MARLBOROUGH RESEARCH CENTRE
Te Rito Hiranga o Wairau

The New Zealand Institute for Plant & Food Research Limited

Plant & Food RESEARCH
RANGAHAU AHUMĀRA KAI

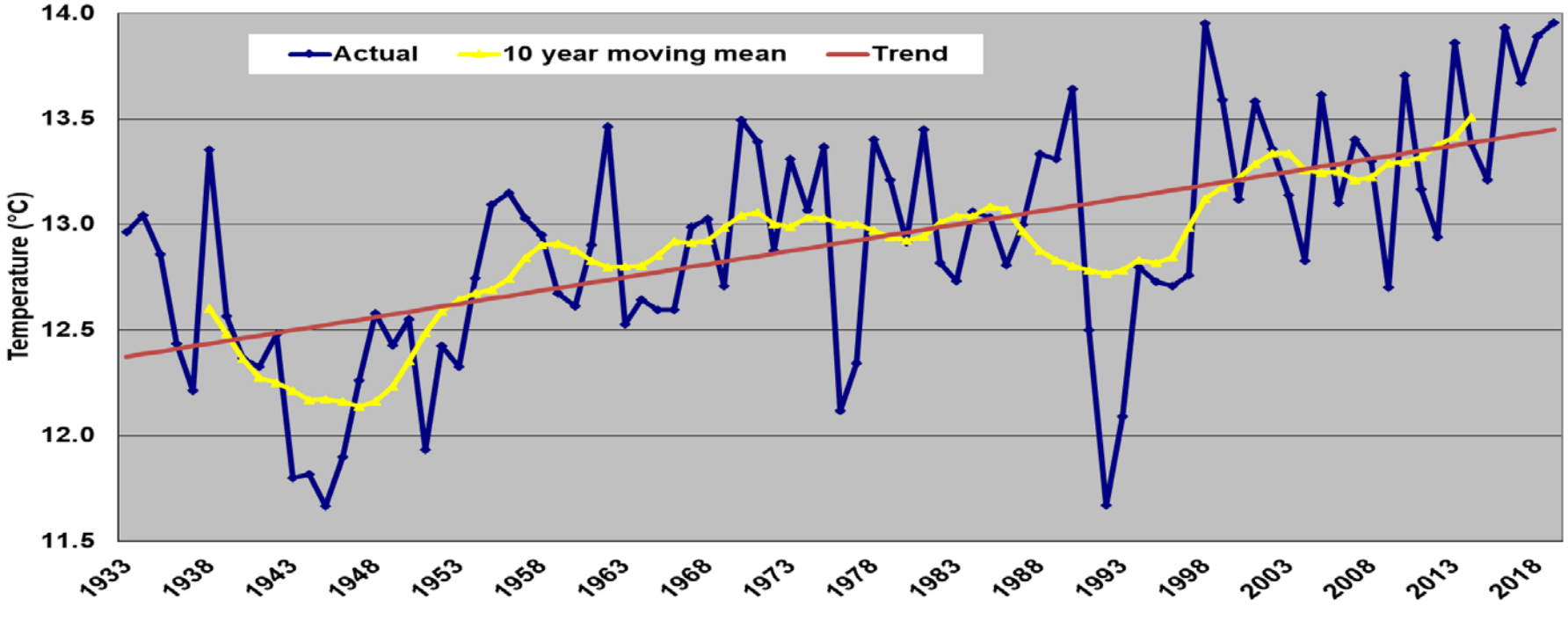
Blenheim climate 2019, trends and possible climate change effects

Mean monthly temperatures 2019
Blenheim's equal warmest year on record

Month	Temperature (C)	Difference to LTA 1932-2018
Jan	20.7	+2.69 =hottest
Feb	18.9	+1.07
March	17.6	+1.40
April	13.2	-0.16
May	12.9	+2.35 2nd hottest
June	8.5	+0.52
July	9.7	+2.33 =hottest
Aug	8.8	+0.17
Sep	11.1	+0.34
Oct	12.7	-0.04
Nov	16.7	+2.06 2nd hottest
Dec	16.7	-0.03
Annual	13.965	+1.047

Blenheim annual temperature trend 1933-2019

- Trend line shows a +1.08 C increase in Blenheim's mean temperature between 1933 and 2019



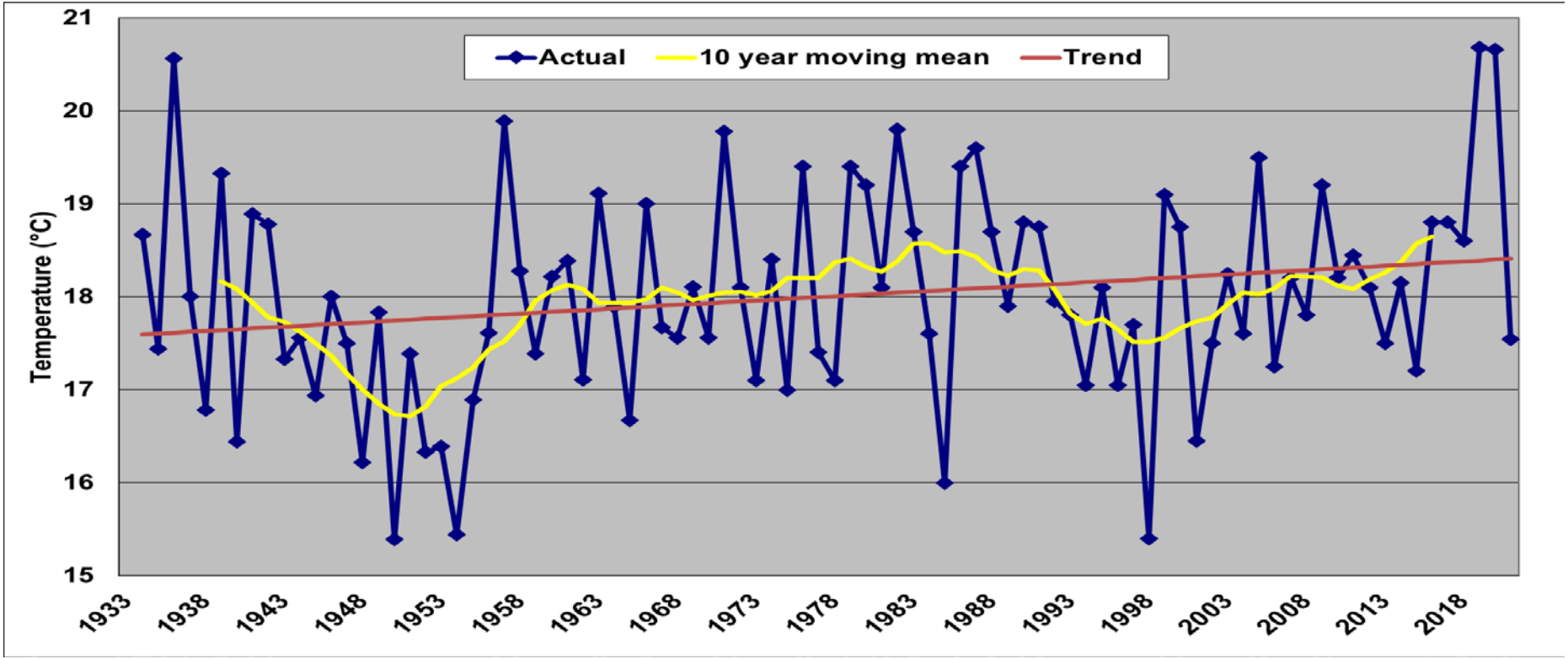
Blenheim’s 10 warmest years on record 1932-2019

- 10 warmest years on record have occurred since 1990
- 6 of the 10 years have occurred since 2010

Year	Temperature (C)	Difference to LTA 12.907
2019	**13.954**	+1.047
1998	**13.950**	+1.043
2016	**13.93**	+1.023
2018	**13.89**	+0.983
2013	**13.86**	+0.953
2010	**13.70**	+0.793
2017	**13.67**	+0.763
1990	**13.66**	+0.753
2005	**13.62**	+0.713
1999	**13.60**	+0.693

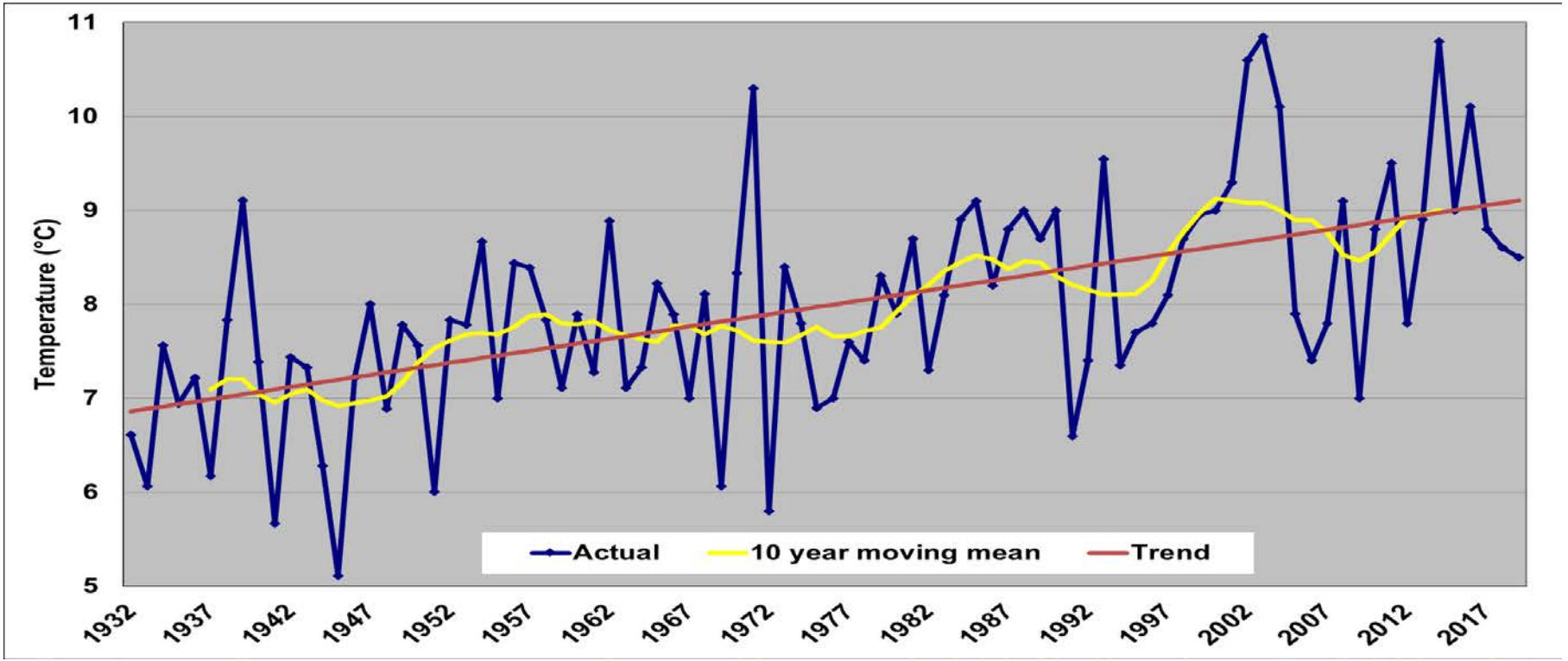
Blenheim January temperature trend 1933-2020

- Trend line shows a +0.82 C increase from 1933 to 2020



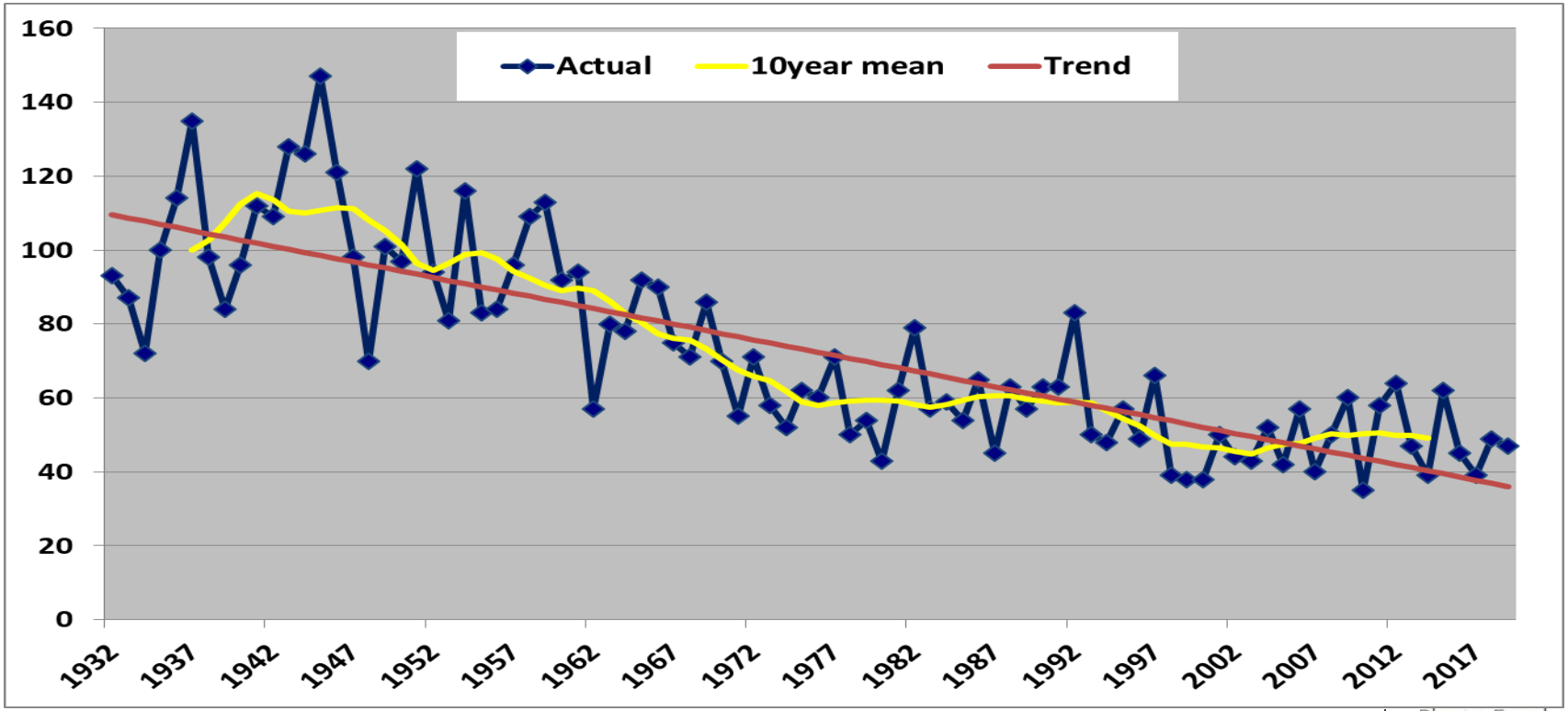
Blenheim June temperature trend 1932-2019

- Trend line shows a +2.24 C increase from 1932 to 2019



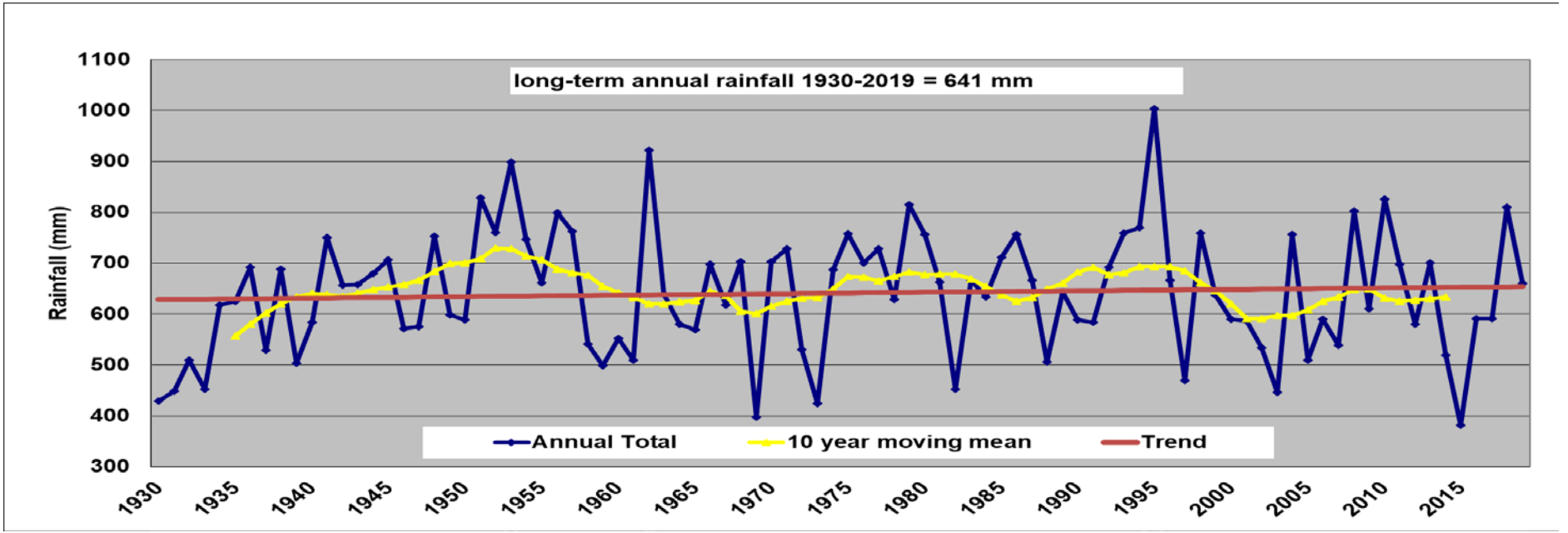
Blenheim ground frosts trend 1932-2019

- Decrease from average of 109 to 36 ground frosts per annum



Blenheim annual rainfall

- No upwards/downwards trend in annual rainfall. HOWEVER
- Rainfall is highly variable from month to month and from year to year
- In last 10 years, 12 months >100mm rain, 10 months < 10 mm rain



Blenheim's January + February rainfall

Year	Rainfall (mm)	% of LTA
2020	8.8	9.6%
2019	11.8	13%
2018	261.8	284%
2017	89.0	97%
2016	87.2	95%
2015	19.6	21%

December 2019 – March 2020

- 1 - 20 December 2019 rainfall = 91.2 mm (3 times average)
- Rainfall in 81 days from 21 Dec 2019 to 11 Mar 2020 = 9.4 mm
- Lowest 81 day rainfall total on record for the 80 years 1941-2020
- 9.4 mm is 7.5% of the long-term average 82 day rainfall of 124.8 mm

Impacts of climate change on the wine industry: Current research programme commissioned by Bragato Research Institute

- Presentation by NIWA to Marlborough wine industry 18 February 2019

Recap

- Increasing average temperatures and GDD
- More extreme high temperatures (and heatwaves)
- Fewer extreme low temperatures
- General decrease in spring and summer rainfall, some increases in autumn
- Larger extreme rainfall events
- Increased drought potential

Impacts of climate change on the wine industry: Current research programme commissioned by Bragato Research Institute

What may this mean for the wine industry?

- Changing harvest times and durations
- Fewer frosts on average
- Changing demand for water resources
- Opportunities for new varieties
- Potential expansion of vineyards into currently marginal areas
- Increased risk from pests and diseases
- Other countries will be worse off than NZ

Climate, Freshwater & Ocean Science

NIWA
Taihoro Nukurangi

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Weather data for the Blenheim weather station at the Marlborough Research Centre's Grovetown Park campus is freely available at: www.mrc.org.nz/weatherdata

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