

Matthew J. Zimmerer

801 Leroy Pl • New Mexico Bureau of Geology • Socorro, NM 87801 • (575) 835-5114 •
matthew.zimmerer@nmt.edu

EDUCATION:

New Mexico Institute of Mining and Technology

PhD in Geochemistry (with focus in Volcanology/Geochronology) September 2011
Dissertation: The volcanic-plutonic relationship at three contrasting Rio-Grande-rift
faulted calderas

MS in Geochemistry (with focus in Volcanology/Geochronology) August 2008

University of Kentucky

BS in Geology; May 2005

WORK EXPERIENCE:

New Mexico Bureau of Geology Geologic Mapping Program Manager May 2023-present
New Mexico Bureau of Geology Interim Mapping Program Manager March 2022-May 2023
New Mexico Bureau of Geology Field Geologist II May 2015 – March 2022
New Mexico Tech Adjunct Professor March 2014 – present
New Mexico Tech Geology Field Camp Instructor May 2013 – 2021
Antarctica Researcher/Field Assistant at Mt. Erebus Volcano Observatory
Austral summers 2007/2008, 2008/2009, 2010/2011, 2016/2017, and 2018/2019
New Mexico Bureau of Geology Postdoctoral Researcher September 2011 – May 2015
Freelance Photographer/Educational Content Developer for Pearson Publishing
July 2014 – November 2015
New Mexico Geochronology Research Laboratory Assistant May 2006 – September 2011
New Mexico Tech Teaching Assistant August 2005 – May 2011
Center for Applied Energy Research May 2004-June 2005

GRANTS AND AWARDS:

GS23AS00050. Fiscal Year 2023 STATEMAP – Geologic Mapping in New Mexico (\$640,520
– 2 year grant – PI)
Awarded. Starting on 09/2023

DE-FOA-0002614. Regional resource assessment for CO2 storage in New Mexico and
surrounding areas: identification, characterization, and evaluation of in-situ mineralization
site/complex (\$1,250,613 – 2 year grant – Co-PI)
Awarded. Starting on 10/2023

NASA Astronaut Training in Flagstaff, AZ; JACOBS (\$63,315.55 – 1 year – co-PI)
04/2023-09/2023

NSF-OPP-2110092. Collaborative Research: EAGER: Dating glacier retreated and readvance
near Mount Waesche, West Antarctica. (\$20,926 – 1 year grant – PI)
09/2022-present

- NASA Astronaut Training in Rio Grande del Norte; JACOBS (\$54,237.62 – 1 year – PI)
06/2022-10/2023
- NSF-OPP-2122248. Integrating petrologic records and geodynamics: Quantifying the effects of glaciation on crustal stress and eruptive patterns at Mt. Waesche, Executive Committee Range, Antarctica (\$483,028 – 3 year grant – co-PI with NMT researchers)
08/2021-current
- AGeS2 (Awards for Geochronology Student Research) Proposal. Tempos of fayalite and biotite bearing magmas in the Valles magmatic system, Jemez Mountains, New Mexico: Implications for present-day magmatic quiescence (\$8,973 – Lead contact for NMGRLL; collaboration with Ph.D. student Nicholas Meszaros at UT Austin)
05/2021-05/2022
- Middle Rio Grande Conservancy District Proposal. Identifying factors controlling flow conveyance losses in the Middle Rio Grande (\$69,200 – 2 year grant – co-PI with NMT researchers)
6/2020-6/2022
- NSF-OPP-1745015. Collaborative Research: Constraining West Antarctic Ice Sheet Elevation during the last interglacial (\$370,103 to date, includes \$61,570 supplement awarded in 7/2020 – Continuing grant, year 4 of 4: Lead PI from NMT)
8/2018 – current
- NSF-EAR-1322089. Volcanic hazard assessment in the southwestern US based on high-precision Ar/Ar geochronology of late Quaternary eruptive centers (\$197,771; first-time Principal Investigator)
7/2013 – 6/2016
- NSF-EAR-1050188. Collaborative Research: Caldera magmatism for the inside out: A geochronologic and geochemical investigation of plutonic and volcanic rocks in three contrasting calderas (\$111,421; Co-wrote with Ph.D. advisor & PI McIntosh)
3/2011 – 2/2014
- Robert Wellnitz Memorial Scholarship Fall 2010
New Mexico Geological Society Fall Field Conference Scholarship Fall 2010, 2008, 2005
New Mexico Geological Society Undergraduate Mentor Scholarship Spring 2009
Frank Kottlowski Research Grant Spring 2009
New Mexico Geological Society Grant in aid Spring 2008, 2006
Richard A. Matuszcki Research Grant Spring 2007
Pirtle Award to outstanding undergraduate with senior status Spring 2004
- MEMBERSHIPS:**
New Mexico Geological Society 2005-present

CERTIFICATIONS

FAA Remote Pilot
Wilderness First-Aider

October 2016 – present
February 2016 - 2019

PUBLICATIONS IN REFERRED JOURNALS (in reverse chronologic order):

- Lipman, P.W., Zimmerer, M.J., and Gilmer, A. K., (accepted with revisions 06/2023),
Precursors to a continental-arc ignimbrite flare-up: Early central volcanoes of the San Juan
Mountains, Colorado, USA: *Geosphere*.
- Meszaros, N.F., Gardner, J.E., Zimmerer, M.J., and Befus, K.F., (accepted with revisions
6/2023), Ten kyr of magma storage preceding the last caldera-forming eruption of the Jemez
magmatic system, New Mexico, USA: *Journal of Petrology*.
- Zimmerer, M.J., (accepted with revisions 03/2023), A temporal dissection of late Quaternary
volcanism and related hazards in the Rio Grande rift and along the Jemez Lineament of New
Mexico: *Geosphere*
- Nasholds, M.W.M., and Zimmerer, M.J., 2022, High-precision $^{40}\text{Ar}/^{39}\text{Ar}$ geochronology and
volumetric investigation of volcanism and resurgence following eruption of the Tshirege
Member, Bandelier Tuff, at Valles caldera: *Journal of Volcanology and Geothermal
Research*, v. 431, 107624, <https://doi.org/10.1016/j.jvolgeores.2022.107624>.
- Lipman, P.W., Zimmerer, M.J., Gilmer, A.K., 2022, Early incubation and prolonged maturation
of large ignimbrite magma bodies: Evidence from the southern rocky mountain volcanic
field (SRMVF), Colorado, USA: *Geology*, v. 50 p. 944-948.
<https://doi.org/10.1130/G49964.1>
- Sliwinski, J., Bachmann, O., Lipman, P., Deering, C., Guillong, M., Zimmerer, M., 2022,
Zircon U-Pb geochronology and trace element dataset from the Southern Rocky Mountain
Volcanic Field, Colorado, USA, *Data in Brief*, v 43, 108362,
<https://doi.org/10.1016/j.dib.2022.108362>.
- Dunbar, N.W., Iverson, N.I., Smellie, J.L., McIntosh, W.C., Zimmerer, M.J., and Kyle, P.R.,
2021, Active volcanoes of Marie Byrd Land: *Geological Society, London, Memoir* 55, p.
759-783.
- Sion, B.D., Phillips, F.M., Axen, G.J., Harrison, B.J., Love, D.W., and Zimmerer, M.J., 2020,
Chronology of terraces in the Rio Grande rift, Socorro basin, New Mexico: Implications for
terrace formation: *Geosphere*, v. 16, no. 6, p. 1457-1478.
- Lipman, P.W., and Zimmerer, M.J., 2019, Magmato-tectonic links: Ignimbrite calderas,
regional dike swarms, and transition from arc to rift in the Southern Rocky Mountains:
Geosphere, v. 15, p. 1893-1926.

- Ramos, F.C., Zimmerer, M.J., Zeigler, K.E., Pinkerton, S., and Butterfield, N., 2019, Geochemistry of the Capulin-phase flows in the Raton-Clayton volcanic field: New Mexico Geological Society Guidebook, v. 70, p. 139-149.
- Zeigler, K.E., Ramos, F.C., and Zimmerer, M.J., 2019, Geology of northeastern New Mexico, Union and Colfax Counties, New Mexico: A geologic summary: New Mexico Geological Society Guidebook, v. 70 p. 47-54.
- Zimmerer, M.J., 2019, $^{40}\text{Ar}/^{39}\text{Ar}$ geochronology, vent migration patterns, and hazard implications of the youngest eruptions in the Raton-Clayton volcanic field: New Mexico Geological Society Guidebook, v. 70, p. 151-160.
- Zimmerer, M.J., Ramos, F.C., and Orozco, S., 2019, Possible origins of dikes exposed in northeastern New Mexico and implications for mid-Tertiary alkalic magmatism in the region: New Mexico Geological Society Guidebook, v. 70, p. 161-168.
- Lukács, R., Harangi, S., Guillong, M., Bachmann, O., Folor, L., Buret, Y., Dunkl, I., Sliwinski, J., von Quadt, A., Peytcheva, I., and Zimmerer, M., 2018, Earth to Mid-Miocene syn-extensional massive silicic volcanism in the Pannonian Basin (East-Central Europe): Eruption chronology, correlation potential and geodynamic implications: Earth-Science Review, v. 179, p. 1-19.
- Koning, D.J., Aby, S., Grauch, V.J.S., and Zimmerer, M.J., 2016, Latest Miocene-earliest Pliocene evolution of the ancestral Rio Grande at the Espanola-San Luis Basin boundary, northern New Mexico, v. 38, no. 2, p. 24-49.
- Coleman, D.S., Mills, R.D., and Zimmerer, M.J., 2016, The Pace of Plutonism: Elements, v. 12, p. 87-102.
- Zimmerer, M.J., Lafferty, J., and Coble, M.A., 2016, The eruptive and magmatic history of the youngest pulse of volcanism at the Valles caldera: Implications for successfully dating late Quaternary eruptions: Journal of Volcanology and Geothermal Research, v. 310, p. 50-57.
- Channer, M.A., Ricketts, J.W., Zimmerer, M., Heizler, M., and Karlstrom, K.E., 2015, Surface uplift above the Jemez mantle anomaly in the past 4 Ma based on $^{40}\text{Ar}/^{39}\text{Ar}$ dated paleoprofiles of the Rio San Jose, New Mexico, USA: Geosphere, v. 11, no. 5, p. 1384-1400.
- Lipman, P.W., Zimmerer, M.J., and McIntosh, W.C., 2015, An ignimbrite caldera from the bottom up: Exhumed floor and fill of the resurgent Bonanza caldera, Southern Rocky Mountain volcanic field, Colorado: Geosphere, v. 11, p. 1902-1947.

- Zimmerer, M.J., and McIntosh, W.C., 2013, Geochronologic evidence of upper-crustal in situ differentiation: silicic magmatism at the Organ caldera complex: *Geosphere*, v. 9, p. 155-169.
- Zimmerer, M.J., and McIntosh, W.C., 2012, An investigation of caldera-forming magma chambers using the timing of ignimbrite eruptions and pluton emplacement at the Mt. Aetna caldera complex: *Journal of Volcanology and Geothermal Research*, v. 245-246, p. 128-148.
- Zimmerer, M.J., and McIntosh, W.C., 2012, The geochronology of volcanic and plutonic rocks at the Questa caldera: Constraints on the origin of caldera-related silicic magmas: *Geological Society of American Bulletin*, v. 124, p. 1394-1408.
- Hower, J.C., Mastalerz, M., Drobnik, A., Quick, J., Eble, C.F., and Zimmerer, M.J., 2005, Mercury content of the Springfield coal, Indiana and Kentucky: *International Journal of Coal Geology*, v. 63, p. 205-277.

**PUBLICATIONS IN NON-REFERRED JOURNALS, REPORTS, BOOKS, and MAPS
(in reverse chronologic order):**

- Kelley, S.A., Goff, F., Miller, P.L., Sawyer, D.A., Koning, D.J., Thompson, R.A., Smith, G.A., Minor, S.A., Kellog, K.S., Read, A.S., Askin, T., Zimmerer, M.J., Jochems, A.P., 2023, Geology of the Los Alamos 30 x 60-minute quadrangle study area, Los Alamos, Santa Fe, and Sandoval Counties, New Mexico: New Mexico Bureau of Geology and Mineral Resources Open-File Geologic Map 298, scale 1:24,000.
- Lipman, P.W., Dungan, M.A., and Zimmerer, M.J., 2022, Day 4—The Platoro caldera complex in Thompson, R.A., Turner, K.J., Lipman, P.W., Wolff, J.A., and Dungan, M.A., eds., Field-trip guide to continental arc to rift volcanism in the southern Rocky Mountains—Southern Rocky Mountain, Taos Plateau, and Jemez Mountains volcanic field of southern Colorado and northern New Mexico: U.S. Geological Survey Scientific Investigations Report 2017-5022-R, p. 127-180, <https://doi.org/10.3133/sir20175022R>.
- Lipman, P.W., Zimmerer, M.J., and McIntosh, W.C. 2022, Day 6—Bonanza caldera in Thompson, R.A., Turner, K.J., Lipman, P.W., Wolff, J.A., and Dungan, M.A., eds., Field-trip guide to continental arc to rift volcanism in the southern Rocky Mountains—Southern Rocky Mountain, Taos Plateau, and Jemez Mountains volcanic field of southern Colorado and northern New Mexico: U.S. Geological Survey Scientific Investigations Report 2017-5022-R, p. 245-300, <https://doi.org/10.3133/sir20175022R>.
- Bauer, P.W., Zimmerer, M.J., Timmons, J.M., Felix, B., Harris, S., 2021, The Rio Chama: A River Guide to the Geology and Landscapes, New Mexico Bureau of Geology and Mineral Resources, 134 p.
- McLemore, V.T., Kelley, S., Zimmerer, M.J., Owen, E., Haft, E.B., Cantrell, T., Gysi, A., Dietz, H., Cherotich, S., and Trivitt, A., 2021, Geology and mineral deposits of the Gallinas

Mountains, Lincoln and Torrance counties, New Mexico: New Mexico Bureau of Geology and Mineral Resources, Open-file report 617, 164 p.

Zimmerer, M., 2021, New Mexico's Volcanic Hazards: A Matter of Time: *New Mexico Earth Matters*, v. 21, no. 1, p. 1-5.

Chamberlin, R.M., McIntosh, W.C., and Zimmerer, M.J., 2020, Magdalena and San Mateo Mountain in *The Geology of Southern New Mexico's Parks, Monuments, and Public Land* eds. Scholle, P.A., Ulmer-Scholle, D.S., Cather, S.M., and Kelley, S.A., New Mexico Bureau of Geology and Mineral Resources, p. 161-168.

Bauer, P.W., and Zimmerer, M.J., 2020, Gila Riparian Preserve in *The Geology of Southern New Mexico's Parks, Monuments, and Public Lands* eds. Scholle, P.A., Ulmer-Scholle, D.S., Cather, S.M., and Kelley, S.A., New Mexico Bureau of Geology and Mineral Resources, p. 71-75.

Bauer, P.W., and Zimmerer, M.J., 2020, Mimbres River Preserve in *The Geology of Southern New Mexico's Parks, Monuments, and Public Lands* eds. Scholle, P.A., Ulmer-Scholle, D.S., Cather, S.M., and Kelley, S.A., New Mexico Bureau of Geology and Mineral Resources, p. 77-80.

McIntosh, W.C., Ratte, J.C., and Zimmerer, M.J., 2020, Catwalk National Recreational Trail in *The Geology of Southern New Mexico's Parks, Monuments, and Public Lands* eds. Scholle, P.A., Ulmer-Scholle, D.S., Cather, S.M., and Kelley, S.A., New Mexico Bureau of Geology and Mineral Resources, p. 67-70.

Zimmerer, M.J., 2020, Gila Cliff Dwellings National Monument in *The Geology of Southern New Mexico's Parks, Monuments, and Public Lands* eds. Scholle, P.A., Ulmer-Scholle, D.S., Cather, S.M., and Kelley, S.A., New Mexico Bureau of Geology and Mineral Resources, p. 55-60.

Zimmerer, M.J., 2020, The Gila Wilderness in *The Geology of Southern New Mexico's Parks, Monuments, and Public Land* eds. Scholle, P.A., Ulmer-Scholle, D.S., Cather, S.M., and Kelley, S.A., New Mexico Bureau of Geology and Mineral Resources, p. 61-66.

Zimmerer, M.J., 2020, The Mogollon-Datil volcanic field in *The Geology of Southern New Mexico's Parks, Monuments, and Public Lands* eds. Scholle, P.A., Ulmer-Scholle, D.S., Cather, S.M., and Kelley, S.A., New Mexico Bureau of Geology and Mineral Resources, p. 47-53.

Zimmerer, M.J., 2020, Organ Mountains—Desert Peaks National Monument in *The Geology of Southern New Mexico's Parks, Monuments, and Public Lands* eds. Scholle, P.A., Ulmer-Scholle, D.S., Cather, S.M., and Kelley, S.A., New Mexico Bureau of Geology and Mineral Resources, p. 259-267.

- Zimmerer, M.J., 2020, Quemado Lake Recreational Area in *The Geology of Southern New Mexico's Parks, Monuments, and Public Lands* eds. Scholle, P.A., Ulmer-Scholle, D.S., Cather, S.M., and Kelley, S.A., New Mexico Bureau of Geology and Mineral Resources, p. 25-29.
- Dunbar, N., Lucas, S., Zimmerer, M., and Jochems, A., 2019, Organ Mountains-Desert Peaks and Prehistoric Trackways National Monuments: Lite Geology, v. 44, p. 3-5.
- Ramos, F.C., Zimmerer, M.J., and Zeigler, K., 2019, Mid-Tertiary alkalic igneous activity in northeastern New Mexico — the Eagle Rock dike: third-day road log from Capulin, US-64/NM-325 intersection, to the I-25 intersection of the Eagle Rock dike in *Geology of the Raton-Clayton area* eds. Ramos, F.C., Zimmerer, M.J., Zeigler, K.E., and Ulmer-Scholle, D.S.: New Mexico Geological Society 70th Annual Fall Field Conference 168 p.
- Zeigler, K.E., Zimmerer, M.J., and Ramos, F.C., 2019, Geology of the Dry Cimarron Valley: Second-day road log from Clayton to Folsom and through the Dry Cimarron Valley in *Geology of the Raton-Clayton area* eds. Ramos, F.C., Zimmerer, M.J., Zeigler, K.E., and Ulmer-Scholle, D.S.: New Mexico Geological Society 70th Annual Fall Field Conference 168 p.
- Zimmerer, M.J., Ramos, F.C., and Zeigler, K., 2019, Geology of the Raton-Clayton Area: First day road log from Clayton to Johnson Mesa via Capulin National Monument in *Geology of the Raton-Clayton area* eds. Ramos, F.C., Zimmerer, M.J., Zeigler, K.E., and Ulmer-Scholle, D.S.: New Mexico Geological Society 70th Annual Fall Field Conference 168 p.
- Zimmerer, M., 2018, Drones for the Geosciences: A New Eye in the Sky: New Mexico Earth Matters, v. 18, no. 1, p. 1-5.
- Zimmerer, M., 2018, Rio Grande del Norte National Monument: Where volcanoes and rivers collide!: Lite Geology, v. 43, p. 6-7.
- Lipman, P.W., Zimmerer, M.J., and McIntosh, W.C., 2017, IAVCEI RGR-SRMVF Day 6: Bonanza Caldera in Continental arc to rift volcanism of the Southern Rocky Mountains – Southern Rocky Mountain, Taos Plateau and Jemez volcanic fields of southern Colorado and northern New Mexico, USA: IAVCEI 2017 Pre-meeting Field Trip.
- Lueth, V., Heizler, L., Zimmerer, M., and McNamara, K., 2017, Geo-ski-ology: A photo Gallery: Lite Geology, v. 41, p. 6-11.
- Zimmerer, M.J., Gonzales, D.A., and Karlstrom, K.E., 2017, Day 2 road log from Ouray to South of Animas Forks via Silverton: Geology along the million dollar highway and of the western San Juan Calderas in *The Geology of the Ouray-Silverton Area* eds. Karlstrom, K.E., Gonzales, D.A., Zimmerer, M.J., Heizler, M., and Ulmer-Scholle, D.S.: New Mexico Geological Society 68th Annual Fall Field Conference 219 p.
- Zimmerer, M.J., 2017, Cold Geology: Lite Geology, v. 41, p. 2-4.

Welch, S., McNamara, K., and Zimmerer, M., 2016, Class Room Activity: Exploring Intrusive Dikes Using a Gelatin Model: *Lite Geology*, v. 40, p. 15.

Zimmerer, M.J., 2016, Igneous Dikes of New Mexico: *Lite Geology*, v. 40, p. 3-4.

Zimmerer, M.J., 2016, Mud-amorphosis: The metamorphic journey of mud: *Lite Geology*, v. 39, p. 4.

Zimmerer, M.J., 2015, The volcano-dating game: *Lite Geology*, v. 38, p. 3.

Lipman, P.W., McIntosh, W.C., and Zimmerer, M.J., 2013, From ignimbrite to batholith, northeastern San Juan Mountains, Colorado: Bonanza, Cochetopa Park, and North Pass calderas: *The Geological Society of America Field Guide*, v. 33, p. 1-32.

Garcia, L., Petronis, M., Koning, D., Zimmerer, M., Dunbar, N., 2011, Structural, anisotropy of magnetic susceptibility, geochemistry, and paleomagnetic investigations of a steeply dipping, welded tuff (Amalia Tuff) south of Peteca, New Mexico: *New Mexico Geological Society Guidebook*, v. 62, p. 105-109.

Zimmerer, M.J., and McIntosh, W.C., 2011, $^{40}\text{Ar}/^{39}\text{Ar}$ dating, sanidine chemistry, and potential sources of the Las Tablas tuff, northern New Mexico: *New Mexico Geological Society Guidebook*, v. 62, p. 215-222.

McIntosh, W.C., Koning, D.J., and Zimmerer, M.J., 2011, Irregular bodies of non-welded Amalia Tuff with the Pena Tank rhyolite, western San Luis Basin, north-central NM: *New Mexico Geological Society Guidebook*, v. 62, p. 223-234.

Wilcock, J., Longpre, M., de Moor, M., Ross, J., and Zimmerer, M., 2010, Calderas bottom-to-top: an online seminar and field trip: *Eos (Transaction, American Geophysical Union)*, v. 91, p. 1-2.

McLemore, V.T, and Zimmerer, M.J., 2009, Magmatic activity and mineralization along the Capitan, Santa Rita, and Morenci Lineaments in the Chupadera Mesa area, central New Mexico: *New Mexico Geological Society Guidebook*, v. 60, p 375-386.

ABSTRACTS PRESENTED AT MEETINGS (in reverse chronologic order):

Koning, D.J., Martin, L., Zimmerer, M., Mamer, E., Doherty, A., and Sturgis, L., 2023, Hydrostratigraphic framework and assessments of permeability and TDS for the Santa Fe Group aquifer in the northwestern Albuquerque basin, Rio Grande rift, NM, p. 56-57, <https://doi.org/10.56577/SM-2023.2879>.

Zimmerer, M.J., Lipman, P.W., and Meszaros, N.F., 2023, The calm before the volcanic storm: New Mexico Geologic Society Spring Meeting, p. 108, <https://doi.org/10.56577/SM-2023.2937>.

- Burrill, C., Zimmerer, M., Waters, L., Dunbar, N., and McIntosh, W., 2023, The Tempo of volcanism at ultrahigh precision: International Association of Volcanology and Chemistry of Earth's Interior, Scientific Assembly, January 30-February 3 2023, Rotorua, New Zealand, abstract no. 205
- Cantrell, T., Heizler, M., Ross, J., Zimmerer, M., Lipman, P., and McIntosh, W., 2023, The Tempo of volcanism at ultrahigh precision: International Association of Volcanology and Chemistry of Earth's Interior, Scientific Assembly, January 30-February 3 2023, Rotorua, New Zealand, abstract no. 1051.
- Iverson, N., Dunbar, N.W., Kurbatov, A.V., McIntosh, W.C., Zimmerer, M.J., and Kyle, P.R., 2023, The Tempo of volcanism at ultrahigh precision: International Association of Volcanology and Chemistry of Earth's Interior, Scientific Assembly, January 30-February 3 2023, Rotorua, New Zealand, abstract no. 1428.
- Cantrell, T., Heizler, M., Ross, J., McIntosh, W., and Zimmerer, M., 2022, Dispersion happens: Evaluating the ubiquitous scatter in ultra-precise $^{40}\text{Ar}/^{39}\text{Ar}$ sanidine distributions: Geological Society of America Abstracts with Programs, v. 54, no. 5, doi: 10.1130/abs/2022AM-383054.
- Evans, C., Tewksbury, B., Helper, M., Graff, T., Young, K., Bleacher, J., Edgar, L., Zimmerer, and M., Palucis, M., 2022, Preparing for lunar exploration: Geology and field training for Astronauts: Geological Society of America Abstracts with Programs, v. 54, no. 5, doi: 10.1130/abs/2022AM-378331
- Gehrz, J., Heizler, M., Karlstrom, K., Zimmerer, M., and Hobbs, K., 2022, $^{40}\text{Ar}/^{39}\text{Ar}$ detrital sanidine and basalt geochronology constraints for the birth and evolution of the Rio Grande river: Geological Society of America Abstracts with Programs, v. 54, no. 5, doi:10.1130/abs/2022AM-383531
- Lipman, P., and Zimmerer, M.J., 2022, Long lifespans of ignimbrite-caldera magmatic systems: Examples from the Southern Rocky Mountain volcanic field, CO-NM: Geological Society of America Abstracts with Programs, v. 54, no. 5, doi: 10.1130/abs/2022AM-377328
- McLemore, V.T., Owen, E., Kelley, S.K., Zimmerer, M., Haft, E. and Gysi, A., 2022, Structural and chemical controls of REE mineral deposits in the Gallinas Mountains (Gallinas District), Lincoln County, New Mexico, USA; in Christie, A.B. (ed.), Proceedings of the 16th SGA Biennial Meeting, 28-31 March 2022: p. 235-238.
- McLemore, V.T., Kelley, S.K., Zimmerer, M., Owen, E., Cherotich, S., and Haft, E., 2022, Controls of REE mineral deposits in the Gallinas Mountains (Gallinas District), central New Mexico, USA: Geological Society of America Abstracts with Programs, v. 54, no. 5, doi: 10.1130/abs/2022AM-378965
- Meszaros, N., Zimmerer, M., and Gardner, J., submitted to GSA 2022, Increased eruption tempo following a long eruption hiatus prior to the Tshirege caldera-forming eruption in the Jemez

Magmatic system, New Mexico, USA: Geological Society of America Abstracts with Programs, v. 54, no. 5, doi: 10.1130/abs/2022AM-383092

Powell, E.M., Ackert, R., Zimmerer, M., Latychev, K., Mitrovica, J.X., Austermann, J., and Davis, J., 2022, Antarctic Ice Sheet and solid Earth interactions: Implications for mantle viscosity inferences and West Antarctic volcanism: Geological Society of America Abstracts with Programs, v. 54, no. 5, doi: 10.1130/abs/2022AM-383552

Goff, F., Zimmerer, M., Krier, D., Goff, C.J. Shackley, S., Gehrz, J., and Niklasson, 2021, Detailed investigations of Rendija Canyon rhyodacite, a complicated volcanic complex in the Sierra de los Valles, Jemez Mountains volcanic field, New Mexico, presented at the New Mexico Annual Spring Meeting, online, April 15-16th 2021.

Iverson, N., Siddoway, C., Zimmerer, M., Smellie, J., Dunbar, N., and Gohl, K. and the IODP Expedition 379 Scientists: Rhyolite volcanism in the Marie Byrd Land volcanic province, Antarctica: New evidence for pyroclastic eruptions during latest Pliocene icesheet expansion, EGU General Assembly 2021, online, 19–30 Apr 2021, EGU21-9003, <https://doi.org/10.5194/egusphere-egu21-9003>, 2021.

Iverson, N., Siddoway, C., Zimmerer, M., Smellie, J., IODP Expedition 379 Scientists., 2020, Geochemical characterization and geochronology of distinctive rhyolite tephra and other sparse volcanogenic material in IODP379, deep-sea cores, Resolution Drift, northern Amundsen Sea: Abstract presented at the 2020 Scientific Committee on Antarctic Research (SCAR) online meeting, August 3-7.

McLemore, V.T., Kelley, S., Zimmerer, M., Owen, E., Gysi, A., Haft, A., and Dietz, H., 2021, Geology and mineral deposits of the Gallinas Mountains, Lincoln and Torrance Counties, New Mexico: 2021 SEG 100 Conference, Whistler Canada, September 14-17.

Heizler, M.T., Karlstrom, K.E., Aslan, A., Zimmerer, M., Ross, J., Crow, R., and Crossey, L.J., 2019, Detrital sanidine geochronology: linking volcanic sources to sedimentary sinks with high age precision, compositional fingerprints and improved maximum deposition ages: Geological Society of America Abstracts with Programs, v. 51, no. 4., ISSN 0016-7592.

Koning, D.J., Jochems, A.P., Zimmerer, M.J., Kelley, S.A., and Gavel, M.M., 2019, Neogene-Quaternary evolution and decreases in throw rates on major faults in the northern Palomas basin and its structural boundary with Engle basin, Southern Rio Grande rift, NM: Geological Society of America Abstracts with Programs, v. 51, no. 4., ISSN 0016-7592

Meszaros, N.F., Nasholds, M.W.M., Zimmerer, M.J., and Gardner J.E., 2019, Changing volatile contents just prior to Super-eruptions: Evidence from the Upper Bandelier Tuff, Valles Caldera, New Mexico: Abstract V51H-0133, presented at 2019 Fall Meeting, AGU, San Francisco, California, 9-13 December.

Nasholds, M., and Zimmerer, M.J., 2019, ⁴⁰Ar/³⁹Ar geochronology provides new insights into eruptive durations of post-caldera lava domes at the Valles Caldera, New Mexico,

USA: Geological Society of America Abstracts with Programs, v. 51, no. 4., ISSN 0016-7592.

Nasholds, M.W.M., Zimmerer, M.J., and Meszaros, N.F., 2019, Resolving resurgence: A reassessment of resurgence timescales using high-precision $^{40}\text{Ar}/^{39}\text{Ar}$ geochronology at the Valles caldera, northern New Mexico, USA: Abstract V51H-0134, presented at 2019 Fall Meeting, AGU, San Francisco, California, 9-13 December.

Graff, T.G., Evans, C.A., Bleacher, J.E., Young, K.E., Helper, M.A., Tewksbury, B.J., Hurtado Jr., J.M., Edgar, L.A., Thompson, R.A., Stefanov, W.L., Osinski, G.R., Regberg, A.B., Zeigler, R.A., Bauer, P.W., Wilkinson, M.J., Zimmerer, M.J., Timmons, M., and Read, A., 2019, Earth and planetary science training for NASA's newest astronauts: 2018 Training and 2019 Planning: 50th Lunar and Planetary Science Conference 2019, PLI Contrib. No. 2132.

Zimmerer, M.J., Burrill, C., Iverson, N., Ackert Jr., Dunbar, N.W., McIntosh, W.C., and Campbell, S., 2019, (INVITED) The eruptive timescales of Mt. Waesche: Toward assessing West Antarctica Ice Sheet elevations during the last interglacial period: 4th Interdisciplinary Antarctic Earth Sciences Conference, Julian, California, 13-15 October.

Cadol, D., Newton, T., Duval, B., and Zimmerer, M., 2018, Effects of wildfire, regrowth, and Diorhabda defoliation of tamarisk on riverine forest evapotranspiration. Poster presentation at WRII.

Cadol, D.D., Duval, B., Newton, B.T., Stark, K., and Zimmerer, M.J., 2018, Interactions among wildfire, water table elevation, and Diorhabda, (Tamarisk Beetle) Influence Riverine Forest Regrowth and Evapotranspiration Recovery: American Geophysical Union, H21F-08.

Evans, C.A., plus 17 co-authors including Zimmerer, 2018, Field camp for Astronauts: NASA's geoscience training program for planetary exploration: American Geophysical Union, 31H-3798.

Zimmerer, M.J., and Ramos, F.C., 2018, Insights into postcaldera magmatism and related hazards using volcanic and plutonic records: NMGS Annual Spring Meeting Program with abstracts, p. 83.

Zimmerer, M.J., and Ross, J.I., 2018, Using drones to understand fluvial systems: Lessons learned from a year of flying along the Rio Grande: Geological Society of America Abstracts with Programs. Vol. 50, No. 6, p. 155-5.

Heizler, M.T., Karlstrom, K., Zimmerer, M., Ross, J., Crossey, L., and McIntosh, W., 2017, Detrital Sanidine $^{40}\text{Ar}/^{39}\text{Ar}$ Dating, Transforming Sedimentary Rock Geochronology: NMGS Spring Meeting Abstracts, p. 35.

Lipman, P., and Zimmerer, M., 2017, Magmato-Tectonic Links: Ignimbrite Calderas, Regional Dike Swarms, and the Transition from Arc to Rift in the Southern Rocky Mountains: IAVCEI 2017 Scientific Assembly, Submission 76.

- Pinkerton, S., Ramos, F.C., and Zimmerer, M., 2017, The Raton-Clayton Volcanic Field: Evaluating Open-System processes in Magmas Derived Beneath the Great Plains: NMGS Spring Meeting Abstracts, p. 58.
- Sliwinski, J., Bachmann, O., Guillong, M., Zimmerer, M., and Lipman, P., 2017, Geochemical and geochronological comparison of cogenetic crystal-rich dacites and crystal-poor rhyolites in the Southern Rocky Mountain Volcanic Field, CO: IAVCEI 2017 Scientific Assembly, Submission 772.
- Zimmerer, M., Heizler, M., and McIntosh, 2017, An age-based assessment of volcanic hazards within the Rio Grande rift and along the Jemez Lineament, New Mexico, U.S.A: IAVCEI 2017 Scientific Assembly, Submission 1220.
- Zimmerer, M.J., and Ross, J.I., 2017, Turning Toys into Tools: Unmanned Aircrafts for the 21st Century Geoscientist: NMGS Spring Meeting Abstracts, p. 77.
- Chan, C.F., Thompson, R.A., Zimmerer, M.J., Premo, W.R., and Sroba, R.R., 2016, Insight into small-volume volcanic fields in central Rio Grande rift-Albuquerque Volcanoes, New Mexico: Geological Society of America Abstracts with Programs, v. 48, no. 7, paper no. 173-4.
- Johnson, S.P., Geissman, J.W., Zimmerer, M.J., and Lipman, P.W., 2016, Evaluation of magma flow and emplacement mechanisms of the mafic Ducle-Platoro dike swarm, NW New Mexico and SW Colorado using magnetic susceptibility fabrics: Geological Society of America Abstracts with Programs, v. 48, no. 7, paper no. 347-26.
- Lipman, P.W., and Zimmerer, M.J., 2016, Magmato-tectonic links: Ignimbrite calderas, regional dike swarms, and the transition from arc to rift in the southern Rocky Mountains (invited presentation): Geological Society of America Abstracts with Programs, v. 48, no. 7, paper no. 54-9.
- Zimmerer, M., Lafferty, J., and Ramos, F., 2016, Volcanic hazards at the southwest's supervolcano: Ongoing efforts to temporally dissect the eruptive and magmatic history of the Valles caldera: New Mexico Geological Society Spring Meeting.
- Lafferty, J.N., and Zimmerer, M.J., 2015, U/Th and ⁴⁰Ar/³⁹Ar dating provides eruptions ages and magmatic evolution for the East Fork Member of the Valles Rhyolite: 2015 New Mexico Geological Society Annual Spring Meeting, p. 30.
- Sliwinski, J., Zimmerer, M., Guillong, M., Bachmann, O., and Lipman, P., 2015, Zircon U-Pb age distributions in cogenetic crystal-rich dacitic and crystal-poor rhyolitic members of zoned ignimbrites in the Southern Rocky Mountains by chemical abrasion inductively-coupled-plasma mass spectrometry (CA-LA-ICP-MS): 2015 AGU Fall Meeting, V51G-3114.

- Zimmerer, M.J., 2015, Vent migration patterns of late Quaternary basaltic volcanism within the Rio Grande rift and along the Jemez Lineament: 2015 New Mexico Geological Society Annual Spring Meeting, p. 68.
- Zimmerer, M.J., McIntosh, W.C., Heizler, M.T., and Lafferty, J., 2014, Using high-precision $^{40}\text{Ar}/^{39}\text{Ar}$ geochronology to understand volcanic hazards within the Rio Grande rift and along the Jemez Lineament, NM: Eos Transactions, American Geophysical Union, V51A-4729.
- Zimmerer, M.J., McIntosh, W.C., Heizler, M.T., Dunbar, N.W., and Lafferty, J., 2014, A high-precision $^{40}\text{Ar}/^{39}\text{Ar}$ chronology of volcanism in the Raton-Clayton volcanic field: New Mexico Geological Society Spring Meeting with abstracts.
- Zimmerer, M.J., and McIntosh, W.C., 2012, Tracking the waning stages of caldera magmatism using exposed subcaldera plutons: Eos Transactions, American Geophysical Union, V31C-2809.
- Zimmerer, M.J., and McIntosh, W.C. 2012, Postcaldera magmatism at three Rio-Grande- rifted calderas: Implications for assessing volcanic hazards at active caldera systems in the USA: Volcanism in the American Southwest USGS Meeting, 34p.
- Lipman, P.W., McIntosh, W.C., and Zimmerer, M.J., 2012, Bonanza, an “extreme” resurgent ignimbrite caldera cycle in the San Juan Mountains, Colorado: Eos Transactions, American Geophysical Union, V31B-2772.
- Zimmerer, M.J., and McIntosh, W.C., 2011, There’s more than one way to build a caldera magma chamber: Evidence from volcanic-plutonic relationships at three faulted Rio-Grande-rift calderas: Eos (Transactions, American Geophysical Union).
- Zimmerer, M.J., and McIntosh, W.C., 2011, The eruptive history and evidence for protracted pluton emplacement associated with the Organ Caldera, south-central New Mexico: New Mexico Geology, v. 33, p. 50-51.
- Lipman, P.W., McIntosh, W.C., and Zimmerer, M.J., 2010, Brief lifespans and rapid recurrence of large ignimbrite-caldera cycles (super-eruptions) in the mid-Tertiary Southern Rocky Mountain volcanic field, Colorado-New Mexico: Eos Transactions, American Geophysical Union, V24A-04.
- Zimmerer, M.J., Mills, R.D., Coleman, D.S., McIntosh, W.C., and Hughes, S., 2010, Using the intrusive record to understand caldera magmatism: the geochronology and geochemistry of the Mt. Aetna caldera complex, central Colorado: Abstracts with Programs Geological Society of America, v. 42, p. 655.
- Mills, R.D., Zimmerer, M.J., Coleman, D.S., McIntosh, W., Samperton, K.M., and Tynpel, J.F., 2010, High-precision geochronology of ignimbrites and associated plutons of two

- caldera systems in central Colorado and northern New Mexico: Geological Society of America Abstracts with Programs, v. 42, pp. 618.
- Tappa, M.J., Coleman, D.S., and Zimmerer, M.J., 2009, Testing competing caldera models using U/Pb geochronology and trace-element modeling in the Questa caldera, New Mexico: Eos Transactions, American Geophysical Union, v. 90, n. 52.
- Zimmerer, M.J., McLemore, V.T., and McIntosh, W.C., 2009, Ages of plutons in southwestern New Mexico and their relationship to caldera formation and mineralization: New Mexico Geology, v. 31, p. 43.
- Zimmerer, M.J., and McIntosh, W.C., 2009, An $^{40}\text{Ar}/^{39}\text{Ar}$ geochronology and thermochronology study of caldera volcanism and related plutonic processes, Questa caldera, northern New Mexico: New Mexico Geology, v. 31, p. 49.
- McLemore, V.T., Zimmerer, M.J., McIntosh, W.C., and Heizler, M.T., 2009, Laramide volcanism, plutonism, and porphyry copper deposits in southwestern New Mexico: New Mexico Geology, v. 31, pp. 42.
- Wilch, T.I., McIntosh, W.C., Panter, K.S., Dunbar, N.W., Smellie, J.L., Fargo, A., Scanlan, M., Zimmerer, M.J., Ross, J., and Bosket, M.E., 2008, Volcanic and glacial geology of the Miocene Minna Bluff volcanic complex, Antarctica: Eos (Transactions, American Geophysical Union), v. 89, p. 1-2.
- Zimmerer, M.J., McIntosh, W.C., and Dunbar, N.W., 2007, The $^{40}\text{Ar}/^{39}\text{Ar}$ geochronology and thermochronology of the Latir volcanic field, New Mexico: implications for silicic caldera volcanism: New Mexico Geology, v. 29, p. 57.
- Hower, J.C., Mastalerz, M., Drobniak, A., Zimmerer, M.J., Eble, C.F., 2004, The environmental impact of trace element contents of western Kentucky and Indiana coals: Geological Society of America Abstracts with Programs, v. 36, pp. 215.