

# Ethan Conrad

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## EDUCATION:

### **PhD, Geological Sciences**

May 2024 (Expected)

The University of Texas at Austin, Jackson School of Geosciences

*Thesis:* Tectonics and exhumation during transpression from fault mechanics to the macroscale expression of structural and surficial processes

*Advisors:* Thorsten Becker (primary), Claudio Faccenna (co-)

Cumulative GPA: 3.9/4.0

### **Bachelor of Science, Geology | Summa Cum Laude**

May 2019

University of Florida

*Undergraduate honors thesis:* Geochemistry and Mineralogy of Lavas from the 8°20'N Seamount Chain

*Thesis advisor:* Michael Perfit

Cumulative GPA: 3.7/4.0

***Pertinent Course Work:*** Numerical Methods, Continuum Mechanics, Geophysics, Earthquakes, Scientific Programming, Subsurface Machine Learning, Tectonic/Climate interactions, Thermochronology, Structural Geology, Field Methods, Sedimentology, Tectonic Geodynamics, Tectonic Problems, Advanced Petrology, ArcGIS (array of classes), Instrumental Methods, Geomorphology

## RELEVANT EXPERIENCE:

**Graduate Research Fellow**, UT – Austin Institute for Geophysics

Spring 2022, Summer 2022, Spring 2023

**Teaching Assistant**, UT – Austin

Fall 2019 – Fall 2022

*Courses:* Structural Geology, Earth Materials, Field Methods, Sustaining a Planet

**Visiting Scholar**, GFZ German Research Centre for Geosciences

Summer 2022

**Visiting Scholar**, Università Roma TRE

Summer 2021

**Research Assistant**, University of Texas at Austin

Summer 2020 & 2021

**Undergraduate Teaching Assistant**, University of Florida

Spring 2019

**Undergraduate Research Assistant**, University of Florida

2017- 2019

**Undergraduate Field assistant**, Pioneer Mountains, ID

Summer 2018

## LEADERSHIP POSITIONS:

- Texas Geological Society (SEG Chapter) | President (Vice-President 2020) May 2021 – present
- Lithosphere and Dynamic Earth | Seminar co-chair August 2021 – May 2022
- Graduate Student Executive Committee | Officer May 2020 – May 2021
- Undergraduate Geology Club (University of Florida) | Vice-President August 2018 – May 2019

## SERVICE:

**Instructor**, Illustrator for Geoscience Seminar for Jackson School Peer Mentor program

2021, 2022, 2023

- Introduced illustrator for geoscience applications and demonstrated useful workflows

**Volunteer**, Jackson School of Geosciences, EDGE program

Fall 2021, 2022, 2023

- Engaged students by leading virtual laboratory tours of the JSG Rock Deformation lab.
- Highlighted opportunities for potential students from underrepresented backgrounds to work in the Rock Deformation Group (PI: Prof. Nicola Tisato) and Geodynamics Group (PI: Prof. Thorsten Becker)

**Mentor**, Jackson School of Geosciences RTX Program

Summer 2021, 2022

- Designed and led a research project with an undergraduate student
- *2022: Constraining the Arabia-Eurasia Collision | 2021: Tectonic Geomorphology of Colombia's Central Cordillera*

- Volunteer**, Thinkery, Austin, TX. December 2019
- Communicated geoscientific topics to the Austin community through hands-on learning exercises.
  - Engaged in discussions with the community about the societal impacts of geoscience.
- Volunteer**, GeoGators, Alachua County School District Fall 2016 - Spring 2019
- Traveled to schools in the community to teach students about the geological sciences.
  - Spoke at school career day events to increase interest in the geological sciences.
- Volunteer**, Can You Dig It, Florida Museum of Natural History March 2017, 2018
- Assisted in the set-up of a volcano booth that showed children the basics of volcanic eruptions.
  - Instructed visitors about basic magma properties and the rock cycle.

### **AWARDS AND HONORS:**

- Award**, Outstanding graduate student award, UT – Institute for Geophysics Spring 2023
- Award given to the top performing graduate students at the Institute as evaluated by committee
- Award**, Best graduate student paper, Jackson School of Geosciences (UT – Austin) Spring 2023
- Award given to the committee-evaluated best student paper across the JSG graduate student body
- Reviewer**, EGU Sphere (EGU) February 2023
- Fellowship**, William R. Muehlberger Graduate Fellowship in Structural Geology & Tectonics Spring 2023
- Competitive graduate research fellowship from UT-Austin JSG
- Grant**, Graduate Student Research Grant, Geological Society of America (GSA) June 2022
- Award for outstanding graduate research in the geosciences (Structural Geology and Tectonics)
- Award**, Society for Exploration Geophysics Challenge Bowl April 2022, October 2022
- Wuiz-style competition with schools around the Central U.S. (1<sup>st</sup> place - April) and world (1<sup>st</sup> place - October)
- Scholarship**, Respekt & Wertschätzung Scholarship, DAAD-Stiftung (Germany) Summer 2022
- Merit based scholarship for a visiting scholarship experience at GFZ Potsdam
- Fellowship**, UT Graduate School Summer Research Fellowship, UT – Austin Summer 2022
- Selective fellowship to fund summer graduate student research at UT - Austin
- Fellowship**, Ewing/Worzel and Gale White Fellowship, UT Institute for Geophysics. Spring 2022
- Merit based fellowship to support graduate students in geophysics
- Scholarship**, Brundrett Memorial Endowed Presidential Scholarship, University of Texas November 2021
- Merit based fellowship to support graduate students in geology
- Reviewer**, G-Cubed Geophysics, Geochemistry, Geosystem (AGU) November 2021
- Edited and critiqued article submitted to the journal
- Grant**, Graduate Student Research Grant, Geological Society of America (GSA) June 2021
- Received recognition as one of the top 10% of applicants
  - Selected for the additional Structural Geology and Tectonics travel award
- Award**, Outstanding Student Presentation Award, American Geophysical Union (AGU) February 2021
- Award given to the top 3-5% of student presenters at the AGU fall meeting.
- Fellowship**, Bianchi Boone Endowed Presidential Fellowship, University of Texas Spring 2021
- Merit based fellowship for graduate students in geoscience.
- Award**, Estwing Award, University of Florida May 2019
- Award given to the best field camp student.
- Honor**, Lead Major, University of Florida May 2019
- Title awarded to the student who embodies academic excellence and represents the collective achievements of their major.
- Award**, Chair’s Best Thesis Award, University of Florida May 2019
- Award given to the student with the best Undergraduate Thesis, as evaluated by the chair of the Department of Geological Sciences.
- Scholarship**, University Scholars Program, University of Florida 2018-2019

- Competitive program that provides research funding to a limited number of undergraduate students.

## PROFESSIONAL MEMBERSHIPS/GROUPS

- European Geophysical Union January 2023 - present
- American Geophysical Union December 2018 – present
- Geological Society of America January 2020 – present
- Society of Exploration Geophysicists April 2020 – present
- Unlearning Racism in Geoscience (URGE) | JSG pod Spring 2021

## SKILLS AND CERTIFICATIONS:

- Fault kinematic analysis (outcrop)
- Coding languages (ranked based on proficiency: Matlab, Python, C++, Bash/zsh, Fortran)
- NI data acquisition programming (MATLAB interface)
- GIS (ArcGISPro, Generic Mapping Tools)
- AutoCAD, FreeCAD
- Adobe Illustrator
- Field data acquisition, orienteering, and mapping
- Structural analysis
- Mineral separation
- Noble gas (Apatite and Zircon He) MS Analysis
- Solution ICP-MS (Apatite and Zircon)

## PUBLICATIONS:

### *Peer reviewed journal Articles:*

- **Conrad, E. M.**, Reitano, R., Faccenna, C., & Becker, T. W. (2023, in review for *Tectonics*). Morpho-tectonics of transpressional systems: insights from analog modeling. <https://doi.org/10.22541/essoar.168088178.85190651/v1>
- Reitano, R., Clementucci, R., **Conrad, E. M.**, Corbi, F., Lanari, R., Faccenna, C., & Bazzucchi, C. (2022). Stream laws in tectonic landscape analogue models. *Physical: Landscape Evolution: modelling and field studies*. <https://doi.org/10.5194/egusphere-2022-911>
- **Conrad, E. M.**, Tisato, N., Carpenter, B. M., & Di Toro, G. (2023). Influence of Frictional Melt on the Seismic Cycle: Insights from Experiments on Rock Analog Material. *Journal of Geophysical Research: Solid Earth*, 128(1), e2022JB025695. <https://doi.org/10.1029/2022JB025695>
- Anderson, M., Perfit, M., Wanless, V.D., **Conrad, E.**, Fornari, D., Ridley, W. I., Cosca, M., Gregg, P. (2020), Extreme mantle heterogeneity in mid-ocean ridge mantle revealed in lavas from the 8 degrees 20' N near-axis seamount chain: G-cubed.

### *Articles in-prep:*

- **Conrad, E.**, Faccenna, C., Stockli, D. F., Becker, T.W. (in prep) Exhumation of the Central Cordillera in Hispaniola in relation to the tectonic evolution of the Northern Caribbean.
- **Conrad, E.**, Faccenna, C., Stockli, D. F., Becker, T.W. (in prep) Links between fault kinematics and exhumation of the Cordillera Septentrional, Hispaniola.
- León, S., **Conrad, E.**, Faccenna, C., Parra, M. (in prep) Basin evolution within the Central and Western Colombian Andes from fault kinematic analysis and detrital zircon geochronology.
- **Conrad, E.**, Faccenna, C., Becker, T. W., Holt, A. (in prep) Cenozoic slab penetration driven plate reorganization in the Caribbean.

### *Posters and Presentations:*

- **Conrad, E.**, Reitano, R., Faccenna, C., Becker, T. W., (2023, **invited talk**) “Erosion-tectonic Sandbox Models of the Structural and Fluvial Evolution of Transpressional Systems”, Abstract presented at the 2023 EGU Spring Conference, April. 23 – 28.

- **Conrad, E.**, Faccenna, C., Stockli, D. F., Becker, T.W., (2022, poster) “Deformation and Exhumation at Oblique Margins: A Study of the Northern Caribbean Plate Boundary in the Dominican Republic, Hispaniola”, Abstract presented at the 2022 GSA Fall Meeting, Oct. 9 – 12.
- **Conrad, E.**, Tisato, N., Carpenter, B., (2021, **invited eLighting talk**), "Experimental Insights into Melt Influenced Fault Behavior", Abstract presented at the 2021 AGU Fall Meeting Dec. 13 – 17.
- **Conrad, E.**, Faccenna, C., Reitano, R., (2021, poster) "The structural and morphological evolution of transpressive systems: insights from analog modeling", Abstract presented at the 2021 AGU Fall Meeting Dec. 13 – 17.
- **Conrad, E.**, Faccenna, C., Stockli, D. F., Becker, T. (2020, poster) Cenozoic Evolution of the Northern Caribbean Plate Boundary: Insights from Thermochronometric, Kinematic and Geomorphic data, Abstract (223-8) presented at 2020 GSA Fall Meeting, 25-28 Oct. DOI: 10.1130/abs/2020AM-353996.
- **Conrad, E.**, Tisato, N., Di Toro, G., Carpenter, B. M., Faccenna, D. (2020, **OSPA**, poster) New data on the stick-slip mechanics of seismogenic faults from rotary shear experiments, Abstract presented at the 2020 AGU Fall Meeting, 7-11 Dec.
- Anderson, M., Perfit, M., Wanless, V.D., **Conrad, E.**, Fornari, D., Ridley, W. I., Cosca, M., Gregg, P., (2020), Mantle Heterogeneity Near the East Pacific Rise: Pb, Sr, and Nd Isotopic Data from the 8°20' N Seamount Chain, Abstract (140-11) presented at 2020 GSA Fall Meeting, 25-28 Oct. DOI: 10.1130/abs/2020AM-359645
- Anderson, M., Perfit, M., Wanless, V.D., **Conrad, E.**, Fornari, D., Ridley, W. I., Cosca, M., Gregg, P., (2020), Mid-Ocean Ridge Mantle Heterogeneity: Insights from the 8°20' N Near-Axis Seamount Chain, Abstract presented at the 2020 AGU Fall Meeting, 7-11 Dec.
- **Conrad, E.**, Perfit, M., Anderson, M., Wanless, V.D., Fornari, D., Gregg, P. (2018, poster) Geochemical Diversity of Lavas from the 8°20'N Seamount Chain Provides Insights into Seamount Evolution from a Heterogeneous Mantle, Abstract (V43G-0199) presented at 2018 AGU Fall meeting, 10-14 Dec.