

# Michael Everett Mann

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## Education

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- Cornell University, Ithaca, NY 8/2016 - Present  
**PhD Candidate | Seismology**  
Department of Earth and Atmospheric Sciences
- North Carolina State University, Raleigh, NC 8/2011 - 5/2016  
**Degree: Physics (B.S.) | Minor: Geology**

## Peer-Reviewed Publications

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- Mann, M. E.**, G. A. Abers (2019). First-order mantle subduction zone structure effects on ground motion: the Alaska 2016 Iniskin and 2018 Anchorage Mw 7.1 earthquakes. *Seismological Research Letters* 91(1), 85-93.  
<https://doi.org/10.1029/2018GL081471>
- Crosbie, K. J., Abers G. A., **Mann, M. E.**, Janiszewski, H. A., Creager, K. C., Ulberg, C., Moran, S. (2019). Shear velocity structure from ambient noise and teleseismic surface wave tomography in the Cascades around Mount St. Helens. *Journal of Geophysical Research: Solid Earth*, 124, 8358–8375. <https://doi.org/10.1029/2019JB017836>
- Mann, M. E.**, Abers, G. A., Crosbie, K., Creager, K., Ulberg, C., Moran, S., & Rondenay, S. (2019). Imaging subduction beneath Mount St. Helens: Implications for slab dehydration and magma transport. *Geophysical Research Letters*, 46. <https://doi.org/10.1029/2018GL081471>
- Wilcock, W. S. D., R. P. Dziak, M. Tolstoy, W. W. Chadwick Jr., S. L. Nooner, D. R. Bohnenstiehl, J. Caplan-Auerbach, F. Waldhauser, A. F. Arnulf, C. Baillard, Tai-Kwan Lau, J. H. Haxes, Y. J. Tan, C. Garcia, S. Levy, and **M. E. Mann**, The Recent Volcanic History of Axial Seamount: Geophysical Insights into Past Eruption Dynamics with an Eye Toward Enhanced Observations of Future Eruptions, *Oceanography* 31(1), 114-123, 3 March 2018.
- Wilcock, W. S. D., M. Tolstoy, F. Waldhauser, C. Garcia, Y. J. Tan, D. R. Bohnenstiehl, J. Caplan-Auerbach, R. P. Dziak, A. F. Arnulf, **M. E. Mann**, Seismic constraints on caldera dynamics from the 2015 Axial Seamount eruption, *Science*, 354, 1395-1399, 16 December 2016.

## In-prep

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- Mann, M.E., G.A. Abers, K.A. Daly, D.H. Christensen, “Subduction of the Yakutat Terrane”
- Mann, M.E., K.M. Fischer, J. Hua, “Imaging the subduction zone across Southcentral Alaska using Sp Receiver Function Kernel-Based Common-Conversion Point Stacking”

## Unreviewed Reports

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- Abers, G.A. and **M.E. Mann** (2019). Earth structure effects on wave propagation of the damaging 2016 M7.1 Iniskin Alaska earthquake and other in-slab earthquakes, U.S. Geol. Surv., Final Technical Reports, NEHRP Award G17AP00065, Reston VA, 11 pp.
- Ulberg, C.W. and the iMUSH team (G.A. Abers, O. Bachmann, P. Bedrosian, D.L. Blatter, E. Bowles-Martinez, M.A. Clynne, K.C. Creager, K. Crosbie, R.P. Denlinger, M.E. Glasgow, J. Han, S.M. Hansen, G.J. Hill, E. Kiser, A. Levander, **M. Mann**, X. Meng, S.C. Moran, J. Peacock, B. Schmandt, A. Schultz, T.W. Sisson, R.A. Soto Castaneda, W.A. Thelen, J.E. Vidale, M. Wanke) (2017). Imaging magma under Mount St. Helens with geophysical and petrologic methods, *GeoPRISMS Newslett.* 39, Fall 2017, p. 6-11.

## Published Abstracts

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- Mann, M.E.**, G.A. Abers, K.A. Daly and D.H. Christensen (2019), High-resolution receiver function imaging of crustal structure and subduction across Southcentral Alaska, Abstr. T41F-0297, Amer. Geophys. Un. 2019 Fall Meeting, San Francisco, 9-13 Dec. Poster presented.
- Mann, M. E.**, G. A. Abers (2019), A Tale of Two Earthquakes: Two Mw 7.1 Earthquakes in Alaska Reveal the Importance of Deep Earth Structure on Ground Motion, Seismological Society of America 2019 Annual Meeting, Seattle, April 23-26. Oral Presentation Given.
- Daly, K.A., G.A. Abers, **M.E. Mann**, S.W. Roecker, and D.H. Christensen (2019), A Wadati-Benioff Zone Beneath The Wrangell Volcanic Field Revealed By The WVLB Broadband Array, Abstr. T41F-0298, Amer. Geophys. Un. 2019 Fall Meeting, San Francisco, 9-13 Dec.
- Abers, G.A., **M.E. Mann**, K.A. Daly, R.A. Soto Castañeda, D.H. Christensen (2019), Oblique subduction at the end of the Aleutian slab beneath the Wrangell Volcanic Field, Abstr. T51A-05, Amer. Geophys. Un. 2019 Fall Meeting, San Francisco, 9-13 Dec.
- Mann, M.E.**, G.A. Abers, R.A. Soto Castañeda (2018), Deep earth structure creates order-of-magnitude variations in strong shaking from intermediate-depth earthquakes: the damaging 2016 Mw 7.1 Iniskin, Alaska earthquake, Abstr. S33A-4, Amer. Geophys. Un. 2018 Fall Meeting, Washington D.C., 10-14 Dec. Oral presentation given.
- Mann, M.E.**, G.A. Abers, K.C. Creager, C.W. Ulberg, K. Crosbie (2017), Array-Based Receiver Function Analysis of the Subducting Juan de Fuca Plate Beneath the Mount St. Helens Region and its Implications for Subduction Geometry and Metamorphism, Abstr. T42C-08, Amer. Geophys. Un. 2017 Fall Meeting, New Orleans, 11-15 Dec. Oral presentation given.
- Abers, G.A., P.E. Van Keken, B.R. Hacker, **M.E. Mann**, K. Crosbie, K. Creager (2017), Imaging hydration and dehydration across the Cascadia subduction zone, Abstr. T33F-01, Amer. Geophys. Un. 2017 Fall Meeting, New Orleans, 11-15 Dec.
- Crosbie, K., G.A. Abers, **M.E. Mann**, H.A. Janiszewski, K.C. Creager, E. Kiser, C.W. Ulberg, R.P. Denlinger, S.C. Moran (2017), Shear Wave Structure of Mount St. Helens, WA Region From Ambient Noise, Earthquake Surface Waves and Receiver Functions, Abstr. T51E-0542, Amer. Geophys. Un. 2017 Fall Meeting, New Orleans, 11-15 Dec.
- Mann, M. E.**, G. A. Abers, K. Crosbie, K. Creager, C. Ulberg (2017), Geometry of the crust and subducting Juan de Fuca plate beneath the Mount St. Helens region using array-based receiver functions, Submission 1203, IAVCEI 2017 Scientific Assembly, Portland, August 14-18. Oral presentation given.
- Mann, M.E.**, D.R. Bohnenstiehl, J. Weis (2016), Waveform Template Matching and Analysis of Hydroacoustic Events from the April-May 2015 Eruption of Axial Volcano, Abstr. OS41C-1993, Amer. Geophys. Un. 2016 Fall Meeting, San Francisco, 12-16 Dec.
- Bohnenstiehl, D.R., R.P. Dziak, J. Caplan-Auerbach, J.H. Haxel, **M.E. Mann**, C. Pennington, J. Weis, N. Womack, S. Levy (2015), Tidal Triggering and Statistical Patterns of Microseismicity at Axial Volcano on the Juan de Fuca Ridge, Abstr. S51D-2712, Amer. Geophys. Un. 2015 Fall Meeting, San Francisco, 14-18 Dec.

## Grants and Awards

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- Cornell University, Earth and Atmospheric Sciences Excellence in Research Award, 2019-2020  
Seismological Society of America, Annual Conference Travel Grant, April 2019  
Graduate Research Assistant, Cornell University, May 2017-January 2020  
Teaching Assistant, Cornell University, January 2020-May 2020  
Graduate Research Assistant, Cornell University, May 2020-present  
Cornell Fellowship, 2016-2017

## Presentations and Meetings

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- Andes Seminar, Cornell University, April 17, 2020  
Oral Presentation - "High resolution scattered wave imaging of the crust and upper mantle of Southcentral Alaska"  
Brown University "Lunch Bunch", February 25, 2020  
Oral Presentation - "High-resolution scattered wave imaging of the crust and upper mantle beneath Southcentral Alaska"  
Alaska-Aleutian Subduction Zone Workshop, August 5-6, 2019 at Lamont-Doherty Earth Observatory of Columbia University  
Oral Presentation - "New crustal and upper mantle imaging beneath and around the Wrangell Volcanic field"  
American Geophysical Union 2019 Fall Meeting  
Poster Presentation - "High-resolution receiver function imaging of crustal structure and subduction across Southcentral Alaska" T41F-0297

## Seismological Society of America 2019 Annual Meeting

Oral Presentation - "A Tale of Two Earthquakes: Two Mw 7.1 Earthquakes in Alaska Reveal the Importance of Deep Earth Structure on Ground Motion"

### American Geophysical Union 2018 Fall Meeting

Oral Presentation - "Deep earth structure creates order-of-magnitude variations in strong shaking from intermediate-depth earthquakes: the damaging 2016 Mw 7.1 Iniskin, Alaska earthquake" S33A-03

### iMUSH (imaging Magma Under mount St. Helens) Workshop at the University of Washington, July 17-19, 2018

### American Geophysical Union 2017 Fall Meeting

Oral Presentation - "Array-Based Receiver Function Analysis of the Subducting Juan de Fuca Plate Beneath the Mount St. Helens Region and its Implications for Subduction Geometry and Metamorphism" T42C-08

### iMUSH Workshop at Cascade Volcano Observatory, Vancouver, Washington, June 20, 2017

Oral Presentation - "iMUSH Receiver Functions: First Results"

### IAVCEI 2017 Scientific Assembly

Oral Presentation - "Geometry of the crust and subducting Juan de Fuca plate beneath the Mount St. Helens region using array-based receiver functions"

### Andes Seminar, Cornell University, April 28, 2017

Oral Presentation - "Imaging the subducting Juan de Fuca slab beneath Mount St. Helens using array-based receiver function methods"

### American Geophysical Union 2016 Fall Meeting

Poster Presentation - "Waveform Template Matching and Analysis of Hydroacoustic Events from the April-May 2015 Eruption of Axial Volcano" OS41C-1993

### Undergraduate Seismology Research

NC State University Summer Undergraduate Research Poster Presentation – 7/2015

### Undergraduate Experimental Granular Physics Research

NC State University Summer Undergraduate Research Poster Presentation – 7/2015

NC State University Physics Department McCormick Symposium Poster Presentation – 4/2015

## **Field Work**

### Southeast Alaska, USA

6/2016 - 7/2016

37 broadband seismometer array installment across southeastern Alaska under the instruction of Geoffrey Abers (Professor, Cornell University) and Douglas Christensen (Professor, University of Alaska - Fairbanks)

### Fenner, New York, USA

8/2016

15 broadband seismometer array installment in Fenner, NY (PI: Sara Pryor - Professor, Cornell University)

### Pawnee, Oklahoma, USA

9/2016

Involved in the installation of the first rapid nodal deployment around Pawnee County, OK (personally installed over 200 nodes) after the M5.8 2016 Pawnee Earthquake (PI: Katie Keranen - Assistant Professor, Cornell University)

### Southeast Alaska, USA

6/2017 - 7/2017

Servicing the seismometer array across southeastern Alaska with Geoffrey Abers (Professor, Cornell University) and Douglas Christensen (Professor, University of Alaska - Fairbanks)

### Mount St. Helens, Washington, USA

8/2017

3-component nodal deployment on the flanks of Mount St. Helens (PI: Brandon Schmandt - Assistant Professor, University of New Mexico)

### Kodiak Island, Alaska, USA

5/2018

Installed 13 broadband posthole seismometers for the Alaska Amphibious Community Seismic Experiment (AACSE) across Kodiak Island, Alaska with Geoffrey Abers (Lead PI; Professor, Cornell University) and Donna Shillington (PI; Associate Research Professor, Lamont-Doherty Earth Observatory of Columbia University)

### Southeast Alaska, USA

6/2018

Demobilized 37 broadband seismometers with Douglas Christensen (Co-PI; Professor, University of Alaska-Fairbanks) and Melissa Driskell (Associate Professor, University of Northern Alabama)

### Lanzarote and Tenerife, Canary Islands, Spain

Traveled around Lanzarote and Tenerife with Esteban Gazel in the Canary Islands, learned about volcanic islands and volcanology

### Kodiak Island, Alaska, USA

8/2019

Demobilized 13 broadband posthole seismometers for the AACSE across Kodiak Island, Alaska with Susan Schwartz (Co-PI; Professor, University of California - Santa Cruz) and Daniel Sampson (Lead of Technical Staff, University of California - Santa Cruz)

## **Notable Activities**

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Vice President/Treasurer, Snee Hall Graduate Organization, Cornell University  
Cornell University Earth and Atmospheric Sciences Seminar Coordinator  
Docent, Museum of the Earth and Paleontological Research Institute, Ithaca, NY  
Midshipman, Naval Reserve Officer Training Corps at NC State University

Fall 2019 – Present  
Fall 2017  
Fall 2016 – Spring 2018  
Fall 2011 – Spring 2013