Alissa Jeanne Kotowski

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Updated: October 2026

RESEARCH INTERESTS

My research aims to quantify the feedbacks between deformation and metamorphism in plate boundary shear zones and ice sheets, from tectonic, to decadal, to seismic timescales. I combine field-based structural observations, laboratory-derived micro-structural, petrologic, and geochronologic data, and experimental rock mechanics to understand the rheological behavior of litho- and cryospheric discontinuities. My work contextualizes seismic, geophysical, and geodetic observations of active plate boundaries and ice sheets.

EDUCATION

Ph.D., University of Texas at Austin: August 2014 – December 2019
Jackson School of Geosciences
Department of Geological Sciences
Structural and rheological evolution of subduction interface shear zones: Insights from exhumed rocks
Advisors: Whitney M. Behr and Daniel F. Stockli
GPA: 4.0/4.0

B.Sc., Boston College: August 2010 – May 2014
Department of Earth and Environmental Sciences
Honors Program
Summa Cum Laude
Cellular seismology, earthquake migration, and transform faults: Analysis of the Alpine Fault (New Zealand) and comparison with the North Anatolian Fault (Turkey)
Advisor: Alan Kafka
GPA: 3.924/4.0

POSITIONS HELD

Assistant Professor (Tenured) Dec 2021-present
Department of Earth Sciences, Utrecht University, Utrecht, The Netherlands

Wares Postdoctoral Research Fellow Feb 2020-Dec 2021
McGill University, Montréal, Canada (Supervisor: Dr. James Kirkpatrick)

National Science Foundation Graduate Research Fellow (Tectonics) 2016-2019
University of Texas at Austin, Austin, TX

Scientist in Residence Graduate Student Fellow 2018-2019
UT Austin Environmental Science Institute outreach program. Developed and executed lesson plans for 11th and 12th grade AP Environmental Science at Austin High School.

GeoFORCE Lead Instructor 2016-2019
Led week-long summer field trips to the Grand Canyon, Cascades, and Central Texas for students from minority-majority high schools in Dallas and Austin, TX.

Associate Instructor, Indiana University Geologic Field Camp July-August 2015
Judson Meade Geologic Field Station, Cardwell, MT
Full-time teaching position for six-week summer field camp.

Undergraduate Research Fellow 2013-2014
Boston College, Chestnut Hill, MA
Using garnet zonations to reconstruct the PT history of metamorphic rocks from the Albion Mountains, Idaho. (Supervisor: Dr. Eric Kelly)

EarthScope Transportable Array Intern May-August 2012
Boston College, Chestnut Hill, MA
Reconnaissance field work in New England for siting the east coast section of EarthScope's Transportable Array. Communicated societal significance of project to local community members. (Supervisor: Dr. John Ebel)

HONORS & AWARDS

Utrecht University Teacher Talent of the Year 2025
In recognition of outstanding contributions to teaching for faculty and staff with under 5 years experience
Winner amongst three nominees from all of Utrecht University.

Faculty of Geoscience Teacher Talent of the Year 2025
In recognition of outstanding contributions to teaching for faculty and staff with under 5 years experience
Winner of Faculty Award

Westerdijk **Leadership Program for Women** 2024-2025
Nominated to participate in leadership skill development in recognition of potential to achieve Full Professor

University Teaching Qualification (UTQ) Recipient 2024
In recognition of didactic competences and dedication to pursuit of teaching excellence

Netherlands Research Council (NWO) VENI Talent Scheme Laureate 2022 Active 2023-2026
Individual Proposal for Early Career Scientists within 3 years of receiving PhD (~14% success rate)
"Aimed at researchers with academic qualities that clearly exceed what is customary, the Veni grant is intended to finance academically innovative research and to give these researchers the opportunity to develop themselves as independent researchers."

Science Education Conference Award from McGill University 2021
In support of attending a conference or workshop for professional development related to science education

Wares Postdoctoral Research Fellow, McGill University 2020-2022
"Individual Fellowship for outstanding early career Earth Scientists to work on research projects

within the broad range of disciplines covered by researchers in the Department. Two Wares Fellows appointed annually (between 2020-2022)"

Outstanding Student Presentation Award (Oral), Annual AGU Fall Meeting 2019

1st Place, Jackson School of Geosciences Annual Research Symposium, Late Career PhD ($1000) 2018

1st Place, Jackson School of Geosciences Annual Petrography Contest ($2000) 2018

National Science Foundation Graduate Research Fellow in Tectonics 2016-2019

University of Texas at Austin, Graduate Dean's Prestigious Fellowship Supplement ($1000/year for three years) 2016-2019

Muehlberger Graduate Fellowship in Structure and Tectonics, Jackson School of Geosciences ($24,000 over Spring and Summer terms) 2016

Honorable Mention: National Science Foundation Graduate Research Fellowship 2015

Phi Beta Kappa Academic Honor Society, Boston College chapter 2014

Summa Cum Laude, Boston College '14 2014

MANUSCRIPTS, PRESENTATIONS & ABSTRACTS

INVITED PRESENTATIONS AND KEYNOTE TALKS

- **Keynote** Presentation at Gordon Research Conference on Rock Deformation – "The spectrum of deformation in the field" (August 2026)
- **Keynote** Presentation for SerpentineDays webinar (October 2024)
- **Keynote** Presentation at PANGEO Meeting – Session "Geodynamics and Earth's Spheres" (September 2024)
- **Invited Session Leader** at Gordon Research Conference on Rock Deformation – "Petrology, Rheology, and Slip Behavior of the Deep Subduction Interface" (August 2024)
- **EGU 2024** – Session "All about time – metamorphic processes and their role in the evolution of cratons, orogens and subduction zones" (April 2024)
- Charles University, Prague, Czech Republic (March 2024)
- TU Delft (October 2023)
- University of Utah Distinguished Lecture Series (October 2023)
- University of Oslo (UiO) Department of Geosciences, Norway (October 2022)
- Bochum University of Applied Sciences, Bochum, Germany (November 2022)
- **GSA 2022** – Session "Thermal Structure of Subduction Zones: Constraints, Evolution, Consequences" (Oct. 2022)
- **Keynote** Presentation at Penrose Conference on "Geological Fingerprints of Slow Earthquakes" (April 2022)
- **Keynote** Presentation at Young Researchers in Structural Geology and Tectonics conference (July 2022)
- MIT Department Seminar (October 2021)
- Purdue University Department Seminar (April 2021)
- Harvard University Department Seminar (March 2021)
- University of Washington Department Seminar (February 2021)
- **AGU 2020** – Session "Geophysical, Mechanical and Geologic Constraints on Subduction Interfaces" (Dec. 2020)
- **AGU 2020** – Session "Student Engagement to Enhance Development: Outstanding Student Presentation Award Winners from Fall Meeting 2019" (December 2020)
- Utrecht University Faculty of Geosciences (November 2020)
- McGill University Department Seminar (November 2020)
- University of Southern California Department Seminar (October 2020)

- Michigan State University 'Life Outside Academic Work' Seminar Series – "Effective Figure Making in Adobe Illustrator" (October 2020)
- University of New Orleans Department Seminar (October 2020)
- University of Kentucky Geophysics & Tectonics Seminar Series (September 2020)
- Canadian Tectonics Group Virtual Summer Seminar Series (August 2020)
- Rice University Department Seminar (April 2019)

MANUSCRIPTS UNDER REVIEW AND REVISION

** indicates student author*

1. **Kotowski, A.J.,** Hellebrand, E., Godard, M., Tarling, M.S., **Smit, H.,* & **van Broekhoven, J.* Refertilized roots of ophiolites record slab-melt addition to the mantle during subduction infancy. Under review.

2. Wright, V.D. & **Kotowski, A.J** (in revision for *Journal of Geoscience Education*) "Influence of individualistic vs. group-learning activities on Black and Brown students' interests, understandings, and perceptions of Geoscience in an out-of-school-time course."

PUBLICATIONS

** indicates student author*

1. **Kotowski, A. J.,** Seyler, C. E., Kirkpatrick, J. D., & Van Hinsbergen, D. J. (2026). Cooling-Induced Rheological Weakening Along the Nascent Plate Interface—A Mechanism for Catastrophic Subduction Initiation?. *Journal of Geophysical Research: Solid Earth*, 131(1), e2025JB032212.

2. **Arias, A.*, Eberhard, L., Beinlich, A., John, T., **Kotowski, A.J.,** & Plümper, O. (2026). Quantifying Vein network permeability in dehydrated serpentinites using thermodynamics and generative AI. *Journal of Geophysical Research: Solid Earth*, 131(2), e2025JB032776.

3. **Maremmani, A.*, van Hinsbergen, D. J., Advokaat, E. L., **Kotowski, A. J.,** & Guilmette, C. (2026). Orogenic architecture diagrams to reconstruct palaeogeography and plate tectonics: Newfoundland (Canada) as a case study. *Journal of the Geological Society*, 183(4), jgs2026-039.

4. **Kleijbeuker, L. H.,* Amiri, H., Hamers, M. F., & **Kotowski, A. J.** (2025). Quantitative microstructural analysis of exhumed epidote-amphibolites and plate interface rheology in warm subduction zones. *Geochemistry, Geophysics, Geosystems*, *26*(4), e2024GC011886.

5. **Kotowski, A.J.,** Behr, W.M., Cisneros, M., Stockli, D.F., Soukis, K., Barnes, J.D., *Ortega-Arroyo, D. (2022). Subduction, underplating, and return flow recorded in the Cycladic Blueschist Unit exposed on Syros, Greece. *Tectonics*, 41, e2020TC006528. https://doi.org/10.1029/2020TC006528

6. Kelemen, P.B., de Obeso, J.C., Leong, J.A., Godard, M., Okazaki, K., **Kotowski, A.J.,** Manning, C.E., Ellison, E.T., Menzel, M.D., Urai, J.L., Hirth, G., Rioux, M., Stockli, D.F., Lafay, R., Beinlich, A.M., Coggon, J.A., Warsi, N.H., Matter, J.M., Teagle, D.A.H., Harris, M., Michibayashi, K, Takazawa, E., Al Sulaimani, Z., and the Oman Drilling Project Science Team. (2022) Listvenite formation during mass transfer into the leading edge of the mantle wedge: Initial results from Oman Drilling Project Hole BT1B. *JGR Solid Earth, 126(12). e2021JB022352.*

7. **Kotowski, A.J.,** Cloos, M., Stockli, D.F., *Bos Orent, E. (2021) Structural and Thermal Evolution of an Infant Subduction Shear Zone: Insights From Sub-Ophiolite Metamorphic Rocks Recovered From Oman Drilling Project Site BT-1B. *JGR Solid Earth, 126(12). e2021JB021702.*

8. Cisneros, M., Barnes, J. D., Behr, W. M., **Kotowski, A. J.,** Stockli, D. F., & Soukis, K. (2021). Insights from elastic thermobarometry into exhumation of high-pressure metamorphic rocks from Syros, Greece. *Solid Earth*, *12*(6), 1335-1355.

9. Menzel, M.D., Urai, J., de Obeso, J.C., **Kotowski, A.J.**, Manning, C.E., Kelemen, P.B., Jesus, A., Kettermann, M., Harigane, Y. (2020) Brittle Deformation of Carbonated Peridotite – Insights from Listvenites of the Samail Ophiolite (Oman Drilling Project Hole BT1B). *Journal of Geophysical Research: Solid Earth, 125(10), e2020 JB020199*.

10. **Kotowski, A.J.,** and Behr, W.M. (2019). Length scales and types of heterogeneities along the deep subduction interface: Insights from exhumed rocks on Syros Island, Greece: *Geosphere*, v. 15, no. 4, p. 1038–1065.

11. Behr, W. M., **Kotowski, A. J.,** & Ashley, K. T. (2018). Dehydration-induced rheological heterogeneity and the deep tremor source in warm subduction zones. *Geology*, *46*(5), 475-478.

SELECTED CONFERENCE ABSTRACTS AND PRESENTATIONS

(*denotes student mentee; ^denotes invited presentation)

1. **Kotowski, A.J.,** *Keats, A., *Smit, H., *van Broekhoven, J., Tarling, M., Godard, M., Drury, M., Hellebrand, E. Mechanical and metasomatic evolution of a developing mantle wedge from subduction initiation to obduction. Oral. EGU 2025 in Vienna, Austria (April 2025).

2. **^Kotowski, A.J.,** *Smit, H., *van Broekhoven, J., Tarling, M., Hellebrand, E., Godard, M., Plümper, O. Serpentine Has a Limited Role in Accommodating Slip on Infant Subduction Interfaces. Presented online for SerpentineDays Webinar Series, December 2024.

3. **Kotowski, A.J.,** *Keats, A., *Smit, H., *van Broekhoven, J., Tarling, M., Cooperdock, E., Godard, M., Plümper, O., Drury, M., Hellebrand, E. Mechanical and metasomatic evolution of a developing mantle wedge from subduction initiation to obduction. Presented at the 2024 International Lherzolite Conference, Oviedo, Spain (September 2024).

4. **^Kotowski, A.J.,** Seyler C., Kirkpatrick. J. **Keynote** at PANGEO Meeting, Geodynamics and Earth's Spheres, Saltzburg, Austria. Metamorphic-mechanical feedbacks facilitating plate boundary formation - How "Refrigeration Weakening" Can Explain Catastrophic Subduction Initiation (September 2024).

5. **^Kotowski., A.J.,** Seyler, C., Kirkpatrick, J. From hot and strong to cold and weak - How 'Refrigeration Weakening' facilitates strain localization during subduction initiation. **INVITED**. Presented at EGU Annual Meeting. Oral. 14-19 April 2024, Vienna, Austria.

6. *Streng, K., **Kototwski, A.J.,** Kuipers-Munneke, P., Thieulot, C., de Bresser, H., van der Wal, R., Drury, M. Improving ice sheet models with microstructural observations of deformed ice for reducing uncertainty in sea-level rise projections. Presented at the Netherlands Earth Science Conference, Utrecht, NL, March 2024.

7. *Keats, A., **Kotowski, A.J.,** Drury, M. Microstructures and mechanisms of strain localization in a supra-subduction zone mantle wedge during subduction infancy. Presented at the Netherlands Earth Science Conference, Utrecht, NL, March 2024.

8. **Kotowski, A.J.,** Seyler, C., Kirkpatrick, J. Metamorphic and mechanical feedbacks facilitate plate boundary weakening during subduction initiation. Presented at AGU Annual Meeting. Poster. 11-15 December 2023. San Francisco, CA.

9. **Kotowski, A.J.,** *Smit H., *van Broekhoven J., Cooperdock E.H.G, Tarling M.S., Hellebrand E., Kirkpatrick J., King H.E. & Plümper O. Low-temperature plate boundary serpentinization post-dates subduction initiation and

facilitates obduction of an Appalachian ophiolite. Presented at Goldschmidt Annual Meeting. Oral. 9-14 July 2023. Lyon, France.

10. **^Kotowski, A.J.,** Seyler, C., Kirkpatrick, J., *Richard, D. Relative strengths and deformation mechanisms of amphibole-rich rocks in hot and cold subduction zones. To be presented at the Geological Society of America (GSA) Annual Meeting. **INVITED**, Oral. 9-12 October 2022. Denver, Colorado, USA.

11. *Richard, D., **Kotowski, A.J.,** Kirkpatrick, J. Effects of retrogression and (re)hydration on meta-mafic rock deformation during subduction infancy. Presented at Geological Association of Canada-Mineralogical Association of Canada (GAC-MAC) conference. Poster. 15-18 May 2022. Halifax, Nova Scotia, Canada.

12. **Kotowski, A. J.,** Kirkpatrick, J., Thom, C.A., Alidokht, S.A., Chromik, R. (2022) Glaucophane plasticity and scale-dependent yield strength from nanoindentation experiments. Presented at EGU Annual Meeting, Vienna, Austria. 23-27 May 2022.

13. Tewksbury-Christle, C., **Kotowski, A.J.,** Behr, W.M. (2021) Deformation mechanisms in naturally-deformed blueschist facies metabasalts: constraints from exhumed subduction complexes in Greece and California. EGU General Assembly conference abstracts. EGU21-2391.

14. **^Kotowski, A. J.,** Behr, W. M., & Ashley, K. T. (2020). Metamorphic thermobarometry captures a rheology-controlled subduction depth limit in exhumed high-pressure/low-temperature rocks exposed on Syros, Greece. Presented at AGU Fall Meeting 2020. Online. 1-17 Dec. **INVITED**, Oral.

15. **^Kotowski, A. J.,** Behr, W. M., Cisneros, M., Stockli, D. F., Soukis, K. I., Barnes, J., & Ortega-Arroyo, D.* (2020) Structural petrology and petrochronology record subduction, underplating, and return flow in the Cycladic Blueschist Unit exposed on Syros Island, Greece. Presented at AGU Fall Meeting 2020. Online. 1-17 Dec. **INVITED**, Poster.

16. **Kotowski, A.J.,** *Bos Orent, E., Cloos, M., Stockli, D. (2020) Structural and petrologic evolution of an infant subduction shear zone: Insights from sub-ophiolite metamorphic rocks recovered from the Oman Drilling Project (Hole BT-1B). Proceedings from the International Conference on Ophiolites and the Oceanic Lithosphere, Muscat, Oman, 12-16 Jan. 2020. Poster.

17. **Kotowski, A.J.,** Behr, W.M., Ashley, K.T., Stockli, D., Soukis, K., Cisneros, M. (2019) Length scales and types of heterogeneities along the deep subduction interface: Scaling up geological observations for geophysical comparison. Presented at AGU 2019, San Francisco, CA. 9-13 Dec. Oral.

18. **Kotowski, A.J.,** Behr, W.M., Ashley, K.T., Stockli, D., Soukis, K. (2019) Subduction shear zone morphology and exhumation styles: Insights from peak Pressure-Temperature conditions and timing of subduction in the Cycladic Blueschist Unit (Syros, Greece). Presented at EGU 2019, Vienna, Austria. 7-12 April. Oral.

19. **Kotowski, A.J.,** *Bos Orent, E., Cloos, M., and the Oman Drilling Project Phase I Science Party. (2018) Preliminary petrologic and microstructural characterization of a metamorphic section beneath the Samail Ophiolite: Results from the Oman Drilling Project Hole BT1B. Presented at AGU 2018, Washington, D.C. 1014 Dec. Poster.

20. **Kotowski, A.J.,** Behr, W.M., Ashley, K.T., *Mixon, E., Stockli, D., Bodnar, B. (2018) Subduction shear zone morphology and exhumation styles: Insights from peak Pressure-Temperature conditions of exhumed rocks on Syros Island, Greece. Presented at Goldschmidt 2018, Boston, MA. 12-17 Aug. Oral.

21. **Kotowski, A.J.,** Behr, W.M., Lavier, L., Tong, X., (2017) Length scales and styles of heterogeneity along the deep subduction interface: Insights from an exhumed subduction complex. Abstract T12B-06. Presented at the 2017 Fall Meeting, AGU, New Orleans, LA. 11-15 Dec. Oral.

22. Harvey, K.M., Perry-Houts, J., Domino, J., Muth, M., Carruthers, S., **Kotowski, A.J.,** DeGrandpre, K., Faul, U., Kent, A., Abers, G., Krawczynski, M., Gaetani, G. The ins and outs of mélange diapirs: a multidisciplinary approach to formation, ascent, and observation. Abstract DI51C-0336. Presented at the 2017 Fall Meeting, AGU, New Orleans, LA. 11-15. Poster.

23. **Kotowski, A.J.**, Behr, W.M., Ashley, K.T., Stockli, D. (2016) Metamorphic heterogeneity and transient rheology of the deep subduction interface: Insights from Syros, Greece. Abstract T11F-07. Presented at 2016 Fall Meeting, AGU, San Francisco, Calif., 12-16 Dec. Oral.

24. **Kotowski, A.,** Behr, W., Stockli, D., Ashley, K. (2015) Rheological Heterogeneity Along the Deep Subduction Interface: Insights from Exhumed HP Metamorphic Rocks Exposed on Syros Island, Greece. Abstract 77442. Presented at 2015 Fall Meeting, AGU, San Francisco, Calif., 14-18 Dec. Poster.

25. Kafka, A., **Kotowski, A.,** Ayandele, O., Ferenczi, A., 2014. Cellular Seismology: Is past seismicity a good basis for seismic source characterization of the Central and Eastern U.S.? Eastern Section of the Seismological Society of America 2014 Annual Meeting. Poster.

EARTH SCIENCE EDUCATION RESEARCH

1. **Kotowski, A.J.,** van *Vuuren, N. (2025) Cultivating fieldwork skills through a "choose your own adventure" interactive Virtual Field Trip. PICO. EGU 2025 in Vienna, Austria (April 2025).

2. **Kotowski, A.J.,** Soltis, N., Ramos, E., Wright, V.D., Ellins, K., Thomas, D. (2021) Utilizing Backwards Design to create a Blended, Multicontext learning framework in a field-based Geoscience course. Abstract. Presented at the 2021 Earth Educator's Rendezvous (Virtual Meeting), 12-16 July. Oral.

3. **Kotowski, A.J.,** and Wright, V.D. (2020) Mirroring minoritized students' cultures in the classroom and field can improve Geoscience diversity. Abstract. Presented at the 2020 Earth Educator's Rendezvous (Virtual Meeting), 13-17 July. Oral.

4. **Kotowski, A.J.,** Wright, V.D., Soltis, N., Ramos, E., Thomas, D. (2019) Assessing the impact of a challengebased, Collectivist approach to learning on minority student engagement in the Geosciences. Abstract ED32B04. Presented at 2019 Fall Meeting, AGU, San Francisco, CA, 9-13 Dec. Oral.

5. Wright, V.D., **Kotowski, A.J.,** Ellins, K., Gonzalez, E., Hsia, S., Thomas, D. (2019) The evolution of student engagement, interest and perception of Geoscience during challenge-based courses: Insights from the GeoFORCE Texas program. Abstract ED53D-0879. Presented at the 2010 Fall Meeting, AGU, San Francisco, CA, 9-13 Dec. Poster.

6. **Kotowski, A.J.,** Wright, V.D., Soltis, N., Ellins, K. (2018) Engaging high school students from underrepresented minorities in the geosciences through graduate student-led, challenge-based learning Abstract 448035. Presented at 2018 Fall Meeting, AGU, Washington, D.C., 10-14 Dec. Oral.

7. Thomas, D., Ellins, K., Campos, D., George, S., Goldfarb, E., **Kotowski, A.J.**, McCall, L., Wright, V.D. (2018) Student exploration of geoscience careers through challenge-based field learning in GeoFORCE and StemFORCE 12th grade Summer Academies. Abstract #323939. Presented at 2018 GSA, Indianapolis, IN, 4-7 Nov. Poster.

8. Ellins, K., Thomas, D., Campos, D., George, S., Goldfarb, E., **Kotowski, A.J.,** McCall, L., Soltis, N., Stocks, E., Wright, V.D. (2018) Using the Star Legacy Cycle to promote student-centered field learning in GeoFORCE and StemFORCE 12th grade Summer Academies. Abstract #323816. Presented at 2018 GSA, Indianapolis, IN, 4-7 Nov. Poster.

TEACHING EXPERIENCE & OUTREACH

COURSES TAUGHT AT UTRECHT UNIVERSITY

- **Introduction to Earth and Environment** – 1st year BSc course for English-language Liberal Arts program at University College Utrecht. **Coordinating Instructor** for the Earth Science module (50% of course) (February-April).
- **Deformation, Metamorphism, and Tectonics** – 2nd year BSc course in introduction to structural geology, metamorphic petrology, and tectonic processes. **Co-instructor** of record. (November-January)
- **Tectonic Petrology** – 2nd year BSc course in igneous and metamorphic petrology, isotope geochemistry, and plate tectonics. **Coordinating Instructor** (February-April).
- **Structural Analysis of Deformed Rocks** – MSc course in advanced structural geology, rheology, and quantifying thermal histories. Case studies include continental orogenesis, subduction zones, mantle deformation, and ice sheets. **Coordinating Instructor**. (November-January).
- **Field Geology and Pyrenees Orogenesis** – 2nd year BSc field course in structural geology, igneous and metamorphic processes, and records of mountain building. **Co-instructor** of record (May-June).

OTHER TEACHING ROLES AND LEADERSHIP POSITIONS

Geosciences Education Day Workshop and Discussion Leader October 2024
Workshop leader on inclusive fieldwork and interactive Virtual Field Trips (iVFTs)

Field Geology and Orogenesis in the Pyrenees (Northern Spain) – Co-Instructor of Record 2022-present
Bachelor's second-year course at Utrecht University in field geology and mountain building in the Pyrenees

Field Geology in the Betics (Southern Spain) – Co-Instructor 2022
Masters-level course at Utrecht University in field geology and field-based problem solving in the Betics

Scientist in Residence Fellow, Environmental Science Institute (UT Austin) 2018-2019
Developed and executed lesson plans for 11th and 12th grade AP Environmental Science class at Austin High School. The program partners STEM graduate students with K-12 science teachers to engage students in the excitement of scientific discovery and enhance communication skills of STEM graduate students.

GeoFORCE Lead Instructor 2016-2019
Led summer field trips to the Grand Canyon, Cascades, and Central Texas for students from Dallas and Austin, TX. GeoFORCE introduces students from minority-majority high schools in Texas to geosciences with the goal of increasing the number of ethnic and racial minorities pursuing STEM college degrees and careers.

Associate Instructor, Indiana University Geologic Field Camp, Cardwell, MT Summer 2015
Full-time teaching position for six-week summer field camp at the Judson Meade Geologic Field Station (Indiana University Geologic Field Station). Assisted in leading field mapping exercises and classroom lectures. Teaching topics included Structural Geology, Regional Metamorphism, and Igneous Processes.

CURRENT ADVISEES

1. Hugo van Schrojenstein Lantman. Postdoc. Expert in structural geology, metamorphism and microstructures, and nanoindentation techniques.
2. Kyra Darányi, MSc. University of Tübingen. PhD expected Fall 2027 – *Effects of grain-size sensitive flow on ice sheet dynamics.*
3. Ben Mayor, MSc. University of Manchester. PhD expected Fall 2028 – *Compositional and rheological controls on early Earth subduction.*

4. Dolores Hooijschuur, MSc. Guided Reseach Expected Spring 2027 - *Constraining the timing of Precambrian subduction with garnet geochronology (Wadi Haimur Ophiolite, Egypt)*
5. Femke Schuitemaker, MSc. Expected Spring 2027 – *Geochemical and lithological architecture of a Precambrian subduction plate interface: Insights from Wadi Haimur ophiolite, SE Desert, Egypt*
6. Thyrza Kors, MSc. Expected Spring 2027 – *Strontium isotopic chemostratigraphy of an Orodvician subduction zone: Insights into sources, signatures, and fates of slab-derived melts and fluids*
7. Ignatio Saraber, MSc. Expected Spring 2027 – *Isostress or isostrain? Quantitative microstructural analysis of peridotites from the mantle wedge of a paleo-subduction zone (Mont Albert, Québec)*
8. Koert Aardema, MSc. Expected Spring 2027 – *Petrologic and geochemical constraints on mantle chemical modification by slab-driven mass transfer during early subduction*
9. Skye Goos, BSc. Expected Spring 2027 – *Petrologic characterization of the metamorphic sole of the Wadi Haimur Ophiolite, SE Desert, Egypt: Comparisons with the younger Oman ophiolite*
10. Sofie Leppälä, BSc. Expected Spring 2027 – *Synthesis of natural and experimental insights of amphibole rheology across the amphibolite to granulite metamorphic facies transition*
11. Marieke van Ditshuizen, BSc. Expected Spring 2027— *Synthesis of natural and experimental insights of amphibole rheology across the blueschist to eclogite metamorphic facies transition*

FORMER ADVISEES

1. Julia Geerinck, MSc. UU 2026 & Guided Research Project – "The Great Divide: Refining the position of the Taconic suture in western Connecticut with in-situ zircon-in-garnet U-Pb geochronology"
2. Nikki van Zoelen, BSc. UU 2026 – "Mineralogical and Structural Changes in the Mont Albert Metamorphic Sole with Proximity to the Overlying Peridotite"
3. Wolle van Hattem, BSc. UU 2026 – "Structural and geochemical constraints on low temperature metamorphic sole accretion: An analysis of the Mont Albert Ophiolite Complex, Québec, Canada"
4. Finn Straver, BSc. UU 2026 – "Carbon sequestration in the mantle by subduction or obduction and implications for Snowball Earth"
5. Kseniya Korzodaeva, BSc. UU 2026 – "Thermodynamic modeling of subduction-related metamorphism of Archean ocean crust: Implications for origins of greenstone belts"
6. Tycho Olsthoorn, MSc. Guided Research Project 2025 - Nanoindentation in glaucophane: Implications for yield hardness and pop-in behaviour"
7. Myrthe Mulder, MSc. UU 2025 - Grain Size Evolution Model for Ice Sheets and Microstructural Analysis of Recrystallization: Application to GISP2, NEEM and EDML"
8. Foppe Haanstra, MSc. UU 2025 – "Geochemical and microstructural signatures of partial melting of underthrust oceanic crust during subduction initiation: Insights from Mont Albert, Quebec, Canada". **Now PhD Student** in Dublin, Ireland.
9. Daniel Cayuela Barcham, MSc. UU 2025 – "Effects of evolving plate interface viscosity on subduction dynamics during infancy – a geodynamic modeling approach in ASPECT."
10. Ignatio Saraber, BSc. UU 2025 – "Quantifying stress distribution in Mont Albert peridotites: testing a model of isostress behavior using grain-size piezometry"
11. Romana Timkova, BSc. UU 2025 – "Quantifying strength changes during exhumation of high-pressure/low-temperature metamorphic rocks with quartz paleopiezometry (Syros and Tinos, Greece)"
12. Femke Glasbeek, BSc. UU 2025 – "Constraints on stress and strain rates during exhumation of a high-pressure/low-temperature subduction complex (Syros, Greece)"
13. Andrew Keats, MSc. UU 2024 & Guided Research Project – "Microstructures and mechanisms of strain localization in supra-subduction zone mantle wedge peridotites during subduction infancy: Insights from Mont Albert, Quebec, Canada"
14. Laurens Kleijbeuker, MSc. UU 2024 – "Microstructural analysis of epidote-amphibolites and plate interface rheology in warm subduction zoens". **Now PhD student** at Utrecht University, the Netherlands.
15. Noor van Vuuren, BSc. UU 2024 – "Evolution of interface strength during subduction initiation from microstructural analysis of deformed quartz veins from Mont Albert, Canada"
16. Mirre van Dinteren, BSc. UU 2024 – "Quantifying stress evolution during subduction and exhumation from exhumed metamorphic rocks on Syros Island, Greece"
17. Jippe van Broekhoven, MSc. UU 2023 – "Serpentinization post-dates subduction initiation and facilitates ophiolite obduction: Insights from the Mont Albert ophiolitic complex (Gaspé, Québec)"

18. Hester Smit, MSc. UU 2023 – "Mantle geochemistry indicates original magmatic heterogeneity was unaltered during subduction infancy: Insights from the Mont Albert ophiolite complex (Québec, Northern Appalachians)"
19. Tim van der Wurf, MSc UU 2023 & Guided Research Project – "Effects of thermal structure and amphibole deformation mechanisms on the rheology of a proto-plate interface during incipient subduction."
20. Julia Geerinck, BSc. UU 2023 – " Major and Trace Element Signatures of Acadian Metamorphism in Garnet-Bearing Rocks from Roxbury, Connecticut, USA"
21. Mathijs Sierveld, BSc. UU 2023 – "Formation and destruction of the Iapetus Ocean during the Ordovician in the southern Québec Appalachians"
22. Sofie van Driel, BSc. UU 2023 – "Peak Pressure-Temperature Conditions of the Low-Temperature metamorphic sole beneath the Semail ophiolite (Oman) from thermodynamic models". **Now PhD student** in Dublin, Ireland.
23. Anneke Royakkers, BSc. UU 2022 – "Geochemical zonation and temperatures of garnet growth during subduction of high-pressure rocks on Kampos Belt, Syros Island, Greece"
24. Danielle Richard, BSc. McGill University, 2021-2022 - "Effects of retrogression and rehydration on meta-mafic rock deformation during subduction infancy: Evidence from the sub-ophiolite metamorphic rocks of Mont Albert (Gaspé Peninsula, Québec, Canada)". Now MSc student at University of British Columbia, Okanagan.
25. Eytan Bos Orent, BSc. UT Austin, 2018-2019, Ph.D. University of Arizona. Co-author on Kotowski et al. (2021) *JGR Solid Earth*.
26. Emily Mixon, BSc. UT Austin, 2017-2018, Ph.D. Univ. of Wisconsin Madison. Now geochronology lab manager at University of Wisconsin, Madison. *Mentor for research activities associated with JSG-Catalyst program. Conceptualized the project, advised research activities and writing.*
27. Daniel Ortega-Arroyo, BSc. UT Austin, 2014-2019, Ph.D. from MIT. Co-author on Kotowski et al. (2022).
28. Natalie Raia, BSc. UT Austin, 2014-2016. Ph.D. from the University of Minnesota, Twin Cities

LEADERSHIP ROLES, TEAMWORK, AND SERVICE

INTERNAL ROLES

- **Netherlands Microprobe Consortium Committee Member (June 2023-Present)**
  Primary representative of the Earth Science Department, alongside members from Naturalis and the Vrie Universiteit Amsterdam.
  NanoIndentation and Tribology Lab Principle Investigator and Manager (January 2024-Present)
  Primary laboratory manager and instrument specialist for TI990 Nanoindenter. Embedded within the Multi-Scale Imaging and Tomography Facility (MINT) as part of EPOS-NL and the Netherlands Electron Microscopy Infrastructure (NEMI).
- **Electron Microscopy Center Steering Committee Member (November 2024-Present)**
  Primary representative of the Geoscience Faculty (20% of university usage). Other members include representation for Physics, Chemistry, Life Science, and Medical Science.

EXTERNAL ROLES

2025 **Reviewer** for *Geology*, *Seismika*, *Journal of Metamorphic Geology*
2025 **Primary Convener** for EGU2025 proposed session: "Stressed to Impress – Advances in quantifying stress in the viscous lithosphere"
2025 **Co-convener** for EGU2025 proposed session: "Unlocking the secrets of metamorphic rocks: from field to laboratory studies, to thermodynamic modeling and machine learning"
2024 Inclusive Fieldwork **Workshop and Discussion Leader** for Geosciences Education Day, Utrecht University
2024 **Reviewer** for *Geology* and *Lithos*
2022-2024 Bachelor Curriculum Renewal **Consultant, Contributor, and Evaluator**, Utrecht University
2023 **Reviewer** for *Lithos*
2022 **Reviewer** for *Terra Nova, Geophysical Research Letters, G-cubed, Journal of Metamorphic Geology*

2021 **Ad Hoc Reviewer** for *NSF Geophysics*
2021 **Committee Member**, Diversity Equity and Inclusion (DEI) Working Group, Dept. EPS, McGill
2021 **Participant**, Unlearning Racism in the Geosciences (URGE), Dept. EPS, McGill
2020 **Primary Convener** for AGU session — Feedbacks between deformation, metamorphism, and metasomatism: Subduction dynamics over tectonic timescales
2020 **Co-Convener** for AGU session — Reconciling estimates of brittle and ductile lithosphere rheology across temporal and spatial scales
2020 **Primary convener** for GSA session — Subduction zone slip behavior: the intersection of deformation and metamorphism
2020 **Reviewer** for *Earth Science Reviews*
2020 **Committee Member** — Committee on Workplace Climate and Diversity, Equity, and Inclusion. Department of Earth and Planetary Sciences, McGill
2017 **Co-convener** for GSA session T151 — Consequences of fluids in subduction zones: From grain scale to plate boundary shear zone
2017 **Reviewer** for *Tectonics*
2016 **Jackson School of Geosciences 6th Annual Research Symposium Chairperson.** Organized the annual AGU-style research exposition for undergraduate and graduate students at UT Austin.
2016 **Austin Regional Science Fest Judge**, Elementary and Junior divisions.
2015 **Coordinator** for informal Petrology, Geochemistry, Structure & Tectonics weekly seminar
2015 **Graduate Student Executive Committee Vice President,** co-coordinator for annual Symposium
2014 **Jackson School of Geosciences GeoFORCE mentorship program,** mentor
2014 **Geoscience Leadership Organization for Women,** member
2012 **Women in Science and Technology Program at Boston College**, Instructor, mentor
2010 **Boston College Geology Association,** President (2013-2014), Treasurer (2012-2013)

WORKSHOPS & EXTERNAL ENRICHMENT

Westerdijk Leadership Training Programe for Women 2024-2025
Selected by the Department Board in recognition of potential to achieve Full Professor.
Training in leadership skills, strategic planning, networking, and professionalization.

University Teaching Qualification (UTQ) Recipient 2024
Certification awarded by Utrecht University. Involved 3 courses completed between 2022-2024 on teaching, course design, and assessment, and an external review of of a personal Teaching Portfolio providing examples of my own course development and reflection on my teaching philosophy. Contact for Portfolio.

Gordon Research Conference on Rock Deformation August 2024
Session Discussion Leader – Petrology, Rheology, and Slip Behavior of the Deep Subduction Interface
Bates College, Lewiston, ME

Preparing for an Academic Career in Geosciences
Earth Educator's Rendezvous 2020 July 2020

Leadership Workshop Series February-May 2020
Certification by SKILLSETS McGill

Teaching Preparation Series, UT Austin Faculty Innovation Center May 2019
Basic Teaching Preparation Certificate

GeoPRISMS Synthesis & Integration Theoretical and Experimental Institute February 2019
San Antonio, TX

Exploring Faculty Careers at Liberal Arts Colleges Workshop September 2018
Led by the Liberal Arts Diversity Consortium, Austin, TX

Gordon Research Conference: Integrated Approaches to Rock Deformation August 2018
Proctor Academy, New Hampshire

Center for Interdisciplinary and Dynamic Earth Research (CIDER) Workshop June-July 2017
Subduction Dynamics, University of California, Berkeley

"Collisional Tectonics and Ophiolite Obduction" Field Trip to Newfoundland August 2016
Participant, trip led by John Dewey and Jack Casey

"Subduction and Transform Tectonics" Field Trip to the Franciscan Complex, CA March 2016 Teaching
Assistant for UT Austin Undergraduate Honors field trip. Led by Mark Cloos.

"The Whipple Mountain Metamorphic Core Complex" Field Trip, Southern CA March 2015
Participant, trip led by Whitney Behr

Field Geology of the Rocky Mountains, Tobacco Roots, Montana July-August 2013
Participant, six-week field course. Indiana University Geologic Field Station.

International Exchange to Monash University, Melbourne, Australia February-June 2013

RESEARCH SKILLS

Structural Geology
Optical Petrology and Microstructural Analysis
Metamorphic Petrology and Thermobarometry
Electron Probe Microanalysis (EPMA)
(High-Resolution) Electron Backscatter Diffraction (EBSD)
Multi-mineral Rb-Sr geochronology
In-situ U-Pb (titanite) geochronology
Titanium-in-Quartz Thermobarometry (SIMS)
Raman Spectroscopy
Solid Inclusion Barometry
Nanoindentation mechanical testing

MEMBERSHIPS

Geological Society of America
Mineralogical Society of America
American Geophysical Union
European Geosciences Union
National Association of Geoscience Teachers