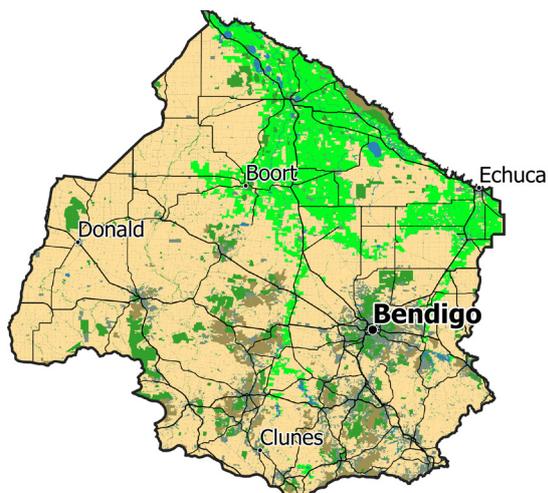




Regional Weather and Climate Guide

In the last 30 years in the North Central

- ☁️ Annual rainfall has decreased slightly
- ☁️ Dry years have occurred 11 times and wet years seven times
- ☁️ Rainfall has decreased in the autumn and spring months
- ☁️ Winter rainfall has been reliable, summer has been unreliable
- ☁️ The autumn break usually occurs by the first week of May in the south east around Clunes, mid-May in Bendigo and Echuca and not until late May to early June around Swan Hill, Donald and much of the north west
- ❄️ Spring frosts have been more common and have been occurring later
- 🌡️ There have been more hot days, with more consecutive days above 40 °C



North Central Victoria at a glance

The North Central Victoria region covers around 2.97 million hectares, of which 65% is under agricultural production. The region supports a diverse mix of agricultural enterprises. Grazing – predominantly sheep and cattle – pigs, dairy and broadacre cropping are among its larger industries, along with vegetables, fruit, wine and table grapes, and olives. The region contributed around \$2.07 billion to the Australian economy in 2017–18.



A guide to weather and climate in North Central Victoria

Primary producers make decisions using their knowledge and expectations of regional weather patterns. The purpose of this guide is to provide insight into the region’s climate and an understanding of changes that have occurred through recent periods. This information can potentially assist primary producers and rural communities make better informed decisions for their business and livelihoods. This guide is part of a series of guides produced for every Natural Resource Management area around Australia.



A climate guide for agriculture
North Central, Victoria





Annual Rainfall

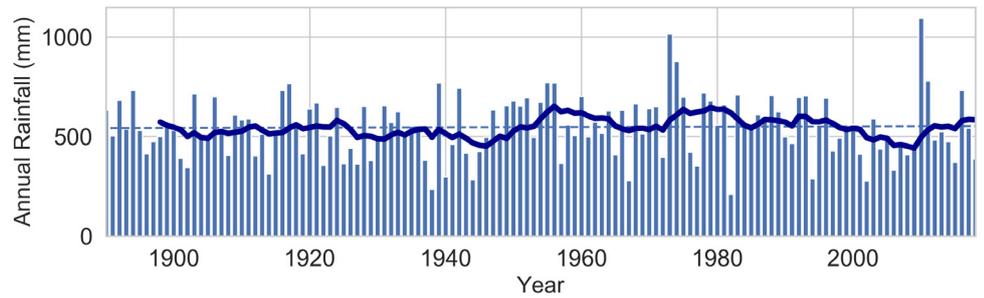
Annual rainfall in North Central Victoria has decreased slightly

Annual average rainfall in North Central Victoria has decreased by around 30 mm from about 490 mm to about 460 mm (-6%) over the past 30 years (1989–2018) when compared to the previous 30 years (1959–1988).

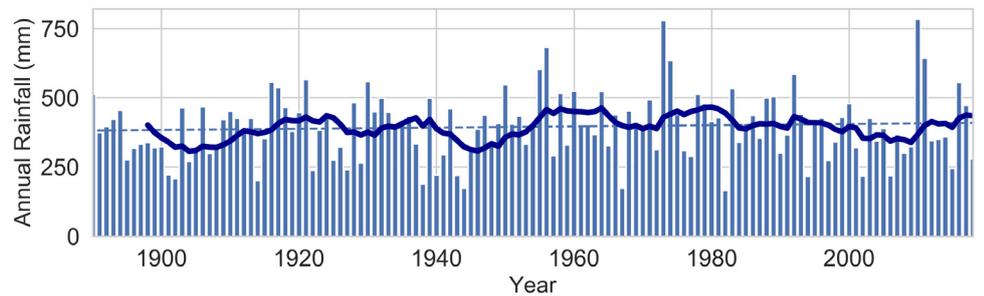
The charts show annual rainfall (blue bars), with a 10-year running average (solid blue line) for Bendigo and Boort. Although there has been a decrease in annual rainfall in the past 30 years, it is within the range of natural variability.

In the past 30 years (1989–2018), dry years (lowest 30%) have occurred 11 times and wet years (highest 30%) have occurred seven times, while the remaining years were in the average range. Note the Millennium drought accounted for six of these dry years

Bendigo Prison Annual Rainfall 1889 - 2018



Boort Annual Rainfall 1889 - 2018



in the recent period. During the previous 30-year period (1959–

1988), dry years occurred six times and wet years occurred 10 times.

For more information on future projections, visit the Climate Change in Australia website > www.climatechangeinaustralia.gov.au

Want to know more about the guides? Try Frequently Asked Questions at > www.bom.gov.au/climate/climate-guides/#faqs

North Central winter rainfall is reliable; summer is unreliable

Average rainfall reliability maps for the past 30 years (1989–2018) show winter rainfall has been moderately reliable across the region (blue areas), usually changing by about 50 mm from one winter to the next. This is in contrast to spring and autumn rainfall, which has been less reliable (light red and beige areas), especially in the northern part of the region. Summer rainfall has been unreliable across the region's north (red areas). Although there have been some wet summers in the past 30 years, some have been very dry.

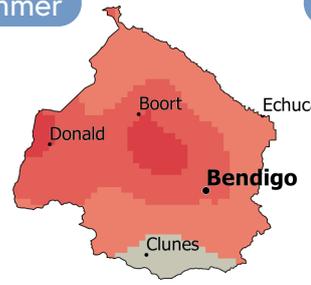
Winter



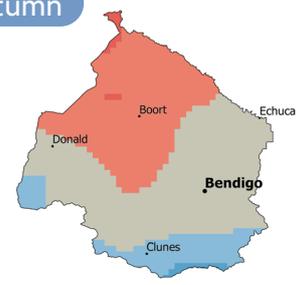
Spring



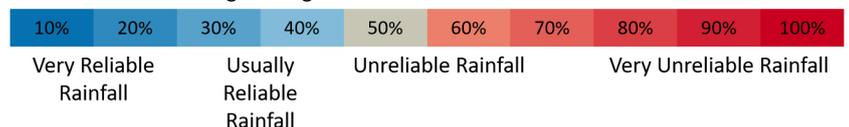
Summer



Autumn



Average Change In Seasonal Rainfall From Year to Year





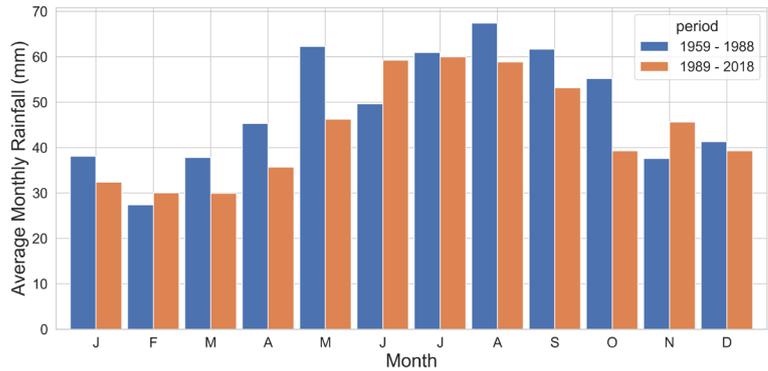
Rainfall Timing

Rainfall has decreased in the autumn and spring months

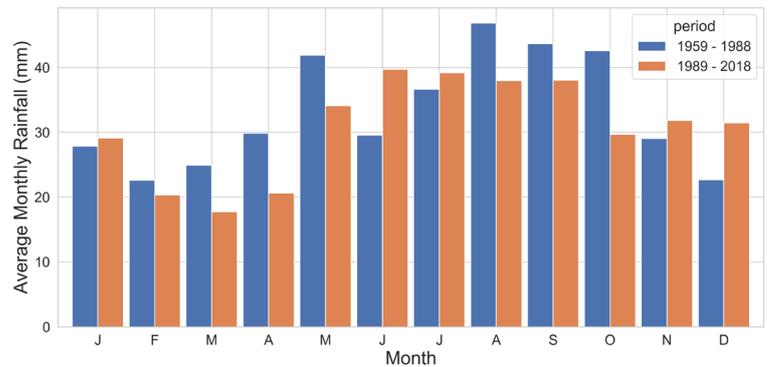
Rainfall in the late autumn and early spring months decreased at Bendigo and Donald between 1989–2018 (orange bars) compared with 1959–1988 (blue bars). Other locations around the North Central region showed a similar pattern.

Over the past 30 years, winter growing season rainfall (April to October inclusive) for Bendigo was 350 mm; 52 mm lower than the 402 mm average for the previous 30-year period (1959–1988). For Donald, growing season rainfall has declined 32 mm over the same period.

Bendigo Prison 30-year Average Rainfall by Month

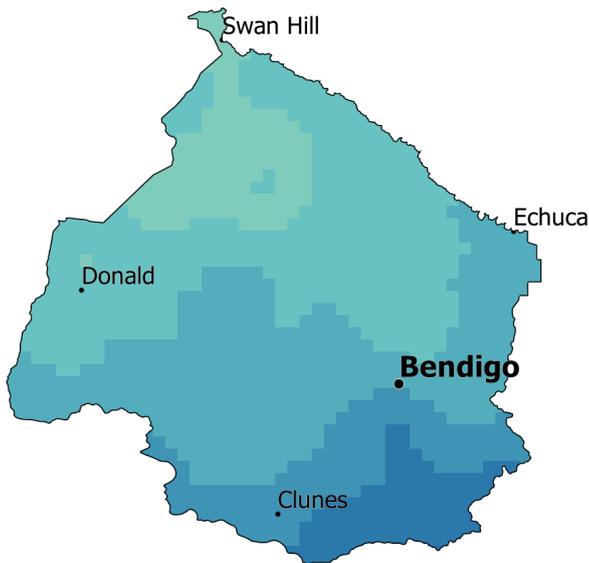


Donald 30-year Average Rainfall by Month



For more information on the latest observations and science behind these changes, refer to the State of the Climate Report > www.bom.gov.au/state-of-the-climate/

Timing of the autumn break in the North Central region



In North Central Victoria, the autumn break can be defined as at least 15 mm over three days prior to the commencement of sowing. The map shows that over the past 30 years (1989–2018), the break typically occurred from late April to the first week of May in the south east of the region (blue areas) around Clunes, mid-to-late May around Bendigo and Echuca (blue-green areas), and late May to early June in the north west around Swan Hill and Donald (light green areas).

In the western part of the region around Swan Hill and Donald in the last 30 years, the autumn break is occurring up to a month later than it did in the previous 30-year period (1959–1988).

Weeks after 1 April

4	5	6	7	8
5 May	12 May	19 May	26 May	2 June

Autumn Break Usually Occurred After...





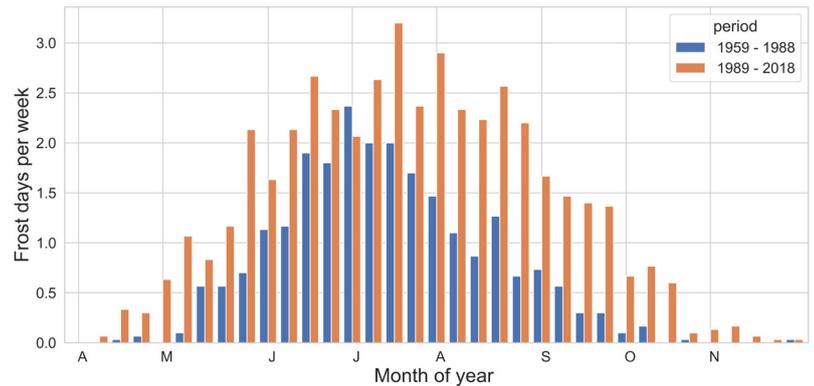
Frost

Later and more frequent frosts

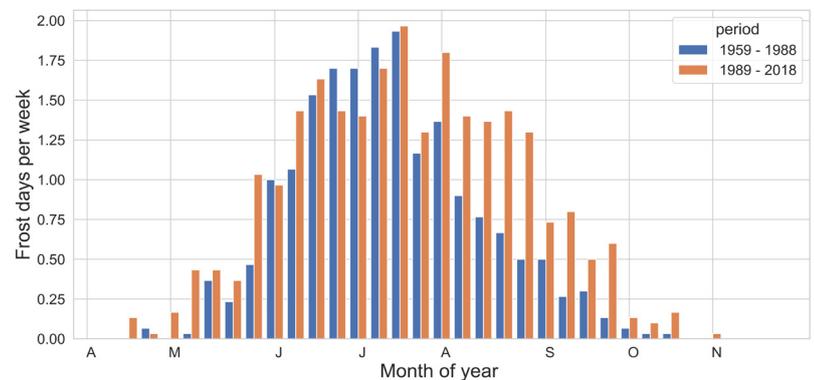
The number of potential frosts has increased at Bendigo and Boort between 1989–2018 (orange bars) compared with 1959–1988 (blue bars). Frost frequency increased in winter and spring, with an average of 12 more winter nights and six more spring nights at Bendigo. Boort had four more winter nights and two more spring nights with the potential for frost between 1989–2018 compared to 1959–1988.

Boort's frost risk has typically ended by the last week of September, whereas Bendigo's frost risk usually ends about mid-October. Both locations have seen potential frost nights push later into the year. At Boort, the average date of last frost was nearly two weeks later in 1989–2018 compared to 1959–1988 while at Bendigo the average date of last frost is nearly a month later. More frosty nights have tended to occur through dry winter and spring periods, when soil moisture is low and cloud cover infrequent. On average, Bendigo has had twice as many frost nights in the spring following a dry winter than in a spring following a wet winter.

Bendigo Prison Frost Occurrence And Likelihood By Week



Boort Frost Occurrence And Likelihood By Week



Temperature

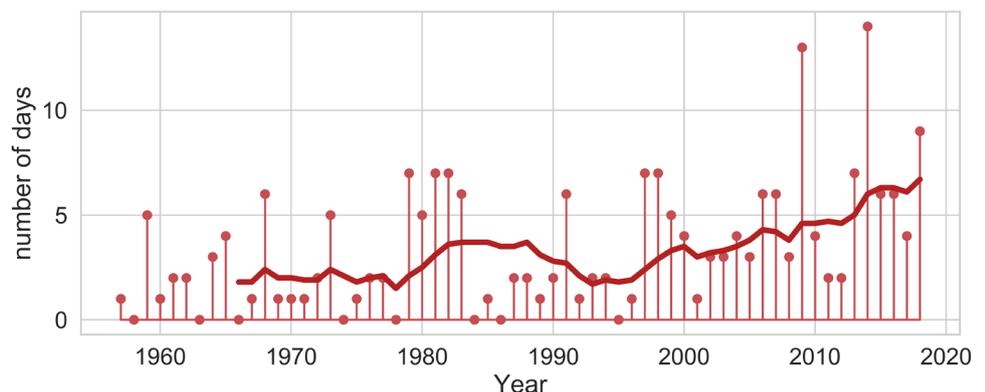
North Central Victoria has experienced more hot days in the past 30 years

The chart shows the annual number of days above 38 °C (red bars), with a 10-year running average (solid red line) for Bendigo.

Bendigo experienced an average of four days per year above 38 °C between 1989–2018, compared to an average of only two days per year above 38 °C between 1959–1988. Since 1989, temperatures of 44 °C have been recorded for Bendigo three times, once in 2009 and twice in 2019.

In the previous 30-year period, the temperature exceeded 44 °C in Bendigo once, in 1968. Instances of consecutive days above 40

Bendigo Prison Days Over 38 °C



°C have also been more frequent in the past 30 years. In 2009 and twice in 2014, Bendigo experienced periods of four or more

days in a row above 40 °C. A run of four or more days above 40 °C is unusual at Bendigo and had not happened since 1908.

Regional Weather and Climate Guides are produced as a partnership between Bureau of Meteorology, CSIRO and FarmLink



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