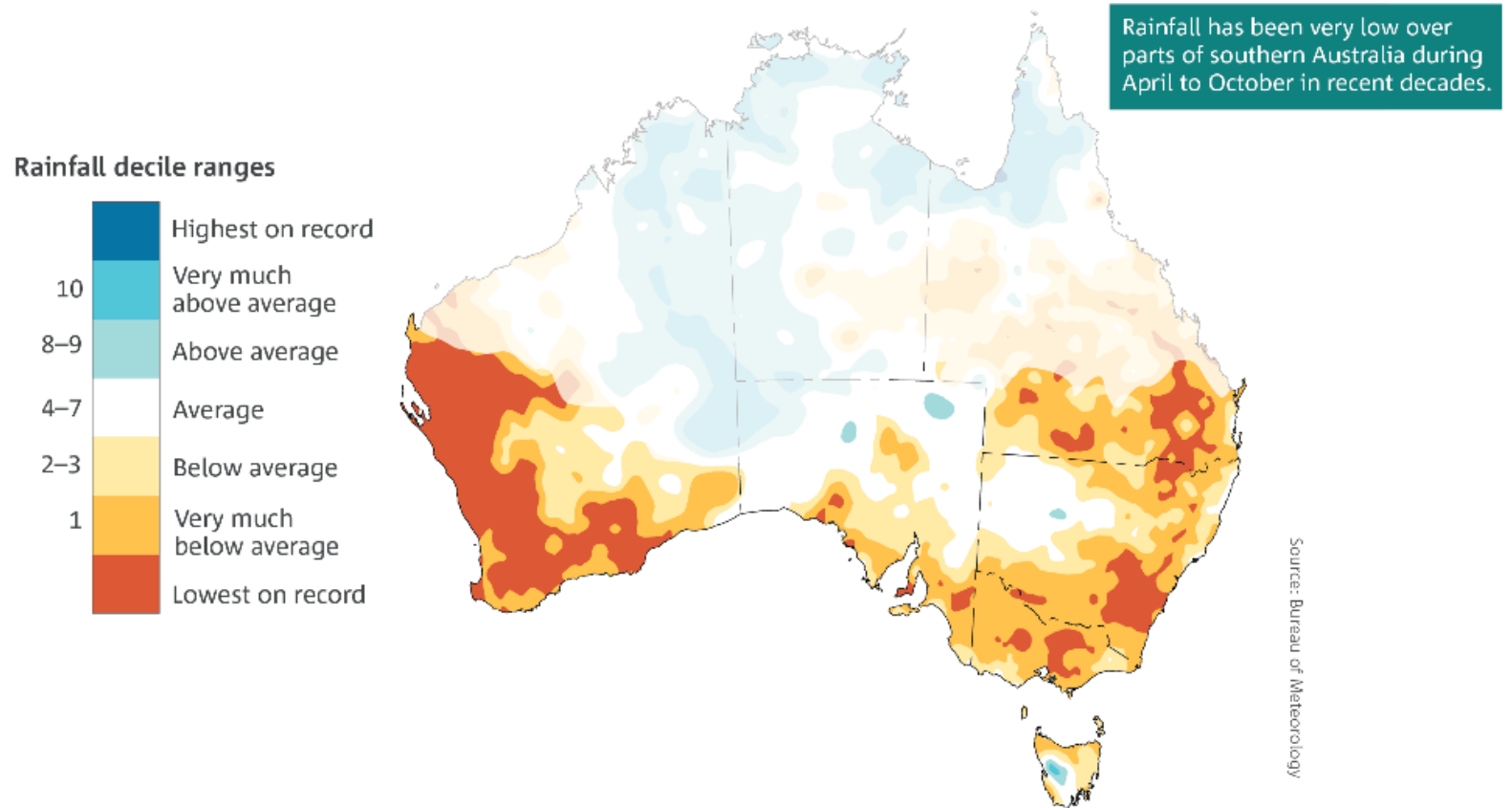
Rainfall projections – global

2°C world

4.5°C world

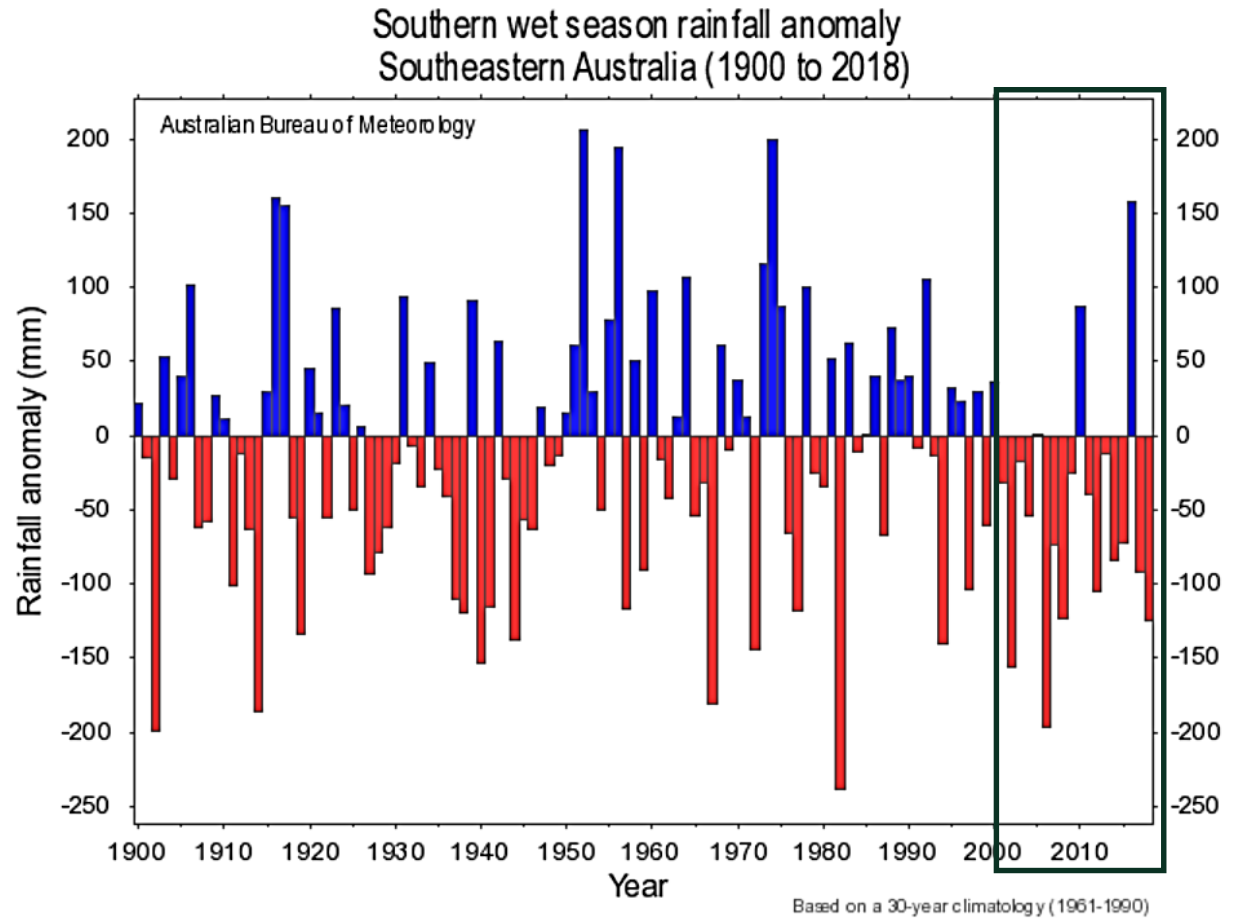


April to October rainfall deciles for the last 20 years (1999–2018).



(CSIRO – BoM State of the Climate report 2018)

South eastern Australia
southern wet season* annual
rainfall anomalies compared
with 1961-1990 average
(*April-Oct)
Bureau of Meteorology



Over water planning timescales, annual variability is much more influential than longer-term decline.

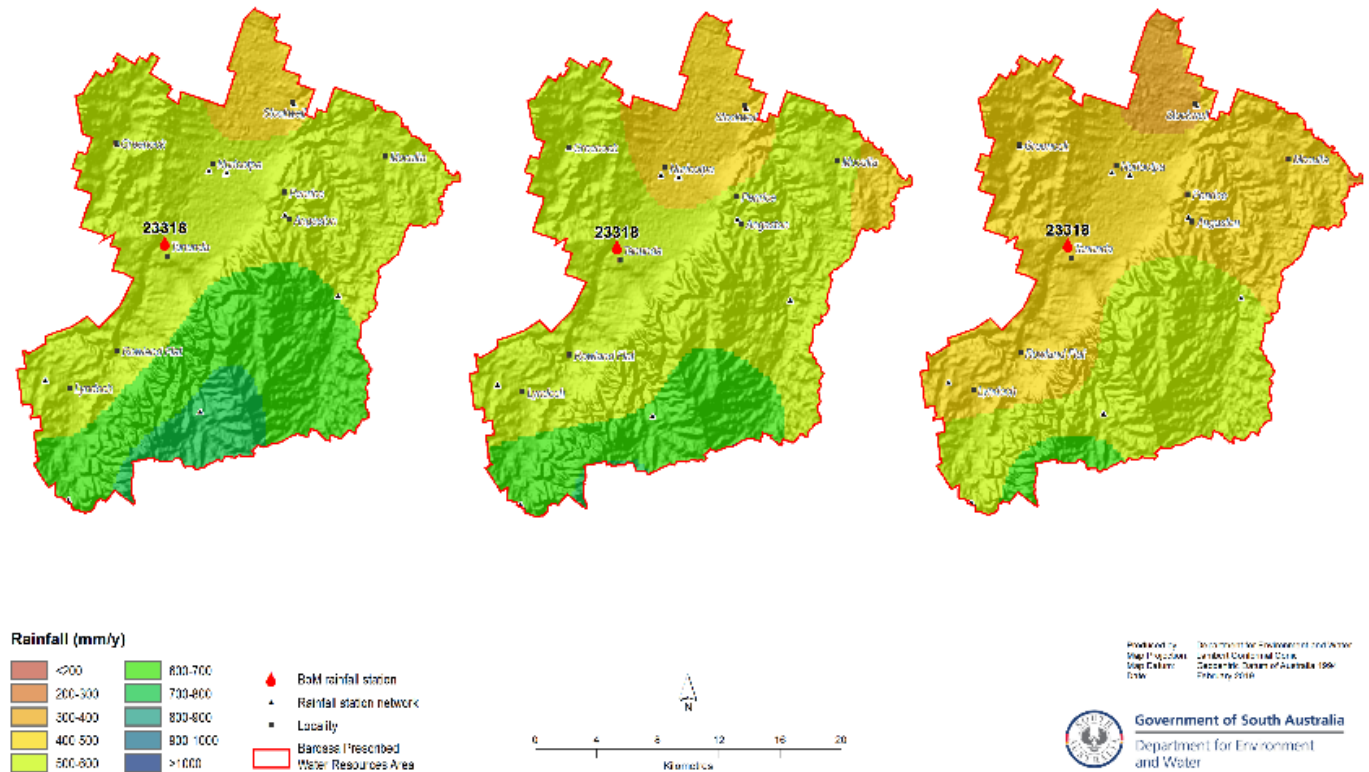
However, the probability that any year is drier than average will increase over time.

BAROSSA PRESCRIBED WATER RESOURCES AREA

1. Long-term average annual rainfall (1900 to 2018)

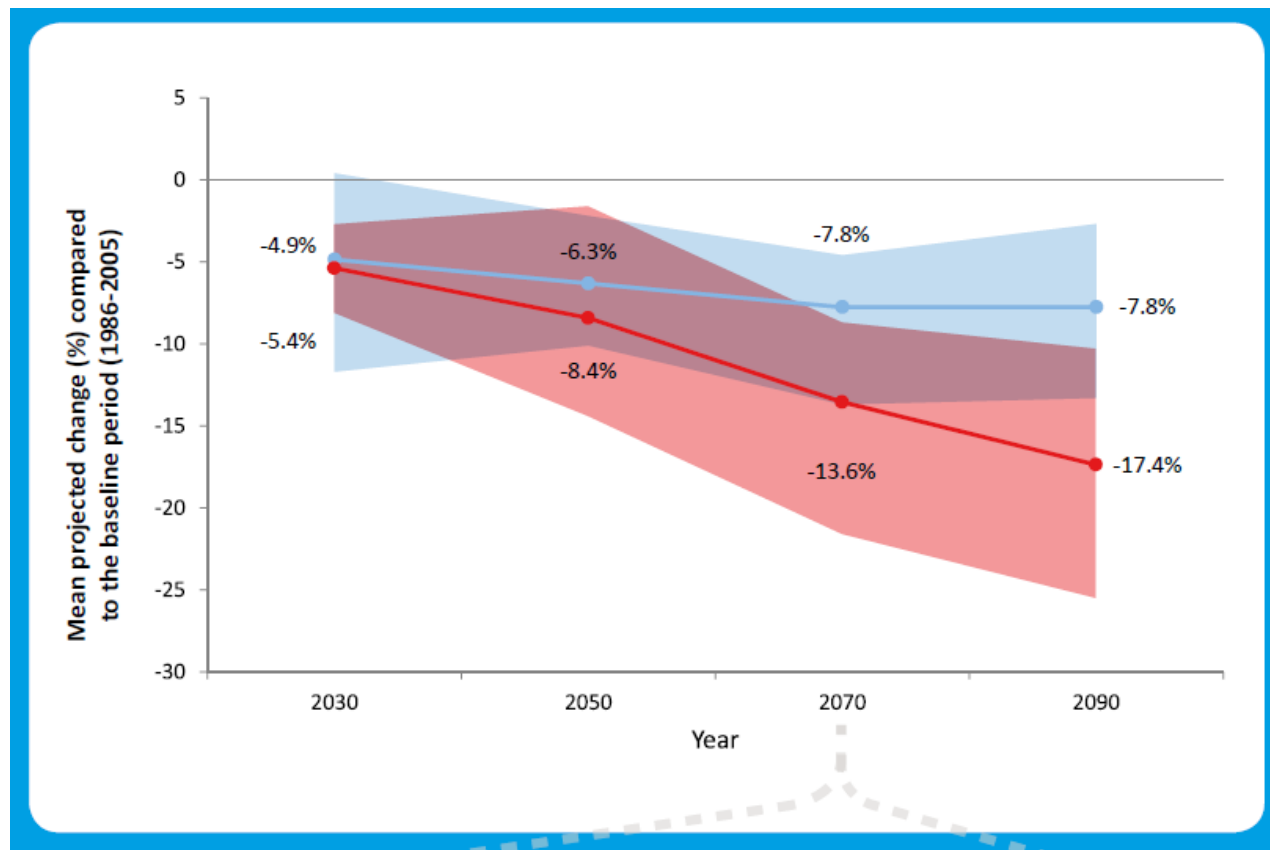
2. Five-year average annual rainfall (2013-14 to 2017-18)

3. Annual rainfall (2017-18)



Rainfall projections – Adelaide and Mt Lofty Ranges

Projected average annual rainfall changes (%) compared with 1986 – 2005

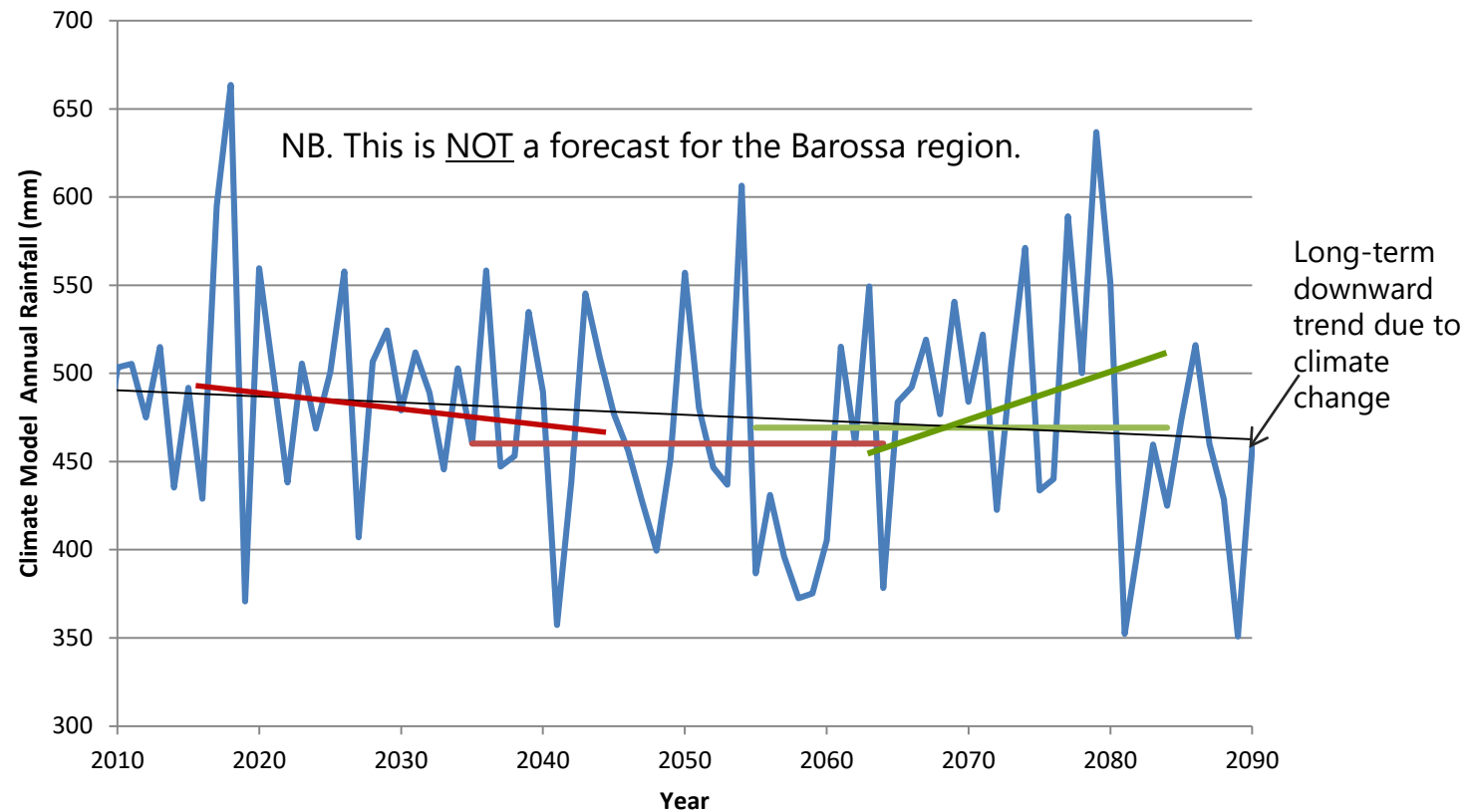


(Source: SA Climate Ready)

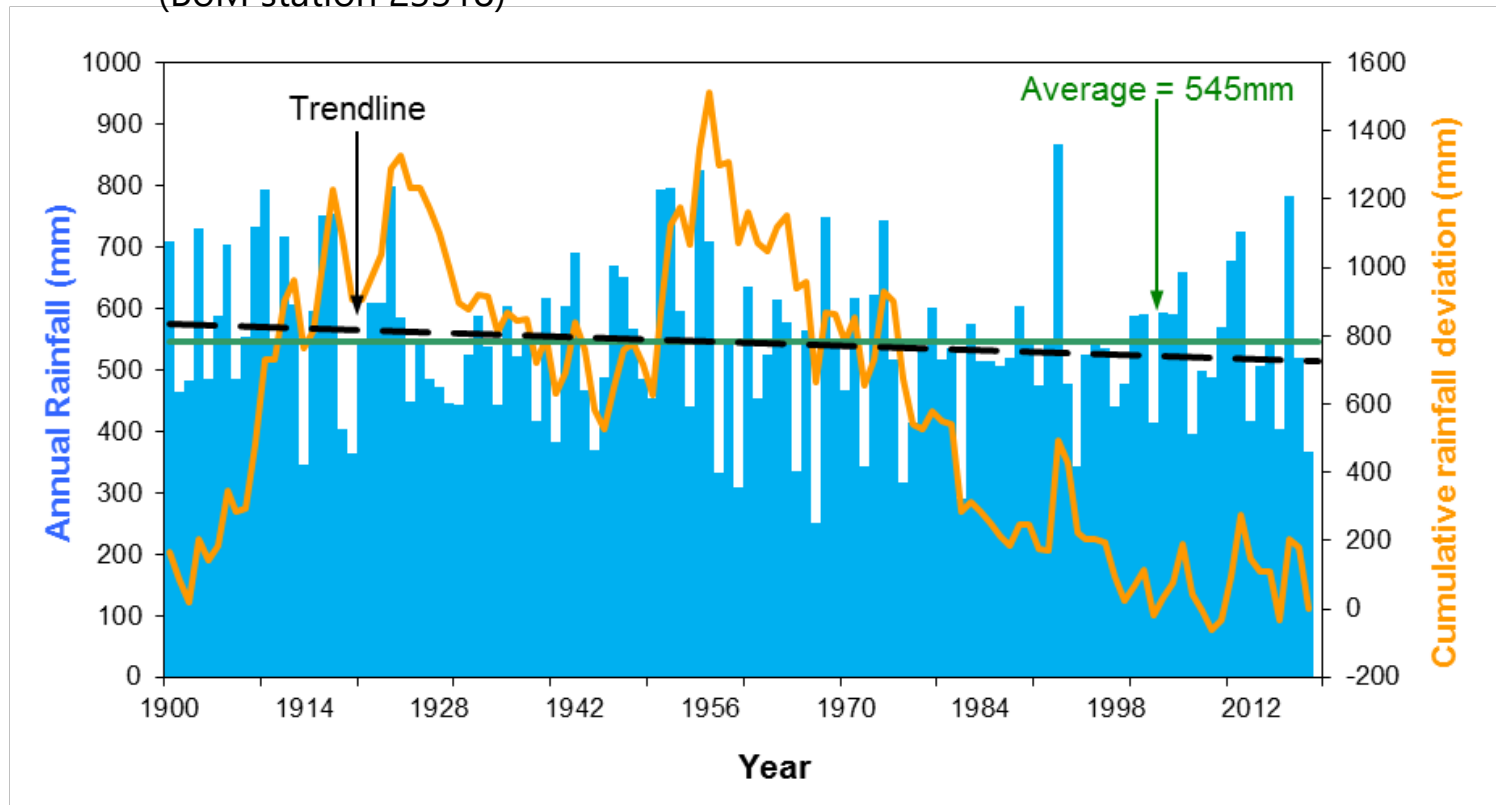
Annual variability in rainfall – an example

Over the timescales of water planning (5 – 10 years), annual variability is much more influential than longer-term decline.

However, the probability of a year being drier than average will increase over time.



Long-term (1900-2017) rainfall trends and cumulative deviation from mean annual rainfall at Tanunda (BoM station 23318)





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