



TE HERENGA WAKA — VICTORIA UNIVERSITY OF WELLINGTON

Te Hauhunga Girls* on Ice Aotearoa



THE STORY OF YOUR IMPACT BEGINS HERE

Thanks to your generous donations, the inaugural Girls* on Ice Aotearoa expedition from 15-25 January 2024 was a resounding success.

As well as meeting the goals of the programme, the trip created life-long memories for the ten teenage participants and the expedition leaders.

Using Girls on Ice Alaska as a model, Girls* on Ice Aotearoa 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. Your support for this programme is helping to shape a more inclusive future.

"My vision for Girls* on Ice Aotearoa is to showcase the endless variety of science and encourage young women* to chase their dreams, no matter how big and adventurous they may be."

Julia Martin, instructor
Co-leader



How did the programme get started?

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 with the 2024 expedition in Aotearoa being the first 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 assistant 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

The 2024 expedition was hosted by Te Herenga Waka—Victoria University of Wellington's Te Puna Pātiotio—Antarctic Research Centre (ARC).

Dr Lauren Vargo led a team comprising Antarctic Research Centre staff and scientists, US-based artist Hannah Perrine Mode and outdoor specialist Mel Harris. The trip was documented by photographer and videographer Rebakah (Bex) Parsons-King, an award-winning kiwi visual content producer specialising in science communication, journalism, and environmental storytelling.

The programme is also grateful to ARC Coordinator Anna Bowron and a team of volunteers who helped out 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.



Dr Alanna Alevropoulos-Borrill
Glaciologist and Modeller
Research Fellow, Ice Sheet Modelling, ARC
Gol Aotearoa Organiser and Science Instructor

Alanna is originally from the UK. Her research involves using numerical ice sheet models to understand the future of the Antarctic Ice Sheet and its contribution to global sea level change.

She currently leads an internationally collaborative project working on developing the representation of ice sheets in the New Zealand Earth System Model. Alanna led the first all-women ARC expedition to Antarctica in 2021 and returned in November 2023.



Dr Alex Gossart

Research Fellow, Atmosphere Modelling
Atmospheric Scientist and Modeller
Gol Aotearoa Science Instructor

Alex's research focuses on modelling atmospheric processes over Antarctica. She has recently developed a coupled high-resolution atmosphere-ocean regional model of the Ross Sea Region.

Alex was also part of the first all-women ARC research expedition to Antarctica in 2021. She currently teaches a third-year ice and climate paper and supervises two PhD students at the University.



Hannah Perrine Mode

Gol Aotearoa Art Instructor

Hannah is an artist, educator, designer, and instructor based in the United States. She has taught in Alaska over summer since 2017 and was a Gol Alaska instructor in 2022 and 2023. Through making, teaching, and organising, Hannah harnesses creative practices to deepen human connection to Earth systems and foster intersectional approaches to climate justice.



Dr Jenni Hopkins

Lecturer, Environmental Science
School of Geography, Environment and Earth Sciences
Postdoctoral research fellow

Visiting science instructor Jenni is a volcanologist whose research uses geochemical methods to determine a variety of characteristics about volcanoes. She aims to better understand their eruption processes, mantle mechanics, eruption timings, and extents. She then uses these details to help make predictions about the characteristics of future eruptions.



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.

OUR PARTICIPANTS

We selected ten girls* aged 15 or 16 from over 250 applicants from schools across New Zealand. Six participants came from the North Island and four from the South. Their itinerary is outlined below. You can see a short video about the expedition here:

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



Liberty

Benny

Eirwen

Tess



Xanthe

Lulu

Hope

Jessica



Kiana

Christina



OUR PROGRAMME

Day 1

Christina, Liberty, Eirwen, Jess, Benny, Kiana, Xanthe, Hope, Lulu, and Tessa 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. These proved their worth in challenging weather and terrain as the participants remained dry and had minimal issues with falls or blisters.

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 Tararua Tramping Club lodge, their accommodation for the duration of the expedition. This is the second highest hut on Mt Ruapehu and offers great views of Ngauruhoe.

The girls were unable to use their cell phones during the week and agreed at the end of the expedition that this helped them to bond with each other.

“The experience would have been so different if we had the phones. We learned a lot from each other being from different places.”

Days 2-5

The students explored their surroundings and got familiar with their gear. Mountain guide Mel took them on a climb to reach snow although weather conditions meant they had to turn back before reaching the crater lake. For one student it was the first time she had seen snow.



The science instructors ran sessions introducing maps of the terrain, ice and snow, glacial geomorphology, and ecosystem-climate interaction.

They spent a day with volcanologist Jenni Hopkins who took the girls on an excursion examining the terrain in the area. Her passion about what she does was an inspiration to the girls as they watched her excitement at finding a “very cool rock”.

They also put in a call to Liz Keller, a scientist at Scott Base in Antarctica, to get a feel for the daily life of a scientist.

Hannah Perrine Mode introduced activities to help the girls observe and respond to the landscape through art, including blind contour drawing (without looking at the page).

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

The girls commented that the similarities between science and art became apparent to them with both involving close observation and decision making.



I always think of these programmes as kind of ‘shared solitude’.

It’s really special to be able to be in a place where we aren’t as distracted by the day to day in our lives and can really focus on connecting with each other, with these different landscapes and with what we’re learning”.

Hannah Mode (instructor)



Days 6-8

The students broke into three groups to design their own science experiments and art pieces based on their interests.

The **Volcano team** were interested in the social impact that volcanoes have on people. They developed and administered a questionnaire to ask infrequent visitors to the volcano how they feel about volcanic-related risks.

The **Stream Team** measured species at three sites along the Whakapapanui stream to determine whether their ecosystems were affected by temperature and altitude.

The **Snow Bros** examined the physical properties of snow in the different parts of a snow patch.

The weather conditions on the mountain were changeable with little protection from thunderstorms, rain, and wind, which meant the girls had to adapt and make changes to their research plans. They were unable to include as many sites as intended and the volcano group struggled to locate visitors!



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=A9iiM9esCL4&t=10s>

Other University staff gave the students information about studying STEM topics at New Zealand universities.

Day 11

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

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

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

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. They were proud of their achievements both as individuals and as a team.

For many of the girls the expedition increased or intensified their interest in outdoor activities, science careers or art. For one participant meeting the photographer Bex reignited her interest in photography.

An informal post-expedition survey produced the following responses:

"Girls on Ice made me more confident in following my original dream and gave me more hope of achieving it."*

"Three things you learned:

- 1) Don't judge a book by its cover*
- 2) Everyone has their own limits, you just gotta push yourself to see how far you can really go*
- 3) Science can be a whole lot of things."*

"I learnt that I can persevere if I really want to. I can do more than I think I can and Girls on Ice has definitely improved my understanding of that."*

"I learnt that I really do have some sort of interest in science and that it may be something I might pursue in the future."

The team is planning a reunion where they will ensure the girls are connected to the Inspiring Girls* community. The instructors will be available for mentorship as the girls consider higher education and career paths.

"Seeing them explore the environment themselves and the different things we offer them and how much they appreciated it, is really wholesome and actually a dream come true."

Julia Martin, Instructor



MEETING GOALS

Create lifelong advocates for Earth science and environmental stewardship

"I really enjoyed learning about so many different things in such a vast range of areas and it really confirmed that I want to pursue a career in environmental sciences."

"Being here—It's gonna change the direction of where I want to go."

"When it comes to climbing mountains and everything like that, I always have wanted to do a job in the outdoors. It has only grown that! I was looking at stuff last night about different national parks and different sorts of jobs and I was thinking "I really, really, really want to do this!"

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

"It had a much deeper effect on my mindset and all that stuff than I thought it would be, rather than just science and art and outdoors. I'll always have Julia at the back of my head telling me 'No! You can do it!'"

"I'll come home, and my parents will be like "Who are you?" and "What have you done with our child?" Just like learning that trying new things can be OK and even if it is scary, like growing your comfort zone. You're always going to have to or else you're just going to stay in the same place."

"The expedition made me appreciate my life and where I live a lot more. Meeting girls with so many different backgrounds was really eye opening and I found it so cool that we bonded despite our differences. It taught me that I can be a good leader if I set my mind to it."

"I want to involve myself in as many things as I can. Even if I think it won't be fun, even if I really don't want to, I should just do it. What's stopping me from participating? Who knows what I'll learn..."

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 and the inclusion of US-based artist Hannah Mode increased mutual understanding and respect between our two countries. Hannah brought her knowledge to share with us and build relationships.

Build US-New Zealand understanding of Mātauranga Māori and Te Ao Māori

The team began working with summer scholarship students on this theme in 2021/2022 but were disrupted when the expedition was delayed due to COVID-19 and field work.

They are continuing to establish partnerships with iwi local to Mount Ruapehu (Ngāti Hkairo ki Tūwharetoa, Ngāti Rangī, and Uenuku) to develop a curriculum that incorporates more Mātauranga Māori and Te Ao Māori into the second expedition in 2025.

Future plans for Girls* on Ice Aotearoa

Our second expedition will incorporate the findings of the study. The 2025 Girls* on Ice Aotearoa New Zealand expedition will run from 13-23 January 2025 on Mt Ruapehu. Applications will open in July 2024 to all girls* aged 15-16 years at New Zealand schools.

The second expedition will be followed by an in-depth quantitative and qualitative review.

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.

"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."

Professor Margaret Hyland
Deputy Vice-Chancellor, Research



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.



THANK YOU

for making a difference.

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