Chance B. Ronemus

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Research Interests

Orogenic Systems and Cordilleran Tectonics; Forearc and Foreland Basin Evolution; Climate–Tectonics Interactions and Stable Isotope Paleoaltimetry; Fluvial, Alluvial, and Deep-Water Depositional Systems; Zircon Geo-, Petro-, and Thermochronology

Education

University of Arizona Tucson, AZ, USA
Ph.D., Geoscience (Advisor: Peter G. DeCelles) 2025
Dissertation: Cretaceous to Cenozoic Evolution of the Southern Central Andes and Basins Therein

Montana State University Bozeman, MT, USA
M.S., Geology (Advisor: Devon A. Orme) 2021
Thesis: Orogens of Big Sky Country: Reconstructing the deep-time tectonothermal histories of the Beartooth and Highland mountains, southwestern Montana

Montana State University Bozeman, MT, USA
B.S., Geology (Highest Honors) 2019

Appointments and Major Projects

Visiting Postdoctoral Scholar Stanford, CA, USA
Stanford University (Mentor: Stephan A. Graham) 2026 (anticipated start)

NSF Earth Science Postdoctoral Fellow Pocatello, ID, USA
Idaho State University (ISU; Mentor: Kurt E. Sundell) 2025–present
- NSF EAR-PF (Award #2518506)—*Field tests of Mesozoic terrane accretion in South America*

Research & Teaching Assistant Tucson, AZ, USA
University of Arizona (UArizona) 2021–2023, 2025
- NSF EAR-FRES (Award #2020935)—*TransANdean Great Orogeny (TANGO) Project*

Fulbright Research Scholar Mendoza, Argentina
IANIGLA-CONICET CCT 2024
- Fulbright Award—*Building the roof of South America: Integrating records of Andean orogenesis*

Research & Teaching Assistant Bozeman, MT, USA
Montana State University (MSU) 2019–2021
- EDMAP Award—*Geologic map of Melrose and Wickiup Creek 7.5' quadrangles, MT*

Publications

Peer-reviewed Publications [6 articles (3 first-author), 1 geologic map]

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. Guenthner, 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. Surpless, **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 Chapters (Popular Press)

2. **Ronemus**, **C.B.** (2025). "Regional geology: A journey through deep time (Updated)". In: Kussmaul, C. *Backcountry Skiing: Peaks and Couloirs of Southwest Montana, 2nd edition*. PKI Press, pp. 14–18. ISBN: 978-1-7364316-2-7.

1. **Ronemus**, **C.B.** (2020). "Regional geology: A journey through deep time". In: Kussmaul, C. *Backcountry Skiing: Peaks and Couloirs of Southwest Montana, 1st edition*. 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, A. 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 *Journal of Geophysical Research: Solid Earth*.

4. **Ronemus**, **C.B.**, C.J. Howlett, P.G. DeCelles, B. Carrapa, L.M. Fennell, K. Thirumalai, V.A.P. Muller, and L. Lothari. Mixed signals: Paired glass and carbonate isotopes separate uplift from climate in the Miocene Andes (∼32°S). Anticipated submission to *Earth and Planetary Science Letters*, Spring 2026.

3. **Ronemus**, **C.B.**, C.J. Howlett, P.G. DeCelles, B. Carrapa, V.A.P. Muller, L.M. Fennell, 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. Anticipated submission to *American Journal of Science*, Spring 2026.

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). Anticipated submission to *GSA Bulletin*, Spring 2026.

1. Sundell, K.E., **C.B. Ronemus**, D. Pearson, K.E. Murray, R.B. Anderson, C.B. Bartelt, and P.K. Link. Late Cretaceous to Eocene melt evolution and thinning of the Sevier orogenic hinterland from detrital zircon in Idaho's major rivers. Anticipated submission to *Geochemistry, Geophysics, Geosystems*, Spring 2026.

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
- Tectonic controls on Cu mineralization in the Central Andes, *Teck Resources Structural Geology Team* 2025
- Cenozoic evolution of the southern Central Andean foreland basin, *University of Buenos Aires* ...2024

Grants & Awards (22 awards; $354,295 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* 2024

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 & Clark Exploration and Field Research Scholarship ($4,900), *Amer. 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

Teaching

Instructor of Record

- Solid Earth, *ISU* .....Spring 2025
- Independent Problems and Studies in Geology, *ISU* .....Spring 2025

Teaching Assistant

- Physical Geology (Lab Instructor), *UArizona* ..... Fall 2021, Fall 2023
- Paleontology, *UArizona* .....Spring 2023
- Dinosaurs, *UArizona* .....Fall 2022
- Geochronology and Thermochronology (Guest Lecturer), *MSU* ..... Spring 2021
- Introduction to GIS and Cartography (Lab Instructor), *MSU* .....Spring 2020, Spring 2021
- Sedimentation and Stratigraphy (Lab Instructor), *MSU* .....Fall 2019
- Geology Field Camp (Assistant Instructor), *Indiana University/MSU* .....Summer 2019
- Geologic Field Methods, *MSU* ..... Fall 2018
- Freshman Seminar, *MSU* ..... Fall 2016

Student Mentorship and Training

Mentored as postdoctoral fellow

- Parker Hazelbush (NSF EAR-PF project; Chile field research), *ISU, exp. B.S. 2026* 2025
- Tiana Hursh (NSF EAR-PF project; Chile field research), *ISU, exp. B.S. 2027* 2025
- Amarissa Cramer (NSF EAR-PF project; Zircon U-Pb analysis), *ISU, exp. B.S. 2027* 2025
- William Crater (NSF EAR-PF project; Zircon U-Pb analysis), *ISU, exp. B.S. 2029* 2025

Co-mentored as M.S. and 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
- 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: > 19 months)

- Coastal Chile Mesozoic forearc basin (6 weeks), *Postdoctoral Research* 2025–present
- Southern Central Andes, Argentina & Chile (> 9 months), *Ph.D. Research* 2022–2025
- Great Valley forearc basin, CA (6 weeks), *Research Mentor, Research Assistant* 2019–2021
- Southwest Montana (> 7 months), *Field Camp Instructor, M.S. Research* 2018–2021

Service & Outreach

Conference Organization

- Instructor, *Quantitative analysis, visualization, and modelling of detrital geochronology data (GSA Connects Short Course)* ..... exp. 2026
- Lead Convener, *Bottoms Up: Reconciling bottom-up and top-down approaches to tectonic reconstructions (GSA Connects Topical Session)* ..... exp. 2026
- Lead Convener, *Pre-Neogene Tectonic evolution of South America (GSA Connects Topical Session)* ..... exp. 2026
- Co-convener, *Convergent Margin Systems (GSA Connects Session T160)* 2023
- Assistant Instructor, *Detrital Zircon Analytical Methods (GSA Connects Short Course 512)* 2023
- Organizing Committee, *GeoDaze Research Conference, UArizona* 2022
- Organizing Committee, *ESCI Seminar Series & Earth Science Student Colloquium, MSU* 2019–2021

Peer Review & Editorial Service

- Ad Hoc Reviewer, *US NSF EAR Structure and Physics of the Solid Earth Program* 2026
- Peer Reviewer, *Tectonics, Terra Nova, Geosphere, GSA Bulletin (n = 8 reviews)* 2022–present
- Grant Reviewer, *US–Argentina Fulbright Commission* 2025
- Grant Reviewer, *Graduate and Professional Student Council, UArizona* 2025

University & Departmental Service

- Workshop Presenter, *Ready–to–Rock GSA Prep Series, ISU* 2026
- Panel Member, *Careers and Graduate School in Geoscience, ISU* 2025
- 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 Outreach & Science Communication

- 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

Selected Conference Proceedings (23 total since 2019; †Student mentee author)

11. Cramer†, A., W. Crater†, P. Hazelbush†, T. Hursh†, and **C.B. Ronemus** (2026). No Allochthons Allowed: Detrital zircon provenance contradicts Post-Triassic Terrane Accretion in Central Chile. *Idaho State University Research and Creative Works Symposium*. Pocatello, ID.

10. Hursh†, T., P. Hazelbush†, A. Cramer†, W. Crater†, and **C.B. Ronemus** (2026). Basin Development Along the Pre-Andean Margin: Facies architecture of Triassic–Jurassic deposits in Coastal Chile (∼32°S). *Idaho State University Research and Creative Works Symposium*. Pocatello, ID.

9. 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.

8. 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.

7. **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.

6. **Ronemus**, **C.B.**, C.J. Howlett, V.A.P. Muller, P.G. DeCelles, B. Carrapa, L. Fennell, J. Suriano, and L. Lothari (2025). Foreland basin evolution in the Andes (∼32°S). *Along Strike Variations in Central Andean Subduction and Mountain Building (NSF Funded Workshop)*. Tucson, AZ.

5. Lothari, L.D., J. Suriano, J.F. Mescua, M. del Llano, A. Echaurren, L.B. Giambiagi, J. Cottle, and **C.B. Ronemus** (2024). El registro sedimentario Paleógeno del retroarco Andino (33–32°S): Extensión hacia el sureste del evento compresivo del Eoceno Temprano. *XXII Congreso Geológico Argentino*. San Luis, Argentina.

4. **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.

3. 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*. Pittsburgh, PA.

2. **Ronemus**, **C.B.** and D.A. Orme (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, 1^{st} place). Portland, OR.

1. **Ronemus**, **C.B.**, D.A. Orme, W.R. Guenthner, 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.

Industry Experience

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

Languages

English (native); Spanish (working proficiency)