

## Escalating Queensland Bushfire Threat: Interim Conclusions

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**Introductory note:** The Climate Council will publish a report on bushfire risk in Queensland in early 2019. This builds on a significant body of published work by the Council, including a 2016 report entitled *Be Prepared: Climate Change and the Queensland Bushfire Threat*. With devastating and unprecedented bushfires currently burning in Queensland, the Council believes it is important to release the Interim Findings of the upcoming report to provide information for the Australian community.

### Key Findings:

#### 1. Climate change has increased the risk of bushfires in Queensland.

- Bushfire risk is increased by fuel dryness and hot, dry, windy conditions.
- Climate change has increased the incidence of extreme heat, making heatwaves longer and more frequent. Eight of the state's ten hottest years on record have occurred since 1998 (see Figure 1). Since the 1970s, the number of days with maximum temperatures over 35°C in most of Queensland has increased by about 10-45 days above the historical average, depending on the region.
- Tropical and sub-tropical Queensland is often associated in people's minds with warm, humid conditions and moist vegetation not conducive to major bushfires. This is changing. More frequent heatwave events typified by hot, dry air masses coming from the interior result in higher temperatures accompanied by lower humidity. This increases evaporation and rapidly dries out fuels, even in rainforests, making conditions more conducive to major bushfires. Major bushfires were burning as far north as Cairns in August and September 2018.
- Weekly bushfire frequencies in Australia have increased by 40% between 2008 and 2013, with tropical and subtropical Queensland the most severely affected (Dutta et al. 2016).
- Extreme fire weather and longer fire seasons have been observed since the 1970s across much of Australia including Queensland, particularly along the east coast (see Figure 2).

#### 2. The devastating bushfires burning across Queensland in November 2018 have been made worse by climate change.

- In late November 2018, maximum temperature records were smashed at numerous locations including at Cairns (42.6°C), Innisfail (42°C), and Mackay (39.7°C) on Monday 26 November and at Townsville (41.7°C) and Cooktown (43.9°C) on Tuesday 27 November (see Table 1).
- Strong, gusting winds, low humidity and record high temperatures fanned devastating bushfires over the past two weeks, affecting property, infrastructure, ecosystems and

farming land. Climate change is driving a higher incidence of these conditions. Around 130 fires are still burning across the state as of 29 November.

- On 29 November several areas of Queensland experienced “Catastrophic” fire weather conditions for the first time ever recorded. In these conditions fires are uncontrollable and loss of life and property is expected unless large-scale evacuations take place.

### **3. Communities, emergency services and health services across Queensland need to be adequately resourced to cope with increasing bushfire risk.**

- Bushfires in Queensland over the years have caused numerous deaths and losses of property and infrastructure, and have negatively affected agricultural and forestry production, and ecosystems.
- The average annual economic cost of bushfires in Australia is \$1.1 billion per year (Deloitte 2017).
- Inhalation of smoke and gases from bushfires can affect human health, especially in the elderly, young or those with heart or respiratory conditions.
- Increasing severity, intensity and frequency of fires, coupled with increasing length of bushfire seasons throughout Australia, is straining Queensland’s existing resources and capacity for fighting and managing fires.
- During the current fires other states and territories have sent firefighters, fire trucks and aircraft to Queensland to assist. Queensland’s bushfire season usually does not extend this long, and fortuitously, NSW and the ACT, which normally would be experiencing heightened bushfire threats now, have experienced some rain allowing them to release resources.
- Overlapping fire seasons will increasingly restrict the ability of states and territories, and of other countries such as the USA, Canada and New Zealand, to send firefighting assistance. This will drive increased costs for state and territory governments, or alternatively, increased losses.

### **4. Stronger climate change action is needed to reduce bushfire risk.**

- Australia must reduce its greenhouse gas pollution rapidly and deeply to reduce the risk of exposure to extreme events, including bushfires. Burning fossil fuels, like coal, oil and gas, must be phased out.
- So-called ‘clean coal’ or any new fossil fuel projects, such as Adani’s Carmichael mine, are not compatible with effectively tackling climate change.
- We have the solutions at our disposal to tackle climate change, we need to accelerate the transition to renewables and storage technologies, and non-polluting transport, infrastructure, and food production.

Table 1: Selection of November maximum temperature records broken in Queensland this week

<b>Date</b>	<b>Location</b>	<b>New Records (Maximum Temperature Records) (°C)</b>	<b>How much the record was broken by (°C)</b>	<b>Previous record</b>
26 Nov 2018 Monday	Cairns Aero	42.6	5.4	37.2 on 15 Nov 1971
26 Nov 2018 Monday	Proserpine	44.9	3.7	41.2 on 19 Nov 1990
26 Nov 2018 Monday	Innisfail Airport	42	3.2	38.8 on 30 Nov 1992
26 Nov 2018 Monday	South Johnstone	41.3	1.5	39.8 on 30 Nov 1992
26 Nov 2018 Monday	Mackay Airport	39.7	3.1	36.6 on 23 Nov 2008
26 Nov 2018 Monday	Low Isles	38.9	1.9	37.0 on 23 Nov 2008
27 Nov 2018 Tuesday	Cooktown	43.9	2.5	41.4 on 23 Nov 2008
27 Nov 2018 Tuesday	Townsville	41.7	0.7	41.0 15 Nov 1971

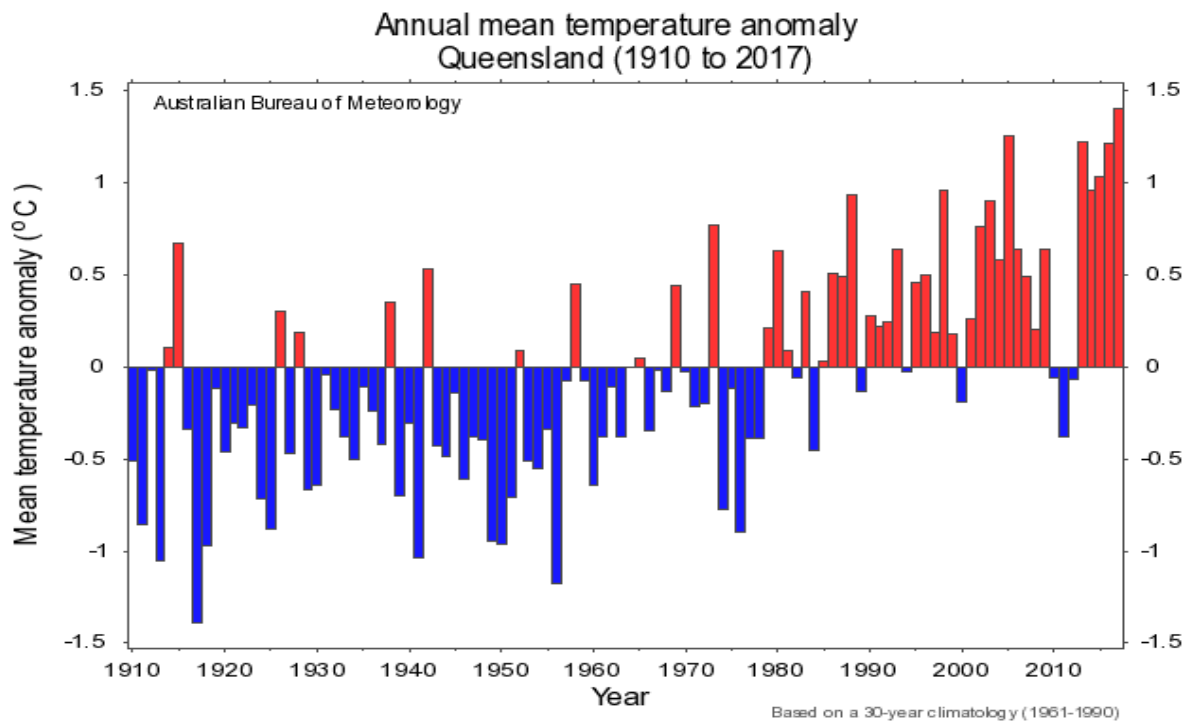
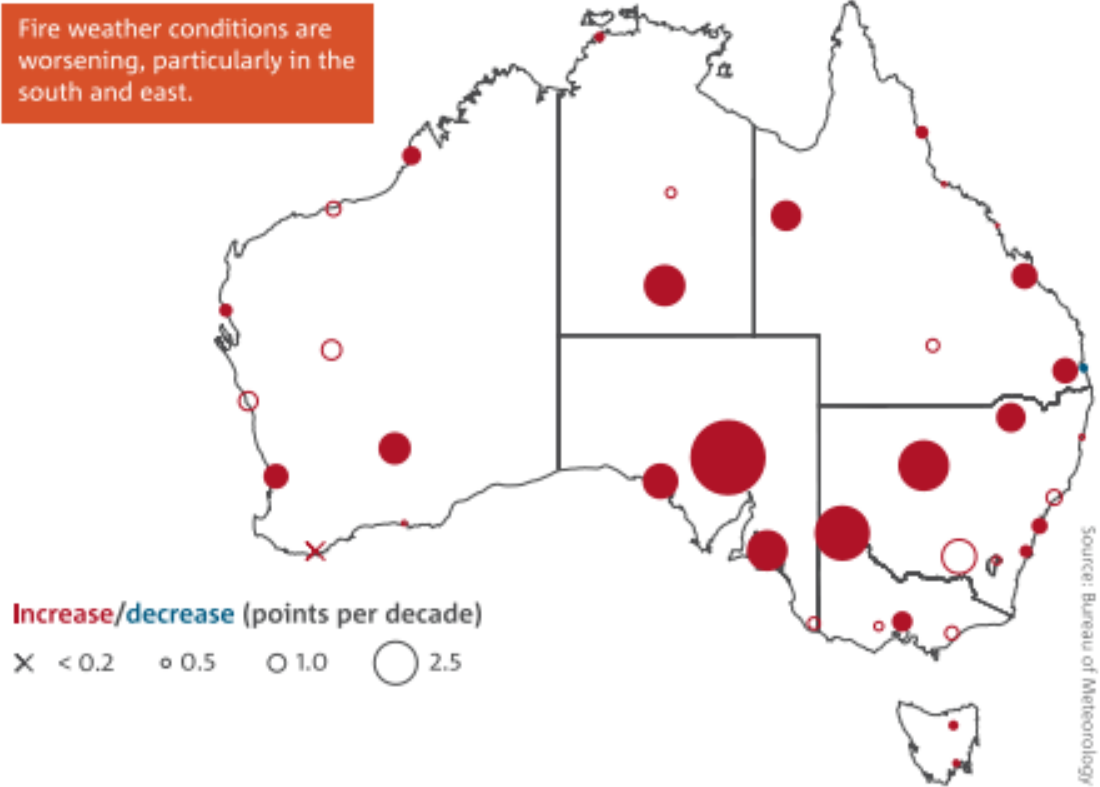


Figure 1: Annual mean temperature anomalies for Queensland (BoM 2018).



Trends from 1974 to 2015 in annual 90th percentile of daily FFDI at 38 climate reference locations. Trends are in FFDI points per decade and larger circles represent larger trends. Filled circles represent statistically significant trends. Trends are upward (in red), except for Brisbane airport (in blue). Figure is updated to 2015 from Clarke et al. (2013).

Figure 2: There is an increasing trend in the Forest Fire Danger Index over most of Australia (BoM 2016).

# SOUTHERN AUSTRALIA SEASONAL BUSHFIRE OUTLOOK 2018

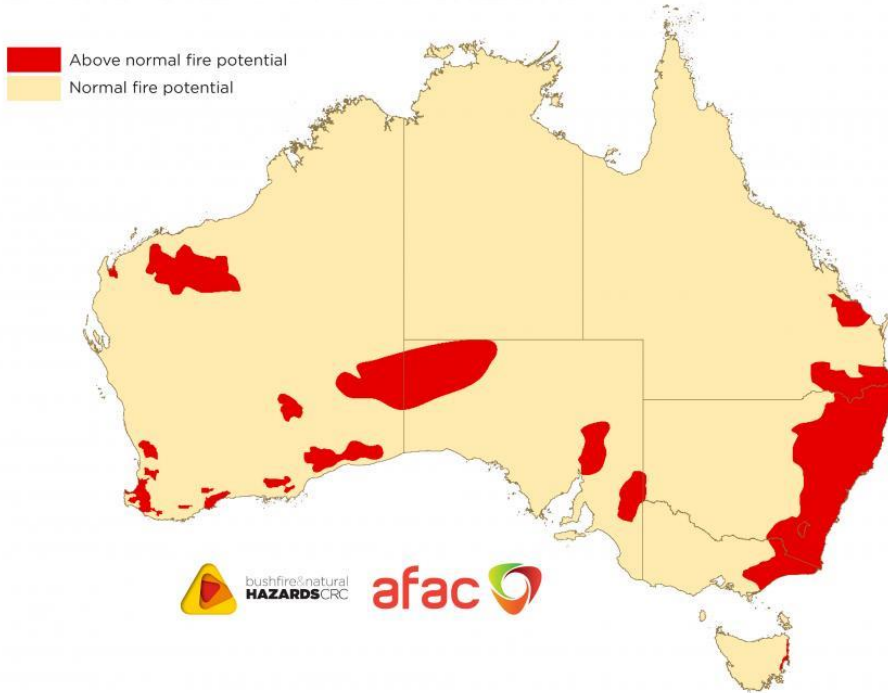
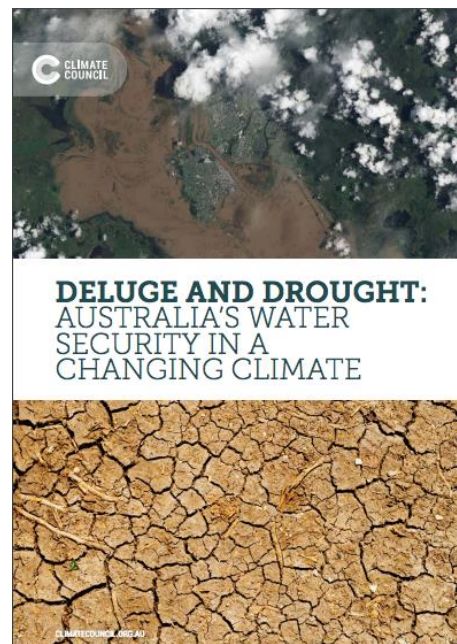


Figure 3: Southern Australian Bushfire Outlook 2018 (BNHCRC 2018).

## Further reading



<https://www.climatecouncil.org.au/uploads/ba4baa02993f3e86102e7b020e6be8f9.pdf>



<https://www.climatecouncil.org.au/wp-content/uploads/2018/11/Climate-Council-Water-Security-Report.pdf>

## References

BoM (2018) Annual Mean Temperature Anomaly Queensland. Accessed at: [http://www.bom.gov.au/climate/change/#tabs=Tracker&tracker=timeseries&tQ=graph%3Dtmean%26area%3Dqld%26season%3D0112%26ave\\_yr%3D0](http://www.bom.gov.au/climate/change/#tabs=Tracker&tracker=timeseries&tQ=graph%3Dtmean%26area%3Dqld%26season%3D0112%26ave_yr%3D0)

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Deloitte (2017) Building resilience to natural disasters in our states and territories. Accessed at: <https://www2.deloitte.com/content/dam/Deloitte/au/Documents/Economics/deloitte-au-economics-building-resilience-natural%20disasters-states-territories-161117.pdf>

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