Australian Actuaries Climate Index shows Summer of record extremes: temperatures, rainfall, drought

30 May 2019

- Summer climate index shows record extremes
- Hot days at all time high
- Extreme rain fell in the tropics
- Parts of NSW remained in drought

The Australian Actuaries Climate Index shows Summer of 2018-19 was a season of record extremes; the number of hot days reached record levels, there were all time high levels of extreme rainfall in tropical regions and parts of central NSW were caught in ongoing drought.

The index was released today, and is the second quarterly update of extreme weather conditions and sea levels across Australia, and how these vary over time.

"The Australian Actuaries Climate Index is a great example of how actuaries can analyse data to ensure important and complex public policy issues are worked through objectively," said Actuaries Institute President Nicolette Rubinsztein.

The index level for the summer corresponds to a 200% increase in the frequency of extreme high temperatures relative to the reference period (1980-2010). (See figure 1).

"The most recent Summer has been the hottest on record, both in terms of average temperatures as reported by the Bureau of Meteorology and in terms of the frequency of extreme temperatures as measured by the Australian Actuaries Climate Index," said actuary Tim Andrews, who led the development of the index.

"The Bureau of Meteorology predicted this summer's hot weather and reported it would be driven by a combination of the long-term increasing trend in global air and ocean temperatures, and the El Niño weather conditions," he said.

The index also shows clear evidence of the sustained rainfall that caused flooding in North Queensland, and continuing drought experienced in central NSW (see figure 2).

Estimates consider the Queensland floods to be much rarer than a 1-in-100 year event. In Townsville 1260 mm of rainfall was recorded, smashing previous records, as a slow-moving low pressure system dumped rain for an extended period in late January and early February.

"The attribution of individual events to climate change is challenging to assess due to high levels of natural variability, but the Townsville event is consistent with expectations for rainfall intensity to increase," Mr Andrews said.

He added that despite heavy rainfall in Australia's north, there were significant parts of NSW and Southern Queensland experiencing extremely dry conditions during the Summer months.

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

The Index is collated at the end of each season following the release of data by the Bureau of Meteorology. The data 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. Extremes present the greatest risk to people, communities, the environment and economy.

Actuaries Institute chief executive Elayne Grace said: "This index highlights the importance for companies of managing climate risk. Australia's regulators are already calling for greater risk disclosure from businesses and this index can be one step along that road."

Ms Grace said over time, the Index will help business better assess how weather extremes translate into financial risk.

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.

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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.

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Figure 1 – Australian Actuaries Climate Index High Temperature

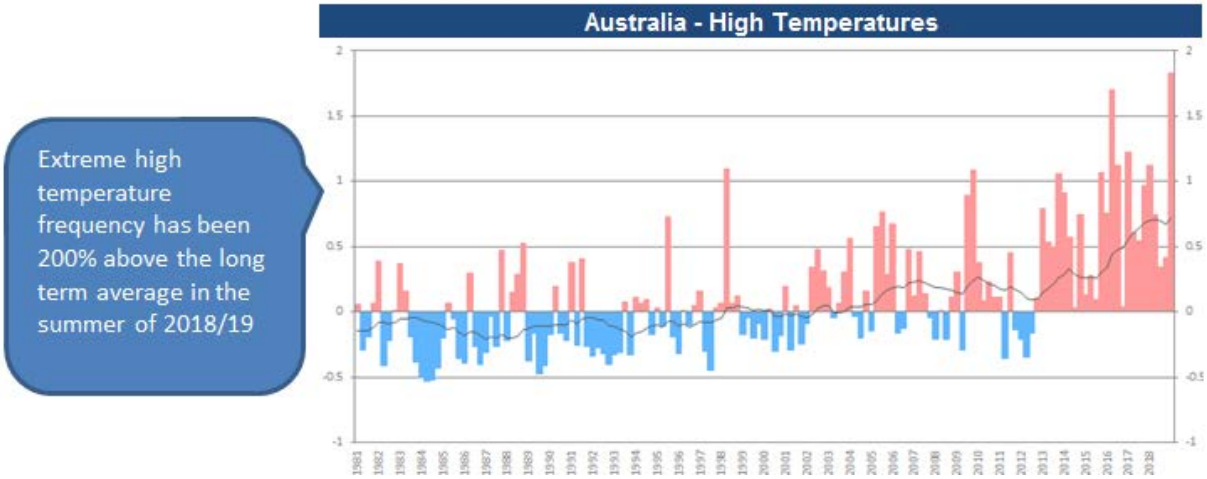
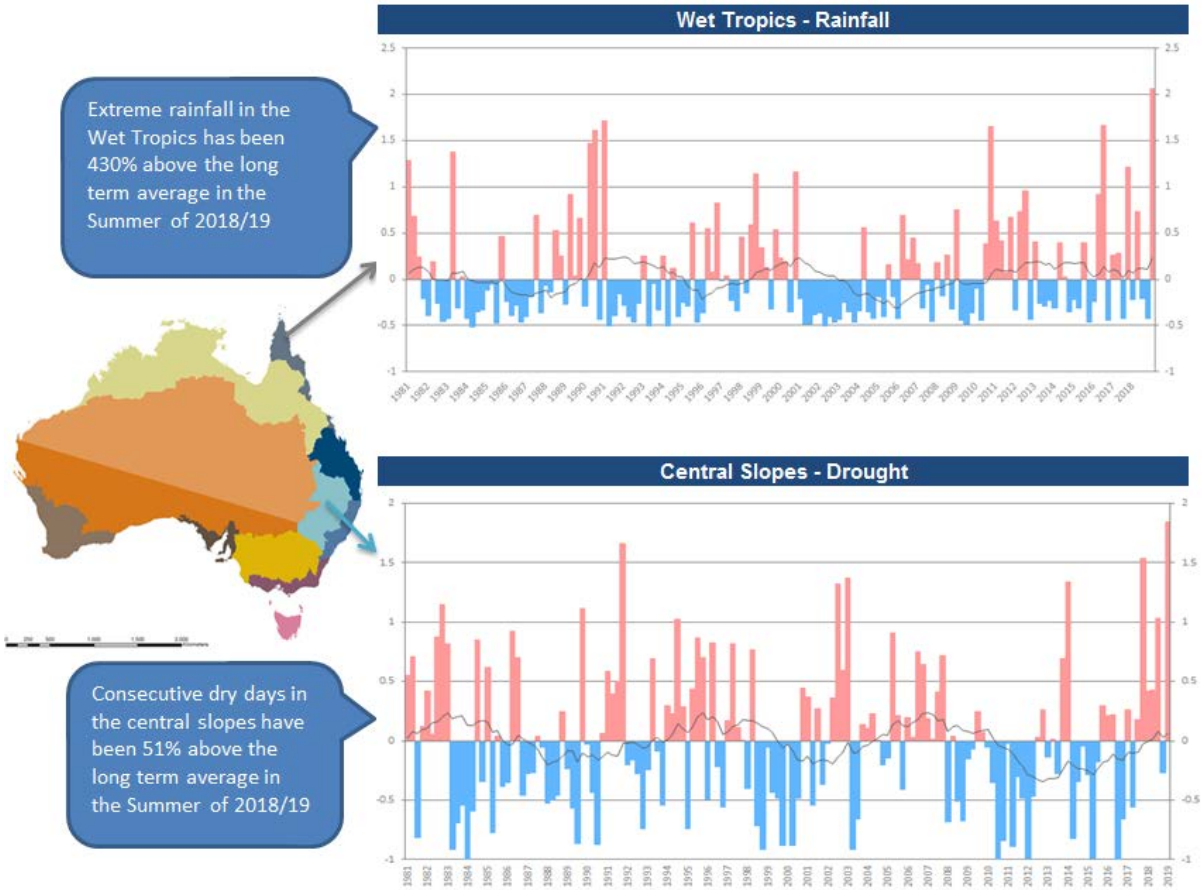


Figure 2 – Australian Actuaries Climate Index Regional Results



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