Research focus 2022–23

Natural Hazards Research Australia (the Centre) is Australia's research and implementation centre for natural hazards resilience and disaster risk reduction. The Centre began on 1 July 2021 and is now working closely with the Australian Government and other partners across Australia to deliver a strategic research agenda for the nation.

The Centre is focused on research that will promote natural hazard resilience and reduce disaster risk. The research will support the needs of a variety of critical stakeholders – including emergency service agencies and communities – in mitigating impacts of, responding to and recovering from disasters caused by natural hazards.

The Centre's research program has been developed in consultation with our stakeholders and informed by:

→ global knowledge and experience

→ gaps in knowledge and capability

→ the need for a balanced research portfolio across mitigation, response and recovery

→ the need for knowledge that is usable and timely.

Our scope

The initial research scope includes:

→ bushfire
→ flood
→ cyclone
→ heatwave
→ storm
→ coastal inundation
→ earthquake
→ tsunami
→ landslide

Find supporting research documents and the portfolio of projects on our website
www.naturalhazards.com.au

Our research areas

Dynamic building damage and repair modelling
Purpose: To inform policy and practice on the cumulative effect of building damage and loss caused by natural hazards.

Dynamic situational awareness
Purpose: To ensure that information is collected, interpreted and made available in a timely and appropriate way to all emergency services, essential services, business, governments and communities, to inform effective and appropriate actions.

Natural hazard focused risk management and risk reduction
Purpose: To better utilise natural hazard science in developing tools, capabilities and knowledge that will assist in reducing disaster risk.

Incident management and decision-making in a dynamic and uncertain environment
Purpose: To contribute to the development of leaders and leadership teams that are able to function and make effective decisions in times of crisis.

Responsive recovery
Purpose: To develop evidence that supports recovery, informs policy and practice, learns from the past and plans for the future, through joint government–NGO–community approaches.

Understanding the needs and values of communities through a natural hazard lens
Purpose: To understand community expectations and their evolution over time, and inform disaster and emergency management, relief and recovery planning, community resilience and the likely effectiveness of local mitigation activities.

Strengthening and preservation of business and community lifelines
Purpose: To guide policy development, mitigation activities, logistics and disaster and emergency management planning (for businesses and communities) that will minimise significant disruptions to essential lifelines, and to develop strategies to repair failed lifelines.

Underpinning themes

Opportunistic and responsive activities
Responding to disasters and tactical needs of partners

Future workforces
Preparing staff and volunteers to operate in future environments

Data curation
Sector leadership in data collection, identification, collation, curation

Supporting national systems and capabilities
This could include: Australian Climate Services, National Bushfire Information Capability, Australian Research Data Commons, Geoscience Australia, Bureau of Meteorology, CSIRO, Emergency Management Spatial Information Network of Australia, National Health and Medical Research Council, Australian Research Council, Australian Fire Danger Ratings System, AFAC.

Our projects 2022–23

These projects are currently underway, with more to be added soon.

→ Translation of observed and modelled extreme bushfire behaviours to improve fire prediction and fireground safety

→ Understanding the design, communication and public dissemination of predictive maps

→ Cultural land management (northern): connecting Indigenous people and the emergency management sector with effective partnerships

→ Cultural land management (southern): cultural land stewardship research in south-east Australia

→ Community-led recovery: evidence and support for Community Recovery Committees

→ Identifying water sources for aerial firefighting

→ Bushfire information database – a scoping study

→ Understanding the resilience of lifelines for regional and remote communities

→ Research data management

→ Awareness, education and warning programs for cascading and compounding natural hazards

→ Predictions and warnings for flash flooding

→ Effects of bushfire on residential properties

→ Decision-making in emergency management

→ Bushfire risk at the rural-urban interface

→ Severe weather impact prediction

→ Modelling the impacts of cascading and compounding natural hazards on built environments

→ Natural hazard impacts in urban environments