

Natural Hazards Research Australia (the Centre) is Australia's research centre for natural hazards resilience and disaster risk reduction. Since 2021 the Centre has been 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 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

- Three Natural Hazards Forums held – Brisbane, Melbourne and Adelaide
- Launch of 2022 floods research in New South Wales and Queensland
- Completion of Black Summer research
- Enhanced mapping of water bodies to improve aerial firefighting
- Launch of SES Fit For Task program based on Centre research
- Launch of two discussion papers with Suncorp, on assisted relocations and nature positive disaster risk reduction solutions
- Enhancing community safety with ABC Radio community service announcements
- Launch of Be Ahead of Ready initiative to drive future thinking
- Completion of REFLECT Reconciliation Action Plan
- National awards received to recognise research achievements
- Contributions to National Climate Risk Assessment
- Innovation and early career engagement through three Disaster Challenges
- New guide for ethical and collaborative cultural land management research
- First postgraduate internship complete
- Development of network for early and mid-career academics and practitioners

Key upcoming activities

- Research investment underway with more rounds set to open in 2025 and beyond.
- Findings available to inform impact as research matures
- Natural Hazards Research Forum 2025
- Development and launch of data catalogue
- Appoint inaugural First Nations Scholarship recipient
- Multiple postgraduate internships in 2025

\$25M
FUNDING
ALLOCATED
6:1 ROI

42 PHD
STUDENTS
22 ASSOCIATE PHD
STUDENTS

5 EARLY
CAREER
RESEARCH
FELLOWS

1 INDUSTRY
INTERNSHIP

32 TOTAL
PARTICIPANTS

24/24 ACTIONS
OF NATIONAL ACTION PLAN
FOR DRR SUPPORTED

76 PROJECTS IN
PROGRESS
6 COMPLETED

47 RESEARCH
PROVIDERS

Our projects

Natural Hazards Research Australia projects are grouped by topic themes.

A national framework and toolkit for multicultural inclusion in emergencies

THEME 1 THEME 5

Best practice for tracking and responding to potentially traumatic event exposure

THEME 1 THEME 4

Colonial load and cultural conflict

THEME 1 THEME 3

Connecting Indigenous people and the emergency management sector – effective partnerships

THEME 1 THEME 3

Emergency management volunteering: more than just words

THEME 1 THEME 5

Managing the risk of heat stress for first responders: understanding the role of diverse heat sources and environment

THEME 1 THEME 4

Schools in fire country

THEME 1

Understanding and managing the impact of smoke in the eyes of Australian bush firefighters

THEME 1

Communicating flood risk

THEME 2 THEME 5

Evaluating the Resilient Homes Fund

THEME 2 THEME 7

Insights into temporary and emergency accommodation

THEME 2 THEME 8

Integrated solutions for bushfire-adaptive homes

THEME 2 THEME 5

Modelling impacts of natural hazards on interconnected infrastructure networks

THEME 2

Multi-hazard resilient buildings

THEME 2 THEME 5

Safety of alternative and renewable energy technologies

THEME 2 THEME 4

Strengthening energy networks to withstand severe wind and storms

THEME 2 THEME 6

Conserving and reconnecting floodplains to mitigate flood risk

THEME 3

Cultural land management research and governance in south-east Australia

THEME 3 THEME 5

Effect of cultural burning on soil health

THEME 3

Fire mosaics in landscape fire planning

THEME 3 THEME 7

First Nations women, cultural fire knowledge, wellbeing and memory

THEME 3 THEME 1

Healing Country through Wolgalu/Wiradjuri-led land management

THEME 3 THEME 7

Operationalising Aboriginal land and sea management

THEME 3 THEME 7

Quantifying and predicting bushfire risk following large-scale, drought-induced vegetation die-off

THEME 3 THEME 4

Be Ahead of Ready

THEME 4 THEME 1

Bushfire risk at the rural–urban interface

THEME 4 THEME 5

Community risk assessment

THEME 4 THEME 1

Developing an integrated predictive capability for extreme rainfall and inundation

THEME 4

Enhancing decision making in emergency management

THEME 4 THEME 6

Fire coalescence and mass spotfire dynamics

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



Fire ember transport

THEME 4 THEME 6

Hazard workshops for evacuation modelling

THEME 4

Identifying and defining landscape dryness thresholds for fires

THEME 4 THEME 6

Identifying water sources for aerial firefighting

THEME 4 THEME 6

Long-range flood outlook for strategic preparedness

THEME 4

Maintenance of the Australian Flammability Monitoring System

THEME 4

Measuring success for fire and rescue services

THEME 4 THEME 7

Predicting prescribed burning and low intensity forest fire behaviour

THEME 4

Remote sensing of grass condition

THEME 4 THEME 6

Sector partner engagement to enhance severe weather impact prediction

THEME 4 THEME 6

SES fit for task

THEME 4 THEME 1

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

THEME 4

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

Effectiveness of land use planning flooding controls on buildings

THEME 5 THEME 8

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

THEME 5 THEME 7

Foundations in Indigenous disaster resilience

THEME 5 THEME 1

Heatwave resilience and impacts

THEME 5 THEME 2

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 effectiveness of current communication mediums and messaging used to communicate information on planning, preparing/ responding and recovering from an emergency event to remote First Nations communities

THEME 5 THEME 6

Understanding the resilience of lifelines for regional and remote communities

THEME 5 THEME 2

Capturing uncertainty in bushfire spread prediction

THEME 6

Detecting fire plumes with mobile radar

THEME 6 THEME 4

Flash flooding case studies to improve predictions and the communication of uncertainty

THEME 6 THEME 4

Managing earthquake risk: unreinforced masonry buildings database

THEME 6

Multi-hazard public information and warning platforms for the future

THEME 6

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

Our projects (continued)

Assisted relocations after flood

THEME 7

Australian emergency law blog

THEME 7

THEME 8

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

Unlocking risk: enhancing
hazard risk assessment through
historical archival reanalysis

THEME 7

THEME 8

Utilisation of transformative scenarios
in a climate-challenged world

THEME 7

THEME 1

Community experiences of the 2022
Australian floods – Queensland
and New South Wales

THEME 8

Community experiences of the 2022
Australian floods – South Australia, Victoria
and south-western New South Wales

THEME 8

Community experiences of the 2022
Australian floods – Tasmania

THEME 8

Fire case studies

THEME 8

THEME 6

Flood contamination sampling
and analysis – regional Victoria

THEME 8

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