

## 2

# Geography and Climate

### Introduction

This chapter contains information about Victoria's geography and climate. This includes details of Victoria's physical features and location as well as rainfall and temperature variation.

The information about climate, rainfall and temperature has been provided by the Bureau of Meteorology, which measures this information on a daily basis at a range of geographic locations across Victoria. The meteorology tables in this chapter show data for selected areas only.

### Physical features

Although Victoria is the second most populous State or Territory in Australia, it is ranked sixth in terms of geographic size, and accounts for just under 3% of Australia's total area (table 2.1).

#### 2.1 AREA OF STATES AND TERRITORIES

	Area km <sup>2</sup>	Length of coastline km	Percentage of total area	Percentage of total population (as at 30 June 2000)
Western Australia	2 529 875	20 781	32.89	9.8
Queensland	1 730 648	13 347	22.50	18.6
Northern Territory	1 349 129	10 953	17.54	1.0
South Australia	983 482	5 067	12.78	7.8
New South Wales	800 642	2 137	10.41	33.7
<b>Victoria</b>	<b>227 416</b>	<b>2 512</b>	<b>2.96</b>	<b>24.9</b>
Tasmania	68 401	4 882	0.89	2.5
Australian Capital Territory	2 358	..	0.03	1.6
Australia(a)(b)	7 692 024	59 736	100.00	100.00

(a) Total includes estimates for Jervis Bay, Christmas Island and Cocos (Keeling) Island Territories. (b) Total includes Jervis Bay.

Source: AUSLIG, 100K Coastline database, 1993; Australian Demographic Statistics (Cat. no. 3101.0).

### Location

Wilson's Promontory, latitude 39°08'S, longitude 146°22'30"E, is the southernmost point of mainland Victoria and similarly of mainland Australia; the northernmost point is where the western boundary of the State meets the Murray River, latitude 33°59'S, longitude 140°58'E; the point furthest east is Cape Howe, situated at latitude 37°31'S, longitude 149°58'E. The western boundary lies at longitude 140°58'E and extends from latitude 33°59'S to latitude 38°04'S, a distance of 451 kilometres.

Victoria's longest river is the Goulburn, which runs from Lake Eildon to the Murray River, east of Echuca (table 2.2). The Goulburn is also the river with the greatest annual flow of water. The State boundary is the south bank of the Murray River, therefore the Murray flows in New South Wales.

## 2.2 SELECTED PHYSICAL FEATURES

Mountain	Height		River	Length km
	metres			
Bogong	1 986		Goulburn	563
Feathertop	1 922		Gleneig	454
Nelson	1 883		Loddon	392
Painter	1 877		Mitta Mitta	286
Hotham	1 861		Hopkins	280

Source: *The Australian Encyclopaedia*, Vol. 8, Sixth edition.

## Climate

The State of Victoria experiences a wide range of climatic conditions. These range from the hot summer of the Mallee to the winter blizzards of the snow-covered alps, and from the relatively dry wheat belt to the wet, elevated areas from which many permanent streams spring.

The climate of Victoria is characterised by a range of different zones. There are the warm and dry grasslands of the State's northwest, covering the Mallee, and much of the Wimmera and Northern Country. The climate of the less elevated parts of the northeast is classified as temperate with no dry season and a hot summer. By contrast, the climate of the State's mountainous regions, as well as that of South Gippsland, the Otways, and the exposed coast of the far southwest, is classified as temperate with no dry season and a mild summer. Most of the rest of Victoria experiences a climate classified as temperate with no dry season, and a warm summer. The exception is an area covering much of the far southwest of the State, excluding the exposed coast. This area experiences a climate classified as temperate with a distinctly dry and warm summer.

Different synoptic systems produce rainfall in different parts of Victoria. The most reliable rainfall occurs in the Western District, where the passage of cold fronts, especially in winter, bring frequent light to moderate falls.

Thunderstorms are an important source of rainfall, particularly during the spring and summer months. However, rainfall from thunderstorms is frequently localised. The average number of days on which thunderstorms occur in Victoria each year, varies from about 10, along parts of the coast, to in excess of 30, around the highlands. The Melbourne region typically experiences thunderstorms on about 15 days per year. The majority of these storms have life cycles of between 40 minutes and one hour.

Under certain conditions, severe thunderstorms develop and produce damaging phenomena such as tornadoes, destructive wind gusts, large hailstones and flash flooding. Many severe thunderstorms produce very heavy rain and local flooding, but it is those that produce large hail and tornadoes which are responsible for the majority of severe damage. Severe thunderstorms are most likely to occur during the late spring and early summer months with the majority developing during the afternoon and evening.

In Victoria, snow is usually confined to the Great Dividing Range, where at intervals during the winter it may be covered to a considerable extent, especially over the elevated eastern section. Snow has been recorded in all districts except for the Mallee, the Wimmera North, and the Lower North of the State. Snow has been recorded in all months over the higher Alps, but main falls occur during the winter months. The heaviest snowfalls in Victoria are confined to sparsely populated areas.

## Rainfall

Rainfall varies considerably across Victoria. Mildura consistently shows a low average rainfall (table 2.3), and recorded the lowest observed rainfall of the selected districts in both Autumn and Winter of 2000. The highest rainfall observed fell in Portland in Winter 2000.

**2.3 RAINFALL, By Location(a)**

Location	Spring 1999 (Sep–Nov)		Summer 1999–2000 (Dec–Feb)		Autumn 2000 (Mar–May)		Winter 2000 (Jun–Aug)	
	Observed rain	Average rain	Observed rain	Average rain	Observed rain	Average rain	Observed rain	Average rain
	mm	mm	mm	mm	mm	mm	mm	mm
Mildura	116	78	114	63	68	73	76	76
Horsham	121	128	114	72	88	104	121	114
Bendigo	111	144	178	98	114	132	119	176
Wodonga	186	181	165	130	300	165	237	239
Omeo	147	209	120	157	175	163	157	164
Lakes Entrance	144	190	129	163	296	199	143	177
Latrobe Valley	156	255	136	179	197	163	140	203
Melbourne	133	175	166	153	165	164	138	149
Geelong	108	172	63	107	85	146	132	152
Ballarat	115	190	109	128	140	168	162	199
Portland	173	199	97	106	276	182	328	305

(a) Latrobe Valley, Geelong and Portland, are measured at their respective airports. Geelong airport is at Grovedale and Portland airport is at Cashmore. Observed rain refers to the actual value during the designated season. Average rain refers to the historical arithmetic mean of all observations recorded at that location.

Source: Bureau of Meteorology.

## Temperature

Minimum and maximum temperatures vary considerably across Victoria, and from season to season. Omeo has consistently recorded the lowest average minimum of the selected districts with the lowest minimum of 0.2 degrees being recorded in Winter (table 2.4). The lowest observed minimums throughout 1999–2000 were also recorded in Omeo. Higher observations than average were regularly recorded.

**2.4 MINIMUM TEMPERATURE, By Location(a)**

	Spring 1999 (Sep–Nov)		Summer 1999–2000 (Dec–Feb)		Autumn 2000 (Mar–May)		Winter 2000 (Jun–Aug)	
	Observed minimum	Average minimum	Observed minimum	Average minimum	Observed minimum	Average minimum	Observed minimum	Average minimum
	°c	°c	°c	°c	°c	°c	°c	°c
Mildura	10.5	10.0	16.6	15.9	10.6	10.7	4.6	5.0
Horsham	6.4	7.6	12.2	12.8	8.6	9.1	3.7	4.2
Bendigo	7.1	8.2	13.6	13.8	8.6	9.5	2.6	4.1
Wodonga	8.6	8.2	14.9	14.6	9.9	9.1	3.5	3.8
Omeo	4.7	4.5	10.0	9.0	6.2	5.1	0.6	0.2
Lakes Entrance	10.5	9.3	15.0	13.7	11.9	11.0	7.4	6.1
Latrobe Valley	7.6	7.6	12.5	12.0	8.7	8.7	4.0	4.1
Melbourne	11.3	10.3	15.9	14.7	12.6	11.8	7.6	7.1
Geelong	8.0	7.7	13.2	11.9	10.6	9.6	5.4	5.4
Ballarat	6.3	6.4	11.6	10.8	8.1	8.1	3.2	3.6
Portland	8.9	8.4	13.0	11.7	10.1	10.0	6.5	6.6

(a) Latrobe Valley, Geelong and Portland, are measured at their respective airports. Geelong airport is at Grovedale and Portland airport is at Cashmore. Observed minimum refers to the actual value during the designated season. Average minimum refers to the historical arithmetic mean of all observations recorded at that location.

Source: Bureau of Meteorology.

Mildura consistently records the highest maximum temperatures for the selected districts (table 2.5). Both the highest average maximum temperatures, and the highest observed maximums for the 1999–2000 year, were recorded at Mildura, with Summer being the hottest season. Mildura was the only one of the selected districts to record an observed temperature over 30 degrees (30.9 degrees).

**2.5 MAXIMUM TEMPERATURE, By Location(a)**

	Spring 1999 (Sep–Nov)		Summer 1999–2000 (Dec–Feb)		Autumn 2000 (Mar–May)		Winter 2000 (Jun–Aug)	
	Observed maximum	Average maximum	Observed maximum	Average maximum	Observed maximum	Average maximum	Observed maximum	Average maximum
	°c	°c	°c	°c	°c	°c	°c	°c
Mildura	23.9	23.8	30.9	31.2	23.4	23.6	16.2	16.1
Horsham	21.6	20.8	29.6	28.9	22.1	21.8	14.2	14.1
Bendigo	20.4	19.9	28.0	28.0	21.0	20.8	12.9	13.0
Wodonga	21.6	21.5	29.4	30.5	22.0	22.6	13.7	13.8
Omeo	18.0	17.6	24.3	24.7	18.2	18.3	10.8	10.9
Lakes Entrance	19.2	18.9	24.1	23.1	20.1	19.9	15.1	15.0
Latrobe Valley	20.2	18.8	26.6	25.0	20.9	20.3	13.9	14.0
Melbourne	21.0	19.5	26.6	25.3	21.6	20.6	14.9	14.3
Geelong	19.3	18.2	25.0	23.8	21.2	19.9	14.4	14.0
Ballarat	17.3	16.5	25.2	24.2	18.7	18.0	11.0	10.8
Portland	17.5	16.6	22.7	21.2	18.9	18.3	13.6	13.5

(a) Latrobe Valley, Geelong and Portland, are measured at their respective airports. Geelong airport is at Grovedale and Portland airport is at Cashmore. Observed maximum refers to the actual value during the designated season. Average maximum refers to the historical arithmetic mean of all observations recorded at that location.

Source: Bureau of Meteorology.

## Bibliography

### ABS sources

*Australian Demographic Statistics* (Cat. no. 3101.0).

### Non-ABS sources

AUSLIG, *100K Coastline Database*, 1993.

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The Australian Encyclopaedia, Volume 8, Sixth edition.

