

Australian Actuaries Climate Index shows extreme conditions prevailed in Spring 2019 with records set across States

6 February 2020

- Every region experienced above reference period average extreme high temperatures and several regions broke records.
- Above reference period average consecutive dry days were observed in every region except Tasmania.
- Extreme wind levels for Australia as a whole were the fourth highest.
- The combination of extreme heat, dryness and high levels of wind are likely to have laid the foundations of the severe bushfires observed in recent months.

The [Australian Actuaries Climate Index](#)¹ shows a combination of weather conditions in the Spring of 2019 that are likely to have fuelled the bushfires currently devastating the country.

Every region recorded below reference period² average extreme rainfall, above reference period average extreme high temperatures and several regions broke records.

Every region except Tasmania recorded above reference period average consecutive dry days. And the index showed extreme wind levels for Australia as a whole were the fourth highest on record.

“Fire risk is influenced by a number of weather conditions, including high temperature and dryness, which increase the risk of the initial outbreak of fire,” said Rade Musulin, Australian Actuaries Climate Index spokesman. “High winds result in bushfires spreading rapidly.” All three of these factors were observed in the Spring of 2019.

The latest release of the index showed parts of Western and Southern Australia breaking records for extreme high temperature (as shown in Figure 1.)

As a whole, Australia has not experienced below average extreme high temperatures relative to the base period of 1981 to 2010 since 2012 (see Figure 2).

Several cyclical patterns affected Australia in Spring 2019, including a neutral ENSO, an exceptionally strong positive Indian Ocean Dipole and sudden stratospheric warming over Antarctica.³ This combination can lead to warmer than average Spring temperatures and below average rainfall across large parts of Australia, which is what has occurred.

“The Indian Ocean Dipole has dissipated and thus we should see a return to more normal conditions shortly. However, global warming is affecting Australia, so these natural cycles are superimposed on a long-term trend,” Mr Musulin said.

¹ Use the dropdown menus across the top of the website to access graphs displaying results for Australia or for specific regions and for the AACI or by specific component.

² The Australian Actuaries Climate Index measures extreme values relative to a reference period of 1981-2010 and is based on measurements taken by Bureau of Meteorology from its extensive network of meteorological and coastal tide stations

³ Refer <http://www.bom.gov.au/climate/updates/articles/a035.shtml>, <http://www.bom.gov.au/climate/ahead/outlooks/archive/20191205-outlook.shtml> and various statements at <http://www.bom.gov.au/climate/ahead/outlooks/archive.shtml>.



Actuaries Institute chief executive Elayne Grace said the Index, which collates extremes, is an evidence-based indicator of what's happening in Australia's environment. "We have all seen the devastation of the summer: terrible bushfires, followed by regional hailstorms," Ms Grace said. "The Index records the factors that we know can lead to incredible damage among communities."

Australia also experienced the seventh consecutive season of above reference period average extreme dryness. This is the longest period of prolonged dryness seen since the index begins and is likely to have contributed to the severe bushfires that are currently occurring.

Particularly high values of consecutive dry days were seen in parts of New South Wales, Queensland and across large swathes of central Australia.

The Central Slopes region, which includes parts of NSW and QLD, saw the 3rd highest value of consecutive dry days on record. The Rangelands South and Rangelands North regions, which cover large sections of central Australia and reach into NSW and QLD, experienced the second and fourth highest value of consecutive dry days ever, respectively. These can be seen on the map in Figure 3.

The fourth highest extreme wind values ever were observed across Australia in the Spring of 2019. The Bureau of Meteorology notes that higher than normal atmospheric pressure led to increased wind gusts across Australia, especially in the south east of the country. This is likely to have contributed to the rapid spread of bushfires.

The index, which measures extreme weather conditions and sea levels across Australia, and how these vary over time, was launched in November 2018 and is updated quarterly. The Index shows changes in the frequency, or rate of occurrence, of extreme high and low temperatures, heavy precipitation, dry days, strong winds and changes in sea levels.

It is collated at the end of each season following the release of data from the Bureau of Meteorology. The data is collected nationally and grouped into 12 climatically consistent regions. Each season is compared to the same season in previous years and against a reference period of 1981-2010.

Footnote: References to temperatures, dryness etc. are based on the data underlying the AACI, which tracks changes in the frequency of extreme high and low temperatures, heavy precipitation, dry days, strong wind and changes in sea level, mainly concentrating on the 99th percentile of observations.

A link to the [AACI](#) is here. Rade Musulin is available for comment.

For media inquiries please contact:

Michelle Innis
P&L Corporate Communications
m +61(0) 414 999 693
p +61(0) 2 9231 5411

About the Actuaries Institute

As the sole professional body for Members in Australia and overseas, the Actuaries Institute represents the interests of the profession to government, business and the community. Actuaries assess risks through long-term analyses, modelling and scenario planning across a wide range of business problems. This unrivalled expertise enables the profession to comment on a range of business-related issues including enterprise risk management and prudential regulation, retirement income policy, finance and investment, general insurance, life insurance and health financing.



Figure 1 - Regions Breaking Records for Extreme High Temperature

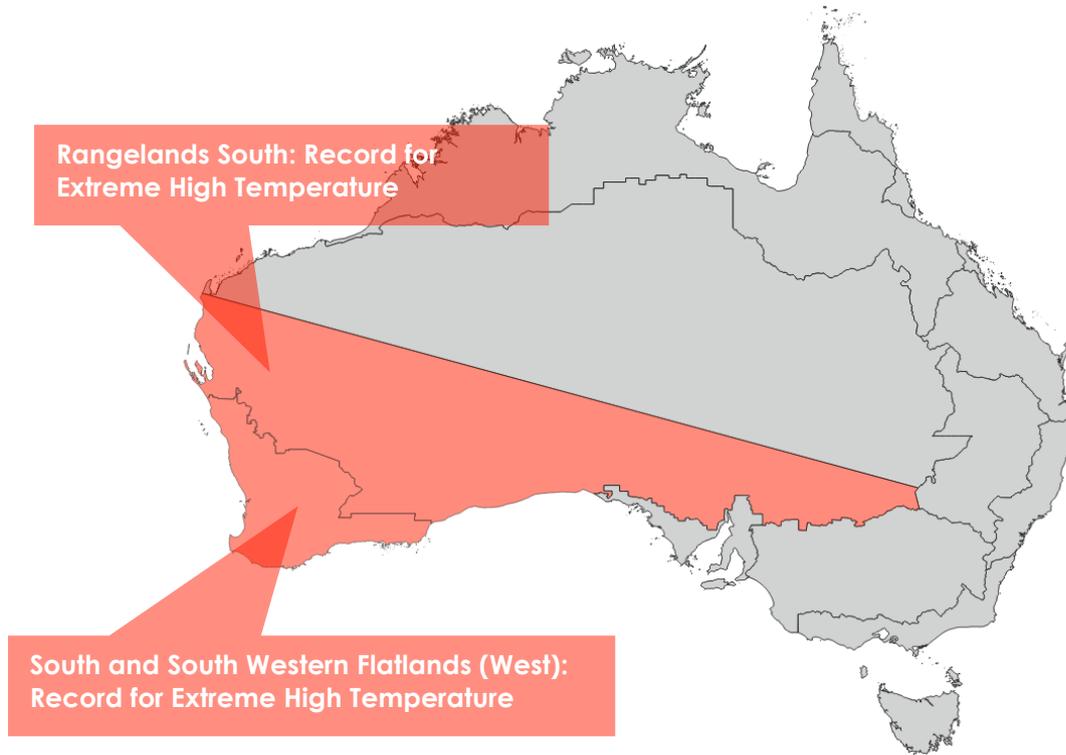


Figure 2: Australian Actuaries Climate Index: Extreme High Temperature

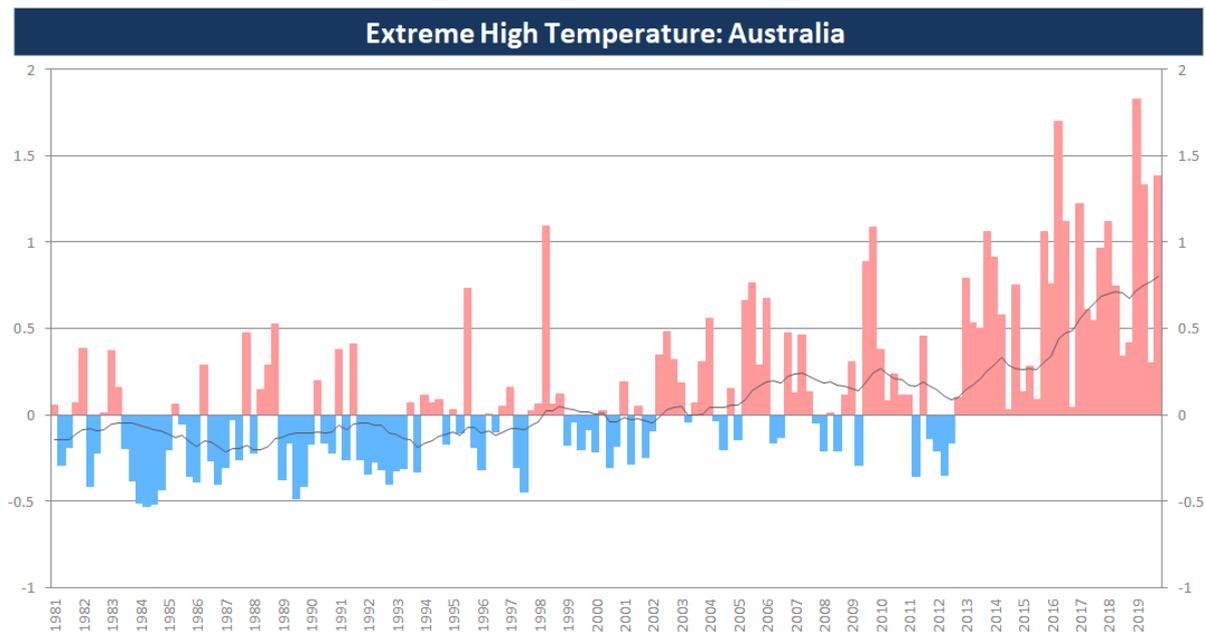




Figure 3: Extreme Dryness Observed in these Regions

