



Australian Actuaries Climate Index shows frequency of extreme hot days rising

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The Australian Actuaries Climate Index, updated for the first time since its launch in late 2018, shows the number of extreme hot days was above historical levels in both Winter and Spring 2018, and portions of Australia remained extraordinarily dry showing distinct signs of drought.

The Index provides an objective measure of extreme weather conditions and sea levels across Australia and how these vary over time.

It is collated two months after the end of each season following the release of data by the Bureau of Meteorology.

The Index shows changes in the frequency (rate of occurrence) of extreme high and low temperatures, heavy precipitation, dry days, strong wind and changes in sea levels. These components have a strong correlation to risk, an area of expertise for actuaries.

Actuaries Institute chief executive Elayne Grace said the Australian Actuaries Climate Index was designed to show Australia's policymakers and business leaders how the frequency of extremes, and hence risk, is changing. Extremes pose the greatest risks, in terms of the impact on people and businesses and, potentially, the greatest cost to the economy.

"Based on the readings, we recognise that climate change is expected to have major environmental, economic and social impacts, and it poses a serious risk to the industries that actuaries advise," Ms Grace said. "We estimate annual natural peril cost to Australia of \$11 billion to \$12 billion, of which only 40% is insured. This figure includes public assets and the cost of intangible losses, such as mental health and family breakdowns, as a result of natural disasters."

Although the six months were relatively benign overall, the Australian Actuaries Climate Index shows that the frequency of hot days in Winter and Spring was above historical levels, said Tim Andrews, a Principal at Finity Consulting and the lead author of the index. The reference period, or baseline, for the index is 1981 to 2010.

"In particular, Spring in 2018 was hot for parts of Northern Queensland, and the Index bears this out with a higher than average number of hot days in that region," Mr Andrews said. "The Index also shows evidence of the drought impacting some parts of the east".

The index also continues to show decreased winter rainfall in a number of the southern regions.

The key observations from the latest index update are illustrated in Figure 1 on page three.

The data, collated from the Bureau of Meteorology's extensive network of weather stations and tide gauge facilities, is collected nationally and grouped into 12 climatologically consistent regions. Each season is compared to the same season in previous years, back to 1980, which shows how the extremes are trending over the long term.



Ms Grace said over time, the Index will help business better assess how weather extremes translate into financial risk. She said Australia's regulators are already calling for greater risk disclosure from businesses.

In February, Australian Prudential Regulation Authority executive board member Geoff Summerhayes told a conference, "regulators' current stance of merely encouraging climate-risk disclosure will inevitable harden towards making such disclosure mandatory."

Speaking as the chair of the UN Sustainable Insurance Forum, in London, Mr Summerhayes said: "Although insurers are the most obviously exposed to the physical impacts of climate change through the potential for higher claims, the flow-on effects have the potential to harm every financial industry and impair global economic growth."

He urged better disclosure by Australian businesses but also noted that there is a need for more robust data.

Mr Andrews, from Finity, warned the next update would capture data that reflects Australia's horror summer of floods, fires and wildlife devastation.

"Recent events such as the floods in Townsville, the bushfires in Tasmania, and the fish die-offs in the Murray Darling Basin illustrate the impact that extreme weather conditions can have in Australia," he said.

The Australian index was built following the establishment of a similar tool for Canada and the United States, supported by a number of actuarial groups including the American Academy of Actuaries and the Society of Actuaries.

LINK: [Australian Actuaries Climate Index](#)

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Figure 1 – Key Observations from Winter and Spring 2018 Australian Actuaries Climate Index

