

Kyle K. Gallant

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Education

New Mexico Institute of Mining and Technology

August 2019 - Current

Socorro, New Mexico

Doctor of Philosophy of Earth Science, with Dissertation in Geology - Start August 2023

Dissertation Topic: Thermochronology and Tectonics of Central New Mexico.

Advisor: Veronica.Prush@nmt.edu

Bachelor of Earth and Environmental Science, Geology - Graduated August 2023

Senior thesis: Tectonics of Fra Cristobal Range, NM. Veronica.Prush@nmt.edu

Relevant Professional Experience

Field Geologist - Bedrock Mapper

August 2025 - Current

New Mexico Bureau of Geology and Mineral Resources, Matthew.Zimmerer@nmt.edu

Fulfill requirements related to the STATEMAP DOI grant, including collecting, organizing, and preparing geologic maps and reports in the state of New Mexico. Work also includes academic research funded by various granting agencies and is expected to result in peer-reviewed research articles. Tertiary responsibility includes public-related science communication and revitalization of the NMBGMR Fission-Track facilities.

Undergraduate Researcher (REU)

May 2022 - August 2022

Sevilleta National Wildlife Refuge LTER, REU Program, gmaurer@nmsu.edu

Analyzed long-term plant production data in the R Programming language at two ecological study areas to determine the impact of the changing climate on similar plant species in the Southwestern United States.

Undergraduate Research Assistant

January 2022 - January 2023

New Mexico Institute of Mining and Technology & The University of New Mexico,

Alex.Rinehart@nmt.edu

Performed soil survey, analysis, and descriptions at various sites at the Sevilleta NWR to quantify soil variability and hydraulic properties at long-term plant ecology research locations. Quantifying particle size, soil characteristic functions and carbonate content.

Brightstar Undergraduate Fellow

May 2021 - April 2022

New Mexico Institute of Mining and Technology, Alex.Rinehart@nmt.edu,

Dan.Koning@nmt.edu

Planned, designed, and performed a gravity survey of the San Marcial Basin, NM. Fieldwork included independent and group work in remote locations during all weather conditions. Managed ordering, logistical planning, and execution of the survey. Reduced, analyzed, and constructed visual gravity interpretations of new data.

Office Assistant

August 2019 - May 2021

New Mexico Institute of Mining and Technology, **retired** Bruce.Harrison@nmt.edu

Fulfilled office tasks to aid faculty and students.

Refereed Manuscripts, Reports, and Geologic Maps

- **Refereed Manuscript** || **Gallant K.**, Prush V., Kelley S., (**in prep**) 'Post-exhumation resetting of thermochronometers obscured exhumation demonstrated by structural and stratigraphic observations in the Fra Cristobal Range, New Mexico, USA
- **Geologic Map and Report** || Krupnick J., **Gallant K.**, Prush V., Cox B., (**Dec 2026**), 'Geologic Map of the Crocker and Lava 7.5x15-Minute Quadrangles, Sierra and Socorro Counties, New Mexico', Geologic Map 91, scale 1:24,000, <https://doi.org/10.#####/GM-91>
- **Geologic Map and Report** || Goughnour R., Koning D., **Gallant K.**, Nelson W., Elrick S., (**Dec 2026**), 'Geologic Map of the Bell Mountain 7.5-Minute Quadrangle, Sierra County, New Mexico', Geologic Map 89, scale 1:24,000, <https://doi.org/10.#####/GM-89>
- **Refereed Manuscript** || **Gallant K.**, Koning D., Jochems A., Rinehart A., (2021) 'Elucidating the structural geometry and major faults of the San Marcial basin, Socorro County, using total Bouguer gravity anomaly data', New Mexico Geological Society, Guide 72 (2022)

Grants and Funding Awards

- **Student/Co-Author** || Prush V. (PI), Kelley S. (Co-PI), **Gallant K.** (Student), (2025-2027), 'High-temperature hydrothermal alteration as a possible cause of resetting of low-temperature thermochronometers in the Fra Cristobal Range, South-central New Mexico, ACS-PRF Grant No. 68495-DNI8
- **Student/Co-Author** || Prush V. (PI), Kelley S. (PI), **Gallant K.** (Student), (2024-2025), 'Deconvolving the signatures of Laramide orogenesis and Rio Grande rift extension in the Fra Cristobal Range, New Mexico), EDMAP Grant No. G24AC00192-00

Conference Proceedings and Posters

- **Oral** || Prush V., **Gallant K.**, Kelley S., (2026) 'Integrating Structural, Stratigraphic, and Thermochronologic Datasets to Test Exhumation Models for the Fra Cristobal Range in South-central New Mexico', The 2026 Structural Geology and Tectonics Forum, August 3-5, 2026, Northfield, Minnesota, USA
- **Poster** || **Gallant K.**, Prush V., Kelley S., (2026) 'Mapping a Fossilized Geothermal System in the Fra Cristobal Range of South-central New Mexico', The 2026 Structural Geology and Tectonics Forum, August 3-5, 2026, Northfield, Minnesota, USA
- **Oral** || **Gallant K.**, Prush V., Kelley S., (2026) 'Resetting of thermochronometers by high-temperature fluid flow in the Fra Cristobal Range, New Mexico', Geological Society of America Rocky Mountain Regional Meeting, May 17-20, 2026, Albuquerque, New Mexico, USA
- **Poster** || **Gallant K.**, Prush V., Kelley S., (2025) 'Updates to the Structural and Tectonic Evolution of the Fra Cristobal Range, Central New Mexico Using Field Data and Thermochronology: Implications for Overprinting Tectonic Events', 19th International Conference on Thermochronology, September 15-19, 2025, Kanazawa Korimbo, Ishikawa, Japan
- **Oral** || Koning D., Zimmerer M., Cox B., **Gallant K.**, Nelson W.J., Lozinsky R., (2025) 'New constraints on the timing and behavior of the Hot Springs-Walnut Canyon fault system, south-central New Mexico', New Mexico Geological Society Spring Meeting, April 25, 2025, Socorro, NM, USA
- **Poster** || **Gallant K.**, Prush V., Kelley S., (2024) 'Laramide and Rio Grande rift tectonic signatures in central New Mexico - Separating deformation patterns using geologic mapping and cross section analysis', American Geophysical Union, December 9-13, 2024, Washington D.C., USA
- **Poster** || Maurer G., **Gallant K.**, Brown R., Hallmark A., Collins S., Sala O., (2024) 'Ecosystem Sensitivity to Precipitation Variability Along Intermediate Spatial Gradients in Vegetation and Soil Type', American Geophysical Union, December 9-13, 2024, Washington D.C., USA
- **Poster** || Cruz J., Farley M., Garcia I., Guess Z., Daniel M., Murphy M., Copeland P., Prush V., **Gallant K.**, Lapen T., (2024) 'Deformation of the Cooke's Range Driven by Subduction of the Conjugate Hess Rise', Geologic Society of America, September 22-25, Anaheim, CA, USA
- **Poster** || **Gallant K.**, Prush V., Kelley S., (2024) 'Preliminary Geochronological Results from the Fra Cristobal Range of south-central New Mexico - Revision of Cretaceous-age Units to Santa Fe Group', New Mexico Geological Society Spring Conference, April 19, 2024, Socorro, NM, USA
- **Poster** || **Gallant K.**, Prush V., Kelley S., (2023) 'From the Laramide to Now: Mapping the Tectonic Evolution of Central New Mexico in the Northern Fra Cristobal Range', American Geophysical Union, December 11-15, 2023, San Francisco, CA, USA
- **Poster** || **Gallant K.**, Prush V., (2023) 'From the Laramide to Now: Mapping the Tectonic Evolution of Central New Mexico in the Northern Fra Cristobal Range', New Mexico Geological Society Spring Conference, April 11-15, 2023, Socorro, NM, USA

- **Poster** || Anaya J., **Gallant K.**, Runyan D., Chavez A., Heath R., Prush V., (2023) 'Bedrock and Neotectonic Characterization of an Unnamed Range-Bounding Rio Grande Rift Fault South of Socorro, New Mexico', New Mexico Geological Society Spring Conference, April 19, 2023, Socorro, NM, USA
- **Oral** || **Gallant K.**, Hallmark A., Rinehart A., Maurer G., (2022) 'Drought sensitivity of grass and shrub species in Chihuahuan Desert sites with contrasting climate and physical characteristics.' Sevilleta Research Experience for Undergraduates Final Oral Presentation, August 4, 2022, La Joya, NM, USA.
- **Poster** || **Gallant K.**, Koning D., Jochems A., Rinehart A., (2021) 'Elucidating the structural geometry and major faults of the San Marcial basin, Socorro County, using Bouguer gravity anomaly data', Student Research Symposium, April 20-22, 2022, Socorro, NM, USA
- **Poster** || **Gallant K.**, Koning D., Jochems A., Rinehart A., (2021) 'Elucidating the structural geometry and major faults of the San Marcial basin, Socorro County, using Bouguer gravity anomaly data', New Mexico Geological Society Spring Conference, April 8-9, 2022, Socorro, NM, USA.

Professional Awards

- Lucille H. Pipkin Outstanding Senior Award, New Mexico Geological Society (2022)
- NMGS Fall Field Conference Scholarship recipient (April 2023)
- Estwing Rock Hammer Award recipient (April 2023)
- Carlsbad Gem and Mineral Society Award recipient (April 2023)

Professional Memberships

- Member || American Institute of Professional Geologists (AIPG), National Ground Water Association (NWGA), Geological Society of America (GSA), New Mexico Geologic Society (NMGS), Billy Aards Club (New Mexico Tech)