

Yiming Zhang
Curriculum Vitae

Institute for Rock Magnetism
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ACADEMIC APPOINTMENT

Postdoctoral Associate, Institute for Rock Magnetism, University of Minnesota, Twin Cities Sep 2024-

Postdoctoral Scholar, Earth and Planetary Science, University of California, Berkeley May-Sep 2024

EDUCATION

Ph.D., Earth and Planetary Science, University of California, Berkeley 2024

B.A., cum laude., Geology, Occidental College 2019

PUBLICATIONS

(* indicates mentored student)

Fuentes, A.J., Courtney-Davies, Liam., Flowers, R.M., **Zhang, Y.**, and Swanson-Hysell, N.L., (Submitted), Hematite crystallization within Paleoproterozoic iron formation during Neoproterozoic to Paleozoic tectonic quiescence. To be submitted to: PNAS.

Kahn, L.X.*, **Zhang, Y.**, Finnegan, Seth., Hodgins, E.B., Swanson-Hysell, N.L., (planned Oct 2024 submission), The stratigraphic record of the arrival of the Sacramento and San Joaquin Rivers to the California coast. To be submitted to: Journal of Sedimentary Research.

Zhang, Y., Anderson, N.S.*, Mohr, M.T., Nelson, L.L., Macdonald, F.A., Schmitz, M.D., Thurston, O.G., Guenther, W.R., Karlstrom, K.E., and Swanson-Hysell, N.L., (2024), Paleomagnetism of the southwest Laurentia large igneous province and Cardenas Basalt: pulsed magmatism during rapid late Mesoproterozoic plate motion, JGR Solid Earth. <https://doi.org/10.1029/2024JB029036>

Hodgins, E.B., Swanson-Hysell, N.L., Kylander-Clark, A.R.C., Turner, A.C., Stolper, D.A., Ibarra, D.E., Schmitz, M.D., **Zhang, Y.**, Fairchild, L.M., Fuentes, A.J., (2024), One billion years of stability in the North American Midcontinent following two-stage Grenvillian structural inversion, Tectonics. <https://doi.org/10.1029/2024TC008415>

Zhang, Y., Hodgins, E.B., Alemu, T., Pierce, J.*, Fuentes, A., and Swanson-Hysell, N.L., (2024), Tracking Rodinia into the Neoproterozoic: new paleomagnetic constraints from the Jacobsville Formation, Tectonics. <https://doi.org/10.1029/2023TC007866>

Mohr, M.T., Schmitz, M.D., Swanson-Hysell, N.L., Karlstrom, K.E., Macdonald, F.A., Holland, M.E., **Zhang, Y.**, Anderson, N.S.*, (2024), High-Precision U-Pb geochronology links magmatism in the SW Laurentia Large Igneous Province and Midcontinent Rift. Geology. <https://doi.org/10.1130/G51786.1>

Sapienza, F., Gallo, L.S., **Zhang, Y.**, Vaes, Bram., Domeier, Mathew., Swanson-Hysell, N.L., (2023), Quantitative Analysis of Paleomagnetic Sampling Strategies. *JGR Solid Earth*. <https://doi.org/10.1029/2023jb027211>

Gallo, L. C., Domeier, M., Sapienza, F., Swanson-Hysell, N. L., Vaes, B., **Zhang, Y.**, Arnould, M., Eyster, A., Guñer, D., Király, A., Robert, B., Rolf, T., Shephard, G., and van der Boon, A., (2023), Embracing uncertainty to resolve polar wander: a case study of Cenozoic North America, *Geophysical Research Letters*. <https://doi.org/10.1029/2023GL103436>

Slotznick, S.P., Swanson-Hysell, N.L., **Zhang, Y.**, Clayton, K.E., Wellman, C.H., Tosca, N.J., and Strother, P.K., (2023), Reconstructing the paleoenvironment of an oxygenated Mesoproterozoic shoreline and its record of life, *GSA Bulletin*. <https://doi.org/10.1130/B36634.1>

Pierce, J.*, **Zhang, Y.**, Hodgin, E.B., and Swanson-Hysell, N.L., (2022), Quantifying inclination shallowing and representing flattening uncertainty in sedimentary paleomagnetic poles, *Geochemistry, Geophysics, Geosystems*. <https://doi.org/10.1029/2022GC010682>

Rose, I., **Zhang, Y.**, and Swanson-Hysell, N.L., (2022) Bayesian paleomagnetic Euler pole inversion for paleogeographic reconstruction and analysis, *JGR: Solid Earth*. <https://doi.org/10.1029/2021jb023890>

Zhang, Y., Swanson-Hysell, N.L., Avery, M.S., Fu, R.R., (2022), High geomagnetic field intensity recorded by anorthosite xenoliths requires a strongly powered late Mesoproterozoic geodynamo. *PNAS*. <https://doi.org/10.1073/pnas.2202875119>

Hodgin, E.B., Swanson-Hysell, N.L., DeGraff, J.M., Kylander-Clark, A.R.C., Schmitz, M.D., Turner, A.C., **Zhang, Y.**, Stolper, D.A., (2022), Final inversion of the Midcontinent Rift during the Rigolet Phase of the Grenvillian Orogeny. *Geology*. <https://doi.org/10.1130/G49439.1>

Cromwell, G., **Zhang, Y.**, (2021), New paleointensity data from Aniakchak volcano, Alaska, USA. *Geochemistry, Geophysics, Geosystems*. <https://doi.org/10.1029/2021gc010032>

Zhang, Y., Swanson-Hysell, N.L., Schmitz, M.D., Miller Jr., J.D., and Avery, M.S., (2021), Synchronous emplacement of the anorthosite xenolith-bearing Beaver River diabase and one of the largest lava flows on Earth. *Geochemistry, Geophysics, Geosystems*. <https://doi.org/10.1029/2021GC009909>

Swanson-Hysell, N.L., Avery, M.S., **Zhang, Y.**, Hodgin, E.B., Sherwood, R.J., Apen, F.E., et al., (2021). The paleogeography of Laurentia in its early years: new constraints from the Paleoproterozoic East Central Minnesota batholith. *Tectonics*. <https://doi.org/10.1029/2021TC0067511>

Swanson-Hysell, N.L., Hoaglund, S.A., Crowley, J.L., Schmitz, M.D., **Zhang, Y.**, and Miller Jr., J.D., (2020), Rapid emplacement of massive Duluth Complex intrusions within the Midcontinent Rift. *Geology*. <https://doi.org/10.1130/g47873.1>

Zhang, Y., Pairing paleointensity results with coercivity spectra: providing support for selection criteria. *IRM Quarterly*. Volume 30. Number 1.

TALKS

Hard Rock Lunch seminar, University of Minnesota Twin Cities
Reconstructing Neoproterozoic paleogeography with metamorphic rocks

October 2, 2024

UC Berkeley EPS exit seminar
Reconstructing late Proterozoic magmatism, geomagnetic field behavior, and paleogeography using tiny magnets in rocks

April 25, 2024

2023 AGU Fall Meeting <i>Constraining the position of Arabian-Nubian arc terranes in the lead-up to Snowball Earth glaciation: new constraints from Tonian dikes of Oman</i>	Dec 5 2023
Institute of Geology and Geophysics seminar, Chinese Academy of Science (<i>invited</i>) <i>New approaches to APWP synthesis and incorporating uncertainties in sedimentary records</i>	July 5 2023
2023 IRM conference (<i>invited</i>) <i>New approaches to apparent polar wander path development constrain the late Mesoproterozoic assembly of Rodinia</i>	June 5-June 8 2023
2023 MagIC workshop (<i>invited</i>) <i>New perspectives on Laurentia's Grenville Loop: tracking Rodinia across the Mesoproterozoic to Neoproterozoic boundary</i>	Feb 28-Mar 2 2023
2022 AGU Fall Meeting <i>Reconstructing the position of the supercontinent Rodinia in the early Neoproterozoic: new constraints from Laurentia's interior and the Grenville margin</i>	Dec 12-16 2022
Beijing Paleomagnetism and Geochronology Laboratory (<i>invited, online</i>) <i>High geomagnetic field intensity recorded by anorthosite xenoliths requires a strongly powered late Mesoproterozoic geodynamo</i>	Sep 28 2022
Young CEED 21 Frontiers in quantitative paleogeography (<i>invited, online</i>) <i>Bayesian_PEP_inversion: a Bayesian framework for integrating paleomagnetic and geochronologic data into apparent polar wander inversion</i>	Nov 14-20 2021
Grand Canyon Supergroup Field Forum (<i>invited</i>) <i>The rich paleomagnetic record of the Mesoproterozoic Midcontinent Rift and the Southwestern Laurentia LIP</i>	April 9-19 2021
Cloud Meeting on Paleomagnetism (<i>online</i>) <i>Intense magmatic activity and a strong geomagnetic field -a study on the anorthosite xenoliths hosted in the Mesoproterozoic Midcontinent Rift diabase</i>	1/29/2021
2020 AGU Conference (<i>online</i>) <i>Recovering Mesoproterozoic geomagnetic field intensity using anorthosite xenoliths hosted in Midcontinent Rift diabase</i>	12/15/2020
North Central GSA Conference, Duluth, MN (<i>online</i>) <i>The rich paleomagnetic records of Proterozoic Midcontinent Rift intrusives: an updated synthesis with a new pole from the Beaver River diabase</i>	05/18/2019
Institute for Rock Magnetism, University of Minnesota, Minneapolis, MN (<i>invited</i>) <i>Paleomagnetism and rock magnetism on the Beaver River diabase and anorthosite xenoliths therein</i>	01/09/2019

TEACHING

Teaching assistant for lab sessions at the IRM summer school	June 2024
Graduate student instructor (GSI) for EPS 101 Field Geology and Digital Mapping <i>Advisor: Matthew Gleeson</i>	Fall 2023

Reader for EPS 88 PyEarth: A Python Introduction to Earth Science <i>Advisor: Nicholas Swanson-Hysell</i>	Spring 2023
GSI for EPS 101 Field Geology and Digital Mapping <i>Advisor: Nicholas Swanson-Hysell</i>	Fall 2022
Reader for EPS 115 Stratigraphy and Earth History <i>Advisor: Eben Blake Hodgins</i>	Spring 2022
GSI for EPS 101 Field Geology and Digital Mapping <i>Advisor: Nicholas Swanson-Hysell</i>	Fall 2021
GSI for EPS 50 The Planet Earth <i>Advisor: Daniel Stolper</i>	Spring 2021
Participant in the Graduate Remote Instruction Innovation Fellows Program	Winter 2020
GSI for EPS 101 Field Geology and Digital Mapping <i>Advisor: Nicholas Swanson-Hysell</i>	Fall 2020
Completion of UC Berkeley GSI Conference training	Jan 2020
Completion of required Online Course: Professional Standards and Ethics for GSIs	Fall 2019
Completion of required Pedagogy Course EPS 375	Fall 2019

ORIGINAL GEOLOGICAL FIELD WORK

Sliderock Mountains, Montana [1 week] <i>Extending site-based apparent polar wander path for North America into the Mesozoic with paleomagnetic data from the intrusive rocks of the Sliderock Mountain Volcanics.</i>	2024
Oman [2 weeks] <i>Constraining the position of Arabian-Nubian arc terranes in the lead-up to Snowball Earth glaciation through Tonian dikes of Oman.</i>	2024
Grenville orogen [3 weeks] <i>Pairing paleomagnetic data and thermochronology records to reevaluate the exhumation history of rocks of the Grenvillian Orogeny and recalibrate the Grenville Loop.</i>	2022, 2023
Death Valley, California; Grand Canyon, Arizona [4 weeks] <i>Using paleomagnetism and geochronology to study the temporal and magnetic relationship between the ca. 1.1 Ga South-western Laurentia Large Igneous Province and the Midcontinent Rift.</i>	2021
Pikes Peak, Colorado [2 weeks] <i>Using paleomagnetism and geochronology to study the emplacement history of Pikes Peak batholith and its temporal and magnetic associations with the Midcontinent Rift 1.1 billion years ago.</i>	2020
Midcontinent Rift, Lake Superior Region [11 weeks] <i>Reconstructing the behavior of the Mesoproterozoic geomagnetic field, continental motion during supercontinent assembly and the nature of ancient environments through paleomagnetic studies of the intrusive rocks and sediments of the 1.1 billion-year-old Midcontinent Rift.</i>	2019, 2020, 2021

Central Highland, Iceland [3 weeks]	2019
<i>Qualitatively and quantitatively measure the erosion rate of rofabards soil erosion in Central highlands, Iceland</i>	

AWARDS AND FUNDING

AGU GPE Post-doc grant (\$755)	2024
<i>Enhancing site-based apparent polar wander paths with Bayesian stratigraphic age models</i>	
UC Berkeley graduate student conference travel grant (\$900)	2023
<i>2023 Geochronology Gordon Research Conference</i>	
UC Berkeley Earth and Planetary Science George C. Louderback Award	2023
2023 AGES3-Grad Geochronology Award (\$8,865)	2023
<i>Dating the Grenville Loop using U-Pb apatite thermochronology</i>	
2022 GSA Graduate Student Research Grant (\$1,749)	2022
<i>Paleomagnetism and thermochronology of the Adirondack Mountains, Grenville Province</i>	
UC Berkeley graduate student conference travel grant (\$900)	2022
<i>2022 AGU Fall Meeting oral presentation</i>	
Hearts to Humanity Eternal (H2H8) Programs (\$10,000)	2022
<i>H2H8 Association Graduate Research Grant to Advance Humanity through Science</i>	
U.S. Visiting Student Fellowships, Institute for Rock Magnetism	2019
<i>Paleomagnetism and rock magnetism study on Mesoproterozoic Beaver Bay Complex and anorthosite xenoliths therein (\$500)</i>	
ILSG Student Research Fund, Institute on Lake Superior Geology	2019
<i>To study the emplacement history of the Beaver River diabase and the anorthosite xenoliths therein using paleomagnetism (\$500)</i>	
Chevron-Xenel Gateway Fellowship, Berkeley International House (\$5,000)	2019
John Parke Young Student Grant, Occidental College	2019
<i>Using UAV Data for Monitoring Modern Rofabard Soil Erosion in Central Highlands, Iceland (\$3,500)</i>	
Independent research, Occidental College	2018
<i>Pseudo-Thellier Paleointensity Measurement on R-N Geomagnetic Polarity Reversal Recorded by Mafic Lava Flows, Anahola, Kauai (\$4,000)</i>	
Independent research, Henry Luce Foundation, Nanjing Univeristy	2017
<i>Mapping of Ambient Ozone Pollution in China and the Assessment of Its Health Impact on Socio-Economy (\$2,250)</i>	

SERVICE

Contributing developer to the open source PmagPy software project (<https://github.com/PmagPy/PmagPy>).

Contributing developer to the open source RockmagPy software project (<https://github.com/PmagPy/RockmagPy-notebooks>).

Reviewer for the following journals

Earth and Planetary Science Letters

Geochemistry, Geophysics, Geosystems

Science Bulletin

GEOLOGY

Nature Communications Earth & Environment

MEMBERSHIPS

American Geophysical Union (AGU)

Geological Society of America (GSA)