

CHANCE B. RONEMUS

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RESEARCH INTERESTS

Cordilleran Tectonics (South and North America); Forearc & Foreland Basin Analysis; Fluvial, Alluvial, and Deep-Water Depositional Systems; Climate-Tectonics Interaction; Zircon Geo/Petrochronology; Low-Temperature Thermochronology; Stable Isotope Paleoaltimetry

EDUCATION

University of Arizona Ph.D., Geoscience (Advisor: Peter G. DeCelles)	Tucson, AZ, USA 2025
Montana State University Master of Science, Geology (Advisor: Devon A. Orme)	Bozeman, MT, USA 2021
Montana State University Bachelor of Science, Geology	Bozeman, MT, USA 2019

APPOINTMENTS AND MAJOR PROJECTS

Visiting Postdoctoral Scholar Stanford University (Mentor: Stephan A. Graham)	Stanford, CA, USA 2026 (upcoming)
NSF Earth Science Postdoctoral Fellow Idaho State University (ISU; Mentor: Kurt E. Sundell) • NSF EAR-PF #2518506— <i>Field tests of Mesozoic terrane accretion in South America</i>	Pocatello, ID, USA 2025–present
Research & Teaching Assistant University of Arizona (UArizona) • NSF EAR-FRES #2020935— <i>TransANdean Great Orogeny (TANGO) Project</i>	Tucson, AZ, USA 2021–2023, 2025
Fulbright Research Scholar IANIGLA-CONICET CCT • Fulbright Award— <i>Building the roof of South America: Integrating records of Andean orogenesis</i>	Mendoza, Argentina 2024
Research & Teaching Assistant Montana State University (MSU) • EDMAP Award— <i>Geologic map of Melrose and Wickiup Creek 7.5' quadrangles, MT</i>	Bozeman, MT, USA 2019–2021

PUBLICATIONS [6 ARTICLES (3 FIRST-AUTHOR), 1 GEOLOGIC MAP]

PEER-REVIEWED PUBLICATIONS

First-Author Journal Articles

7. Ronemus, C.B., C.J. Howlett, P.G. DeCelles, B. Carrapa, and S.W.M. George (2024). The Manantiales Basin, southern Central Andes (~32 °S), preserves a record of Late Eocene–Miocene episodic growth of an east-vergent orogenic wedge. *Tectonics* 43.3. DOI: 10.1029/2023TC008100.

6. **Ronemus, C.B.**, D.A. Orme, W.R. Guenther, S.E. Cox, and C.A.L. Kussmaul (2023). Orogens of Big Sky country: Reconstructing the deep-time tectonothermal history of the Beartooth Mountains, Montana and Wyoming, U.S.A. *Tectonics* 42.1. DOI: 10.1029/2022TC007541.
5. **Ronemus, C.B.**, D.A. Orme, S. Campbell, S.R. Black, and J. Cook (2021). Mesoproterozoic–Early Cretaceous provenance and paleogeographic evolution of the northern Rocky Mountains: Insights from the detrital zircon record of the Bridger Range, Montana, U.S.A. *GSA Bulletin* 133.3–4, 777–801. DOI: 10.1130/B35628.1.

Contributing Author Journal Articles

4. George, S.W.M., B. Carrapa, P.G. DeCelles, G. Jepson, H. Nadoya, C. Tabor, C.J. Howlett, **C.B. Ronemus**, M.T. Clementz, and L. Schoenbohm (2025). Increased moisture availability in the Central Andes during the Miocene Climatic Optimum. *Palaeogeography, Palaeoclimatology, Palaeoecology* 663, 112732. DOI: 10.1016/j.palaeo.2025.112732.
3. Howlett, C.J., **C.B. Ronemus**, B. Carrapa, and P.G. DeCelles (2025). Miocene construction of the High Andes recorded by exhumation of the Frontal Cordillera, La Ramada Massif of western Argentina (32 °S). *Tectonics* 44.1, e2024TC008433. DOI: 10.1029/2024TC008433.
2. Romero, M.C., D.A. Orme, K.D. Surpress, **C.B. Ronemus**, and Z. Morrow (2024). Age and provenance relationships between the basal Great Valley Group and its underlying basement: Implications for initiation of the Great Valley forearc basin, California, U.S.A. *Journal of Sedimentary Research* 94.5, 641–662. DOI: 10.2110/jsr.2024.004.

Geologic Map Sheet

1. **Ronemus, C.B.** and D.A. Orme (2023). *Geologic map of the eastern half of the Melrose 7.5' quadrangle and the western half of the wickiup Creek 7.5' quadrangle, southwestern Montana*. 1 sheet, scale 1:24,000, EDMAP 16. Butte, MT: Montana Bureau of Mines and Geology.

BOOK CHAPTER (POPULAR PRESS)

1. **Ronemus, C.B.** (2020). “Regional geology: A journey through deep time”. In: Kussmaul, C. *Back-country Skiing: Peaks and Couloirs of Southwest Montana*. Science Communication. PKI Press, pp. 14–18. ISBN: 978-0-9974386-9-7.

MANUSCRIPTS IN REVIEW/PREPARATION (PDFs AVAILABLE UPON REQUEST)

5. **Ronemus, C.B.**, C.J. Howlett, P.G. DeCelles, B. Carrapa, E. Echaurren, M. Barrionuevo, J.G. Mosolf, M.L. Foley, and M.N. Ducea. From extension to compression: A Cretaceous–Quaternary record of whole-rock and zircon geochemistry reveals how horizontal shortening built the southern Central Andes at ~35 °S. In Review with *Earth and Planetary Science Letters*.
4. **Ronemus, C.B.**, C.J. Howlett, P.G. DeCelles, B. Carrapa, V.A. Muller, L.M. Fennel, N.A. Peluffo, L. Lothari, and J. Suriano. The Cretaceous–Neogene basin record of the High Andes and implications for evolution of the southern Central Andean orogenic system. Expected submission Winter 2025/2026 to *Earth Science Reviews*.
3. **Ronemus, C.B.**, C.J. Howlett, P.G. DeCelles, B. Carrapa, L. Fennel, K. Thirumalai, V.A. Muller, and L. Lothari. Volcanic glass and carbonate isotopes from the Manantiales Basin (~32 °S) reveal a two-phase Miocene evolution of Andean hydroclimate and topographic growth. Expected submission Winter 2025/2026 to *Geochemistry, Geophysics, Geosystems*.

2. Howlett, C.J., **C.B. Ronemus**, B. Carrapa, and P.G. DeCelles. Minimal shortening and young hinterland cooling reflect long-term subcritical wedge behavior in the south-central Andean thrust belt, Chile and Argentina (34–35°S). Expected submission Winter 2025/2026 to *GSA Bulletin*.
1. Howlett, C.J., **C.B. Ronemus**, B. Carrapa, L.M. Fennell, and F. Fuentes. Low-temperature thermochronology of the San Rafael Block reveals pulsed Mesozoic deformation and minimal Cenozoic burial, Argentina foreland. Expected submission Spring 2026 to *Geology*.

GRANTS & AWARDS (21 AWARDS; \$353,995 TOTAL RESEARCH FUNDING) _____

MAJOR FELLOWSHIPS

- Earth Science Postdoctoral Research Fellowship (\$291,976), *US National Science Foundation* 2025
- Fulbright Research Scholarship (\$10,700 + other support), *US Fulbright Program* 2023

RESEARCH GRANTS AND OTHER AWARDS

- Undergraduate Student Research Funding Award (PI of record: K. Sundell; \$6,000), *Idaho Higher Education Research Council* 2025
- John and Nancy Sumner Scholarship (\$1,000), *UArizona Dept. of Geosciences* 2025
- Lewis and Clark Exploration and Field Research Scholarship (\$4,900), *American Philosophical Society* 2024
- Research and Project Grant (\$1,490), *UArizona Graduate and Professional Student Council* 2023
- Travel Grant (\$350), *GSA Cordilleran Section* 2023
- Coney Scholarship (\$3,000), *UArizona Dept. of Geosciences* 2023
- Galileo Circle Scholarship (\$1,000 each), *UArizona College of Science* 2022, 2023
- Travel Grant (\$1,000), *UArizona Graduate and Professional Student Council* 2022
- 1st place, Best Student Geologic Map Competition, *US Geological Survey* 2021
- Sulzer Scholarship (\$4,676), *UArizona Dept. of Geosciences* 2021
- StraboSpot Super Tester Award (\$1,500), *University of Kansas* 2021
- Graduate Research Fellowship Honorable Mention, *US National Science Foundation* 2021
- Open Access Author Fund Award (\$2,000), *MSU Library* 2020
- Harrison Scholarship (\$500), *Tobacco Roots Geological Society* 2020
- Donald L. Smith Memorial Scholarship (\$3,000), *MSU Dept. of Earth Sciences* 2020
- EDMAP Grant (PI of record: D. Orme; \$17,428), *US Geological Survey* 2020
- Research Grant (\$750), *Montana Academy of Sciences* 2019
- Research Grant (\$225), *Tobacco Roots Geological Society* 2019
- Undergraduate Scholars Program Research Grant (\$1,800), *MSU* 2018

INVITED PRESENTATIONS _____

- Building the High Andes: The view from the foreland basin record, *Idaho State University* 2025
- Cordilleran evolution in the sedimentary basin record, *University of Alaska Fairbanks* 2025
- Mapping as a foundation for understanding orogenic systems, *MT Bureau of Mines and Geology* .. 2025
- Cenozoic evolution of the southern Central Andean foreland basin, *University of Buenos Aires* ... 2024

13. Howlett, C.J., **C.B. Ronemus**, B. Carrapa, and P.G. DeCelles (2025). Cordilleran orogenic wedge evolution in a transitional segment of the South-Central Andes (34.5°S), Chile and Argentina. *GSA Connects*. San Antonio, TX. DOI: 10.1130/abs/2025AM-10438.
12. Muller, V.A., B. Carrapa, S.N. Thomson, P.G. DeCelles, C.J. Howlett, **C.B. Ronemus**, and S.L. Beck (2025). Exhumation of the Eastern Cordillera, NW Argentina: a record of competing river incision and fold-and-thrust belt propagation. *GSA Connects*. San Antonio, TX. DOI: 10.1130/abs/2025AM-7197.
11. **Ronemus, C.B.**, C.J. Howlett, B. Carrapa, A. Echaurren, M. Barrionuevo, J.G. Mosolf, and M.L. Foley (2025). Crustal thickness evolution of the southern Central Andes (~35°S): Insights from igneous paleomohometry and zircon petrochronology. *GSA Connects*. San Antonio, TX. DOI: 10.1130/abs/2025AM-9963.
10. Beck, S.L., J. Bradford, S.S. Mahanti, C.J. Howlett, **C.B. Ronemus**, et al. (2024). The tale of two mountain belts along the South America convergent margin. *AGU Annual Meeting*. Washington, DC.
9. **Ronemus, C.B.**, J. Suriano, C.J. Howlett, and V.A. Muller (2024). La naturaleza de las discontinuidades en la cuenca del antepaís andino: Datos de un nuevo registro sedimentario del Eoceno-Mioceno a ~31.75°S. *XIX Reunión de Tectónica*. San Juan, Argentina.
8. George, S.W.M., B. Carrapa, P.G. DeCelles, and **C.B. Ronemus** (2023). Intensification of the South American monsoon at the start of the Middle Miocene climatic optimum in the Central Andes as a modulator of orogenic shortening. *GSA Connects*. Pittsburgh, PA.
7. Howlett, C., **C.B. Ronemus**, P.G. DeCelles, and B. Carrapa (2023). Exhumation of the La Ramada Massif of western Argentina: field and thermochronological data from Cerro Mercedario (6720 m). *GSA Connects*. Pittsburgh, PA.
6. **Ronemus, C.B.**, C.J. Howlett, P.G. DeCelles, B. Carrapa, and S.W.M. George (2023). Miocene wedge-top sedimentation adjacent to out-of-sequence thrust faults in the Manantiales basin, southern Central Andes (~32°S). *GSA Connects*. Pittsburgh, PA.
5. Sabor, F., **C.B. Ronemus**, and C.J. Howlett (2023). Sedimentologic insights into Late Cretaceous to Early Miocene foreland basin development in the southern Central Andes (~36°S). *GSA Connects*. (Student mentee first author). Pittsburgh, PA.
4. Baird, C., D.A. Orme, M.A. Malkowski, and **C.B. Ronemus** (2022). Reinvestigation of the sedimentary processes, depositional environments, and provenance of the Mesoproterozoic LaHood Formation in Jefferson Canyon, Montana. *GSA Connects*. Denver, CO.
3. **Ronemus, C.B.** and D.A. Orme (2022). Overlap of structural styles associated with reactivation of Proterozoic structures during Cordilleran orogenesis: Geologic mapping and geo/thermochronology results from the Highland Mountains, southwest Montana, USA. *GSA Connects*. Denver, CO.
2. — (2021). Geologic map of the eastern half of the Melrose 7.5' quadrangle and the western half of the Wickiup Creek 7.5' quadrangle, southwestern Montana. *GSA Connects*. (USGS Best Student Map Competition, 1st place). Portland, OR.
1. **Ronemus, C.B.**, D.A. Orme, W.R. Guenther, and S.E. Cox (2021). Orogens of Big Sky country: Reconstructing the deep-time tectonothermal history of the Beartooth Mountains, Montana and Wyoming. *17th Annual Conference on Thermochronology*. Santa Fe, NM.

TEACHING (TEACHING PORTFOLIO AVAILABLE UPON REQUEST) _____

INSTRUCTOR OF RECORD

- Solid Earth, *ISU* Sp. 2026 (upcoming)
- Independent Problems and Studies in Geology, *ISU* Sp. 2026 (upcoming)

TEACHING ASSISTANT

- Physical Geology (Lab Instructor), *UArizona* Fa. 2021, Fa. 2023
- Paleontology, *UArizona* Sp. 2023
- Dinosaurs, *UArizona* Fa. 2022
- Introduction to GIS and Cartography (Lab Instructor), *MSU* Sp. 2020, Sp. 2021
- Sedimentation and Stratigraphy (Lab Instructor), *MSU* Fa. 2019
- Geology Field Camp (Assistant Instructor), *Indiana University/MSU* Su. 2019
- Geologic Field Methods, *MSU* Fa. 2018
- Freshman Seminar, *MSU* Fa. 2016

GUEST LECTURER

- Geochronology and Thermochronology, *MSU* Sp. 2021

STUDENT MENTORSHIP _____

UNDERGRADUATE RESEARCHERS MENTORED AS POSTDOCTORAL FELLOW

- Amarissa Cramer (NSF EAR-PF project; provenance analysis), *ISU, exp. B.S. 2027* 2025
- Tiana Hursh (NSF EAR-PF project; sedimentary facies analysis), *ISU, exp. B.S. 2027* 2025
- Parker Hazelbush (NSF EAR-PF project; sandstone petrography), *ISU, exp. B.S. 2026* 2025

UNDERGRADUATE RESEARCHERS MENTORED AS PH.D. STUDENT

- Faisal Sabor (TANGO project; first-author GSA presentation), *UArizona, B.S. 2023* 2023
- Katleho Ramotso (TANGO project; provenance analysis), *UArizona, B.S. 2025* 2023
- Ash Abbate (TANGO project; provenance analysis), *UArizona, exp. B.S. 2026* 2023

UNDERGRADUATE RESEARCHERS CO-MENTORED AS MASTERS STUDENT

- MSU Sedimentary Undergraduate Research program (6 students), *MSU* 2021
- Sophie Black (Montana provenance analysis; coauthor GSA Bulletin), *MSU, B.S. 2021* 2019–2021
- Saré Campbell (Montana provenance analysis; coauthor GSA Bulletin), *MSU, B.S. 2021* ... 2019–2021
- John Cook (Montana provenance analysis; coauthor GSA Bulletin), *MSU, B.S. 2024* 2019

FIELD RESEARCH (TOTAL FIELDWORK: > 17.5 MONTHS) _____

- Southern Central Andes, Argentina & Chile (> 9 months), *Ph.D. Research* 2022–present
- Montana & Wyoming (> 7 months), *Field Camp Instructor, M.S. Research* 2018–2021
- Great Valley forearc basin, CA (6 weeks), *Research Mentor, Research Assistant* 2019–2021

SERVICE & OUTREACH

CONFERENCE ORGANIZATION

- Convener, *Convergent Margin Systems (GSA Connects Session T160)* 2023
- Organizing Committee, *GeoDaze Research Conference, UArizona* 2022
- Organizing Committee, *ESCI Seminar Series, MSU* 2020–2021
- Organizing Committee, *Earth Science Student Colloquium, MSU* 2019–2021

UNIVERSITY & SCIENTIFIC COMMUNITY SERVICE

- Panel Member, *Careers and Graduate School in Geoscience, ISU* 2025
- Peer Reviewer, *Tectonics, Terra Nova, Geosphere, GSA Bulletin* 2022–present
- Grant Reviewer, *Graduate and Professional Student Council, UArizona* 2025
- Assistant Instructor, *Detrital Zircon Analytical Methods (GSA Connects Short Course 512)* 2023
- Graduate Student Representative, *Department of Geosciences, UArizona* 2022–2023
- Founding Member, *Decolonize Geosciences, MSU* 2021
- Panel Member, *Tips for Applying to Graduate School, MSU* 2020

PUBLIC SERVICE & OUTREACH

- Contributor, *Science YouTube Channel (@CadenHowlett)* 2022–present
- Science Fair Judge, *Sunrise Drive Elementary School, Tucson, AZ* 2025
- Outreach Presenter, *Legacy Traditional Schools, Tucson, AZ* 2022
- Adaptive Skiing Volunteer, *Eagle Mount Therapeutic Recreation, Bozeman, MT* 2016–2021

INDUSTRY EXPERIENCE

- Petroleum Geology Intern, *Matador Resources, Dallas, TX* Su. 2021
- Exploration Geologist, *Childs Geoscience Inc., Bozeman, MT* part-time (PT) 2018–2020
- Mining Geology Intern, *Sibanye-Stillwater, Nye, MT* Su. 2018
- GIS Analyst, *Bioresource Consultants, Ojai, CA* PT 2017–2019
- GIS Analyst, *MSU Water Quality Extension, Bozeman, MT* PT 2017

REFERENCES

Dr. Peter G. DeCelles, Professor

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