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# ACTUARIES CLIMATE INDEX POINTS TO DISEASE RISK, INCREASED FUEL LOAD

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The Australian Actuaries Climate Index results for the summer of 2023/24 show that both low and high temperatures were warmer than usual. In addition, high levels of extreme rainfall and wind were observed in the north east.

The Index, which measures the frequency of extreme weather conditions and how they vary over time, showed elevated temperatures across the north east between last December and February.

The East Coast (South) and Wet Tropics cluster regions of NSW and Queensland recorded the third and fourth highest high temperature index values to date.

Eastern parts of Queensland, NSW, and Victoria also recorded the highest low (minimum) temperature index value to date. A sometimes overlooked consequence of global warming involves higher minimum temperatures, which can raise the risk of pests and diseases spreading across parts of Australia and affect agricultural production.

Meanwhile, the extreme rainfall index was high for northeastern parts of Queensland, which was struck by Cyclone Jasper and Cyclone Kirrily during the summer.

As a result, the Index recorded its 34th consecutive positive value, indicating the frequency of extreme weather was above the average for the Index's base period of 1981-2010.

Rade Musulin, lead collator of the Australian Actuaries Climate Index, said the results indicate that we need to maintain our focus on future proofing building codes and land use policies, while also paying attention to how warmer-than-usual temperatures can impact ecosystems.

"Insects and pathogens may change their geographic scope, particularly if higher minimum temperatures persist into winter, because they will not be killed off as early as they normally would," he said.

"Those warmer temperatures can also impact agricultural production and people's health, particularly because it is harder to sleep if it does not cool down after a sweltering day."

Last summer was the third warmest on record, according to the Bureau of Meteorology, which has forecast an increased likelihood of unusually high temperatures between May and July.

"We need to be on guard if these warmer temperatures from summer continue into autumn and winter," Mr Musulin said.

Mr Musulin said that although we have been in an El Niño cycle usually associated with hot, dry conditions, the significant rain events in Queensland during the summer were likely affected by elevated sea surface temperatures pushing more moisture into the air.

"When you have warmer temperatures and high sea surface temperatures you get more precipitation. This can contribute to bigger fuel loads in the bush, which combined with factors such as insect damage to trees, can raise the risk of bushfires next summer," he said.

"For example, warmer temperatures have significantly influenced the range and impact of pine beetle infestations in Canada, and this has been linked to recent extreme wildfires there".[1]

**Rade Musulin, lead collator of the AACI and Principal at Finity Consulting, is available for comment.**

[1] https://www.sciencedirect.com/science/article/abs/pii/S0168192309002731

**The latest Actuaries Digital article on the AACI can be found here**

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**About the AACI**

The Index measures the frequency of extreme weather conditions and sea levels across Australia and how these vary over time. It covers extreme high and low temperatures, extreme rainfall, consecutive dry days, extreme wind and sea level.

Unlike many other measures, the climate index focuses on changes in the extremes. This is a more relevant metric for the insurance industry than averages, as it correlates more closely with damage. This is done by measuring how often we observe exceedances of the 99th percentile of the reference period of 1981-2010.

**About the Actuaries Institute and the Profession**
As the peak professional body in Australia, the Actuaries Institute represents the profession to government, business and the community, and serves the public interest by using data for good.

Actuaries use data for good by harnessing the evidence to navigate into the future and make a positive impact. They think deeply about the issue at hand, whether it's advising on commercial strategy, influencing policy, or designing new products. Actuaries are adept at balancing interests of stakeholders, clients, and communities. They're called upon to give insight on complex problems, they'll look at the full picture. Actuaries analyse the data and model scenarios to form robust and outcome-centred advice.



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