In the last 30 years in Glenelg Hopkins

- Annual rainfall has been relatively stable
- Dry years have occurred 13 times and wet years seven times
- Rainfall has decreased in autumn months
- Winter rainfall has been reliable; summer has been unreliable
- The autumn break typically occurred in early May across most of the central and southern parts of the region, and in mid-to-late May in much of the region’s north
- There have been fewer frosts in the region’s south
- There have been more hot days

Glenelg Hopkins region at a glance

The Glenelg Hopkins region covers around 2.8 million hectares, of which 66% is under agricultural production. Around half of the region’s output comes from grazing of sheep and cattle, and dairy. The remainder is made up of broadacre cropping and horticulture. The region contributed almost $2.25 billion to the Australian economy in 2017–18.

A guide to weather and climate in Glenelg Hopkins

Primary producers make decisions using their knowledge and expectations of regional weather patterns. The purpose of this guide is to provide an 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.
Annual rainfall in the Glenelg Hopkins region has been relatively stable

Annual rainfall in the Glenelg Hopkins has been relatively stable, decreasing by around 30 mm (-4%) from about 680 mm to about 650 mm 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 Casterton and Mortlake. Although there has been a decrease in annual rainfall in the past 30 years, it still fluctuates from year to year with natural variability.

In the past 30 years (1989–2018), dry years (lowest 30%) have occurred 13 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 eight of these dry years in the recent period. During the previous 30-year period (1959–1988), dry years occurred eight times and wet years occurred 11 times.

Rainfall reliability maps for the past 30 years (1989–2018) show winter rainfall has been reliable across the region (blue areas), with usually about 50 mm difference from one year to the next. Spring and autumn are also moderately reliable (light blue areas). Summer rainfall is reliable in the south around Warrnambool, but across the centre and north of the region it has been unreliable (beige and red areas). Although there have been some wet summers in the past 30 years, summer rainfall has not been reliable from year to year.

Glenelg Hopkins winter rainfall is reliable; summer is unreliable

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

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Rainfall in the autumn months decreased at Hamilton and Mortlake between 1989–2018 (orange bars) compared with 1959–1988 (blue bars). Over the past 30 years, winter growing season rainfall (May to November inclusive) for Hamilton was 464 mm; 25 mm lower than the 489 mm average for the previous 30-year period (1959–1988). For Mortlake, growing season rainfall has decreased 31 mm over the same period, from 469 mm to 438 mm. Over the same 30-year periods, summer rainfall (December to April inclusive) decreased by 14 mm at Hamilton, from 207 mm to 193 mm. At Mortlake, summer rainfall decreased by 13 mm, from 214 mm to 201 mm.

Timing of the autumn break in the Glenelg Hopkins region

In the Glenelg Hopkins region, the autumn break can be defined as at least 15 mm of rainfall over three days, around the start of the winter cropping season. The map shows that averaged over the past 30 years (1989–2018), the break typically occurred in early May across most of the central and southern parts of the region (blue areas) and in mid-to-late May in much of the region’s north (teal areas). There has been little change in the 15 mm autumn break average timing across the region in the last 30 years compared to the previous 30 years (1959–1988). However heavier rainfall events (25 mm) are coming later in the season in the northeast part of the Glenelg Hopkins region.
Frost

There have been fewer frosts in the region’s south

The number of potential frosts has decreased at Hamilton between 1989–2018 (orange bars) compared with 1959–1988 (blue bars), with an average of eight fewer nights, from 30 down to 22. At Ararat, the temperature record began in 1969, meaning a comparison of two 30-year periods is not possible. Over the last 30 years (1989–2018) Ararat experienced an average of 49 nights per year with potential for frost. On average, frost risk typically ended by mid-November. Over the observed record at Ararat, no clear trend for frost risk exists. In the last 30 years on average, the last frost day for Hamilton occurred in the third week of October, but in some years frosts extended into November. The average last frost day in Hamilton in the last 30 years was three weeks earlier than the previous 30-year period. At Ararat, however, the average date of the last frost (16 November) was nearly two weeks later in 1989–2018 compared to 1959–1988 (5 November).

More frosty nights have tended to occur through dry winter and spring periods, when soil moisture is low and cloud cover infrequent. On average, Hamilton had two more frost nights in a spring following a dry winter than a spring following a wet winter.

Temperature

Glenelg Hopkins has experienced more hot days in the past 30 years

The chart shows the annual number of days above 38 °C for Hamilton. Hamilton experienced an average of three days per year above 38 °C between 1989–2018, compared to an average of two days per year above 38 °C between 1959–1988. Since 1989, temperatures of 42 °C have been recorded for Hamilton 12 times, including four times in 2014. In the previous 30-year period, the temperature reached 42 °C in Hamilton only five times. Although the number of hot days is increasing, instances of consecutive hot days have remained stable in the past 30 years. Since records began, Hamilton has experienced six periods of three or more days in a row above 38 °C, with three such events prior to 1989 and three events since 1989.