In the last 30 years on the South Coast

- Annual rainfall has been relatively stable
- Dry years have occurred 11 times and wet years 12 times
- Rainfall has decreased in the autumn and winter months
- Winter rainfall has been reliable; summer has been unreliable
- The autumn break typically occurred at the end of April or early May in the region’s coastal areas, in the first and second weeks of May north of Esperance and not until late May to early June for the inland regions around Ravensthorpe and Mount Barker
- Frost risk has remained relatively stable
- There have been more hot days, with more consecutive days above 40 °C

South Coast (WA) region at a glance

The South Coast (WA) region covers around 9.6 million hectares, of which 36% is under agricultural production. It is a major broadacre cropping and livestock production region, with horticulture and nursery also contributing. The region contributed around $1.9 billion to the Australian economy in 2017–18.

A guide to weather and climate on the South Coast

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 on the South Coast has been relatively stable

Annual rainfall on the South Coast has been relatively stable, decreasing by around 10 mm (-1%) from about 480 mm to about 470 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 Mount Barker, Ravensthorpe and Esperance Downs Research Station. Although the regional average annual rainfall has been relatively stable, there has been a decrease in annual rainfall in the west and an increase in the east. In the past 30 years (1989–2018), dry years (lowest 30%) have occurred 11 times and wet years (highest 30%) have occurred 12 times, while the remaining years were in the average range. During the previous 30-year period (1959–1988), dry years occurred eight times and wet years occurred six 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 80 mm difference from one year to the next. Spring was also moderately reliable. This is in contrast to autumn rainfall, which has been less reliable (beige areas). Summer rainfall has been unreliable across the region (red areas), and although there have been some wet summers in the past 30 years, summer rainfall has not been reliable from year to year.

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

There has been a decrease in rainfall in the autumn and winter months

Rainfall in the autumn and winter months decreased at Mount Barker and Salmon Gums between 1989–2018 (orange bars) compared with 1959–1988 (blue bars). There was a substantial increase in summer rain at Salmon Gums over the same period, but little change in summer rainfall totals at Mount Barker. Over the past 30 years, winter growing season rainfall (April to October inclusive) for Mount Barker was 495 mm; 83 mm lower than the 578 mm average for the previous 30-year period (1959–1988). For Salmon Gums, growing season rainfall has declined 6 mm over the same period, from 237 mm to 231 mm. Over the same 30-year periods, summer rainfall from November to March was 160 mm at Mount Barker, 3 mm lower than the previous 163 mm average. At Salmon Gums, summer rainfall increased by 47 mm, from 105 mm to 152 mm.

Timing of the autumn break on the South Coast

In the South Coast region, the autumn can be defined as at least 15 mm of rainfall over three days. The map shows that over the past 30 years (1989–2018), the break typically occurred before the end of April or in early May in the region’s coastal areas (darker blue areas). It occurred in the first and second weeks of May north of Esperance (light blue areas), and not until late May to early June for the inland regions around Ravensthorpe and Mount Barker (teal and green areas).

**Frost**

**Frost risk has not changed**

The number of potential frosts has remained relatively stable at Salmon Gums between 1989–2018 (orange bars) compared with 1959–1988 (blue bars), with the frequency of winter frosts remaining unchanged. Salmon Gums’ frost risk has typically ended by the third week of October.

The latest potential frost night recorded was 10th of December 2018.

More frosty nights tend to occur through dry winter and spring periods, when soil moisture is low and cloud cover infrequent however in this region, the difference from wet to dry years was small. On average, there were around two more total frost nights during a dry winter and spring than during wetter seasons.

**Temperature**

**The South Coast has experienced more hot days in the past 30 years**

The chart shows the annual number of days above 35 °C (red bars), with a 10-year running average (solid red line) for Esperance. Esperance experienced an average of 10 days per year above 35 °C between 1989–2018, which is unchanged compared to the average from 1959–1988. Since 1989, temperatures of 45 °C have been recorded for Esperance four times, once in 1991 and 2010 and twice in 2013. In the previous 30-year period, a temperature of 45 °C was recorded in Esperance three times, in 1969, 1972 and 1977.

Instances of consecutive days above 30 °C have also been more frequent in the past 30 years. In 1992 and 2005, Esperance experienced periods of six or more days in a row above 30 °C. A run of six or more days above 30 °C had not been recorded at Esperance prior to that.