# Margarete A. Jadamec

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## Education

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|---|---|---|
| Ph.D. | University of California, Davis, CA<br>Geodynamics (Advisor: M. I. Billen)<br>Dissertation: *Three-dimensional lithosphere and mantle dynamics: Models of the subduction-transform plate boundary system in southern Alaska* | 2009 |
| M.S. | University of Alaska, Fairbanks, AK<br>Structural Geology (Advisor: W. K. Wallace)<br>Thesis: *A geometric analysis of thrust-truncated asymmetric folds, upper Marsh Fork area, eastern Brooks Range, Alaska* | 2003 |
| B.S. | University of Connecticut, Storrs, CT<br>Geology, Honors Scholar (Advisor: J. Crespi)<br>Honors Thesis: *Microstructural and geometric analysis of an antiformal syncline* | 1999 |

## Employment History

*Faculty Appointments*

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| Associate Professor | University at Buffalo, SUNY, Buffalo, NY<br>Department of Earth Sciences<br>Institute for Artificial Intelligence and Data Science<br>**on Sabbatical 2023-2024 Academic Year* | 2020-present* |
| Assistant Professor | University at Buffalo, SUNY, Buffalo, NY<br>Department of Geology<br>(*now*: Department of Earth Sciences)<br>Institute for Computational and Data Sciences<br>(*now*: Institute for Artificial Intelligence and Data Science) | 2017-2020 |
| Assistant Professor | University of Houston, Houston, TX<br>Department of Earth and Atmospheric Sciences | 2014-2017 |

*Visiting Researcher Appointments*

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| Visiting Researcher | Adler Planetarium, Chicago, IL<br>as a part of NSF CAREER Award Broader Impacts | 2022-present |

*Postdoctoral Appointments*

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| Postdoctoral Research Assoc. | Brown University, Providence, RI<br>Department of Geological Sciences | 2013-2014 |
| NSF Postdoctoral Fellow | Brown University, Providence, RI<br>Department of Geological Sciences | 2011-2013 |
| Postdoctoral Research Fellow | Monash University, Clayton, VIC, Australia<br>School of Mathematics | 12/2008-2011 |

*Graduate Appointments*

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|---|---|---|
| Graduate Research Assistant/ Teaching Assistant | University of California, Davis, CA<br>Department of Earth and Planetary Sciences<br>(Physical Geology; Field Methods; Field Camp; Science, History, & People) | 2003-2009 |
| Volunteer Research Assistant | United States Geological Survey, Menlo Park, CA<br>GPS Field Campaign, NE Basin and Range | 2003 |
| Graduate Research Assistant/ Teaching Assistant | University of Alaska, Fairbanks, AK<br>Department of Geosciences; Geophysical Institute<br>(The Dynamic Earth; Structural Geology) | 1999-2003 |
| Graduate Student Intern | BP Amoco, Houston, TX | 2002 |

# Research Grant Support

## Grants Awarded

How Large Earthquakes Change Our Dynamically Deforming Planet, 2024-2027, *Australian Research Council (ARC)**. Chief Investigator: Louis Moresi. Partner Investigators: Matthew G. Knepley, **Margarete Jadamec**, and Haibin Yang. *Grant Awarded to Australian National University (ANU).

Collaborative Research: EAGER: Advancing Pedagogy and Inclusivity through Multimodal Upper Level Geophysics Education, 2020-2021, *National Science Foundation*, NSF-EAR 2042061,
PI: **Margarete A. Jadamec**, Co-PIs: Erasmus Oware (UB), Derek Schutt (Colorado State U.), Tolulope Olugboji (U. of Rochester), Stefany Sit (U. of Illinois, Chicago), $10,417 (UB), $26,948 (collaborative)

Characterizing Geologic Control on Ice Flow, 2020, *University at Buffalo: Buffalo Blue Sky*,
PI: Beata Csatho, Co-PIs: Matthew Knepley, Christopher Lowry, and **Margarete A. Jadamec**, $30,000

CAREER: High-resolution Simulations of Subduction Along the Pacific Rim of Fire, 2020-2025, *National Science Foundation*, NSF-EAR 1945513,
PI: **Margarete A. Jadamec** (sole PI), $497,920

Plate Tectonics Paradigm Shift Interview Collection, 2019, *American Geophysical Union*,
PI: **Margarete Jadamec** (sole PI), $4,500.

MOSH: Modeling and Observing Slab Holes Research Proposal, 2017, *Cooperative Institute for Dynamic Earth Research Program (CIDER)**.
Co-PIs: Benjamin Chilson-Parks, Tithi Ghosh, Kirstie Haynie, Agnes Kiraly, Anna Makushkina, Kate Metcalf, Daniel Portner, **Margarete Jadamec**, Michael Manga, Keely O'Farrell, Louis Moresi, Bob Stern, *CIDER is an NSF Supported Program, $2,701.

Numerical Modeling of Three-dimensional Subduction Driven Mantle Wedge Weakening and Plate-Mantle Decoupling, 2014–2016, *National Science Foundation*, NSF-EAR 1352879,
PI: **Margarete A. Jadamec** (sole PI), $144,999

Three-dimensional Subduction Models: Implications for Plate-Mantle Coupling and Length-scales of Seismic Anisotropy, 2013–2014, *National Science Foundation*, NSF-EAR 1316416,
PI: **Margarete A. Jadamec** (sole PI), $58,706

NSF Postdoctoral Fellowship - Role of Rheology and Water in Rapid Mantle Flow: 3D Numerical Models of the Costa Rica-Nicaragua Subduction Zone, 2011-2013, *National Science Foundation*, NSF-EAR PF 104954,
PI: **Margarete A. Jadamec** (sole PI), $170,000

3DALIVE: Applied Laboratory for Immersive Visualization Environments, 2009-2011, *3DALIVE joint facility between Monash University eResearch Centre, School of Mathematical Sciences, School of Geosciences, and CSIRO Australia*,

Co-Founders and Co-PIs: Louis Moresi, Paul Bonnington (Director, e-Research Centre), Steve Quenette, **Margarete A. Jadamec**, Kate Smith-Miles (Dept. Chair, Maths), Ray Cas (Dept. Chair, Geosciences), Wojtek Goscinski, $449,063

### Undergraduate Research Support Through External Host Institutions

CRESCENT* Undergraduate Researcher, 2024-2025, *Project #6: Examining Slab-driven Mantle Flow in the Cascadia Subduction Zone*, PI: **Margarete Jadamec**, Co-PI: Maureen Long, *Award from the *Cascadia Region Earthquake Science Center (CRESCENT) GEI Twinning Program.* CRESCENT is an NSF Supported Program based out of the University of Oregon.

### XSEDE/TeraGrid Allocations Awarded

Role of Rheology and Water in Rapid Mantle Flow: Three-dimensional Geodynamic Models of the Cocos-Nazca Subduction System, 2012-2013, *Extreme Science and Engineering Discovery Environment (XSEDE)* HPC Resource Allocation TG-EAR120010: PI: **Margarete A. Jadamec**, 500,000 (Service Units Computing Hours)

Geodynamic Framework for the Tectonic Trigger of Late Neogene Deformation in Southern Alaska, 2008-2009, *TeraGrid HPC Roaming Resource Allocation*, TG-EAR080015N, Co-Authors: Magali Billen, **Margarete A. Jadamec**, 500,000 SUs (Service Units Computing Hours)

3D Thermo-Mechanical Models of Southern Alaska, 2008, *TeraGrid HPC Development Allocation* TG-EAR080006N, Co-Authors: Magali Billen, **Margarete A. Jadamec**, 30,000 SUs (Service Units Computing Hours)

## Publications and Scholarly Creative Works

### Research Metrics

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| Research Gate | Research Interest Score | 641.2 |
| Google Scholar | Total Citations | 1166 |
| Google Scholar | h-index | 17 |
| Google Scholar | i10-index | 20 |

[§]Postdoc, [‡]PhD student, [†]MS student, [*]Undergraduate researcher. Blue text links to articles.

### Peer Reviewed Books and Monographs Edited

[2] Ruppert, N. A., **Jadamec, M. A.**, and Freymueller, J. T., editors. *Tectonics and Seismic Structure of Alaska and Northwestern Canada: EarthScope and Beyond, Geophysical Monograph 290*. John Wiley & Sons, Inc., 1st edition, 2025. ISBN: 978-1-394-19591-6.

[1] Aaron, L., Santina, A., Allain, N., Almas, B., Fallon, B., Gavin, D., Gordon, C., **Jadamec, M.**, Merlino, A., Pierie, L., Solano, G., and Wolf, D. *Optimizing AI in Higher Education: SUNY FACT$^2$ Guide, Second Edition.* State University of New York (SUNY) Faculty Advisory Council On Teaching and Technology (FACT$^2$). SUNY Press, 2nd edition, 2024. https://sunypress.edu/Books/O/Optimizing-AI-in-Higher-Education.

### Peer Reviewed Chapters (Articles) in Monograph and Book Volumes

[7] [‡]Haynie, K. L. and **Jadamec, M. A.** Implications of variable plate coupling versus plateau buoyancy on subduction dynamics: A case study of the Yakutat plateau in Alaska (Article published, 2024). In Ruppert, N. A., Jadamec, M. A., and Freymueller, J. T., editors, *Tectonics and Seismic Structure of Alaska and Northwestern Canada: EarthScope and Beyond, Geophysical Monograph 290*. John Wiley & Sons, Inc., 2025.

[6] **Jadamec, M. A.**, Pavlis, G. L., Yang, X., Fischer, K. M., Wei, S. S., Mann, M. E., and Schaeffer, A. J. Synthesis of the Seismic Structure of the Greater Alaska Region: Geodynamics Implications (Article published, 2024). In Ruppert, N. A., Jadamec, M. A., and Freymueller, J. T., editors, *Tectonics and Seismic Structure of Alaska and Northwestern Canada: EarthScope and Beyond, Geophysical Monograph 290*. John Wiley & Sons, Inc., 2025.

[5] Pavlis, G. L., **Jadamec, M. A.**, Mann, M. E., Yang, X., Schaeffer, A. J., Wei, S. S., and Fischer, K. M. Synthesis of the seismic structure of the greater Alaska Region: Subducting slab geometry (Article published, 2024). In Ruppert, N. A., Jadamec, M. A., and Freymueller, J. T., editors, *Tectonics and Seismic Structure of Alaska and Northwestern Canada: EarthScope and Beyond, Geophysical Monograph 290*. John Wiley & Sons, Inc., 2025.

[4] Yang, X., Mann, M. E., Fischer, K. M., **Jadamec, M. A.**, Wei, S. S., Pavlis, G., and Schaeffer, A. J. Synthesis of the Seismic Structure of the Greater Alaska Region: Continental Lithosphere (Article published, 2024). In Ruppert, N. A., Jadamec, M. A., and Freymueller, J. T., editors, *Tectonics and Seismic Structure of Alaska and Northwestern Canada: EarthScope and Beyond, Geophysical Monograph 290*. John Wiley & Sons, Inc., 2025.

[3] Ruppert, N. A., **Jadamec, M. A.**, and Freymueller, J. T. Preface. In Ruppert, N. A., Jadamec, M. A., and Freymueller, J. T., editors, *Tectonics and Seismic Structure of Alaska and Northwestern Canada: EarthScope and Beyond, Geophysical Monograph 290*. John Wiley & Sons, Inc., 2025.

[2] **Jadamec, M. A.** Slab driven mantle weakening and rapid mantle flow. In Morra, G., Yuen, D. A., Lee, S.-M., and Stein, S., editors, *Subduction Dynamics: From Mantle Flow to Mega Disasters*, volume 211 of *AGU Geophysical Monograph Series*, chapter 7. John Wiley & Sons, Inc., Hoboken, New Jersey, 2016. (PDF).

[1] Kellogg, L. H., Bawden, G. W., Bernarndin, T., Billen, M., Cowgill, E., Hamann, B., **Jadamec, M.**, Kreylos, O., Staadt, O., and Sumner, D. Interactive Visualization to Advance Earthquake Simulation. In K.F., T., D.K., W., and S.A., W., editors, *Earthquakes: Simulations, Sources, and Tsunamis*, volume 165 of *Pageoph Topical Volumes*, pages 621–633. Birkhäuser Verlag, Basel, 2008.

## Peer Reviewed Journal Articles

[19] ‡Bhavsar, V., **Jadamec, M. A.**, and Knepley, M. Influence of initial slab dip, plate interface coupling, and nonlinear rheology on dynamic weakening at the lithosphere-asthenosphere boundary. *Journal of Geophysical Research: Solid Earth*, 130(1):e2023JB028423, 2025.

[18] Kiraly, A., Portner, D., ‡Haynie, K. L., Chilson-Parks, B. H., Ghosh, T., **Jadamec, M. A**, Makushkina, A., Manga, M., Moresi, L., and O'Farrell, K. The effect of slab gaps on subduction dynamics and mantle upwelling. *Tectonophysics*, 785(228458), 2020.

[17] Torne, M., Jimenez-Munt, I., Verges, J., Fernandez, M., §Carballo, A., and **Jadamec, M. A.** Regional crustal and lithospheric thickness model for Alaska, the Chukchi Shelf, and the inner and outer Bering Shelves. *Geophysical Journal International*, ggz424, 2019.

[16] **Jadamec, M. A.**, Kreylos, O., *Chang, B., Fischer, K. M., and Yikilmaz, M. B. A visual survey of global slab geometries with ShowEarthModel and implications for a three-dimensional subduction paradigm. *Earth and Space Science*, 5:18, 2018. EOS Highlight.

[15] §MacDougall, J. G., **Jadamec, M. A.**, and Fischer, K. M. The zone of influence of the subducting slab in the asthenospheric mantle. *Journal of Geophysical Research*, (2017JB014445):26 p., 2017.

[14] ‡Haynie, K. L. and **Jadamec, M. A.** Tectonic drivers of the Wrangell block: Insights on forearc sliver processes from 3D geodynamic models of Alaska. *Tectonics*, 36:28, 2017.

[13] **Jadamec, M. A.** Insights on slab-driven mantle flow from advances in three-dimensional modelling. *Journal of Geodynamics*, 100:51–70, 2016.

[12] ‡Sharples, W., Moresi, L. N., Velic, M., **Jadamec, M. A.**, and May, D. A. Simulating faults and plate boundaries with a transversely isotropic plasticity model. *Physics of the Earth and Planetary Interiors*, 252:77–90, 2016.

[11] ‡Sharples, W., Moresi, L. N., **Jadamec, M. A.**, and Revote, J. Styles of rifting and fault spacing in numerical models of crustal extension. *Journal of Geophysical Research: Solid Earth*, 120(6):4379–4404, 2015.

[10] ‡Sharples, W., **Jadamec, M. A.**, Moresi, L. N., and Capitanio, F. Overriding plate controls on subduction evolution. *Journal of Geophysical Research*, 119:6684–6704, 2014. EOS Research Spotlight.

[9] **Jadamec, M. A.** and Wallace, W. K. Thrust-breakthrough of asymmetric anticlines: Observational constraints from surveys in the Brooks Range, Alaska. *Journal of Structural Geology*, 62(109-124), 2014.

[8] **Jadamec, M. A.**, Billen, M. I., and Roeske, S. M. Three-dimensional numerical models of flat slab subduction and the Denali fault driving deformation in south-central Alaska. *Earth and Planetary Science Letters*, 376:29–42, 2013. NBC News, iSGTW, livescience, SIGMA XI.

[7] Durance, P. M. J., **Jadamec, M. A.**, Falloon, T. J., and Nicholls, I. A. Magmagenesis within the Hunter Ridge Rift Zone resolved from olivine-hosted melt inclusions and geochemical modelling with insights from geodynamic models. *Australian Journal of Earth Sciences*, 59(6):913–931, 2012.

[6] Billen, M. and **Jadamec, M. A.** Origin of localized fast mantle flow velocity in numerical models of subduction. *Geochemistry Geophysics Geosystems*, 13:Q01016, 2012.

[5] Vančo, M., Hamann, B., Kreylos, O., Billen, M., and **Jadamec, M.** Distance field computation for geological slab surface data sets. *Computing and Visualization in Science*, 14(4):143–156, 2012.

[4] **Jadamec, M. A.** and Billen, M. I. The role of rheology and slab shape on rapid mantle flow: Three-dimensional numerical models of the Alaska slab edge. *Journal of Geophysical Research*, 117(B02304), 2012.

[3] **Jadamec, M. A.** and Billen, M. I. Reconciling surface plate motions and rapid three-dimensional flow around a slab edge. *Nature*, 465:338–342, 2010, Nature Editor's Summary, Discovery News.

[2] Billen, M. I., Kreylos, O., Hamann, B., **Jadamec, M. A.**, Kellogg, L. H., Staadt, O., and Sumner, D. Y. A geoscience perspective on immersive 3D gridded data visualization. *Computers & Geosciences*, 34(9):1056–1072, 2008.

[1] **Jadamec, M. A.**, Turcotte, D. L., and Howell, P. Analytic models for orogenic collapse. *Tectonophysics*, 435:1–12, 2007.

## Peer Reviewed Articles in Association for Computing Machinery (ACM)

[2] **Jadamec, M. A.**, Billen, M. I., and Kreylos, O. Three-dimensional simulations of geometrically complex subduction with large viscosity variations. In *XSEDE '12 Proceedings of the 1st Conference of the Extreme Science and Engineering Discovery Environment: Bridging from the eXtreme to the campus and beyond*, pages 1–8. Association for Computing Machinery, 2012. Best Conference Paper Award and Best Science Paper Award.

[1] Kreylos, O., Bawden, G. W., Bernardin, T., Billen, M. I., Cowgill, E. S., Gold, R. D., Hamann, B., **Jadamec, M.**, Kellogg, L. H., Staadt, O. G., and Sumner, D. Y. Enabling scientific workflows in virtual reality. In Wong, K. H., Baciu, G., and Bao, H., editors, *Proceedings of ACM SIGGRAPH International Conference on Virtual Reality Continuum and Its Applications 2006 (VRCIA 2006)*, pages 155–162, New York, ACM Press, 2006.

## Peer Reviewed Movie Collections

[1] **Jadamec, M. A.**, Kreylos, O., *Chang, B., Fischer, K. M., and Yikilmaz, M. B. Movies for: A Visual Survey of Global Slab Geometries with ShowEarthModel and Implications for a Three-dimensional Subduction Paradigm. *Earth and Space Science (Digital Collection hosted at the University at Buffalo Institutional Repository (UBIR))*, 5, 2018.
(Movie Downloads: http://hdl.handle.net/10477/76912). (Movie Streams: http://goo.gl/Y7PDEX)
(Dec. 2019 UBIR Statistics: 2068 site visits, 2871 downloads in 10 different countries).

## Peer Reviewed Software Manuals

[1] **Jadamec, M. A.**, *Chang, B., Kreylos, O., and Yikilmaz, M. B. ShowEarthModel user's manual for desktop environments *in* A visual survey of global slab geometries with ShowEarthModel and implications for a three-dimensional subduction paradigm. *Earth and Space Science*, 5, 2018. (http://hdl.handle.net/10477/81147).

## Reviewed Newsletter and Workshop Reports

[2] Saylor, J. E., Finzel, E., and **Jadamec, M.** Linking observations and modeling of flat-slab subduction. *EOS*, 100, 2019.

[1] Anderson, M., Miller, K., and **Jadamec, M.** Workshop Report: Modern and Ancient Basement Arches and the Connection to Flat Slab Subduction. *EarthScope inSights Fall Newsletter*, Meeting Report, 2014.

## Manuscripts In Revision/In Preparation

[3] ‡Haynie, K. L., **Jadamec, M. A.**, and Knepley, M. Geodynamic modeling of flat slab driven microplate tectonics in Alaska. In Revision, 2025.

[2] ‡Bhavsar, V. and **Jadamec, M. A.** Dynamic controls on laterally variable asthenospheric weakening in subduction zones. In prep. 2025.

[1] **Jadamec, M. A.** and et al. **TECT_MOD**: A software **T**oolkit for t**ECT**onic **MO**del **D**evelopment. In prep. 2025.

## Non-Peer Reviewed Contributions

[5] Tomaszewski, T., Abbey, C., Bird, J., Blanton, M., Chaves, R., Greenwood, S., **Jadamec, M.**, Kennedy, O., Markatou, M., McDonnell, W., Rudra, A., Smith, S., and Titus, A. Report of the Committee on the Future of Computing at UB, Submitted to the Provost, University at Buffalo. 2023.

[4] Peri, K., Hageman-Blair, R., **Jadamec, M. A.**, Hachmann, J., and Doermann, D. Graduate Student Handbook, Institute for Artificial Intelligence and Data Science, University at Buffalo. 2023.

[3] Sarlin, P., Pack, S. D., and **Jadamec, M. A.** Dual-Career Couples and Spousal Hires: Principles and Practices. Technical report, Statement for College of Arts and Sciences Policy Committee (Subcommittee Report), University at Buffalo, 2018.

[2] **Jadamec, M. A.**, Hough, M., Revote, J., and Moresi, L. 3D-ALIVE Training Manual. Training manual, Monash University, e-Research Centre, 2011.

[1] **Jadamec, M. A.**, Kreylos, O., and Billen, M. I. 3DVisualizer Version 1.0 User's Manual for Desktop Environments. Annual Report 08-01, UC Davis KeckCAVES, 2008.

## Invited and/or Featured Conference Presentations

[21] Yang, X., Mann, M. E., Fischer, K. M., **Jadamec, M. A.**, Wei, S. S., Pavlis, G., and Schaeffer, A. J. Synthesis of the seismic structure of the continental lithosphere in the greater Alaska region. In *AGU24: American Geophysical Union 2024 Annual Meeting*, Washington, DC, 2024, (**INVITED**).

[20] Mann, M. E., Yang, X., Fischer, K. M., Pavlis, G. L., **Jadamec, M. A.**, Schaeffer, A., and Wei, S. S. A Synthesis of Seismic Constraints on Earth Structure Beneath Mainland Alaska. In *Alaska EarthScope Synthesis Workshop*, Nanaimo, British Columbia, Canada, 2022, (**INVITED**).

[19] Yang, X., Fischer, K. M., **Jadamec, M. A.**, Mann, M. E., Pavlis, G. L., Schaeffer, A., and Wei, S. S. Seismic constraints on the structure of Alaska: A review. In *AGU Fall Meeting Abstracts*, New Orleans, LA, 2021, (**INVITED**).

[18] **Jadamec, M. A.** 3D virtual reality for scientific data exploration and discovery. In *Immersive Technology and Instruction in Geology, Social Work, and Surgery*. University at Buffalo Digital Scholarship Studio and Network Workshop. Buffalo, NY, 2021, (**INVITED**).

[17] **Jadamec, M. A.** U12F: Plate tectonics paradigm shift interview collection: Reflections on a data-driven paradigm. In *AGU Fall Meeting Abstracts. San Francisco, CA*, 2019, **(UNION, INVITED)**.

[16] **Jadamec, M. A.** Large-scale simulations for scientific applications in Earth science. In *Sandia National Laboratories 28th International Meshing Roundtable (IMR). Buffalo, NY*, 2019, **(INVITED BANQUET SPEAKER)**.

[15] **Jadamec, M. A.**, Kreylos, O., Yikilmaz, M. B., Fischer, K., and *Chang, B. Using 3D virtual reality for interactively exploring models and big data. In *Society of Industrial and Applied Mathematics Conference on Computational Science and Engineering (SIAM CSE). Spokane, WA*, 2019, **(in FEATURED SESSION)**.

[14] **Jadamec, M. A.** High fidelity models of natural subduction systems. In *The Center for Tectonics and Tomography: Workshop on Flat Slab Subduction, Houston, Texas*, 2019, **(INVITED)**.

[13] **Jadamec, M. A.** A three-dimensional paradigm for subduction in the modern age. In *Joint Meeting of Canadian Geophysical Union (CGU), Canandian Soil Science Society (CSSS), Computational Infrastructure for Geodynamcis (CIG), Eastern Section of Seismological Society of America (ES-SSA) and Canadian Society for Agricultural and Forest Meteorology (CSAFM). Niagara Falls, CAN*, 2018, **(INVITED)**.

[12] **Jadamec, M. A.** Toward a three-dimensional subduction system framework. In *Cooperative Institute for Dynamic Earth Research (CIDER) Meeting. University of California, Berkeley, CA*, 2017, **(INVITED PARTICIPANT)**.

[11] **Jadamec, M. A.** Slab-driven mantle flow in three-dimensional subduction systems. In *AGU Fall Meeting Abstracts. San Francisco, CA*, 2016, **(INVITED)**.

[10] **Jadamec, M. A.** Geodynamics modeling of slab-driven mantle flow and upwelling at slab edges. In *GSA Annual Meeting, Denver, CO*, 2016, **(INVITED)**.

[9] **Jadamec, M. A.** Panel: How do I know that my software is doing what I think it is doing? In *Computational Infrastructure for Geodynamics (CIG) Interdisciplinary Directions in Computational Geophysics Meeting, Davis, CA*, 2016, **(INVITED PANELIST)**.

[8] **Jadamec, M. A.** Insights on the subduction process from high-resolution 3D models. In *EGU General Assembly Conference Abstracts. Vienna, Austria*, volume 17, 2015, **(INVITED)**.

[7] **Jadamec, M. A.** Frontiers in modeling subduction dynamics and overriding plate deformation. In *Basement-Cored Uplift Workshop, Tuscon, AZ*, 2014, **(KEYNOTE)**.

[6] **Jadamec, M. A.** Scientific drivers for high-resolution non-Newtonian subduction modeling. In *Computational Infrastructure for Geodynamics (CIG) Mantle and Lithospheric Dynamics Workshop. Banff, CAN*, 2014, **(INVITED)**.

[5] **Jadamec, M.** Subduction zone dynamics and overriding plate deformation in Alaska: Insights and unanswered questions. In *EarthScope National Meeting, Raleigh, NC*, 2013, **(INVITED)**.

[4] **Jadamec, M. A.** Data integration, high performance computing, and scientific visualization in the geodynamics workflow. In *EarthCube Modeling Workshop for the Geosciences, Boulder, CO*, 2013, **(INVITED)**.

[3] **Jadamec, M. A.** Rapid flow in the mantle: Insights from three-dimensional plate boundary models. In *Conference on Geophysics of Slab Dynamics, Jeju Island (South Korea)*, 2012, **(INVITED)**.

[2] **Jadamec, M. A.** and Billen, M. I. The role of rheology and slab shape in rapid mantle fow: 3D numerical models of the eastern Alaska slab edge. In *Interior of the Earth, Gordon-Kenan Research Seminar. Mt. Holyoke, MA*, 2011, **(INVITED)**.

[1] Billen, M. and **Jadamec, M. A.** Integrating surface and seismic observations as constraints on mantle deformation and rheology in the Alaska-Aleutian subduction zone. In *AGU Fall Meeting Abstracts. San Francisco, CA*, 2010, **(INVITED)**.

## Contributed Conference Presentations

[80] ‡Haynie, K. and **Jadamec, M. A.** Yakutat oceanic plateau buoyancy versus variable interface coupling on deformation in south-central Alaska: Implications from 3D numerical models. In *AGU24: American Geophysical Union 2024 Annual Meeting*, Washington, DC, 2024.

[79] **Jadamec, M. A.**, ‡Bhavsar, V., and Knepley, M. Dynamically controlled length-scales of decoupling along the lithosphere-asthenosphere boundary at subduction zones. In *AGU24: American Geophysical Union 2024 Annual Meeting*. AGU, Washington, DC, 2024.

[78] **Jadamec, M. A.**, Pavlis, G. L., Yang, X., Fischer, K. M., Wei, S. S., Mann, M. E., and Schaeffer, A. J. Synthesis of the seismic structure of the greater Alaska region: Geodynamics implications. In *AGU24: American Geophysical Union 2024 Annual Meeting*, Washington, DC, 2024.

[77] **Jadamec, M. A.** Revisiting three-dimensional subduction dynamics in the Aleutian-Alaska subduction zone. In *Ada Lovelace Workshop on Modelling Mantle and Lithosphere Dynamics, European Geosciences Union*, Sete, France, 2024.

[76] ‡Haynie, K. and **Jadamec, M. A.** Implications of variable plate coupling versus plateau buoyancy on subduction dynamics: A case study of the Yakutat plateau in Alaska. In *Seismological Society of America Annual Meeting, Anchorage, AK*, 2024.

[75] **Jadamec, M. A.**, ‡Haynie, K., and Knepley, M. Geodynamic modeling of the role of flat slab subduction in driving microplate tectonics in Alaska. In *Seismological Society of America Annual Meeting, Anchorage, AK*, 2024.

[74] Pusok, A., Udell-Lopez, K., Barrett, N., Bowman, E., Rebaza, A., Tian, X., Zhang, Y., Harmon, N., Rychert, C., Kelley, K., Naif, S., Sim, S., Roy, M., **Jadamec, M.**, Katz, R., and Li, Y. A multidisciplinary approach to constraining the stability of melt at the lithosphere–asthenosphere boundary. In *AGU Fall Meeting Abstracts*, San Francisco, CA, 2023.

[73] **Jadamec, M. A.** Discussion of generative models in science pegagogy. In *Workshop on Integrating Generative Models in the Classroom: Exploring Risks and Benefits*, University at Buffalo, 2023.

[72] **Jadamec, M. A.**, Bhavsar, V., Haynie, K., Valint, B., Halfhill, J., Knepley, M., Kowalski, T., and Kreylos, O. Examining plate-asthenosphere decoupling and anomalous volcanism along the Pacific Ring of Fire. In *2023 Interior of the Earth Gordon Research Conference*, Mt. Holyoke, MA, 2023.

[71] *Kowalski, T., Jadamec, M., and Knepley, M. Interactive information frameworks for subduction zones along the Pacific Ring of Fire. In *2023 University at Buffalo Undergraduate Research Conference, Virtual*, 2023.

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## Seminar Presentations

Departmental Seminar, Woods Hole Oceanographic Institution, Woods Hole, MA, 2024

Developing Professionals Network Seminar, WSP USA Inc., Buffalo, NY, 2024

Department of Earth Sciences Seminar, University of Toronto, Toronto, Canada, 2023

Cooperative Institute for Dynamic Earth Research Seminar, University of California, Berkeley, CA, 2023

MGG/SGT Seminar, Lamont-Doherty Earth Observatory, Columbia University, Virtual, 2022

Incorporated Research Institutions for Seismology (IRIS), Webinar, 2022

Pegrum Lecture, Department of Geology, University at Buffalo, NY, Virtual, 2021

International Geophysics and Tectonics Seminar, University of Kentucky, Virtual, 2021

2021 Alaska EarthScope and Beyond Seminar Series, UNAVCO, Virtual, 2021

Departmental Seminar, Department of Geosciences, University of Alaska, Fairbanks, AK, 2020

Departmental Brown Bag Seminar, Department of Geology, University at Buffalo, NY, 2020

Heiland Lecture, Department of Geophysics, Colorado School of Mines, CO, 2019

Departmental Seminar, Dept. Mechanical and Aerospace Engineering, University at Buffalo, NY, 2019

Departmental Seminar, Dept. Geology & Environmental Earth Science, Miami University, OH, 2018

Departmental Seminar, Dept. Geosciences, Stony Brook University, NY, 2018

Solid Earth Dyn. Seminar, Earth Environmental and Planetary Sciences, Brown University, RI, 2018

Virtual Reality in Higher Education Showcase, Center for Educational Innovation, UB, NY, 2018

Computational and Data-Enabled Science and Engineering (CDSE) Days, UB, NY, 2018

Departmental Seminar, Dept. of Geology, University at Buffalo, SUNY, NY, 2017

Departmental Seminar, Department of Earth Science, Rice University, TX, 2016

Departmental Seminar, Dept. of Earth and Planetary Sciences, Northwestern University, IL, 2016

Departmental Seminar, Department of Geosciences, University of Texas, Dallas, TX, 2015

Departmental Seminar, Dept. Earth and Atmospheric Sciences, University of Houston, TX, 2015

Departmental Seminar, Department of Physics, University of Louisiana, Lafayette, LA, 2014

Departmental Seminar, Department of Terrestrial Magnetism, Carnegie Institution for Science, DC, 2014

Department Colloquium, Dept. Earth and Atmospheric Sciences, University of Houston, TX, 2014

Departmental Colloquium, Dept. of Geology, University of Illinois, Urbana-Champaign, IL, 2013

Solid Earth Group Brown Bag, Dept. of Geosciences, Princeton University, NJ, 2013

Structure and Tectonics Lunch, Dept. Earth and Planetary Sciences, University of California Davis, 2013

Departmental Seminar, Dept. of Earth and Planetary Sciences, Northwestern University, IL, 2013

Lunchtime Seminar, Center for Integrative Geosciences, University of Connecticut, CT, 2013

Departmental Seminar, Dept. of Geosciences, Pennsylvania State University and
Frontiers of Cyberscience Lecture, Institute for CyberScience, Pennsylvania State University, PA, 2013

Earth & Planetary Science Seminar, Dept. of Earth & Planetary Sciences, Harvard University, MA, 2013

Brownbag Seminar, Dept. of Geology and Geophysics, Yale University, CT, 2012

Departmental Seminar, Graduate School of Oceanography, University of Rhode Island, RI, 2012

Solid Earth Dynamics Lunch Bunch, Dept. of Geological Sciences, Brown University, RI, 2011

Seminar, Simula Research Laboratory, Oslo, Norway, 2010

Departmental Seminar, School of Geosciences, Monash University, Australia, 2010

e-Research Exemplars and Discussion Forum, Monash University, Australia, 2010

Departmental Seminar, School of Earth Sciences, University of Melbourne, Australia, 2009

Departmental Seminar, School of Geosciences, Monash University, Australia, 2009

Departmental Seminar, Dept. Earth and Planetary Sciences, University of California, Davis, CA, 2008

## Interviews and Press

American Geophysical Union, Feb. 2025: How New Data Transformed Our Understanding of Alaska's Tectonics: Insights from Leading Researchers

UB Institute for Artificial Intelligence and Data Science, Insights Feb. 2025: Research Highlight

EOS, Aug. 2023: Interview Reviewing *SUBMAP: A tool for mapping Subduction Zones (https://submap.fr)*

UB Press Release, Sept. 2020: Three researchers receive National Science Foundation CAREER awards

EOS Earth and Space News, Oct. 2019: A New Dimension to Plate Tectonics

SIAM News, Feb. 2019: Modeling Modern Plate Tectonics with Three-Dimensional Virtual Reality Simulations

UB Now, Dec. 2018: Why Alaskan plate tectonics drive massive earthquakes

NIH-NSF-DOE Assessment, Feb. 2017: Science Drivers Requiring Capable Exascale High Performance Computing

EOS Research Spotlight, March 2015: Overriding Plate's Properties Affect Subduction

iSGTW Feature Article, Oct. 2013: 3D Tectonic Modeling Answers Age-old Geology Question

CIG Research Highlight: Computational Infrastructure for Geodynamics Fall 2013 Newsletter

NBC News: Mount McKinley-Why the tallest mountain in US is where it is

livescience, Aug. 2013: US Tallest Mountain's Surprising Location Explained

SIGMA XI SmartBrief Top Story: Computer Models Offer Insight into Mount McKinley's Formation

XSEDE, July 2012: Best Conference Paper and Best Science Paper at XSEDE12

Monash University News, July 2010: 3D Technology to Drive Research Breakthroughs

Nature Editor's Summary, May 2010: Rapid Action at Subduction Zones

Discovery News Article: Earth's Mantle in Overdrive Under Alaska

# Professional and Public Service

## Service to State and National Organizations

| | | |
|---|---|---|
| Panelist | National Science Foundation | 2019, 2023 |
| Received Invitation | On Behalf of the Obama White House, Washington, DC<br>National Strategic Computing Initiative Workshop (NSCI) | 2016 |
| Invited Participant | Deep Carbon Observatory Workshop, Washington, DC<br>Hosted at the Smithsonian Institution | 2015 |
| Reviewer | National Science Foundation<br>(Geophysics, Tectonics, EarthScope, Frontier Research in Earth Sciences, GeoPRISMS, Marine Geophysics, Integrated Earth Systems, Cooperative Studies of Earth's Deep Interior) | 2012-present |
| Invited Participant | Australian Academy of Sciences, Canberra, Australia<br>Theo Murphy High Flyers Think Tank<br>Computational, information management, and modeling advances | 2010 |
| Invited Speaker | Australian Synchrotron Facility, Clayton, Australia | 2009 |

## Service to Professional Organizations in Academic Discipline

| | | |
|---|---|---|
| Nominating Committee | Computational Infrastructure for Geodynamics (CIG) | 2024 |
| Committee | Modeling Collaboratory for Subduction (MCS), Integrative Group Subduction Zones in Four Dimensions (SZ4D) | 2022-present |
| Committee Chair | Centennial and Communications Committee,<br>Tectonophysics Section, American Geophysical Union | 2018-2020 |
| Executive Committee | Tectonophysics Section, American Geophysical Union | 2017 |
| Committee Chair | Tectonophysics Section of Fall Meeting Program Committee,<br>American Geophysical Union Fall Meeting, New Orleans, LA | 2017 |
| Program Committee | Tectonophysics Section of Fall Meeting Program Committee,<br>American Geophysical Union Fall Meeting, San Francisco, CA | 2015-2017 |
| Committee | Mantle Convection Working Group,<br>Computational Infrastructure for Geodynamics (CIG) | 2015-2022 |
| Committee | Computational Science Working Group,<br>Computational Infrastructure for Geodynamics (CIG) | 2013-2015 |
| Reviewer | Comptes Rendus Geoscience; EOS; Earth and Planetary Science Letters; Geology; Geophysical Journal International; Geophysical Research Letters; GeoRes J; Geosphere; Geochemistry, Geophysics, Geosystems; Journal of Geophysical Research, Solid Earth; Nature Communications; Nature Communications Earth & Environment; Nature Geosciences; Science; Tectonics; Tectonophysics | |

## Service to Academic Discipline: Scientific Meetings Organized
(Program Committee Member or Co-chair)

| | | |
|---|---|---|
| Co-Organizer | Workshop on Integrating Generative Models in the Classroom<br>Institute for Artificial Intelligence, University at Buffalo, Buffalo, NY | 2023 |
| Program Committee | Minisymposia and Posters Program Committee<br>Platform for Advanced Scientific Computing (PASC) Conference,<br>co-sponsored by the Association for Computing Machinery (ACM) and<br>the Swiss National Supercomputing Centre (CSCS), Basel, Switzerland | 2022 |
| Program Committee | Institute for Artificial Intelligence (IAD) and Data Science Days<br>Institute for Artificial Intelligence, University at Buffalo, Buffalo, NY | 2021-2022 |
| Program Committee | Mantle Convection and Lithosphere Dynamics Workshop,<br>Computational Infrastructure for Geodynamics (CIG), Niagara Falls, CAN | 2018 |
| Program Committee | Computational and Data-enabled Science and Engineering Conference,<br>CDSE Program, University at Buffalo, SUNY, Buffalo, NY | 2018-2019 |
| Committee Chair | Tectonophysics Section of Fall Meeting Program Committee,<br>American Geophysical Union Fall Meeting, New Orleans, LA | 2017 |
| Program Committee | Tectonophysics Section of Fall Meeting Program Committee,<br>American Geophysical Union Fall Meeting, San Francisco, CA | 2015-2017 |
| Committee Co-Chair | Solvers in CitcomCU and CitcomS Workshop,<br>Computational Infrastructure for Geodynamics (CIG), Davis, CA | 2013 |

## Service to Academic Discipline: Sessions Organized at Scientific Meetings
(Session Co-organizer/Co-chair)

*Intra-continental Deformation and Subduction in Alaska and Northwestern Canada: Results from EarthScope and Related Studies*
American Geophysical Union (AGU) Fall Meeting, Washington, DC 2024

*Computational and Data-Enabled Science and Engineering PhD Presentations*
Institute for Artificial Intelligence (IAD) and Data Science Days, Buffalo, NY 2023

*Computational and Data-Enabled Science and Engineering PhD Presentations*
Institute for Artificial Intelligence (IAD) and Data Science Days, Buffalo, NY 2022

*Seismic Anisotropy and Mantle Dynamics: Observations, Models, and Experiments*
American Geophysical Union (AGU) Fall Meeting, Virtual Format 2020

*Scientific Data Visualization Platforms Facilitating New Paradigms,* **Featured Session**
Society of Industrial and Applied Mathematics, 2019
Computational Science and Engineering (SIAM CSE)

*The Giants of Tectonophysics III, Centennial Session*
American Geophysical Union (AGU) Fall Meeting, San Francisco, CA 2019

*Advances in Understanding Earth's Dynamic Processes Using Seismic Anisotropy*
American Geophysical Union (AGU) Fall Meeting, San Francisco, CA 2019

*Advances in Understanding Earth's Dynamic Processes Using Seismic Anisotropy*
American Geophysical Union (AGU) Fall Meeting, Washington, DC 2018

*The Giants of Tectonophysics II*
American Geophysical Union (AGU) Fall Meeting, Washington, DC 2018

*The Giants of Tectonophysics I,* **Union Session**
American Geophysical Union (AGU) Fall Meeting, Washington, DC 2018

*Visualizing and Accessing Geophysical Data for the Solid Earth - eLightning*
American Geophysical Union (AGU) Fall Meeting, New Orleans, LA 2017

*Advances in Understanding Earth's Dynamic Processes Using Seismic Anisotropy*
American Geophysical Union (AGU) Fall Meeting, New Orleans, LA 2017

*State of the Art in Computational Geoscience*
American Geophysical Union(AGU) Fall Meeting, San Francisco, CA 2016

*Computational Geosciences and Data Visualization*
Geological Society of America (GSA) South Central Section Meeting 2016
Baton Rouge, LA

*Revisiting the Tectonics, Regional Structure, and Geodynamics of Alaska and the North Pacific*
American Geophysical Union (AGU) Fall Meeting, San Francisco, CA 2015

*Slabs in Earth's Mantle*
American Geophysical Union (AGU) Fall Meeting, San Francisco, CA 2015

*An Updated View on Caribbean Tectonics*
Geological Society of America (GSA) National Meeting, Baltimore, MD 2015

*Geophysical Observations and Models of Subduction*
American Geophysical Union (AGU) Fall Meeting, San Francisco, CA 2013

# University and Departmental Service

## Service to The State University of New York (SUNY) Colleges and Universities

| | | |
|---|---|---|
| Task Group Member | Optimizing AI (Artificial Intelligence) for Teaching and Learning,<br>SUNY FACT$^2$ Task Group<br>FACT$^2$: Faculty Advisory Council on Teaching and Technology, SUNY<br>FACT$^2$ is an Advisory board to the SUNY Provost | 2023-2024 |

## Service to University

*University at Buffalo, SUNY*

| | | |
|---|---|---|
| Committee | Committee on the Future of Computer Science and Computing<br>Report submitted to the Provost, University at Buffalo, SUNY, Buffalo, NY | 2022-2023 |
| Program Director | Computational and Data-Enabled Science and Engineering PhD Program<br>*part of:* Institute for Artificial Intelligence and Data Science<br>University at Buffalo, SUNY, Buffalo, NY | 2021-2023 |
| Speaker, Program Representative | Institute for Computational and Data Sciences (ICDS) &<br>Artificial Intelligence (AI) Institute Symposium<br>University at Buffalo, SUNY, Buffalo, NY | 2021 |
| University Representative | Computational Infrastructure for Geodynamics<br>University at Buffalo, SUNY, Buffalo, NY | 2019-present |

| | | |
|---|---|---|
| Panelist | Association of Research Libraries Liaison Institute<br>University at Buffalo, SUNY, Buffalo, NY | 2017 |

*University of Houston, Houston, TX*

| | | |
|---|---|---|
| Committee | Center for Advanced Computing & Data Services, Visualization Committee<br>University of Houston, Houston, TX | 2016 |
| University Representative | Computational Infrastructure for Geodynamics<br>University of Houston, Houston, TX | 2014-2016 |

*Monash University, Clayton, VIC, Australia*

| | | |
|---|---|---|
| Steering Committee | 3DALIVE Steering Committee<br>e-Research Centre; Monash University, Clayton, VIC, Australia | 2009-2011 |
| Committee | High Performance Computing Sub-committee<br>Monash University, Clayton, VIC, Australia | 2009-2010 |

## Service to College

| | | |
|---|---|---|
| Steering Committee | College of Arts and Sciences Steering Committee<br>for Policy Committee University at Buffalo, SUNY, Buffalo, NY | 2018-2020 |
| Committee | College of Arts and Sciences Policy Committee<br>University at Buffalo, SUNY, Buffalo, NY | 2017-2020 |
| Committee | College of Arts and Sciences Spousal Hiring Subcommittee<br>University at Buffalo, SUNY, Buffalo, NY | 2017-2018 |

## Service to Department

*Department of Geology, University at Buffalo, SUNY*

| | | |
|---|---|---|
| Committee | Graduate Studies Commitee | 2024-present |
| Commencement | Geology Department CAS Undergraduate Commencement Marshall | 2022, 2023 |
| Director | Director of Undergraduate Studies | 2020-2022 |
| Committee Chair | Undergraduate Studies Committee | 2020-2022 |
| Executive Committee | Departmental Executive Committee | 2020-2022 |
| Committee | Undergraduate and Graduate Awards Committee | 2020-2022 |
| Committee | Departmental Computer and Instrument Committee | 2018-2020 |
| Committee | Computational Geoscience MS Degree Formation Ad-Hoc Committee | 2018-2020 |

*Department of Earth and Atmospheric Sciences, University of Houston*

| | | |
|---|---|---|
| Committee | Computer Software Support Committee | 2016-2017 |
| Committee | Department Geology PhD Qualifying Exam Committee | 2015, 2016 |
| Committee Chair | Undergraduate Geophysics Curriculum Revision Committee | 2014-2015 |

## Service Facilitating Inclusivity, including Women in STEM

| | | |
|---|---|---|
| Faculty Rep. | STEM Research Opportunity Fair (WiSE) | 2024 |
| Faculty Mentor | Women in Science and Engineering (WiSE) Outreach Shadow Day | 2023 |
| Faculty Mentor | Women in Science and Engineering (WiSE) Outreach Shadow Day | 2022 |
| Speaker/host | Lab Tour, Women in Science and Engineering (WiSE) Early Move-In program | 2022 |
| Speaker | Incorporated Research Institutions for Seismology (IRIS)<br>Advancing Pedagogy and Inclusivity through Multi-Modal Seismology Modules in the Era of COVID-19 | 2022 |
| Panelist | Women in STEM Event, Faculty Panel<br>Society for Industrial and Applied Mathematics, Univ. at Buffalo Student Chapter<br>Association for Women in Mathematics, Univ. at Buffalo Student Chapter | 2022 |
| Organizer, Host | Professional Development: Career Choices in Geosciences, Virtual Panel<br>Geodynamics Research and Visualization Group, Univ. at Buffalo, SUNY<br>Geology Club; Dept. of Geology, University at Buffalo, SUNY | 2021 |
| Organizer, Chair | Women in STEM: Career Choices in Geosciences Panel<br>Geodynamics Research and Visualization Group;<br>Co-Sponsors: AAPG Wildcatters; Dept. of Earth and Atmospheric Sciences<br>Univ. of Houston, Houston, TX | 2017 |
| Panelist | Women in STEM: Career Choices in Geosciences Panel<br>Geodynamics Research and Visualization Group;<br>Co-Sponsors: AAPG Wildcatters; Dept. of Earth and Atmospheric Sciences<br>Univ. of Houston, Houston, TX | 2017 |
| Featured Panelist | Women in Science and Engineering, Athena Science Challenge<br>Brown University, Providence, RI | 2012 |
| Advisory Board | Women's Center, University of Alaska, Fairbanks, AK | 2002 |

## Service to the Community (Outreach)

| | | |
|---|---|---|
| Presenter | Plate Tectonics Digital Collections<br>Earth Ed Institute, University at Buffalo, Buffalo, NY<br>*classes offered as a part of:* Continuing Teacher and Leader Education, New York State Education Department | 2024 |
| UB Volunteer | Citizen Continental-America Telescope Eclipse (Citizen CATE 2024)<br>University at Buffalo; Erie County State Park, NY | 2024 |
| Presenter | Earth Day Demonstration: Plate Tectonics and Subduction<br>Visiting Researcher, Adler Planetarium, Chicago, IL | 2023 |
| Presenter | Earth Day Demonstration: Plate Tectonics and Subduction<br>Visiting Researcher, Adler Planetarium, Chicago, IL | 2022 |
| Invited Presenter | Plate Tectonics: A Historical Perspective Workshop<br>SUNY Cortland, Cortland, NY; New York State Master Teachers Program<br>Science Teachers Association of New York State | 2019 |
| Invited Presenter | Eric Pitman Workshop on Computational Science<br>Center for Computational Research, University at Buffalo, SUNY | 2019 |
| Presenter | 18th Annual Career Awareness Program<br>Williamsville East High School, Williamsville, NY | 2019 |
| Invited Presenter | Eric Pitman Workshop on Computational Science<br>Center for Computational Research, University at Buffalo, SUNY | 2018 |
| Presenter | 18th Annual Career Awareness Program<br>Williamsville East High School, Williamsville, NY | 2018 |

# Teaching

## List of Courses Taught, Organized by Academic Year

| Semester | Course # | Course Title | Level |
|---|---|---|---|
| *University at Buffalo, SUNY* | | | |
| 2024/2025 | | | |
| Fall 2024 | MAE *609: | High Performance Computing I (18) | Grad |
| | | (cross listed CDA609/CE620/CSE547/GLY609/MTH667/PHY515) | |
| Spg. 2025 | GLY 550LLB: | Geodynamics | Grad/Ugrad |
| Spg. 2025 | MAE *609: | High Performance Computing I | Grad |
| | | (cross listed CDA609/CE620/CSE547/GLY609/MTH667/PHY515) | |
| 2023/2024 | | | |
| Fall 2023 | *on sabbatical* | | |
| Spg. 2024 | *on sabbatical* | | |
| 2022/2023 | | | |
| Fall 2022 | GLY 326LLB: | Structural Geology & Global Tectonics (18) | Ugrad |
| Fall 2022 | MAE *609: | High Performance Computing I (18) | Grad |
| | | (cross listed CDA609/CE620/CSE547/GLY609/MTH667/PHY515) | |
| Spg. 2023 | GLY *597: | Geohazards, Volcanology, Geodynamics Seminar | Grad |
| 2021/2022 | | | |
| Fall 2021 | GLY 326LLB: | Structural Geology & Global Tectonics (27) | Ugrad |
| Fall 2021 | MAE *609: | High Performance Computing I (24) | Grad |
| | | (cross listed CDA609/CE620/CSE547/GLY609/MTH667/PHY515) | |
| Spg. 2022 | GLY 550LLB: | Geodynamics (13) | Grad/Ugrad |
| Spg. 2020 | GLY *597: | Geohazards, Volcanology, Geodynamics Seminar (6) | Grad |
| Sum. 2022 | GLY *407: | Geological Field Training | Ugrad |
| 2020/2021 | | | |
| Fall 2020† | GLY 326LLB: | Structural Geology & Global Tectonics (19, hybrid) | Ugrad |
| Fall 2020† | MAE *609: | High Performance Computing I (18, hybrid) | Grad |
| | | (cross listed CDA609/CE620/CSE547/GLY609/MTH667/PHY515) | |
| Fall 2020† | GLY 600: | Numerical Simulation Seminar (9, hybrid) | Grad |
| Spg. 2021† | GLY *597: | Geohazards, Volcanology, Geodynamics Seminar (3, hybrid) | Grad |
| 2019/2020 | | | |
| Fall 2019 | GLY 326LLB: | Structural Geology & Global Tectonics (23) | Ugrad |
| Fall 2019 | MAE 609: | High Performance Computing I (22) | Grad |
| | | (cross listed CDA609/CE620/CSE547/GLY609/MTH667/PHY515) | |
| Spg. 2020† | GLY 550LLB: | Geodynamics (16, transitioned to online) | Grad/Ugrad |
| Spg. 2020† | GLY 600: | Numerical Simulation Seminar (4, transitioned to online) | Grad |
| Sum. 2020† | GLY *478: | Advanced Field Methods (16, online) | Ugrad |
| 2018/2019 | | | |
| Fall 2018 | GLY 326LLB: | Structural Geology & Global Tectonics (24) | Ugrad |
| Fall 2018 | MAE 609: | High Performance Computing I (19) | Grad |
| | | (cross listed CE620/CSE547/MTH667/PHY515) | |
| Sum. 2019 | GLY *407: | Geological Field Training (36) | Ugrad |
| 2017/2018 | | | |
| Fall 2017 | GLY *326LLB: | Structural Geology & Global Tectonics (29) | Ugrad |
| Fall 2017 | MAE 609: | High Performance Computing I (31) | Grad |
| | | (cross listed CE620/CSE547/MTH667/PHY515) | |
| *University of Houston* | | | |
| 2016/2017 | | | |
| Fall 2016 | GEOL 6397: | Numerical Modeling for Geodynamics (6) | Grad |
| Spring 2017 | GEOL 6397: | Subduction Zone Dynamics (5) | Grad |

*table continued on next page*

| Semester | Course # | Course Title | Level |
|---|---|---|---|
| *University of Houston continued from previous page* | | | |
| 2015/2016 | | | |
| Fall 2015 | GEOL 6349: | Geodynamics (9) | Grad |
| Spring 2016 | GEOL 1330: | Physical Geology (81) | Ugrad |
| Spring 2016 | GEOL 1330: | Physical Geology (134) | Ugrad |
| 2014/2015 | | | |
| Fall 2014 | GEOL 6396: | Solid Earth Seminar (12) | Grad |
| Spring 2015 | GEOL 6397: | Subduction Zone Dynamics (11) | Grad |
| Sum. 2015 | GEOL *3355: | Geology Field Camp ($\sim$ 19) | Ugrad |

*() Number of students enrolled. *Indicates co-taught course.*
† *Courses taught with an online component during the COVID-19 global pandemic (Spring 2020-Spring 2021).*

### Accompanying Course Details

*University at Buffalo, SUNY*

**GLY 326LLB** - Structural Geology & Global Tectonics, 4-credit lecture/lab core course.

**GLY 550LLB** - Geodynamics, 3-credit elective lecture/lab course.

**MAE 609** - High Performance Computing I, 3-credit lecture CDSE program core course, cross listed with CDA609/CE620/CSE547/GLY609/MTH667/PHY515. (CDA = Computational and Data Enabled; CE = Dept. of Chemical and Biological Engineering; CSE = Dept. of Computer Science and Engineering; GLY = Dept. of Geology; MAE = Dept. of Mechanical and Aerospace Engineering; MTH = Dept. of Mathematics; PHY = Dept. of Physics)

**GLY 407** - Geological Field Training, 6-credit field core course. $\sim$ 10-day faculty rotations.

**GLY 478** - Advanced Field Methods, 3-credit online field core course. $\sim$ 7-10-day faculty rotations.

*University of Houston*

**GEOL 6396** - Solid Earth Seminar, 3-credit elective geophysics seminar.

**GEOL 6397** - Subduction Zone Dynamics, 3-credit lecture elective course.

**GEOL 3355** - Geology Field Camp, 6-credit field core course. $\sim$ 10-day faculty rotations.

**GEOL 6349** - Geodynamics, 3-credit lecture elective course.

**GEOL 1330** - Physical Geology, 3-credit lecture core course, & science course for non-majors.

**GEOL 6397** - Numerical Modeling in Geodynamics, 3-credit lecture elective course.

## Research Supervision

### Current Students

| | | |
|---|---|---|
| M.S. Student | Clayton Kolke<br>*Modeling the Effect of Slab Geometry and Mantle Rheology on the Three-dimensional Dynamics of the Cascadia Subduction Zone* | 2024-present |
| Undergraduate | Samantha Koller, CRESCENT Undergraduate Researcher<br>*Examining Slab-driven Mantle Flow in the Cascadia Subduction Zone* | 2024-present |
| *On sabbatical* | 2023/2024 | |

## Former Postdoctoral Fellows and Students

Postdoctoral Fellows (2), PhD students (3), MS Students (4), Undergraduate Honor's Theses (2)

*Postdoctoral Researchers Supervised*

Postdoc Dr. Alberto Carballo 2016-2017
Dept. of Earth and Atmospheric Sciences, Univ. of Houston

Postdoc Dr. Julia MacDougall, 2014-2015
Dept. of Earth and Atmospheric Sciences, Univ. of Houston

*Graduate Students Supervised*

*PhD Students*

Vivek Bhavsar Graduated 2024
Dissertation: *Two-dimensional modeling of the dynamics of non-linear flow in subduction zones*
Computational and Data Enabled Sciences, University at Buffalo, SUNY

Kirstie Haynie Graduated 2019
Dissertation: *Controls of Flat Slab Versus Oceanic Plateau Subduction on Overriding Plate Deformation in South-central Alaska*
Geology Department, University at Buffalo, SUNY

Wendy Sharples Graduated 2015
Co-supervised with Louis Moresi
Dissertation: *Transversely Isotropic Rheology in Numerical Models of Large Scale Lithospheric Deformation*
School of Mathematics, Monash University, VIC, Australia

*MS Students*

Jane Halfhill Graduated 2023
Thesis: *3D Tectonic Model of the Boso Triple Junction*
Geology Department, University at Buffalo, SUNY

Bailey Valint Graduated 2023
Thesis: *Modeling mechanisms for trench-parallel flow in the Cocos-Nazca subduction system*
Geology Department, University at Buffalo, SUNY

Isabelle Li Graduated 2022
*Non-Thesis*
Geology Department, University at Buffalo, SUNY

Simin Gao Graduated 2018
Thesis: *Dynamic Asthenospheric Weakening Facilitating Plate Tectonic Motion*
Dept. Earth and Atmospheric Sciences, University of Houston

*Undergraduate Students*

*Undergraduate Honors Thesis Students*

Kyle Schmitt Graduated 2020
Undergraduate Honor's Thesis: *Mechanisms for Slab-edge Volcanism in the Wrangell Mountains, Eastern Alaska Subduction Zone*
Geology Department, University at Buffalo, SUNY

Ken McLean — Graduated 2010
Undergraduate Honor's Thesis: *Characterizing Three-dimensional Mantle Flow in the New Hebrides Subduction System, Southwest Pacific: Reconciling mantle flow with primitive arc lavas at the slab edge*
School of Geosciences, Monash University, VIC, Australia

*Undergraduate Researchers*

*University at Buffalo, SUNY (19)* — 2017-present
Thomas Kowalski, Andrew Gmerek, Rachel Bakowski, Eric Cicero, Jenna LaBombard, Angela Shell, Arianna Recinos, Isabelle Li,Brooke Chase, Bailey Valint, Kyle Schmitt, Jake Riedel, Jenna Barber, Salvatore Bianco, Liam Weidner, Dwight Perot, Samirra Felix, Shane Porter, Angela Olsen (GLADE REU)

*University of Houston (3)* — 2014-2017
Nikki Pham (GLADE REU), Benjamin Chang, Robby Gibler

*Monash University (4)* — 2009-2010
Ken McLean, David Willis, Eamon Lai, James Blythe

### Student MS and PhD Committees

*PhD Student Committees (11)*

Courtney Shafer — 2022-present
Brandon Keim — 2022-present
Geology Department, University at Buffalo, SUNY

Daniel Finn — Graduated 2023
Abishek Mishra — Graduated 2022
Computational and Data-Enabled Sciences, University at Buffalo, SUNY

Alex Ohare — Graduated 2019
Geology Department, University at Buffalo, SUNY

Tithi Ghosh, Luchen Li, Xiang Ling,Tyson Smith, Kurt Sundell, Zhili Wei
Dept. of Earth and Atmospheric Sciences, University of Houston — 2015-2017

*MS Student Committees (5)*

Patrick Bobbit, Samuel Rodgers, Hadarou Sare,
Nicholas Schiff, Taylor Schweigel
Geology Department, University at Buffalo, SUNY — 2017-2021

## Academic Awards and Honors

| | | |
|---|---|---|
| NSF CAREER Award | National Science Foundation - EAR | 2020-2025 |
| UUP Professional Development Award | University at Buffalo, State University of New York | 2020 |
| Provost's Travel Award | University of Houston, Houston, TX | 2016 |
| Outstanding Reviewer | Earth and Planetary Science Letters, Elsevier | 2015 |
| Technology in Teaching *Nomination* | Brown University, Providence, RI (For GEL 220) | 2014 |

| | | |
|---|---|---|
| NSF Postdoctoral Fellowship | National Science Foundation - EAR | 2011-2013 |
| Best Conference Paper | Extreme Science and Engineering Discovery Environment Conference (XSEDE12) | 2012 |
| Best Science Paper | Extreme Science and Engineering Discovery Environment Conference (XSEDE12) | 2012 |
| Graduate Award for Engineering/ Computer-related Applications | University of California, Davis, CA | 2006 |
| Graduate Block Grant Fellowship | University of California, Davis, CA | |
| Cordell Durrell Research Award | University of California, Davis, CA | 2003, 2004 |
| Graduate Research Grant | Geological Society of America | 2003 |
| Thesis Completion Fellowship | University of Alaska, Fairbanks, AK | 2002 |
| Martin Van Couvering Award | American Association of Petroleum Geologists | 2002 |
| Jessie O'Bryan McIntosh Scholarship | University of Alaska, Fairbanks, AK | |
| Graduate Research Award | ARCO Alaska/Phillips Petroleum Inc | 2000 |

## Additional Experience

*Additional Training*

Heartsaver First Aid CPR AED, American Heart Association (2023-2025)

Safe Zone Training Course, UB EDGE Program (2024)

First Aid, Red Cross (2022-2024)

First Aid and CPR, Red Cross (2017-2019)

Build Your Hybrid Or Online Course, Graduate School of Education, University at Buffalo, SUNY (2018)

New Faculty Scholars Program, University of Houston (2014–2015)

Level 1 Archery Instructor (2011)

Research Supervisor Accreditation, Level 1, Monash University, AUS (2009)

Wilderness First Aid (2000, 2005)

Wilderness First Responder, Wilderness Medical Associates (2000)

Resident Assistant, Department of Residential Life, University of Connecticut (1997–1999)

*Additional Field Experience*

GPS Field Campaign, Volunteer, United States Geological Survey, NE Basin and Range (2003)

GPS Field Campaign, Assistant, Helicopter Supported, Univ. of Alaska, Kenai Peninsula, AK (2002)

Geologic Mapping, Researcher, Helicopter Supported, Univ. of Alaska, Brooks Range, AK (2001, 2002)

*Formal Athletic Competitions*

Downhill Mountain Bike Racing, Victoria State Series, Int. Mountain Bicycling Assoc., AUS (2009–2010)

Downhill Mountain Bike Racing, USA Cycling, Expert Class (2007-2008)

Downhill Mountain Bike Racing, USA Collegiate MTB National Championships, Banner Elk, NC (2007)

Dual Slalom Mountain Bike Racing, USA Collegiate MTB Nat. Championships, Banner Elk, NC (2007)

Western Collegiate Cycling Team, Cal. Aggies (Mountain Biking), Univ. of California, Davis (2005–2007)

Equinox Marathon, (Mostly trail, greater than 3000 ft elevation change), Fairbanks, AK (2001)

Equinox Marathon Relay, (Mostly trail, greater than 3000 ft elevation change), Fairbanks, AK (2000)