ANTARCTIC CLIMATE
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Senate Standing Committees
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Dear Sir/Madam

Recent Trends in and Preparedness for Extreme Weather Events

Please accept this brief submission to the enquiry into "Recent Trends in and Preparedness for Extreme Weather Events". I apologise for the lateness of this submission.

The Antarctic Climate and Ecosystems Cooperative Research Centre (ACE CRC) in Hobart Tasmania conducted a detailed analysis of the past and future climate of Tasmania in a major project, *Climate Futures for Tasmania*. Part of this project looked specifically at extreme events. In summary, the study found:

> **Hot summer days and heat waves are projected to increase** in Tasmania in the future. Under a high greenhouse gas emissions scenario the number of summer days warmer than 25 °C is projected to double or triple that of the recent climate record. The largest increases in extreme temperature are projected to be in spring and autumn, with increases greater than 4 °C leading to a lengthening of the summer season. Heat waves (three days in a row above 28 °C) are expected to become more frequent – up to four times more frequent than historical records for Launceston, for example.

> There will **more frequent and more intense extreme rainfall** events interspersed with **longer dry periods of no rain**. It is projected that there will be an increase of about 25% in the number of days of extremely high rainfall in both the south west and north east of Tasmania. Peak intensity rainfall events are projected to increase across Tasmania, leading to increased flash flooding. Accompanying this increased intensity of rainfall will be a decrease in the total number of rain days, and thus longer periods between rain events.

The ACE CRC is a unique collaboration between core partners the Australian Antarctic Division, CSIRO, the University of Tasmania, the Australian Government's Department of Climate Change & Energy Efficiency, the Alfred Wegener Institute for Polar and Marine Research (Germany) and the National Institute of Water and Atmospheric Research Ltd (New Zealand) and a consortium of supporting partners. It is funded by the Australian Government's Cooperative Research Centres Program.

Extreme and record rainfall events are projected to become more frequent: **in some places a 1:200 year event will become a1:20 year event**. Flooding in the Mersey, Forth and Huon Rivers is expected to increase significantly.

Increase in mean sea level is projected to be between 5 and 14cm by 2030. Such a rise will lead to 1:100 year storm tide events doubling in frequency. By the end of the 21st century the 1:100 storm tide is projected to be an annual event for higher emissions scenarios. Sea level rise will continue well past the end of the century resulting in more frequent flooding from the sea over the next 100 years. The addition of more intense rainfall events will exacerbate the impacts of sea-level rise on flooding in rivers (and vice versa).

The *Climate Futures for Tasmania* project provides a comprehensive assessment of the impacts of climate change across a wide spectrum of the economy of Tasmania. I have enclosed copies of the *Climate Futures for Tasmania* Extreme Events Technical Report and its accompanying Summary, and the Extreme Tide and Sea-Level Events Technical Report for your Committee's information. These and other *Climate Futures for Tasmania* reports can be downloaded from

http://www.acecrc.org.au/Research/Climate%20Futures

I would be pleased to provide additional information if required.

Yours sincerely

AJ Press
CEO

5 February 2013