

Te Hauhunga Girls* on Ice Aotearoa New Zealand

Supporting young women to explore
science, art, and the outdoors



THE STORY OF YOUR IMPACT BEGINS HERE

Thanks to your generous donations, the second Girls* on Ice Aotearoa expedition that took place from 13-23 January 2025 was another success story.

A government report in 2016 showed that fewer than 30% of earth scientists in Aotearoa are women. Studies have also shown that young girls don't include science or engineering in their top ten preferred careers.

Using Girls* on Ice Alaska as a model, Girls* on Ice Aotearoa New Zealand promoted the inclusion of diverse identities within Aotearoa sciences and outdoor fields, by providing examples of successful women in polar science careers and giving participants confidence-building experiences in the outdoors.

This trip met the goals of the programme in showing the participants that science is interesting and that they could forge a career in science, art, or outdoor education. Once again the experience created life-long memories for the ten teenage participants and the expedition leaders.



"To our generous donors—your backing is pivotal in supporting our future female scientists to realise their dreams and I sincerely thank you for your support. Opportunities to do science and art individually, let alone in combination, is something that we don't get often enough. Your support for this programme is helping to shape a more inclusive future."

- Professor Margaret Hyland, Deputy Vice-Chancellor, Research

Girls* on Ice Aotearoa (GoIA) is part of [Inspiring Girls* Expeditions](#)—an international tuition-free programme running annual expeditions aimed at empowering young women through science, art, and outdoor exploration. It began with the aim of creating space for girls and women to grow and thrive in historically male-dominated fields such as earth sciences. Today, as the asterisk in the name denotes, Inspiring Girls* Expeditions welcome cisgender girls and transgender, agender, nonbinary, intersex, and genderqueer youth. The programme now operates in the United States, Canada, Switzerland, Austria, and Central Asia. Girls* on Ice has also expanded to Girls* on Rock, Girls* on Water, and Girls* in Icy Fjords. The 2025 expedition in Aotearoa was the second Inspiring Girls* expedition to take place in the Southern Hemisphere.

Co-founder Dr Lauren Vargo met Dr Joanna Young who is the director of Inspiring Girls* Expeditions Alaska at the International Arctic Research Center at University of Alaska Fairbanks. Lauren was part of the long-standing collaboration and exchange programme between the Center and the Antarctic Research Centre at Te Herenga Waka—Victoria University of Wellington.

This meeting inspired the idea of bringing the Girls* on Ice programme to New Zealand and in 2022 Lauren travelled to Alaska to participate as an instructor. This experience helped her to plan the inaugural expedition and shows the value of collaboration exchanges in building and enriching cross-cultural relationships between our countries.

OUR TEAM

Te Herenga Waka—Victoria University of Wellington's [Te Puna Pātiotio—Antarctic Research Centre \(ARC\)](#) hosted the 2025 expedition. Dr Lauren Vargo led a team comprising science instructors Julia Martin and Ashley Davis, art instructor Gabby O'Connor, and outdoor specialist Mel Harris. Originally from the United States, Australia, Germany, and New Zealand, all the instructors now call Aotearoa home. The programme also relies on a team of volunteers who helped with recruiting, application review, and expedition preparation and clean up.



Dr Lauren Vargo
Team leader

Glaciologist, Research Fellow, ARC
Gol Aotearoa Co-Founder
IGE Alaska Instructor 2022

Lauren is an American early-career scientist who moved to Aotearoa in January 2016.

Her research focuses on understanding how and why snow and ice, particularly glaciers, are changing. Lauren is interested in climate science, Earth science, and programming, and communicating climate science in ways that engage and inform the public.



Julia Martin

Snow Scientist PhD Student, ARC
Gol Aotearoa Organiser and Science Instructor

Originally from Germany, Julia is completing her PhD studying how the snow cover may influence the response of the sea ice to climate change.

She has planned field expeditions to the Arctic and Antarctica and participated on an all-women led sea ice expedition to the McMurdo Sound, Antarctica in November 2022.



Ashley Davis
Oceanographer
Gol Aotearoa Organiser and Science Instructor

Ashley is an Oceanographer, Science Communicator and Educator currently employed as a Visiting Scientist at NIWA.



Gabby O'Connor
Artist
Gol Aotearoa Art Instructor

Gabby is an installation artist who has researched communicating risk around climate change through public art projects.

She has researched sea-ice crystals while in Antarctica with oceanographers from NIWA resulting in several exhibitions.



Mel Harris
Outdoor Guide

Originally from Christchurch, Mel is an outdoor guide based at the Hillary Outdoors Tongariro Alpine Centre. Her skills and familiarity with the terrain were vital to the girls' enjoyment and safety on the mountain.



Anna Bowron
ARC Coordinator

OUR PROGRAMME



With the help of 30 volunteers, we assessed 175 applicants from schools across New Zealand. Ten girls aged 15 or 16 were selected—seven from the North Island and three from the South. Their itinerary is outlined below.

Day 1

Manaia, Luka, Emma, Prisha, Imogen, Elke, Bella, Izzy, Leah, and Rosie met at Te Herenga Waka—Victoria University of Wellington to prepare for the expedition. They met the expedition team and were given personal gear and appropriate outdoor clothing and shoes for the expedition.

Days 2-5

The group travelled by van to Tongariro National Park and began bonding during the trip. On arrival they hiked up Whakapapa ski field to the Hutt Valley Tramping Club lodge, their accommodation for the duration of the expedition. They particularly enjoyed a night creating their own pizzas.

The girls were unable to use their cell phones during the week and one of them commented at the end of the trip “I learnt that I don’t need my phone all the time!”

The students explored their surroundings and got familiar with their gear. Mountain guide Mel familiarised the group with walking safely with boots and a pack, and map reading and navigation in the mountainous terrain.



The group were lucky with the weather this year and their walks culminated in 'peak physical day' when they climbed to the crater lake at 2,655m elevation during a five-hour tramp.



Participants spent a day with Ery from GNS who talked about volcanic risk. The science instructors ran sessions introducing fossils found in caves, snow physics and physical properties, New Zealand glacier change, and working in Antarctica.

They also put in a call to three women working at Scott Base in Antarctica supporting science events, emphasising that going to Antarctica in any role is a possibility, not a dream.



As mountain guide Mel is an experienced caver, the team also did a half day trip to the Okupata cave where they encountered cave wētā and glowworms.

They were also fascinated to discover fossilised paua shell and starfish as the rock had been submerged in the ocean millions of years ago.



Art instructor Gabby O'Connor introduced activities to help the girls observe and respond to the landscape through art, including blind contour drawing (without looking at the page), detailed botanical drawings of alpine flora and collage from collected detritus.

Students conducted individual and group art projects including cyanotype prints which create an image of objects placed on a dark blue light sensitive surface.

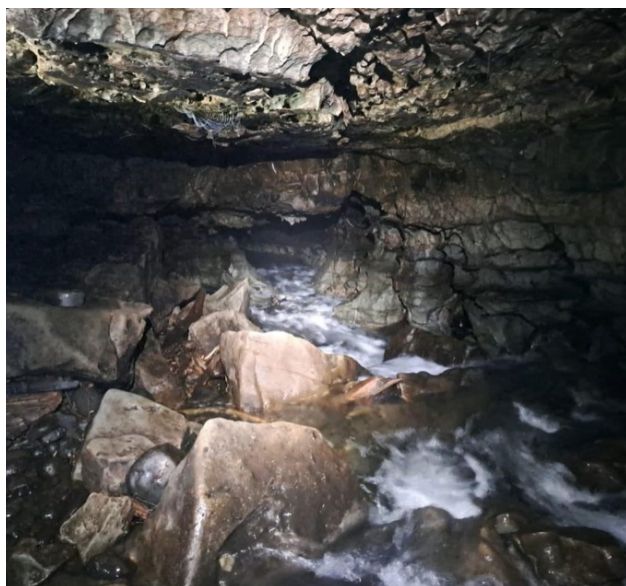


Days 6-8

The students broke into three groups to design their own science experiments and art pieces based on their interests. It became obvious to the group that the boundaries between science, art, and mountaineering blurred as they made use of all these skills during their projects.

The **Calcium Covers** were interested in examining the similarities between two different cave systems—the Okupata and Pukehinau caves. They measured the shape, texture, colour, and size of the calcium deposits, taking samples and making images of these.

Their hypothesis that there would be differences in calcium deposits throughout the caves due to variations in water levels and humidity was confirmed—moist environments with water seeping through the rocks were more likely to produce stalactites and ridges.



Team Plants

This team took 1×1m samples of the plants growing at altitudes from 1620m to 1920m to examine their hypothesis that plants and their adaptations would change as altitude increased. They found that biodiversity reduced as altitude increased but were surprised to find that their hypothesis that plants at higher altitudes would be shorter to deal with the weight of snow was not confirmed. In fact, these plants were taller, possibly due to less competition.

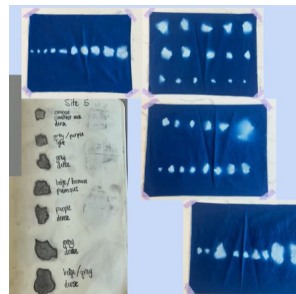
They were interested to find several plants that went from green to red in colour as altitude increased as a protection from cold. Some plants also grew in crevices and some formed protection for other species.



The igneous rockers

This group studied six 1×1m sites every 50 metres from 1614 to 1855m elevation measuring the colour, size, weight, and density of rocks found and noting the surrounding area.

They took samples at each site and drew the rocks to scale as well as making cyanotypes. Their hypothesis that there would be more variation in rock types at higher altitudes was proven. They found that as altitude increased rocks became less dense (with more trapped air), with more igneous and jagged rocks and more pigment.



Day 9

The group packed up, hiked down the maunga and returned to Wellington to be housed overnight at the University.

Day 10

The students compiled their research projects results and art into a presentation for their peers, staff, families, and invited guests (in-person and on zoom). You can watch the full presentation here:

<https://www.youtube.com/watch?v=h2gR8GUCeBo&t=10s>

Day 11

During the final morning together, the staff and students engaged in reflection activities and farewells.



MEETING GOALS

Outcomes: meeting the goals of the Girls* on Ice programme

The expedition met its goal to increase the participation of young women in field sciences, art, and outdoor recreation. It enabled high school-aged youth to lead and succeed by experiencing scientific inquiry in outdoor environments.

It also created a supportive network for early-career scientists, artists, and guides to develop their skills through continuing development opportunities and collaboration.

Feedback from the participants and expedition team show that as well as meeting the goals below, the experience had a profound impact on the girls' courage, self-confidence and resilience and allowed them to form an incredible bond through camaraderie.

For many of the girls the expedition increased or intensified their interest in outdoor activities, science careers, or art.

The team will have an online reunion this coming winter to catch up with each other. There is also a Girls* on Ice Aotearoa alumni platform, where participants of all expeditions can connect, find a community, and stay in touch with instructors for mentorship as they consider higher education and career paths.

A post-expedition survey produced the following responses:

Create lifelong advocates for Earth science and environmental stewardship

- "I learnt that I find the most peace in myself when I'm outdoors in the environment."
- "I really love the mountain environment. Before coming here I've been really interested in engineering so one of my favourite parts of the trip was looking at the snow and thinking maybe I could incorporate that into my career."
- "It was cool meeting the amazing instructors and learning about all the different things they do with science. It's really interesting to know that they all completely love their jobs. It was inspiring because Ashley is a marine photographer and scientist, and I've always really liked marine biology, so it was cool talking to her about that."
- "Seeing all these instructors that love their jobs showed me how many jobs there are that can have science included in them."
- "In this whole experience I realised that being outside is a really important thing. Actually feeling connected with the world around you – it's crazy!"
- "Before I came, I wasn't entirely sure what type of science I wanted to do but hearing Ely and Lauren talking about snow and glaciers was interesting to me. Hearing how passionate they are about it led me towards that way."



Foster our participants' sense of self-confidence in their physical, intellectual, and leadership abilities

- "I plan to become a vet, so I think that while gaining skills in biology and everything I've also learned to strengthen my mind. I've learnt that I can reach those goals if I put my mind to it."
- "I learnt that not only physically but mentally I can endure a lot more than I thought I could."
- "I learnt that I can do more than I think I can and that it's worth it to push yourself out of your comfort zone."
- "Over my trip I discovered that it's so important to surround yourself with people that make you happy and all these people here have made me happy this trip."
- "I learnt that sometimes awkwardness is worth it because it was very awkward at the start but now I've made good connections with lovely people."
- "I learnt something about people: that you don't have to know everything about them to have a deep connection with others."
- "I think it really made our team bond how much we laughed."

Build relationships and cooperation between the United States and New Zealand

The programme built on the long-standing mutually beneficial relationship between Te Herenga Waka and the University of Alaska Fairbanks. American team leader Lauren Vargo brought learnings from her time at Girls* on Ice Alaska to the programme.

Future plans for Girls* on Ice Aotearoa

Our 2026 expedition is planned for 6-16 January! Applications will be advertised in July 2025.

The Girls* on Ice Aotearoa expedition is the culmination of many years of preparation and planning by our team and volunteers which has proved infinitely worthwhile for the staff and participants. This life-changing experience would not have been possible without you, our kind donors. We really couldn't have done it without you.



Te Hauhunga is the te reo Māori name of Girls*on Ice Aotearoa (GOIA).

Te means 'the', while 'hauhunga' has multiple meanings that together reflect the essence of the GOIA programme and its people. 'Hauhunga' can mean 'frost' or 'frosty', a reference to the large role ice plays in the expeditions, but it can also be translated as 'a pale green variety of greenstone.'

Just like greenstone, our students are considered taonga or a treasure. Additionally, 'hauhunga' can be broken down into two component words: 'hau' (vitality, vital essence) and 'hunga' (a group). Together these words suggest 'a vibrant group', a great description for our expedition teams.

Overall, the name Te Hauhunga conveys how valued our students are as they grow in confidence and vitality exploring Aotearoa's icy environments.

The name Te Hauhunga was created by Dr Meegan Hall and Professor Rawinia Higgins at Te Herenga Waka —Victoria University of Wellington.



"We would like to say a massive thank you to all the supporters of the programme for making this trip possible and an enormous thank you to all the instructors for making the programme what it is. All the instructors are so bright and fun, and we appreciate everything you have done to make it possible. It has been a truly great experience."

-The igneous rockers



THANK YOU

for making a difference.

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