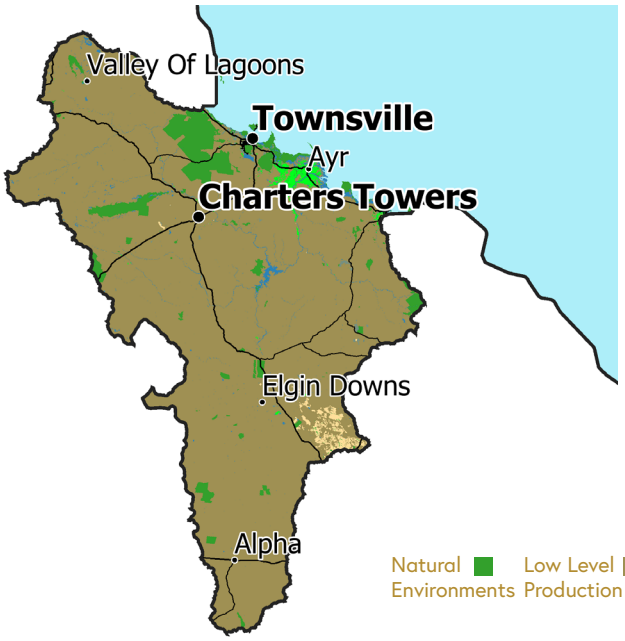
Regional Weather and Climate Guide

In the last 30 years in the Burdekin

- Annual rainfall has been relatively stable
- Growing season rainfall averages have decreased
- Wet season rainfall is reliable in the region's south
- Dry years have occurred 12 times and wet years have occurred 12 times
- Three-monthly rainfall totals leading into the dry season have increased slightly
- Evaporation rates have increased
- There have been more hot days, with more consecutive days above 42 °C.



The Burdekin at a glance

The Burdekin/NQ Dry Tropics region covers 14.1 million hectares, of which 89% is under agricultural production. Grazing (beef), sugarcane, horticulture (vegetables and tropical fruit) and nurseries are the main agricultural industries. The region contributed $1.33 billion to the Australian economy in 2017–18.

A guide to weather and climate in the Burdekin

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

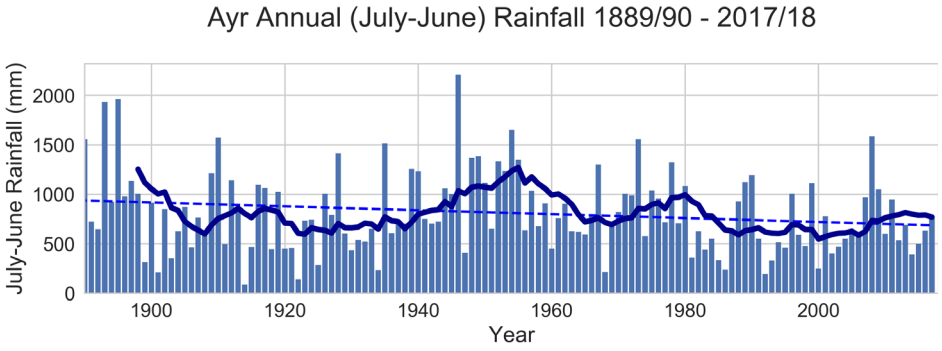
A climate guide for agriculture

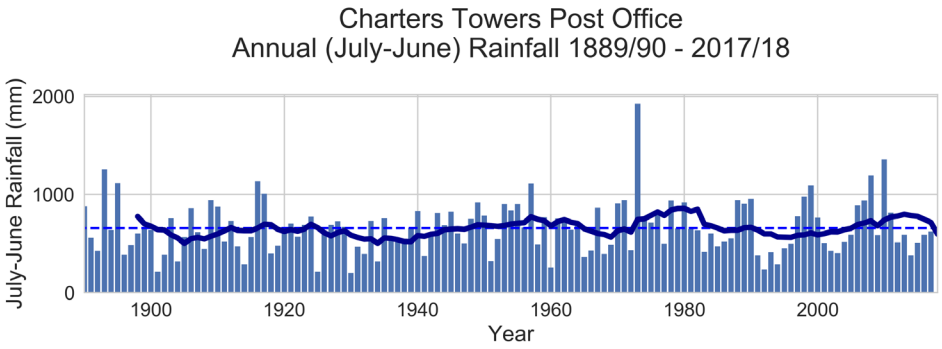
Burdekin, Queensland

Annual Rainfall

Annual rainfall in the Burdekin has been relatively stable

Annual (July to June) rainfall in the Burdekin has been relatively stable, recording an average of around 680 mm in both the past 30 years (1989–2018) and the previous 30 years (1959–1988). The charts show annual rainfall (blue bars), with a 10-year running average (solid blue line) for Ayr and Charters Towers. Charters Towers has remained stable, while Ayr has decreased slightly, falling by 85 mm (9%). In the past 30 years (1989–2018), dry years (lowest 30%) have occurred 12 times and wet years (highest 30%) have occurred nine times, while the remaining years were in the average range. During the previous 30-year period (1959–1988), dry years occurred seven times and wet years occurred 10 times.



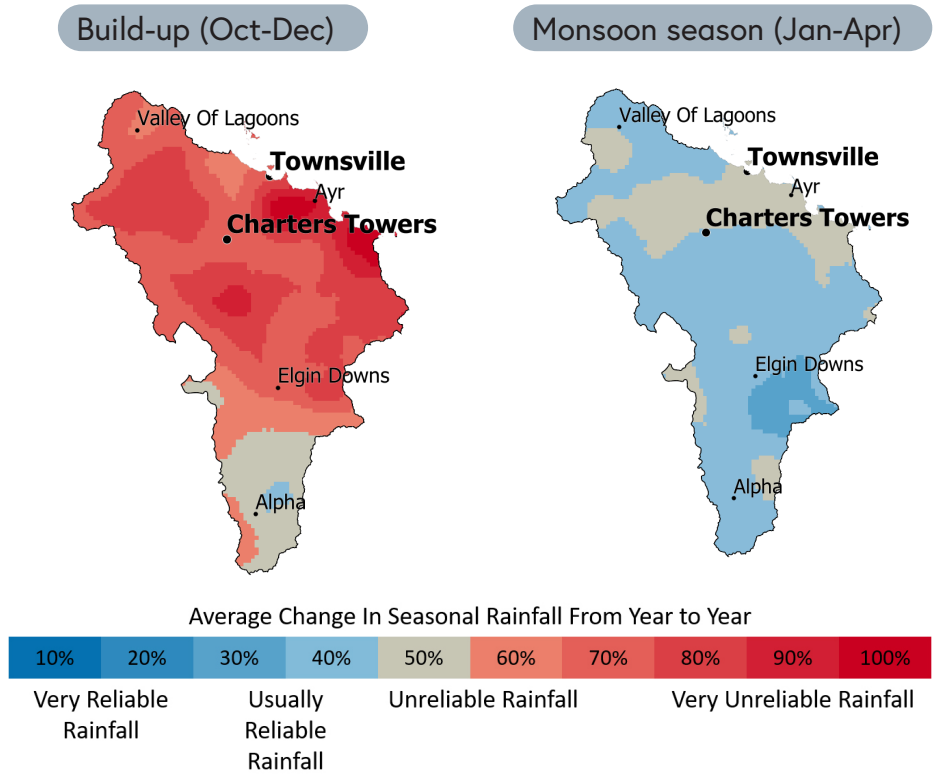


For more information on future projections, visit the Climate Change in Australia website
> www.climatechangeinaustralia.gov.au

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

Wet season rainfall has been reliable in the region's south

Rainfall reliability maps represent year-to-year rainfall variability across the region and seasons for the last 30 years (1989-2018). Areas shaded blue and beige represent lower variability, or more reliable rainfall, while red areas show either seasonally very low rainfall, or very large variability in the rainfall, such as in the summer months. Monsoon season rainfall is reliable in the region south of Charters Towers, but in the north and east around Ayr and across to the Basalt area in the region's west, it is less so. During the build-up — with the exception of a small area in and around Alpha — rainfall is unreliable across the entire region.



Growing season rainfall averages have decreased

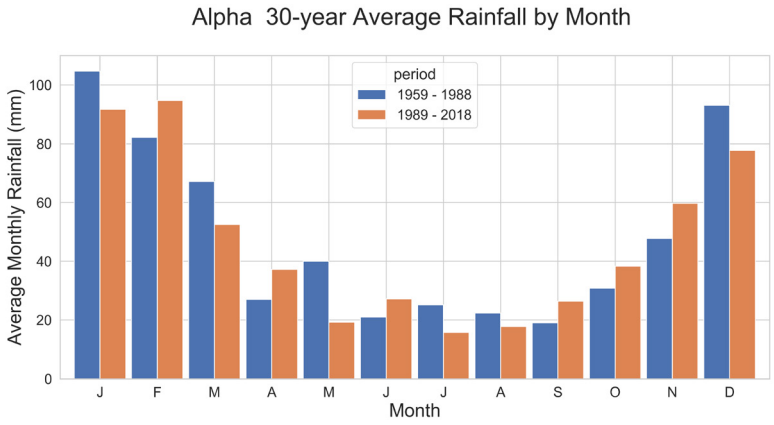
Rainfall distribution changed for Alpha and Charters Towers between 1989–2018 (orange bars) compared with 1959–1988 (blue bars).

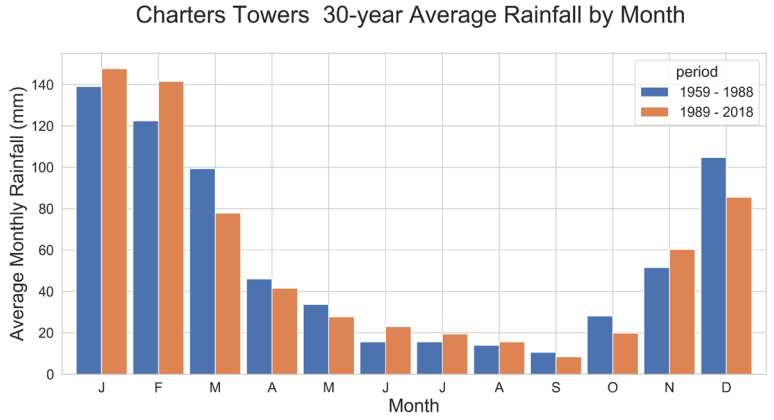
December and January averages have decreased across the region, while February averages have increased, indicating the summer break has been coming later.

For example, Alpha has recorded a 26 mm decrease in the December-January rainfall average in the past 30 years (1989–2018) compared to the previous 30 years (1959–1988), however the February rainfall average has increased 12 mm across the same time periods.

Rainfall in Charters Towers has decreased by 22 mm in December-January, but increased by 15 mm in February.

Overall, growing season rainfall (October to March) has decreased. Over the past 30 years, Charters Towers received an average of 475 mm of growing season rainfall, 71 mm lower than the 546 mm average for the previous 30-year period (1959–1988). Alpha experienced a 13 mm decrease over the same period, from 423 mm to 410 mm.

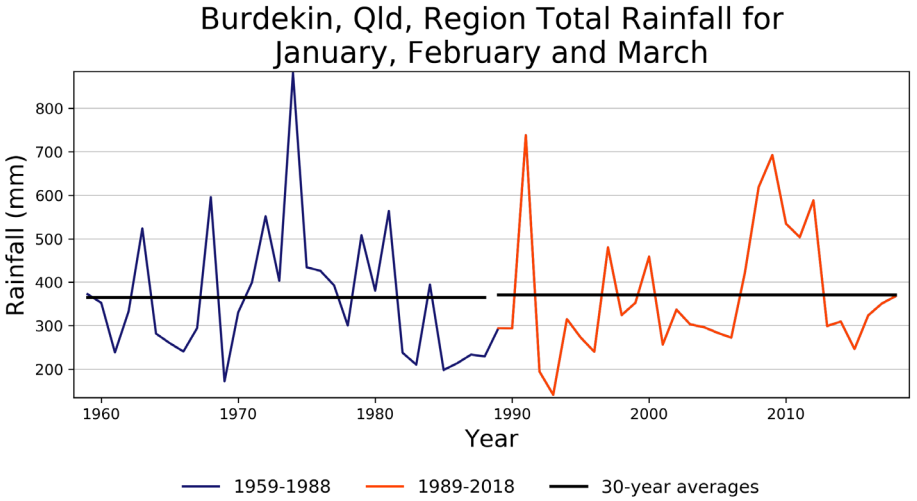




For more information on the latest observations and science behind these changes, refer to the State of the Climate Report
> www.bom.gov.au/state-of-the-climate/

Three-monthly rainfall leading into the dry season has increased slightly

In the Burdekin, soil moisture levels and pasture growth are largely driven by how much rainfall has been received in the three months leading into the dry season. The chart shows three-monthly rainfall averages for 1959–1988 (blue line) and 1989–2018 (orange line). While there was considerable variability, overall three-monthly rainfall averages leading into the dry season have remained relatively stable, increasing by only 10 mm in the past 30 years, from 363 mm in 1959–1988, to 373 mm in 1989–2018.

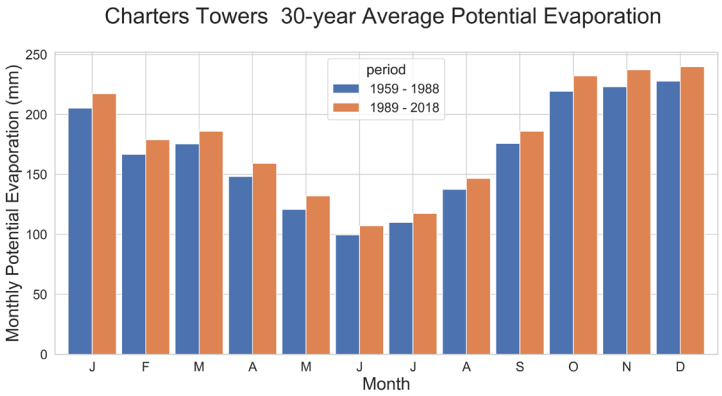


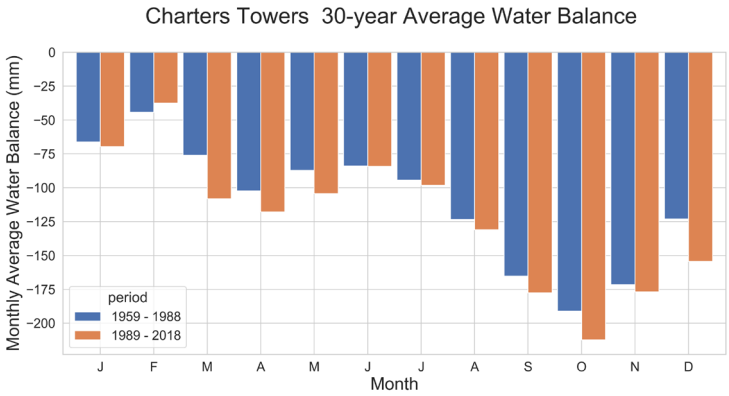
A climate guide for agriculture **Burdekin, Queensland**

Evaporation

Evaporation rates have increased

The graphs show the mean monthly evaporation and water balance (rainfall minus evaporation) between 1989-2018 (orange bars) compared with 1959-1988 (blue bars).
At Charters Towers, evaporation rates have increased by about 10 mm per month in the cooler months and by about 20 mm per month for each month in January and February in the past 30 years (1989-2018) when compared to the previous 30 years (1959-1988).

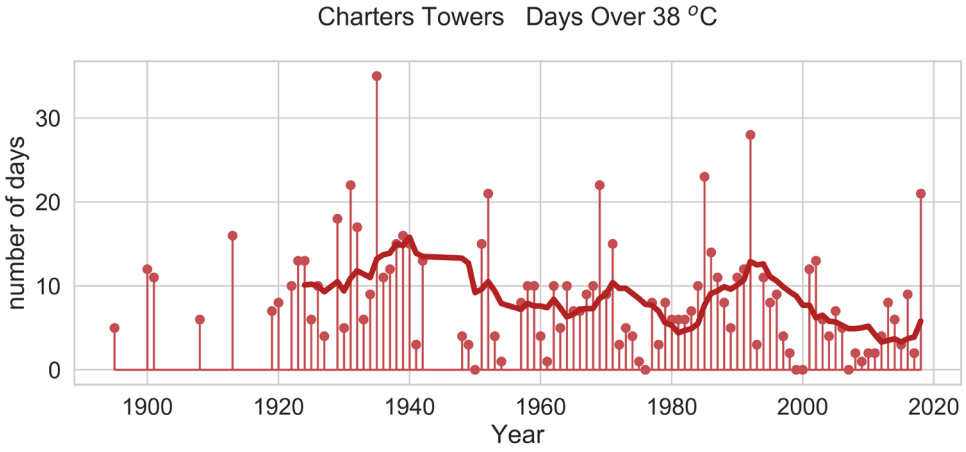




Temperature

The Burdekin 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 Charters Towers. Charters Towers experienced an average of eight days per year above 38 °C between 1989–2018, which was unchanged from the previous period from 1959–1988. While the number of days above 38 °C was unchanged, the incidence of very hot days has increased. Since 1990, temperatures of 42 °C have been recorded for Charters Towers 10 times. Before 1990, the last time the temperature at Charters Towers exceeded 42 °C was in 1965.



Instances of consecutive days above 38 °C have also been more frequent in the past 30 years. In 1994 and 2018, Charters Towers experienced periods of 10 or more days in a row above 38 °C. A run of 10 or more days above 38 °C is unusual at Charters Towers and had not happened since 1935.

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

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