Natural Hazards Research Australia

Call for Expressions of Interest

T9-A2: UNDERSTANDING TSUNAMI RISK TO AUSTRALIA FROM VOLCANIC SOURCES

Expressions of Interest due **5pm AEDT, 18 DECEMBER 2025**
to research@naturalhazards.com.au

Australian Government

naturalhazards.com.au
Australia's leading research centre for natural hazard resilience and disaster risk reduction

Overview

Natural Hazards Research Australia (hereafter the Centre) is seeking Expressions of Interest from project teams for the following project:

T9-A2 Understanding tsunami risk to Australia from volcanic sources

Project description	Tsunami risk management in Australia has been predominantly focused on tsunami from earthquake sources. While research continues to better understand tsunami generated by submarine landslides, there is an apparent knowledge gap and research void regarding the tsunami risk to Australia posed by volcanic sources. This project aims to develop a database of scenarios to assess the tsunami risk to the Australian coastline from relevant volcanic sources in the South-West Pacific and Southern Oceans. These scenarios would describe the source, its likelihood and the associated deep ocean tsunami modelling.
Estimated duration	Two years
Budget	The budget envelope for this project is $400,000 to $500,000 (ex GST) The research team should note that this is a competitive process. Expression of Interest submissions will be assessed on value for money and justification for any funds requested.
Related national research priorities[1]	Understanding and mitigating risk Interoperability
Related Centre research priorities for 2024–26[2]	Situational awareness Evidence-informed policy, strategy and foresight
Supporting organisations	Australian Tsunami Advisory Group (ATAG), including the following agencies Bureau of Meteorology Geoscience Australia Mineral Resources Tasmania NSW State Emergency Service Queensland Fire Department Queensland Police Service SA State Emergency Service Surf Life Saving Australia Tasmania State Emergency Service VIC State Emergency Service WA Department of Fire and Emergency Services
Centre contact	For any questions regarding this Call for EOIs, please email research@naturalhazards.com.au.

1 Natural Hazards Research Australia (2022) National research priorities for disaster risk reduction and community resilience to the impacts of natural hazards, accessible at www.naturalhazards.com.au/sites/default/files/2022-05/NatHazResAus ResearchPriorities FA02.pdf

2 Natural Hazards Research Australia (2024) *Biennial Research Plan 2024–26*, accessible at https://www.naturalhazards.com.au/sites/default/files/2024-07/NHRA%20ResearchPlan24%E2%80%9326%2004.pdf

Online project briefing	[For more information or questions, an online project briefing webinar will be held at **11:00am AEDT on 18 November 2025**
Submission of EOI	EOIs must be prepared using the Centre's EOI submission form and Budget Template. EOIs are to be submitted to research@naturalhazards.com.au by **5:00pm AEDT on 18 December 2025**

Statement of requirements

Background and context

The Hunga-Tonga-Hunga Ha'apai volcano eruption in early 2022 brought attention to the Australian public and emergency management community of the tsunami threat from volcanic sources. Whilst there was no discernible inundation in Australia, there was significant variations to shoreline water levels, and waves and current were observed along the eastern seaboard. The event generated interest in the Australian Tsunami Warning System, how emergency services responded and our understanding of the tsunami risks posed by volcanic activity.

This event was not the first time Australia has been subjected to such a tsunami. The 1883 Krakatau eruption was observed in Western Australia (WA) (NOAA NGDC database) and First Nations knowledge systems may hold information of similar events over the past 60,000 years. This event is the subject of discussions and work-planning in the Australian Tsunami Advisory Group (ATAG) to improve knowledge of tsunami from all sources to continuously improve the warning system.

Considerable focus has been directed to improving the understanding of tsunami risk in Australia, predominantly focused on tsunami generated by earthquakes, which cause around 75% of all tsunami events globally. Current projects in Queensland, New South Wales and Western Australia apply sophisticated sampling of the scenarios from the offshore Probabilistic Tsunami Hazard Assessment (Geoscience Australia) to inform emergency management and local planning.

While research continues to better understand tsunami generated by submarine landslides, there is an apparent knowledge gap and research void regarding the tsunami risk posed by volcanic sources. In contrast to earthquakes where real-time monitoring is in place globally, there is mixed capability in the region for volcanic monitoring (noted in the Risk Frontiers report Volcanic risk intelligence for Australia commissioned by Australian Climate Service). As a result, there is no readily available information for disaster managers from an important cause of tsunami. We must learn from the 2022 event and determine the tsunami potential from volcanoes in our region and the resultant impact to the Australian coastline.

Project description

This project aims to develop a database of scenarios to assess the onshore tsunami risk to Australia from relevant volcanic sources in the South-West Pacific and Southern Oceans by leveraging current research led by Earth Sciences New Zealand (GNS Science) and Earthquake Research Institute (ERI).

The database of scenarios will identify and describe sources, their likelihood and deep ocean modelling to the 100 metre depth contour. Specifically, the scenarios will model volcanic tsunami for Australia (in the regions identified) using varying eruption sizes and locations. Full physics modelling and water depth metrics will ideally be used. This approach is consistent with the current scenario database used by the Joint Australian Tsunami Warning Centre (JATWC) for earthquake sources. A stakeholder workshop will then consider the comparison between the tsunami wave characteristics at the 100 metre depth contour of the volcanic and earthquake sources (as defined in the 2018 Probabilistic Tsunami Hazard Assessment) to assess the potential tsunami threat to Australia. This assessment will inform whether the deep ocean modelling could potentially be integrated into the JATWC decision support system and whether an illustrative case study of detailed inundation modelling will be required.

The information developed through this project is expected to be used by local, district, state and national disaster managers for disaster risk management, while the outputs could improve hazard awareness and preparedness amongst Australia's neighbours.

This project would be guided by ATAG. The established function and governance of ATAG, who provides national leadership in the coordination of programs and projects relating to tsunami, ensures the consistent application of advancements in tsunami research and risk management. This research project aligns to the current ATAG workplan Strategic Priority 2.3 Investments that improve tsunami warnings accuracy and timeliness, including warnings for tsunamis generated by non-seismic and atypical sources.

Expected outputs

Outputs are the products that are expected to be delivered by this project.

Core outputs

Literature review exploring volcanic generated tsunami and risk assessment methods in the context of Australia that identifies new knowledge and new practice, and includes practical guidance to inform national, state and regional emergency management doctrine.
Database of tsunami scenarios from the identified volcanic sources: The database of sources and scenarios must be published in open formats (i.e. Open Geospatial Consortium, OGC) and be accompanied with detailed documentation and metadata for inclusion in jurisdictional situational awareness platforms. Scenarios will include information on likelihood and associated uncertainties, if available. Consideration should be given to platforms such as Pangaea where landslide-induced tsunami data is hosted.
Scenarios should be modelled to the 100 metre water depth. The modelling must be consistent with deep ocean modelling techniques used world-wide and take into account the source characteristics, hydrodynamic processes and available bathymetry. The outputs from this modelling must include the (i) tsunami wave height and currents at the 100 metre water depth contours and (ii) maximum wave height over the course of the model simulation.
Stakeholder workshop to present results from deep ocean modelling and to collaboratively assess the potential tsunami threat to Australia.
Final report – including discussion of the potential tsunami threat to Australia and where detailed inundation modelling could be prioritised, scoping of the development of a probabilistic volcanic-tsunami hazard assessment and the identification of future research opportunities. Depending on the decision at the stakeholder workshop, the Final Report will include an illustrative case study of inundation modelling of an agreed scenario.
Stakeholder presentation/s
Academic publications in high-ranking international journals
Please detail other innovative outputs that your team can deliver to address the outcomes below.

Additional outputs

Project plan and plain language statement
Quarterly progress reports
Project evaluation report
Relevant communications outputs including but not limited to a presentation and a poster

Collaborative approach

Researchers are expected to undertake the research using a collaborative approach to assist in the translation and transfer of knowledge to end-users and to ensure the project meets their needs. Researchers are encouraged to outline their approach to ensuring effective collaboration which could include embedding researchers within end-user organisations for a period of time.

Anticipated outcomes

This project will remove a blind spot in our tsunami knowledge. To date, effort has been focused on earthquake generated tsunami and to a lesser degree submarine landslide. Volcanic sources have been largely ignored by the emergency management sector. The project will focus on the risk to the eastern seaboard from volcanoes in the South-West Pacific, as well as the south-western coastline from relevant volcanoes in the Southern Ocean.

As a result of this project, we will have a more robust understanding of tsunami and a more effective tsunami warning system for Australia.

Quality control and reporting

The project will be overseen and supported by a Project Management Committee (PMC) comprising the Principal Researcher, a Centre representative, and at least one stakeholder representative. Composition of the PMC will be determined in consultation with the Principal Researcher.

Reports

The Centre expects that the outputs delivered by this project will meet the highest scientific standards and will be suitable for publication on the Centre website and in industry newsletters, as well as in high-quality scientific journals.

The successful research organisation/s must co-develop with end-users a project plan and project summary using the Centre's templates. The project summary should explain in plain language what the project is about, what questions it intends to answer and describe the expected practical outputs that will make use of the research findings. The project plan must be approved by the PMC and will become an attachment to the contract.

Reports (and any supporting material) must be submitted to the PMC's satisfaction and will be subject to review by PMC members. The project team will be required to ensure an internal peer review process is undertaken prior to the final report being submitted.

Milestone reporting

The project team must report all milestone deliverables and engagement activities into the Centre's Project Management System. This will include sufficient justification for the completion of milestones to the satisfaction of the PMC and the Centre.

Communication

To further assist with quality assurance, it is expected that:

- regular PMC meetings will be held
- the project team will use a consultative approach, documented in quarterly reports
- the Principal Researcher will give periodic presentations to key stakeholder groups to gain critical feedback on project milestones.

Additional quality control processes may be agreed as part of the project planning process.

Contractual arrangements

A copy of the Research Services Agreement, the proposed form of contract for the purposes of this project, can be found here.

The Centre reserves its rights to make amendments to the form of contract.

This agreement should be reviewed by applicants as part of the EOI submission.

If you would like to request amendments to any of the terms and conditions set out in the proposed form of contract, details of the proposed changes and the reason the changes are requested must be included in the EOI submission form. Requests for any changes will be at the sole discretion of the Centre.

Selection as a shortlisted or preferred provider does not give rise to a contract (express or implied) between the shortlisted or preferred provider and the Centre for the supply of goods or services. No legal relationship will exist between the Centre and the shortlisted or preferred provider until such time as a binding contract in writing is executed by both parties.

In the case of consortiums, the Centre requests that one consortium member be nominated as Lead Research Provider and take responsibility for subcontracting other parties.

Submitting an Expression of Interest

Application and review process

The Centre will conduct an independent assessment process for the selection of a research provider to deliver the Research Project. An Assessment Panel will conduct evaluation of the EOIs that are received. Where required, the Panel may conduct interviews, request presentation or referee checks as part of the assessment process.

Following the assessment process the Centre may appoint one or more successful Applicants on NHRA contract terms. Under the NHRA contract, the preferred provider will co-develop a detailed Research Plan with input from key stakeholders.

Key dates

13 November 2025	Call for EOIs opens
18 November 2025	Online project briefing
18 December 2025	Due date for EOIs

Submission requirements for this EOI

Project teams responding to this EOI are required to submit their response using the Centre's EOI submission form and Budget Template. Submissions must include:

- a statement of capability (max 600 words), including the proposed contributions of each research team member to the project
- a statement (max 400 words) about the diversity of the project team
- a statement (max 400 words) about the project's inclusion and respect of First Nations peoples, philosophies, cultures, rights and/or knowledges
- an outline (max 1000 words) describing how the project team intends to approach the project, strategies for effective collaboration and an indicative methodology
- an indicative schedule of work and interim milestones/project outputs as described in this document
- a proposed project budget in line with the budget envelope provided, including details of any in kind contribution from research organisation/s – a detailed budget to be provided using the downloadable Budget Template provided on the Centre's website
- a clear statement (max 400 words) describing the outcomes that will be delivered for this project and how they will be used by stakeholders
- a clear statement (max 400 words) describing the outputs that the proposed approach to this project will deliver and how the findings could translate into practice
- a statement (max 500 words) demonstrating the project team's relevant industry and stakeholder engagement
- a risk management statement (max 500 words)
- any requested changes to the Centre's proposed form of contract
- up to two-page CVs for each proposed project team member.

Additional information

In responding to this Call for Expressions of Interest, advice should be provided on any known or anticipated impacts of COVID or other pandemic restrictions or human resource risks on the timely delivery of the project. Where appropriate, risk management for the impacts of pandemic restrictions should be incorporated into the EOI.

Frequently asked questions

Additional information provided to individual respondents will also be published on the Centre's website to ensure access to all interested parties. Respondents are encouraged to check the website for any additional information via these published FAQs, prior to the closing date.

Online project briefing

An online webinar scheduled for **11:00am AEDT, 18 November 2025** will provide a more detailed briefing of the project and the opportunity for interested parties to pose specific questions.

Registrations for this webinar can be made via the project page on the Centre's website. Once completed, a recording of this webinar will be posted to the website to ensure all interested respondents have access to this information.

Evaluation criteria

After the closing date, the Centre will review submitted EOIs against the evaluation criteria below. The evaluation criteria provide an indication of those matters that should be included in the EOI and supporting material – details are provided in the table below.

The Centre reserves the right not to offer the work, or only allocate a proportion of the available funding, if a proposal does not meet the Centre's needs. The Centre reserves the right to invite any other specific researchers as it sees fit to submit proposals before or after the closing date.

Mandatory evaluation criteria

Registered Australian Business: The Respondent holds a valid Australian Business Number (ABN) or Australian Company Number (ACN)
Public Liability Insurance: The respondent has or will obtain appropriate insurance
Specific research capability: Demonstrated research expertise and/or experience in the fields of geosciences, tsunami, volcanology, geology, coastal science and engineering. Submissions to Expressions of Interest must clearly explain how this expertise addresses the project requirements outlined here.

Evaluation criteria	% weighting
Research capability: the capacity and capability to deliver an excellent research project in an Australian environment	20
Project approach: a demonstrated understanding of the project requirements and a proposed project approach and methodology that is appropriate, feasible and robust Relevant outline of a collaborative approach to assist in the translation and transfer of knowledge to end-users and to ensure the project meets their needs.	25
Project outcomes and outputs: demonstrate a high-level understanding of the intentions of the project and how outputs/outcomes translate to practice	15
Industry engagement: strong track record of industry engagement with the ability to support and influence Australian disaster management at a national or state/territory level through interaction with key stakeholders	20
Value for money: value with money refers to an application representing an efficient, effective, economical and ethical use of NHRA resources. Consideration of the relevant financial and non-financial costs and benefits of each application including, but not limited to: the quality of the application and activities represented by the technical assessment fitness for purpose of the application in contributing to Centre objectives the potential Research Provider's relevant experience and performance history whole of life costs (in-kind, other costs, risks, legal risks)	20