Dr. Bryant Chow

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current residence: Fairbanks, Alaska

RESEARCH

2023–Present | **Assistant Professor**
University of Alaska Fairbanks (UAF), Fairbanks, AK, U.S.A

2021–2023 | **NSF Postdoctoral Fellow**
University of Alaska Fairbanks (UAF), Fairbanks, AK, U.S.A
"*Active tectonics and crustal structure of Northern Alaska*"
Scientific Mentor: Dr. Carl Tape

2021 | **Postdoctoral Researcher**
GNS Science, Lower Hutt, New Zealand

EDUCATION

2018–2021 | **Doctor of Philosophy in Geophysics**
Victoria University of Wellington (VUW), Wellington, New Zealand
"*Adjoint tomography of the Hikurangi subduction zone and the North Island of New Zealand*"
Advisors: Dr. Yoshihiro Kaneko, Dr. John Townend

2015–2017 | **Master of Science in Geophysics**
Ludwig-Maximilians-Universität München (LMU Munich) & Technische Universität München (TUM), Munich, Germany
"*Analysis of rotational motion amplitudes on local and global scales*"
Part I: "The development of a rotational magnitude scale"
Part II: "Characterization of the Rot3D dataset"
Advisors: Dr. Heiner Igel, Dr. Céline Hadziiannou, Dr. Stefanie Donner, Dr. Joachim Wassermann

2011-2015 | **Bachelor of Science in Physics, minor in German Studies**
University of California Santa Barbara (UCSB), Santa Barbara, CA, U.S.A
"*Determining Love wave phase velocity through analysis of rotational ground motion*"
Advisor: Dr. Toshiro Tanimoto

AWARDS & HONORS

- NSF Postdoctoral Fellowship [2052839], 2021 (*National Science Foundation*)
- SCEC Science Plan Award [22039], 2022 (*Southern California Earthquake Center*)
- EOS Editors' Highlight, 2022 (*American Geophysical Union*)
- Faculty of Graduate Research Dean's List PhD Recipient, 2021 (*VUW*)
- SSA Annual Meeting Travel Grant, 2021 (*Seismological Society of America*)
- Jim Ansell Geophysics Scholarship, 2020 (*Geoscience Society of New Zealand*)
- Best Oral Presentation, GSNZ Annual Conference 2020 (*Geoscience Society of New Zealand*)
- Beanland-Thornley Student Talks Prize Winner, 2019 (*Geoscience Society of New Zealand*)
- Young Researcher Travel Grant, 2019 (*Geoscience Society of New Zealand*)
- Faculty Strategic Research Grant, 2019 Round 1 (*VUW*)

PUBLICATIONS

"Evidence for deeply-subducted lower-plate seamounts at the Hikurangi subduction margin: implications for seismic and aseismic behavior."
Bryant Chow, Yoshihiro Kankeo, and John Townend.
Journal of Geophysical Research: Solid Earth (2022): e2021JB022866.
(*EOS Editors' Highlight: Adjoint Tomography Illuminates Hikurangi Margin Complexity*)

"Strong upper-plate heterogeneity at the Hikurangi subduction margin (North Island, New Zealand) imaged by adjoint tomography."
Bryant Chow, Yoshihiro Kaneko, Carl Tape, Ryan Modrak, Nick Mortimer, Stephen Bannister, and John Townend.
Journal of Geophysical Research: Solid Earth (2022): e2021JB022865.

"An automated workflow for adjoint tomography — waveform misfits and synthetic inversions for the North Island, New Zealand."
Bryant Chow, Yoshihiro Kaneko, Carl Tape, Ryan Modrak, and John Townend.
Geophysical Journal International 223.3 (2020): 1461-1480.

"Love wave amplitude decay from rotational ground motions."
Bryant Chow, Joachim Wassermann, Bernhard S.A. Schuberth, Céline Hadziioannou, Stefanie Donner, and Heiner Igel.
Geophysical Journal International 218.2 (2019): 1336-1347.

"Ultra-long duration of seismic ground motion arising from a thick, low-velocity sedimentary wedge."
Yoshihiro Kaneko, Yoshihiro Ito, **Bryant Chow**, Laura M. Wallace, Carl Tape, Ronni Grapenthin, Elisabetta D'Anastasio, Stuart Henrys, and Ryota Hino.
Journal of Geophysical Research: Solid Earth 124 (2019): 10347-10359

"An event database for rotational seismology."
Johannes Salvermoser, Céline Hadziioannou, Sarah Hable, Lion Krischer, **Bryant Chow**, Catalina Ramos, Joachim Wassermann, Ulrich Schreiber, André Gebauer, and Heiner Igel.
Seismological Research Letters 88.3 (2017): 935-941

"Seasonal variations in the Rayleigh-to-Love wave ratio in the secondary microseism from colocated ring laser and seismograph."
Toshiro Tanimoto, Céline Hadziioannou, Heiner Igel, Joachim Wassermann, Ulrich Schreiber, André Gebauer, and **Bryant Chow**.
Journal of Geophysical Research: Solid Earth 121.4 (2016): 2447-2459

TEACHING & SERVICE

- **Committee Member:** UAF Ph.D. entitled *'Seismic Structure and Tectonics of Alaska'*
- **Peer Reviewer:** *Nature Geosciences, New Zealand Journal of Geology and Geophysics*
- **Teaching Assistant:** UAF GEOS 692 *(Reading Seminar)*, VUW ESCI 451 *(Active Earth)*
- **Workshop Host:** 2022 SPECFEM Virtual Workshop *(Lead host and workshop designer)*, 2022 Moment Tensor Uncertainty Quantification (MTUQ) Virtual Workshop *(Co-host)*

OPEN SOURCE SOFTWARE

- Pyatoa: Misfit quantification and inversion assessment (*Creator & Lead Developer)*
- SeisFlows: Automated inversion workflows on HPCs *(Lead Developer)*
- PySEP: Seismic data extraction and processing *(Lead Developer)*
- Pyflex: Waveform windowing algorithm *(Lead Developer)*
- Pyadjoint: Waveform misfit functions *(Lead Developer)*
- SPECFEM: Spectral element simulation software *(Maintainer)*

TECHNICAL SKILLS

- **Programming Languages**: Python, Bash, MATLAB, FORTRAN, JavaScript, HTML, LaTeX
- **High Performance Computing**: SLURM, MPI, Singularity, ParaView
- **Software Development**: Git, GitHub, Sphinx, Conda, Jupyter, Docker
- **Field Skills**: Seismic instrument deployment; Certified off-road operation of 4WD vehicles and Utility Task Vehicles (CarNZ Training); Wilderness First Aid; Avalanche Safety Level 1

SELECT PRESENTATIONS

"Towards adjoint tomography of northern Alaska."
Bryant Chow, Carl Tape
Oral presentation at SSA Annual Meeting 2023

"adjTomo — automated, open-source workflow tools for adjoint tomography and FWI."
Bryant Chow, Ryan Modrak, and Carl Tape.
Poster presentation at SSA Seismic Tomography 2022

"Adjoint tomography of the Hikurangi subduction zone and the North Island of New Zealand."
Bryant Chow, Yoshihiro Kaneko, Carl Tape, Ryan Modrak, Nick Mortimer, Stephen Bannister, and John Townend.
Oral presentation at SSA Annual Meeting 2022

"Adjoint tomography of the Hikurangi subduction zone and the North Island of New Zealand."
Invited seminar at Lawrence Livermore National Lab, Jan. 20, 2022.

"Strong upper-plate heterogeneity and deeply-subducted seamounts at the Hikurangi subduction zone (North Island, New Zealand) imaged by adjoint tomography."
Bryant Chow, Yoshihiro Kaneko, Carl Tape, Ryan Modrak, Nick Mortimer, Stephen Bannister, and John Townend.
eLightning presentation at American Geophysical Union Fall Meeting 2021

"Adjoint tomography of New Zealand's North Island using an automated, open-source workflow."
Bryant Chow, Yoshihiro Kaneko, Carl Tape, Ryan Modrak, and John Townend.
Invited Oral presentation at SSA Tomography 2020

"An automated workflow for adjoint tomography applied to New Zealand's North Island."
Bryant Chow, Yoshihiro Kaneko, Carl Tape, Ryan Modrak, and John Townend.
Invited Oral presentation at SCEC CVM Workshop 2020

"Adjoint tomography of the Hikurangi subduction zone and New Zealand's North Island using an automated workflow."
Bryant Chow, Yoshihiro Kaneko, Carl Tape, Ryan Modrak, and John Townend.
Oral presentation at Geoscience Society of New Zealand Annual Conference 2020

"A semi-automated adjoint tomography workflow applied to New Zealand's North Island."
Bryant Chow, Yoshihiro Kaneko, Carl Tape, Ryan Modrak, and John Townend.
Oral presentation at American Geophysical Union Fall Meeting 2019

"A semi-automated adjoint tomography workflow applied to New Zealand's North Island."
Bryant Chow, Yoshihiro Kaneko, Carl Tape, Ryan Modrak, and John Townend.
Oral presentation at Geoscience Society of New Zealand Annual Conference 2019

"The development of a rotational magnitude scale."
Bryant Chow, Andrea Simonelli, Céline Hadziiannou, Stefanie Donner, and Heiner Igel.
Oral presentation at European Geosciences Union General Assembly 2017