

Natural Hazards Research Australia (the Centre) is Australia's research centre for natural hazards resilience and disaster risk reduction. The Centre began in 2021 and is working closely with the Australian Government and other Participants to deliver a strategic research agenda that is led by those who will ultimately use the research outputs to inform policy and to improve decision making.

The Centre's user-focused research promotes natural hazard resilience and reduces disaster risk, to 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 is built on the strong foundations, research outputs and capacity building of the Bushfire CRC and the Bushfire and Natural Hazards CRC.

The Centre's vision:
that communities will be safer, more resilient and sustainable in the face of natural hazards

The Centre's mission:
to work with participants and the community on research that is useful, actionable and supportive of better decision-making to save lives and protect communities

Key recent achievements

- Two Natural Hazards Research Forums held – October 2022 and May 2023
- Launch of 2022 floods research in New South Wales, Queensland, Victoria, South Australia and Tasmania.
- Completion of Black Summer research
- Launch of SES Fit For Task program based on Centre research
- Launch of Assisted Relocations discussion paper with Suncorp Group
- Completion of Reconciliation Action Plan
- Launch of work placement program and First Nations scholarship
- National awards received to recognise research achievements
- Contributions to National Climate Risk Assessment.
- Innovation and early career engagement through two Disaster Challenges
- Establishment of International Research Advisory Panel

RESEARCH MAKING A DIFFERENCE

NHRA RESEARCH INFORMED
AIDR HANDBOOK
18,348
DOWNLOADS

AUSTRALIAN DISASTER
RESILIENCE INDEX
491,000
USER SESSIONS

AUSTRALIAN EXPOSURE
INFORMATION PORTAL
40,000
REPORTS GENERATED



Key upcoming activities

- Research investment underway with more rounds set to open in 2024 and beyond.
- Disaster Challenge 2024
- Natural Hazards Research Forum 2024
- Development and launch of data catalogue

\$18M FUNDING ALLOCATED
6:1 ROI

39 PHD STUDENTS AND **22** ASSOCIATE PHD STUDENTS
4 ECR FELLOWSHIPS AWARDED

32 TOTAL PARTICIPANTS
52 PROJECTS IN PROGRESS
3 COMPLETED
24/24 ACTIONS OF NATIONAL ACTION PLAN FOR DRR SUPPORTED
47 RESEARCH PROVIDERS

Our projects

Natural Hazards Research Australia projects are grouped by foundational, functional or driving change themes and further organised under topic themes.

Foundational themes

Best practice for tracking potentially traumatic event exposure

THEME 1 THEME 7

Connecting Indigenous people and the emergency management sector – effective partnerships

THEME 1 THEME 3

Cultural load and conflict: understanding experiences of First Nations staff and volunteers within Australian emergency, land management and resilience sector

THEME 1 THEME 7

Reimagining emergency management volunteering: more than just words

THEME 1

Schools in fire country

THEME 1

Australian temporary and emergency accommodation: learnings to inform future policy, strategy and recovery operations

THEME 2

Communicating flood risk

THEME 2 THEME 5

Evaluating the Resilient Homes Fund

THEME 2 THEME 7

Integrated solutions for bushfire-adaptive homes

THEME 2 THEME 5

Modelling impacts of sequential cascading natural hazards on the built environment

THEME 2

Safety of alternative and renewable energy technologies

THEME 2 THEME 4

Conserving and reconnecting floodplains to mitigate flood risk

THEME 3

Effect of cultural burning on soil health

THEME 3 THEME 7

Cultural land management research and governance in south-east Australia

THEME 3 THEME 5

Healing Country through Wolgalu/Wiradjuri-led land management

THEME 3 THEME 7

Operationalising Aboriginal land and sea management

THEME 3 THEME 7

Functional themes

Bushfire risk at the rural–urban interface

THEME 4 THEME 5

Community risk assessment

THEME 4 THEME 1

Decision making in emergency management

THEME 4 THEME 1

Developing an integrated predictive capability for extreme rainfall and inundation

THEME 4

End-user engagement to enhance severe weather impact prediction

THEME 4 THEME 6

Fire ember transport

THEME 4 THEME 6

Identifying and defining landscape dryness thresholds for fires

THEME 4

Identifying water sources for aerial firefighting

THEME 4 THEME 6

Long-range flood outlook for strategic preparedness

THEME 4

Multi-hazard evacuation modelling for effective emergency management: a collaborative workshop series

THEME 4

SES fit for task

THEME 4 THEME 1

Why fly? How do we know that aerial operations are effective and efficient?

THEME 4

Topic themes legend

- THEME 1 COMMUNITIES AND WORKFORCES OF THE FUTURE
- THEME 2 RESILIENT BUILT ENVIRONMENT
- THEME 3 SUSTAINABLE, SAFE AND HEALTHY NATURAL LANDSCAPES
- THEME 4 OPERATIONAL RESPONSE AND INNOVATION
- THEME 5 RESILIENT COMMUNITIES
- THEME 6 SITUATIONAL AWARENESS
- THEME 7 EVIDENCE-INFORMED POLICY, STRATEGY AND FORESIGHT
- THEME 8 LEARNING FROM DISASTERS



Adaptation for heatwave resilience

THEME 5 THEME 6

Awareness, education and communications for compound natural hazards

THEME 5 THEME 4

Community-led recovery: evidence, dimensions and supports for Community Recovery Committees

THEME 5 THEME 1

Disaster resilience in Indigenous communities

THEME 5 THEME 1

Effectiveness of land-use planning flooding controls during 2020–22 floods

THEME 5 THEME 8

Evaluating and monitoring for impact: developing a framework for risk prevention programs

THEME 5 THEME 7

Natural hazards and resilience in complex urban systems

THEME 5 THEME 2

Support integration of Recovery Capitals in service plans for communities with different levels of social disruption

THEME 5

Understanding intangible flood costs and impacts

THEME 5 THEME 8

Understanding the resilience of lifelines for regional and remote communities

THEME 5 THEME 2

Capturing uncertainty in bushfire spread prediction using Bayesian modelling and real bushfire observations

THEME 6

Detecting fire plumes with mobile radar

THEME 6 THEME 4

Predictions in public: understanding the design, communication and dissemination of predictive maps to the public

THEME 6 THEME 5

Streamlining SWIRLnet data acquisition, analysis, storage and dissemination procedures

THEME 6

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

THEME 6 THEME 8

What makes a good fire simulator?

THEME 6 THEME 7

Utilisation of transformative scenarios in a climate-challenged world

THEME 7 THEME 1

Driving Change themes

Bushfire information database – scoping study

THEME 7 THEME 8

Research data management

THEME 7 THEME 8

Storing and sharing qualitative social data

THEME 7 THEME 8

Community experiences of the 2022 Australian floods

THEME 8 THEME 6

Fire case studies

THEME 8 THEME 6

Flood contamination sampling and analysis – regional Victoria

THEME 8 THEME 3

Improving predictions and warnings for flash flooding

THEME 8 THEME 6



Research making a difference

Community experiences of the 2022 floods

Research into the 2022 floods across eastern and southern Australia is being used by governments at the federal, state and local level as well as community-led organisations and an independent review of the insurance sector.

The purpose of this research is to hear and learn from the personal stories of people who were impacted by floods across Queensland, New South Wales, Tasmania, Victoria and South Australia.

The research findings from New South Wales and Queensland are now available, while the research is ongoing in Tasmania, Victoria and South Australia.

The research is supported by the NSW State Emergency Service, Queensland Fire and Emergency Services, Tasmania State Emergency Service, Victoria State Emergency Service, Emergency Recovery Victoria, South Australia State Emergency

Service, South Australia Department for Environment and Water, South Australia Police and the South Australia Fire and Emergency Services Commission.

Researchers are hearing from people from different locations who experienced a wide range of flood impacts. Outcomes of the research are provided to the relevant emergency services and government departments to reduce flood risk in future, informing improvements to warnings and community preparedness.

Learn more at naturalhazards.com.au/floods2022



Keeping Australian's safe

ABC Radio is broadcasting Community Service Announcements (CSAs) for floods and storms, based on research findings from the Centre's previous Flood Risk Communication project.

Flood CSAs are used by ABC Radio before, during and after floods and severe storms for radio broadcasts and are typically around 30 seconds in duration. They contain high-level, general advice and support to listeners with the aim of increasing public safety in floods and storms.

They have been broadcast across the ABC Radio network throughout the two La Nina summers of 2021/22 and 2022/23, and again this summer as storms and flooding has hit up and down the east coast.

"The value of these Community Service Announcements (CSAs) is they are informed by the research and they are nationally consistent – no matter which state or territory you're in, you'll hear the same safety messages."

Support for First Nations future research leaders

A First Nations Research Scholarship has been launched in 2024 with the support of First Nations scholars and stakeholders around Australia. The scholarship will assist to grow the capacity of First Nations researchers.



Natural Hazards Research Australia is the national centre for natural hazard resilience and disaster risk reduction. The Centre is funded by the Australian Government and its Participants.

www.naturalhazards.com.au

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Australian Government