

Alissa Jeanne Kotowski

Pronouns: She, Her, Hers

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RESEARCH INTERESTS

My research aims to understand the interplay between deformation and metamorphism in plate boundary shear zones, from tectonic 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 subduction zones. My work contextualizes seismic, geophysical, and geodetic observations of active plate boundaries.

EDUCATION

Ph.D., University of Texas at Austin (Aug 2014-Dec 2019)

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 (Aug 2010-May 2014)

Department of Earth and Environmental Sciences

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

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.	
Oman Drilling Project Science Party Member, Phase I Core Description	August-September 2017
Shizuoka, Japan (Chikyu Scientific Research Ship) Structural Geology Team	
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

Netherlands Research Council VENI Talent Scheme Laureate 2022	Active 2023-2026
University Teaching Qualification (UTQ) Recipient	2024
<i>In recognition of didactic competences and dedication to pursuit of teaching excellence</i>	
Science Education Conference Award from McGill University	2021
<i>In support of attending a conference or workshop for professional development related to science education</i>	
Wares Postdoctoral Research Fellow, McGill University	2020-2022
Outstanding Student Presentation Award (Oral), Annual AGU Fall Meeting	2019
1 st Place, Jackson School of Geosciences Annual Research Symposium, Late Career PhD (\$1000)	2018
1 st Place, Jackson School of Geosciences Annual Petrography Contest (\$2000)	2018
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, BC '14	2014

“Best Undergraduate Thesis Presentation,” Boston College Earth Science Department	2014
Four-time Boston College Endowed Scholar (Thomas A. Rosse Scholarship)	2010-2014
ConocoPhillips Scholarship for field study, Indiana University (\$1500)	2013
International Student Exchange Scholarship for study at Monash University, Australia (\$5000)	2013
Dean’s Scholar, College of Arts & Sciences, Boston College	2013
Sophomore Scholar, College of Arts & Sciences, Boston College	2012

ACTIVE RESEARCH & FUNDED PROPOSALS

VENI Talent Scheme: “Overcoming the Resistance -- Do First-Order Rheological Changes due to cooling Enable formation of a subduction plate boundary? (FORCE)” A.J. Kotowski €280,000	2023-2026
Utrecht Educational Incentive Funds “Increasing accessibility of field-based Geoscience Learning through development of an interactive Virtual Field Trip (iVFT)” Alissa Kotowski €15,000	2023-2024
European Electron and X-Ray Imaging (EXCITE) Trans-National Access Research Grant <i>Dynamic Recrystallization of Amphibole: Imaging Subgrains, Twins, and Intra-crystalline Plasticity with HR-EBSD (DRASTIC)</i> A.J. Kotowski Three days of in-person access granted at the University of Cambridge, Cambridge, UK	2023
Olaf-Schuilung Funds for Research in Geochemistry and Petrology (* = MSc thesis advisee) <ul style="list-style-type: none"> • <i>Mantle wedge fluid infiltration in subduction zones: Implications for geochemical cycling and deformation style.</i> *Smit, H., and Kotowski, A.J. Requested/Awarded: €2225 • <i>Is weakening of granulites facilitated by hydration and the transition from dislocation creep to dissolution-precipitation creep during subduction infancy?</i> *van der Wurf, T., and Kotowski, A.J. Requested/Awarded: €2280 • <i>Geochemical and structural signatures of fluid infiltration and strain localization in a mylonitic serpentized mantle shear zone during subduction infancy (Mt. Albert, Gaspé, Québec).</i> *van Broekhoven, J., and Kotowski, A.J. Requested/Awarded: €2180 	2022
European Electron and X-Ray Imaging (EXCITE) Trans-National Access Research Grant <i>Quantifying indentation-induced plasticity in glaucophane amphibole using HR-EBSD</i> A.J. Kotowski Three days of in-person access granted at the University of Cambridge, Cambridge, UK	2022
Advanced Photon Source – General User Proposal <i>Experimental measurement of low-temperature plasticity in natural blueschists to determine the strength of cold subduction zones</i> J. Kirkpatrick, A.J. Kotowski , C. Seyler, C.A. Thom. Total shifts requested: 12. Shifts granted: 12.	2021
European Plate Observing System-Netherlands (EPOS-NL) Trans-National Access Research Grant <i>How does the frictional behavior of subducted sediment evolve along the subduction interface and impact seismicity and hazard?</i> N. Perez, A.J. Kotowski . Granted.	2021

2021

European Plate Observing System-Netherlands (EPOS-NL) Trans-National Access Research Grant
Insights into subduction shear zone mechanics through high-resolution electron imaging of experimental plastic deformation in glaucophane amphibole.

A.J. Kotowski, J. Kirkpatrick. Granted.

Wares Endowed Postdoctoral Research Fellowship, McGill University, Montreal, Canada

2020-2022

Strength and deformation of the Earth's crust at tectonic plate boundaries:

Experimental insights into mechanical behavior of silicate minerals

Two year stipend plus \$10,000 research allowance.

Proposal to participate in the Oman Drilling Project Phase I Core Description onboard Chikyu,

2017

15 August-15 September 2017. *Contribution: A petrologic and microstructural characterization of the sub-ophiolite metamorphics in Hole BT1B.* Granted.

National Science Foundation Graduate Research Fellow (NSF GRF) in Tectonics

2016-2019

Structural and rheological evolution of a high-pressure subduction complex on Syros Island, Greece:

Implications for subduction zone mechanics and seismic style. Three year stipend (2016-2019)

Jackson School of Geoscience SEED Grant.

2016

The timing, nature, and fluid history of retrograde metamorphism on Syros and Tinos,

Greece as a window into exhumation mechanisms of high-pressure terranes.

J.D. Barnes, W.M. Behr, M. Cisneros, A.J. Kotowski.

Amount Requested: \$20,057.50. Granted: \$15,000.

Geological Society of America Graduate Student Research Grant –

2016

Rheological evolution along the deep subduction interface: Using high-resolution

Titanium in Quartz thermobarometry to gain insights from exhumed high-pressure rocks

from Syros, Greece. Requested: \$2,500. Granted: \$2,500.

MANUSCRIPTS, PRESENTATIONS & ABSTRACTS

INVITED SEMINARS AND CONFERENCE PRESENTATIONS

- **Keynote** Presentation at PANGEO Meeting – Session “Geodynamics and Earth’s Spheres” (September 2024)
- **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 IN REVIEW AND PREPARATION

* indicates student author

^last authorship indicates PI status

1. **Kotowski, A.J.**, Seyler, C., Kirkpatrick, J. (under review). “How ‘Refrigeration Weakening’ enables catastrophic subduction initiation”. Contact for manuscript.
2. *Kleijbeuker, L.H.**, Amiri, H., Hamers, M., **Kotowski, A.J.^** (under review in *G-cubed*). “Microstructural analysis of exhumed epidote-amphibolites and plate interface rheology in warm subduction zones”. [Pre-print on ESS Open Archive.](#)
3. Wright, V.D.* and **Kotowski, A.J.*** (in revision; *equal contributions from two first authors) 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. Submitted to the *Journal of Geoscience Education*. [Pre-print on ResearchGate.](#)
4. **Kotowski, A.J.**, **van der Wurf, T.*, **van Vuuren, N.*, **Kleijbeuker, L.*, **Richard, D.*, Kirkpatrick, J., Drury, M. (in preparation) “Dislocation creep in high-temperature garnet-amphibolites during subduction infancy poses issues for subduction initiation”.
5. **Kotowski, A.J.**, Eberhard, L., *van Driel, S.** (in preparation) “Would’ve, Could’ve, Should’ve – Thermodynamically-predicted conditions of garnet growth constrain garnet-absent amphibolite metamorphism during subduction infancy”.
6. **Kotowski, A. J.**, Kirkpatrick, J., Thom, C.A., Alidokht, S.A., Chromik, R., Ohl, M., Wallis, D. (in preparation) Glauconite plasticity and scale-dependent yield strength from nanoindentation experiments. In preparation.
7. **Kotowski, A.J.**, Behr, W. M. (in preparation) “Protracted weakness and evolving strain geometry of a subduction interface shear zone during burial, stalling, and exhumation”.
8. **Kotowski, A.J.**, Cisneros, M., Ashley, K.T., Behr, W.M. (in preparation) Metamorphic thermobarometry captures a rheology-controlled subduction depth limit in exhumed high-pressure/low-temperature rocks exposed on Syros, Greece.
9. **Kotowski, A.J.**, Soltis, N., Wright, V.D., Ramos, E., Ellins, K. (in preparation) Utilizing Backwards Design to create a Blended, Multicontext approach to learning in a field-based Geoscience course. To be submitted to *Journal of Geoscience Education*.

PUBLICATIONS

1. **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>
2. 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.
3. **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.
4. 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.
5. 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), e2020JB020199.
6. **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.
7. 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., Cooperdock, E., Godard, M., Plümper, O., Drury, M., Hellebrand, E. Mechanical and metasomatic evolution of a developing mantle wedge from subduction initiation to obduction. To be presented at the 2024 International Lherzolite Conference, Granada, Spain (September 2024).
2. ^**Kotowski, A.J.**, TBD. **Keynote** at PANGEO Meeting, Geodynamics and Earth's Spheres, Salzburg, Austria (September 2024).
3. ^**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.
4. *Streng, K., **Kotowski, 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.
5. *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.

6. **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.
7. **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.
8. **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.
9. *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.
10. **Kotowski, A. J.**, Kirkpatrick, J., Thom, C.A., Alidokht, S.A., Chromik, R. (2022) Glaucofane plasticity and scale-dependent yield strength from nanoindentation experiments. Presented at EGU Annual Meeting, Vienna, Austria. 23-27 May 2022.
11. 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.
12. **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.
13. **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.
14. **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.
15. **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.
16. **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.
17. **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. 10-14 Dec. Poster.

18. **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.
19. **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.
20. 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 mélangé diapirs: a multidisciplinary approach to formation, ascent, and observation. Abstract D151C-0336. Presented at the 2017 Fall Meeting, AGU, New Orleans, LA. 11-15. Poster.
21. **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.
22. **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.
23. 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

(* denotes equal contribution from multiple first authors)

1. **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.
2. ***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.
3. **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.
4. 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.
5. ***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.
6. 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.

- 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

CURRENT STUDENT MENTEES

- Kyra Darányi, MSc. University of Tübingen. PhD expected Fall 2027 – *Effects of grain-size sensitive flow on ice sheet dynamics.*
- Ben Mayor, MSc. University of Manchester. PhD expected Fall 2028 – *Rheological controls on early Earth subduction.*
- Foppe Haanstra, BSc. Utrecht University. MSc thesis advisee beginning September 2024. *Temperature changes during subduction infancy constrained from meta-sedimentary lenses at Mont Albert, Quebec, Canada.*
- Tycho Olsthoorn, BSc. Utrecht University. Guided Research advisee beginning September 2024. *Nanoindentation data processing practices from spherical tips for stress-strain analysis and yield hardness determination.*

FORMER ADVISEES

- Andrew Keats, MSc. UU 2024 – “Microstructures and mechanisms of strain localization in supra-subduction zone mantle wedge peridotites during subduction infancy: Insights from Mont Albert, Quebec, Canada”
- Laurens Kleijbeuker, MSc. UU 2024 – “Microstructural analysis of epidote-amphibolites and plate interface rheology in warm subduction zones”
- Jippe van Broekhoven, MSc. UU 2023 – “Serpentinization post-dates subduction initiation and facilitates ophiolite obduction: Insights from the Mont Albert ophiolitic complex (Gaspé, Québec)”
- 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)”
- Tim van der Wurf, MSc UU 2023 – “Effects of thermal structure and amphibole deformation mechanisms on the rheology of a proto-plate interface during incipient subduction.”
- Julia Geerincq, BSc. UU 2023 – “Major and Trace Element Signatures of Acadian Metamorphism in Garnet-Bearing Rocks from Roxbury, Connecticut, USA”
- Mathijs Sierveld, BSc. UU 2023 – “Formation and destruction of the Iapetus Ocean during the Ordovician in the southern Québec Appalachians”
- Sofie van Driel, BSc. UU 2023 – “Peak Pressure-Temperature Conditions of the Low-Temperature metamorphic sole beneath the Semail ophiolite (Oman) from thermodynamic models”
- Anneke Royackers, BSc. UU 2022 – “Geochemical zonation and temperatures of garnet growth during subduction of high-pressure rocks on Kampos Belt, Syros Island, Greece”
- 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.
- Eytan Bos Orent, BSc. UT Austin, 2018-2019, now M.Sc. student at the University of Arizona. Co-author on Kotowski et al. (2021) *JGR Solid Earth*.
- 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.*
- Daniel Ortega-Arroyo, BSc. UT Austin, 2014-2019, Ph.D. student at MIT. Co-author Kotowski et al. (2022).
- Natalie Raia, BSc. UT Austin, 2014-2016. Received Ph.D. from the University of Minnesota, Twin Cities

Geosciences Education Day Workshop and Discussion Leader Workshop on inclusive fieldwork and field teaching practices	2024
Field Geology and Orogenesis in the Pyrenees (Northern Spain) – Co-Instructor of Record Bachelor's second-year course at Utrecht University in field geology and mountain building in the Pyrenees	2022
Field Geology in the Betics (Southern Spain) – Co-Instructor Masters-level course at Utrecht University in field geology and field-based problem solving in the Betics	2022
Structural Analysis of Deformed Rocks – Co-Instructor of Record Masters-level course at Utrecht University in analysis of rock deformation, rheology, and thermal histories. Case studies include continental orogenesis, subduction zones, mantle deformation, and ice sheets.	2022
Scientist in Residence Fellow, Environmental Science Institute (UT Austin) Developed and executed lesson plans for 11 th and 12 th 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.	2018-2019
GeoFORCE Lead Instructor 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.	2016-2019
Project Supervisor and Mentor, JSG CATALYST (JSG-C) program Outreach program founded by Dr. Whitney Behr to increase the number and diversity of undergraduates involved in independent research, particularly those from underrepresented backgrounds and first-generation college students.	2017
Associate Instructor, Indiana University Geologic Field Camp, Cardwell, MT 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.	Summer 2015
Teaching Assistant – Field Methods TA Evaluations: 4.5/5	Spring 2015
Teaching Assistant – Structural Geology TA Evaluations: 4.3/5	Fall 2014

PROFESSIONAL SERVICE, ACTIVITIES & LEADERSHIP ROLES

2024 Inclusive Fieldwork **Workshop and Discussion Leader** for Geosciences Education Day, Utrecht University
2024 **Reviewer** for *Geology*
2022-2024 Bachelor Curriculum Renewal **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

- 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 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** July 2020
 Earth Educator's Rendezvous 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 Subduction Dynamics, University of California, Berkeley	June-July 2017
"Collisional Tectonics and Ophiolite Obduction" Field Trip to Newfoundland Participant, trip led by John Dewey and Jack Casey	August 2016
"Subduction and Transform Tectonics" Field Trip to the Franciscan Complex, CA Assistant for UT Austin Undergraduate Honors field trip. Led by Mark Cloos.	March 2016 Teaching
"The Whipple Mountain Metamorphic Core Complex" Field Trip, Southern CA Participant, trip led by Whitney Behr	March 2015
Field Geology of the Rocky Mountains , Tobacco Roots, Montana Participant, six-week field course. Indiana University Geologic Field Station.	July-August 2013
International Exchange to Monash University , Melbourne, Australia	February-June 2013

RESEARCH SKILLS

Optical Petrology and Microstructural Analysis
 Metamorphic Petrology
 Structural Geology
 Electron Probe Microanalysis (EPMA)
 Electron Backscatter Diffraction (EBSD)
 Multi-mineral Rb-Sr geochronology
 Titanium-in-Quartz Thermobarometry (SIMS)
 Raman Spectroscopy, Solid Inclusion Barometry (in collaboration with Dr. Kyle Ashley and Dr. Miguel Cisneros)
 XRD (in collaboration with Dr. Mark Cloos, UT Austin)
 Nanoindentation mechanical testing

MEMBERSHIPS

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