Understanding risk and decision-making in remote and extreme environments.

Natural Hazards Research Australia

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Use of Weather and Climate Information: Risk Perception and Decision-making in the Antarctic, sub-Antarctic and Australia.

This research focuses on the use of weather, water, ice, and climate information in Antarctica and Australia, to inform service provision, education in decision-making and risk communication, and serve as a model of best practice globally.

A better understanding of people's decision-making and informational needs is required to improve weather services and develop aware, prepared, and resilient communities. Differences in culture, context, experience, individuals and other factors influence how people perceive, comprehend and act on information. Furthermore, these cultural differences mean international research may not be generalisable to Australia populations. Therefore, we need to study individual differences, information use, and warnings comprehension across a variety of situations, activities and locations, and develop a local body of evidenced-based empirical research.

As a part of a series of studies beginning to address these gaps, an online survey (2021-22) examined individual differences and weather information use. The survey piloted measures and questions about experience, warning response, activities, risk perception, and weather information use. Participants were UTAS students (N = 484, 72% female, mean age 27.5 yrs., *SD* = 11.2) mainly from Tasmania (Figure 1). Most accessed forecasts several times per week or more often (Figure 2). Bushfires, heavy rain and damaging winds were perceived as the greatest risk (Figure 3) reflecting recent and/or more commonplace weather events. Over half (63%) correctly ranked warning levels by decreasing urgency.
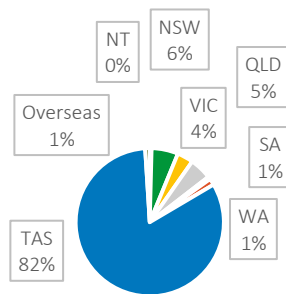

Figure 1: Participant's location.

Some participants had responded to warnings: bushfire 46%, severe weather 34%, flood 28%, thunderstorm 20%, tsunami (2%) (unsure 11%, never 18%). Overall, a third had limited experience with warnings and severe weather. Findings help understand community risk awareness and gaps in hazards and warnings knowledge.
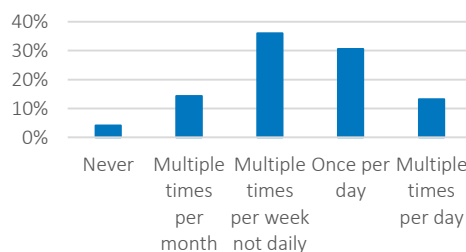

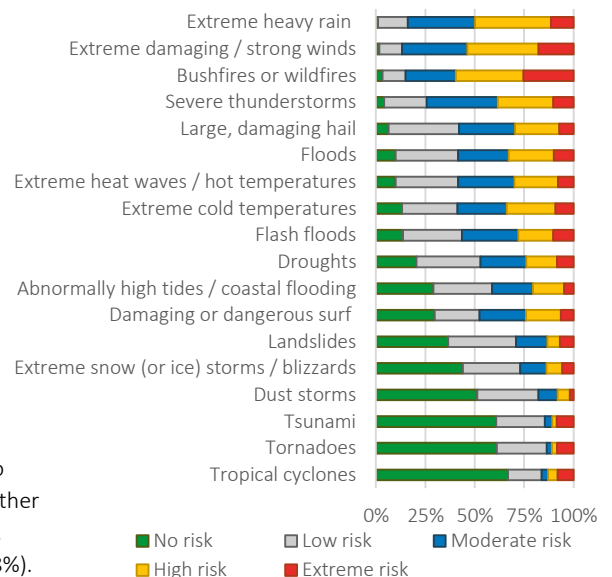*Figure 2:* Frequency of weather forecast use.

Figure 3: Ratings of the risk of extreme weather events in a participant's area.

Infrequently experienced hazards may not be expected, nor perceived as a risk, leading to insufficient preparedness and warning responses. We found that some participants, unaware of their hazard risks or lacking knowledge of warnings terminology, may be more vulnerable to severe weather. Results may help target and improve engagement and education to build preparedness, develop vital community competencies, and enhance people's safety and wellbeing during hazardous weather.

Further information

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