

Strategic Science Investment Fund Application Form

2022/23 Financial Year

Project Name	Pacific Rim Centre: Advice and Support
Project Manager	Doug Ramsay
Programme	
Centre	Pacific Rim Centre
Budget	\$250,000
Expected co-funding	Over the last 10 years co-funding on average of \$18 from external sources for every \$1 of SSIF invested has been achieved. Similar co-funding is anticipated for this next FY.
External collaborators	Pacific Government Ministries, Departments and agencies, Pacific Community (SPC), Pacific Regional Environment Programme (SPREP), NOAA, University of Hawaii, Bureau of Meteorology, CSIRO, APEC Climate Center, GNS.
Critical kit/infrastructure	Ongoing support to, and development of, CliDEsc and CliDEsc Portal product generation and delivery systems including THREDD server. HPC for automation of Island Climate Update products, Forecast Studio for delivery of Island Climate Update videos. Instrumentation Systems.

Delivery of NIWA Science Strategy	
National Outcome, Sub-outcome	<p>NIWA's Pacific activities primarily contribute to the following SCP outcome:</p> <ul style="list-style-type: none"> • Increase the resilience of New Zealand and South-West Pacific islands to tsunami and weather and climate hazards, including drought, floods and sea-level change. <p>Our activities also contributes to four of the five National Science Outcomes (in a Pacific sense):</p> <ul style="list-style-type: none"> • Adapting to a changing climate (all 3 sub-outcomes) • Biodiversity (primarily contributing invasive species) • Sustainable economy (primarily advancing sustainability in fisheries) • Aquatic health (all 3 sub outcomes).
How Programme contributes to Outcome	See below
How Project contributes to Programme	This Project provides the foundation activities to mee our aim in the SCI of <i>".....leverage its science to support a secure, resilient and prosperous Pacific by maintaining and developing enduring partnerships across Te Moana-Niu-a-Kiwa."</i>
National Centre KPIs	<p>This project contributes to the following science outcome KPIs:</p> <ul style="list-style-type: none"> • Updated regional climate change projections have been modelled for New Zealand, the Southwest Pacific region and the Southern Ocean by 2024 to inform adaptation planning. • The RiskScape hazard loss model has been further developed to include probabilistic assessment capability by 2023 and is used for risk assessments in New Zealand and the South-West Pacific. <p>And organisational KPI:</p> <ul style="list-style-type: none"> • NIWA has contributed to New Zealand's climate-change related support for the Pacific through involvement in at least two major initiatives by 2023.
Integration within NIWA	Our Pacific activities leverage the science programmes and projects carried out under other NIWA Centres, particularly Climate, Atmosphere and Hazards Centre, Oceans Centre, Fisheries and Environmental Information.

Project Rationale

Describe the proposed research, in the context of existing knowledge and how/why it will contribute to achieving the programme's science directions and knowledge transfer activities

The Pacific-Rim Centre acts as the NIWA focus for the external and internal coordination and dissemination of information on NIWA's international consultancy and applied research activities with a primary focus in the Pacific region. Our work in the

region has the aim of improving management advice and local capacity in the Pacific region across all science areas where NIWA is identified as the lead science agency to support environmental, economic and resilience decision-making and development.

The internal (within NIWA) role of the Centre in 2022-23 is to:

- Ensure effective communication between all staff involved or interested in international applied science activities.
- Collectively review and update our strategy through an updated Science Plan and associated strategy documents for the Pacific Rim activities.
- Contribute to the Statement of Corporate Intent by providing an overview of the sector and a prioritised list of objectives, key performance indicators and impact measures that take a 5-year outlook
- Maintain an up-to-date intranet pages containing relevant information to support staff involved in international activities.
- Develop marketing and supporting material to assist business development activities and the timely and effective preparation of Expressions of Interest and Proposals.
- Develop a wider number of staff with practical in-country experience, relationships and capacities in key areas, particularly climate-related hazards and risk.
- Support the development of key technical capabilities, linked to our core science, to support our applied science and commercial international activities
- Provide occasional internal training to develop staff competencies and to support staff work effectively and safely on overseas projects in developing countries.

The external role of the Centre in 2022-23 is to:

- Act as a conduit for promoting and developing both existing and new applied science services in the Pacific region in collaboration with our various partners in the region.
- Establish and maintain a role for NIWA in providing technical guidance and support to the Ministry of Foreign Affairs, and key Pacific Island Government Ministries and Regional technical Agencies, in the areas where NIWA is identified as the lead science agency
- Continue to work with all other National Centres, to increase NIWA's profile within the Pacific region and internationally through: 1) ongoing development and broadening of relationships with key NZ, regional and in-country organisations, and 2) increasing awareness of NIWA's international applied research services and capabilities and communicate the value of science. This includes newsletters, up-to-date webpage, journal papers, and supporting material and activities.
- Promote NIWA's applied research capabilities and resources as widely as possible through varied media

Objective—What science advances will be achieved this year?

This project underpins NIWA's many activities and relationships in the Pacific region as well as ongoing mentoring, technical advice and support to our key Pacific Island country partners. The programme also supports some science advances and in 2022-23 this will focus on:

- Continue to support the science development that underpins the Island Climate Update. In this next year this will make advances in:
 - Improving calculation of drought indices from satellite and real-time Multi-source weighted ensemble prediction (MSWEP) products
 - Statistical and machine-learning bias correction for downscaling global climate model forecasts
 - Further developing of probabilistic seasonal drought indices forecasts and development of new forecast products focussing on: 1) agricultural drought and 2) marine heat wave forecasts for the Pacific region
- Improving methodological approaches to assess the potential economic viability of transformative climate change adaptation options.
- Support Ocean science activities with Tonga partners leveraging off the 2022 Hunga Tonga-Hunga Ha'apai voyage and ongoing science activities with key regional agencies in ocean acidification.

Work programme—What activities will be done?

Strategic activities

- Hold a science strategy meeting with core Pacific team from across NIWA to review and develop both our external and internal strategic direction and resourcing needs for our Pacific activities.
- Refine existing Science Plan for Pacific, identifying priority areas for business development, gaps for capability fund investment and staff capacity and needs.

- Produce the Pacific component of the SCI for 2023-2024 based on the strategies, priorities and needs identified during our strategy development process.
- Develop a 5-year strategy for ongoing development and maintenance of key software infrastructure used in our Pacific activities, namely CliDEsc and CliDEsc Portal.

Internal activities

- Maintain effective internal communications through a variety of approaches including email, videoconference and continued development of a comprehensive and up-to-date MS Team and sharepoint resource pages.
- Continue to work with NIWA communications team to identify media coverage opportunities for our international applied science activities and to revamp the Pacific Rim web page.
- Continue to track international opportunities and projects, respond to tenders, and coordinate the development of marketing and supporting material to produce high-quality proposals.
- Continue to support the development and experience of a wider range of NIWA staff to underpin our international commercial activities.
- With travel in the region re-commencing post Covid, re-run our *Cultural awareness of working in the Pacific* and *Keeping yourself health and safe working in the Pacific* internal courses to ensure staff have the skills and knowledge for working effectively in the Pacific region.
- Continue to review and update our Pacific Health & Safety processes to ensure they fully meet our organisational H&S objectives.

External relationship activities

- Continue the building and expanding our relationship with MFAT through identifying opportunities to support MFAT deliver on its aid-related objectives, specifically its Climate Finance Programme, continue to develop linkages and awareness within MFAT of NIWA's capabilities in delivering their strategic goals, sharing feedback from regional meetings and providing access to technical advice in areas where NIWA is the lead science agency.
- Continue to maintain and develop key technical in-country relationships through ongoing ad hoc advice and collegial support, particularly related to Pacific Meteorological and Hydrological sectors.
- Ensure NIWA has active representation at a minimum of eight key regional meetings annually in the Pacific-Asia region and continues to play an active role in the Pacific Meteorological Council, Pacific Island Climate Outlook Forum, contributor to the WMO Regional Climate Centre, Pacific Heads of Fisheries meeting and other key meetings.
- Support regular learning exchange forums with key Pacific partners to collectively share science activities and knowledge. This will continue to support the learning exchange with Samoa, build on the learning exchange commenced last year with SPC, and develop further learning exchanges with at least two other Pacific countries and one regional agency.
- Refresh the science relationship with SPREP and develop an MoU around more close collaboration on climate service development and delivery.
- Continue to collaborate with other key technical agencies working in the Pacific region, particularly WMO, NOAA, University of Hawaii, APEC Climate Center and where possible Bureau of Meteorology and CSIRO.

Science and technical development activities.

- Produce 12 issues of the Island Climate Update, the Tropical Cyclone outlook and provide technical input to Pacific Island Climate Outlook Forums, UN-OCHA Working Group and other relevant fora.
- Develop new science that underpins the products and information delivered through the Island Climate Update, with a focus on:
 - Improving calculation of drought indices from satellite and real-time multi-source weighted ensemble prediction (MSWEP) products
 - Statistical and machine-learning bias correction for downscaling global climate model forecasts
 - Further developing of probabilistic seasonal drought indices forecasts and development of new forecast products focussing on: 1) agricultural drought and 2) marine heat wave forecasts for the Pacific region.
 - Produce at least one journal science paper from this work.
- Support training and outreach activities as part of the Pacific Islands Ocean Acidification Training Centre (PIOAC) to upskill the PIOAC personnel in sensor deployment and maintenance, chemical analyses and data management (With Oceans Centre).
- Opportunistic support to the development of climate products and services developed through CliDEsc and CliDEsc Portal as a way of continuing to demonstrate the utility and impact of the tools.
- Discuss, identify and support ocean science activities with Tonga Government colleagues that leverage off the data collected during the 2022 Hunga Tonga-Hunga Ha'apai voyage (with Oceans Centre).
- Continue to support the methodological development of tools and practices needed to assess climate risk and adaptation options (with CAH Centre)

Outputs—List expected outputs for each component of the Work programme this year. This will form the basis for reporting the progress of the project.

<i>Description (outputs to be produced)</i>	<i>Comment (value of the outputs and their intended audience)</i>
Updated A3 Strategic Plan for Pacific Rim & Pacific Rim contribution to the SCI	Internal NIWA Audience
5 year strategy plan for CliDESc and CliDESc Portal	Internal NIWA Audience
12 issues of the Island Climate Update including video forecast	Pacific Regional and Country agencies and Pacific users of climate forecast information.
Tropical Cyclone Outlook produced	Pacific Regional and Country agencies including National Disaster Management Organisations and key donor support agencies (e.g. MFAT)
2 Pacific Island Climate Outlook Forum statements produced (with other regional technical collaborators)	Pacific Regional and Country agencies and users of climate forecast information.
1 journal paper published/submitted on science activities underpinning our Island Climate Update activities	Pacific and International science community