

New national Bushfire and Natural Hazards Cooperative Research Centre begins

A new \$130 million Cooperative Research Centre will draw together all of Australia's fire and emergency service authorities with the nation's leading experts across a range of scientific fields to explore the causes, consequences and mitigation of natural disasters.

The establishment of the Bushfire and Natural Hazards Cooperative Research Centre acknowledges ongoing impacts of natural hazards upon communities, emergency service providers, governments, agriculture and other industries.

The Bushfire and Natural Hazards CRC has received funding (cash and in-kind) of \$130 million over eight years. A \$47 million grant from the Australian Government's Cooperative Research Centres Program has been more than matched by support from the emergency service and land management agencies from all states and territories and New Zealand as well as non-government organisations.

Research partners include leading universities, the Bureau of Meteorology, and Geoscience Australia. Industry partners include the Australasian Fire and Emergency Services Authorities Council (AFAC) and the Red Cross.

The Chairman of the Bushfire and Natural Hazards CRC, Dr Laurie Hammond, said the CRC will build on 10 years of high quality scientific research at the Bushfire CRC and will expand the research effort into other natural hazards including flood, earthquake, cyclone and tsunami.

"This investment in research is linked to the National Strategy for Disaster Resilience and will improve approaches to mitigation, operational responses and community resilience to natural hazards," said Dr Hammond.

The creation of the Bushfire and Natural Hazards CRC delivers on a key recommendation of the 2009 Victorian Bushfires Royal Commission which called on the Commonwealth to establish a national research centre for bushfire, and extends it to cover all hazards. The CRC is based in Melbourne but partners and researchers are in every state and territory and in New Zealand in a nationally coordinated research program.

The CEO of the Bushfire and Natural Hazards CRC, Dr Richard Thornton, said the CRC was largely end-user driven. "The emergency service agencies, departments and non-government organisations around the country that become partners have a leading say in the development of the research program," said Dr Thornton.

"The eventual utilisation of the research by the partners for the benefit of the broader Australian community is critical to the whole process of developing a solid research program.

“Researchers and emergency service personnel will be working together under the Bushfire and Natural Hazards CRC on the major issues in natural hazards including fire spread modelling, severe weather forecasting, flood forecasting, storm surges, building in hazard zones, disaster education, and workforce and volunteer management.

“This will improve both the scientific understanding and the practical knowledge needed for communities to better prepare for, respond to and recover from natural disasters.”

Importantly, most of the new research will not be hazard specific but cross-disciplinary, drawing on the expertise of scientists across a range of fields on issues common to all hazards.

The three broad clusters span the priorities for those working in multi-hazard environments:

Economics, policy and decision making – allocating resources for the greatest benefit

Resilient people, infrastructure and institutions – identifying vulnerability, managing the risk and increasing resilience.

Bushfire and natural hazard risks – improving communications, warnings and predictions of fire, flood, storms and other hazards through more accurate forecasting and modelling.

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New science for safer communities –highlights of the research program

Improving predictions for severe weather

High-resolution computer modelling will enable us to better understand and predict important meteorological natural hazards, including fire weather, tropical cyclones, severe thunderstorms, and east coast lows. This will help reduce the impact and cost of these hazards on people, infrastructure, the economy and the environment.

Getting a better sense of when disasters will occur

Innovations in the field of remote sensing technology are now being applied across the range of natural hazards. Through this work, scientists are developing better forecasts of hazard events, better analysis of the pre-conditions to a hazard, and a more detailed and complex analysis of the impacts of actual natural hazard events.

Fire spread modelling

Researchers will develop the science to guide emergency and disaster management organisations to predict the rate of spread and intensity of bushfires across a range of fuel types.

Burning for water and carbon

Fuel reduction burning in eucalypt forests has traditionally focussed on impacts to the trees. What has been lacking, but which has become increasingly important, is knowledge of the effects of broader on fuel loads, other vegetation types, and on the carbon and water storages.

Engaging and retaining our volunteers

As recent large disaster events have shown, spontaneous volunteering by largely untrained and unaffiliated community members has become a significant issue for governments and the emergency service agencies. Can more non-traditional forms of volunteering be called upon as a surge capacity as natural hazards events become more frequent? Elsewhere, volunteers are the backbone of the emergency services sector but agencies are grappling with how to avoid the high attrition rates that increase costs and reduce their organisations effectiveness by relying on a small overworked core of volunteers. How can organisations change from within to reverse this trend?

Planning to make the right responses when disaster hits

Communication of risk and warnings are central to our natural disaster response but recent events have shown that communities under threat do not always act as expected, threatening their safety. This project will develop ways for better planning and preparations that will lead to safer responses during disasters and will allow for better recovery after the event.

Understanding the tsunami risk

Tsunamis are less common in Australia than other natural hazards. This presents a problem for emergency agencies attempting to educate or warn the public of a risk that has a low likelihood of

occurring but a high impact if it did. This project will devise ways to better engage the Australian public on tsunami risk.

Working with fire in Top End communities

In north Australia many indigenous people live in remote communities ill-served by existing emergency services. Researchers will work with local communities to build on the existing knowledge of bushfires and other natural hazards to better deal with risks across the region.

Building better infrastructure

Inappropriate or outdated buildings in regions prone to bushfires, earthquakes, cyclones or floods, can exacerbate the impacts of these natural disasters. Researchers will be examining the elements of good building and how they can be achieved across our communities.

The politics of natural hazards

Policy decisions made by all levels of government on emergency management may help or hinder the ability of communities to prepare for or respond to natural hazard events. How can the responsibility for community safety be a shared responsibility between policy makers and the community? How can the impacts of natural hazard events be reviewed to help communities prepare for future events and not just focus on past ones?

Counting the costs

What are the financial implications and benefits across a range of options in natural hazard management? How do we calculate the full costs of damages from natural hazard events across all sectors of industry and agriculture?

Searching our past to see our future on fatalities and building loss

Searching databases back to European settlement in Australia researchers will analyse the trends in building damages, fatalities and injuries caused by natural disasters. These trends will be projected into the future in the context of emerging issues such as an ageing and shifting population, and a changing climate.

Preparing for the worst – always including children

Including children in disaster risk education increases their confidence and ability to deal with natural hazard events, reduces their risk and assists in recovery. Researchers will conduct a comprehensive review of disaster management plans across Australia to ensure they are child-centred.

Managing animals in disasters

Domestic pets, commercial animals, livestock, and wildlife – research has shown that communities under threat place a high value on providing protection for their animals, often at great risk to themselves. Researchers will develop guidelines and training for policy developers and emergency service responders to ensure animals are integrated in public safety education and messaging.