Broadband OBS Training Workshop

Victoria University of Wellington
New Zealand

April 14 – 16, 2025

Program

CATALYST FUND
LEADERS

Workshop information

Organizers:

- Pascal Audet, pascal.audet@uottawa.ca (instructor)
- Martha Savage, martha.savage@vuw.ac.nz

Location:

- Victoria University of Wellington, Cotton Building
- Computer room: CO-501 (5th floor)
- Break & Lunch room: CO-216 (2nd floor)
- Online content: https://github.com/nfsi-canada/OBSW2025

Sponsoring program:

- Catalyst Fund: Leaders program

Other funding:

- National Facility for Seismological Investigations
- Victoria University of Wellington
- University of Ottawa

Scope:

This workshop will cover training in seismological methods and software for broadband OBS data analysis encompassing three broad themes: 1) Data pre-processing and cleaning, 2) Subsurface seismic velocity structure, and 3) Earthquake detection and location.

Participation:

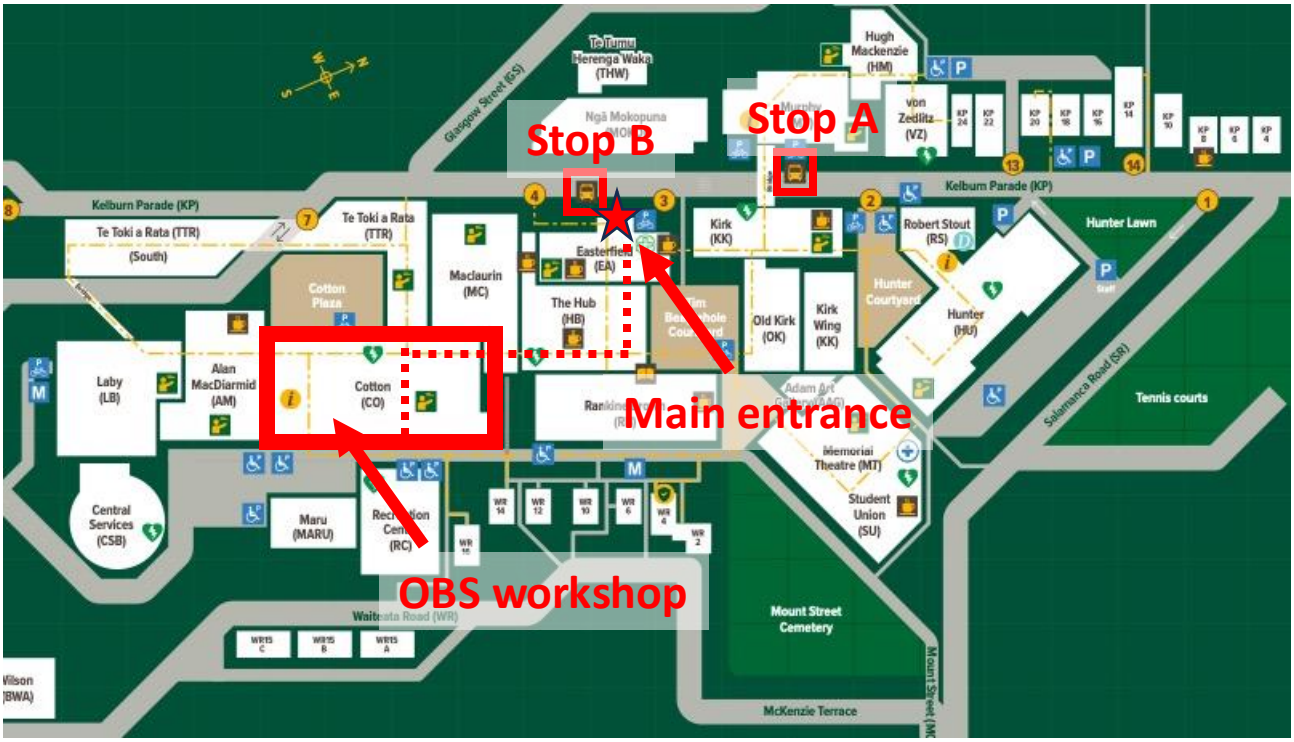
17 participants from 6 research institutions across New Zealand (VUW, GNS, NIWA, Auckland, Canterbury, Otago) at various research-related occupations and career stages. Even though a background in geophysics/seismology is not required, this workshop offers technical seismology training with expected active participation.

Maps and directions

Google Map (Stop A: From Kelburn & Karori):
https://maps.app.goo.gl/LiW4wSxzZazwrngg7

Google Map (Stop B: From Downtown):
https://maps.app.goo.gl/R8nsNFRt3jF3g6Vm7

Kelburn Campus Map: https://www.wgtn.ac.nz/about/campuses-facilities/campuses/kelburn/kelburn-campus-map.pdf



From the Main entrance @ Easterfield Building: (floor and stair markings indicate direction and distance to buildings)

- Walk down into The Hub
- Walk across The Hub (in front of the library) and up into MacLaurin.
- Continue to Cotton and take the door on your left to the end of the hallway (check hanging hallway signs)
- Take the elevator/stairs to 2nd floor (CO-216 for break room) or 5th floor (CO-501 for computer room)

Day 1, April 14, Monday

Schedule:

Time	Room	Topic
0830	CO-216	*Light breakfast*
0900	CO-501	Welcome and workshop overview
0915	CO-501	**Tutorial 1**: Intro to computer environment in CO-501
0945	CO-501	**Lecture 1**: Intro to broadband OBS instrumentation and data
1030	CO-216	*Morning break*
1045	CO-501	**Tutorial 2:** Station orientation on the seafloor: OrientPy
1215	CO-216	*Lunch*
1315	CO-501	**Lecture 2**: Seafloor noise and analyses
1445	CO-216	*Afternoon break*
1500	CO-501	**Tutorial 3:** Compliance and tilt corrections: OBStools
1630		*End of Day 1*
1730		*Dinner reservation at St Johns Bar and Eatery* *5 Cable Street, Te Aro,* *Wellington*

Day 2, April 15, Tuesday

Schedule:

Time	Room	Topic
0830	CO-216	*Light breakfast*
0900	CO-501	**Lecture 3**: Intro to passive source seismic imaging
1030	CO-216	*Morning break*
1045	CO-501	**Tutorial 4:** Calculating teleseismic receiver functions: RfPy
1215	CO-216	*Lunch*
1315	CO-501	**Tutorial 5:** Modelling teleseismic receiver functions: Telewavesim
1445	CO-216	*Afternoon break*
1500	CO-501	**Hackathon:** • Determine OBS orientation for selected station(s) • Remove tilt + compliance noise for selected station(s) • Calculate compliance for selected station(s) • Calculate and model RFs for selected station(s)
1630		*End of Day 2*
1730		*Dinner reservation at Burger Liquor* *129 Willis Street, Te Aro* *Wellington*

Day 3, April 16, Wednesday

Schedule:

Time	Room	Topic
0830	CO-216	*Light breakfast*
0900	CO-501	**Lecture 4**: Intro to earthquake detection and location
1030	CO-216	*Morning break*
1045	CO-501	**Tutorial 6a:** Picking (and detecting) earthquakes with OBS data: SeisBench + DL pickers
1215	CO-216	*Lunch*
1315	CO-501	**Tutorial 6b:** Building a preliminary earthquake catalogue: SeisBench + GAMMA/PyOcto
1445	CO-216	*Afternoon break*
1500	CO-501	**Hackathon:** • Build a catalogue for selected OBS stations • Compare catalogues for different pickers/associators
1630		*End of Day 3; End of Workshop*

Participants

First name	Last name	Organization
Pascal	Audet	University of Ottawa
Daria	Batteux	University Of Canterbury
Thomas	Benson	GNS Science
Shao-Jinn	Chin	Victoria University of Wellington
Cedric	De Meyer	Victoria University of Wellington
Pasan	Herath	GNS Science
Katie	Jacobs	GNS Science
El	Mestel	Victoria University of Wellington
Daniel	Murray	Victoria University of Wellington
Aan	Rahardji Puhi	Victoria University of Wellington
Sean	Santellanes	University of Otago
Martha	Savage	Victoria University of Wellington
Meegan	Soulsby	University of Auckland
Stuart	Upjohn	Victoria University of Wellington
Emily	Warren-Smith	GNS Science
Codee-Leigh	Williams	Victoria University of Wellington
Susi	Woelz	NIWA