

JESSICA Z. MEJIA PH.D.

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EDUCATION

DOCTOR OF PHILOSOPHY in Geology	University of South Florida	2021
MASTER OF SCIENCE in Geophysics	University of Alaska Fairbanks	2016
BACHELOR OF SCIENCE in Physics & Mathematics	Texas A&M University, Commerce	2014

PROFESSIONAL EXPERIENCE

ASSISTANT PROFESSOR 2024–present
Department of Earth and Environmental Sciences, *Syracuse University*

POSTDOCTORAL RESEARCH FELLOW 2021–2024
Department of Geology, *University at Buffalo*

AWARDS

2023–2028 RCN: GOLD-EN: Virtual Ice Community Engagement, **\$500,000**
National Science Foundation RISE, Award # 2329416

PUBLICATIONS

12. **Mejia, J.**, Poinar, K., Meyer, C., Sommers, A., & Chu, W. (2024). Mechanisms for upstream migration of firn aquifer drainage: preliminary observations of Helheim Glacier, Greenland. *Journal of Glaciology*. *In Press*. doi:10.31223/X5QH6C
11. Sommers, A. N., Meyer, C. R., Poinar, K., **Mejia, J.**, Morlighem, M., Rajaram, H., Warburton, K., & Chu, W. (2024). Velocity of Greenland's Helheim Glacier controlled both by terminus effects and subglacial hydrology with distinct realms of influence. *Geophysical Research Letters*, 51(15), e2024GL109168 doi:10.1029/2024GL109168
10. Hageman, T., **Mejia, J.**, Duddu, R., & Martínez-Pañeda (2024). Ice viscosity governs hydraulic fracture that causes rapid drainage of supraglacial lakes. *The Cryosphere*, 18, 3991–4009 doi:10.5194/tc-18-3991-2024
9. Wever, N., Amory, C., Buizert, C., Buzzard, S., Case, E., Clerx, N., Culberg, R., Datta, R., Dey, R., Drews, R., Dunmire, D., Eayrs, C., Hansen, N., Humbert, A., Kaitheri, A., Keegan, K., Munneke, P., Lenaerts, J., Lhermitte, S., Mair, D., McDowell, I., **Mejia, J.**, Meyer, C.,... (2024). Firn on Ice Sheets. *Nature Reviews Earth & Environment*, 5(2), 79–99. doi:10.1038/s43017-023-00507-9
8. Trunz, C., Poinar, K., Andrews, L. C., Covington, M. D., **Mejia, J.**, Gulley, J., & Siegel, V. (2023). Observed and modeled moulin heads in the Pâkitsoq region of Greenland suggest subglacial channel network effects. (2023) *The Cryosphere*. 17(12), 5075–5094 doi:10.5194/tc-17-5075-2023
7. Sommers, A., Meyer, C., Morlighem, M., Rajaram, H., Poinar, K., Chu, W., & **Mejia, J.** (2022). Subglacial hydrology modeling predicts high winter water pressure and spatially variable transmissivity at Helheim Glacier, Greenland. *Journal of Glaciology*. 1–13. doi:10.1017/jog.2023.39

6. **Mejia, J.**, Gulley, J., Trunz, C., Covington, M., Bartholomaus, T., Breithaupt, C., Xie, S., & Dixon, T. (2022). Moulin density controls the timing of peak pressurization within the Greenland Ice Sheet's subglacial drainage system. *Geophysical Research Letters*, *49*, doi:10.1029/2022GL100058
5. Trunz, C., Covington, M. D., Poinar, K., Andrews, L. C., **Mejia, J.**, & Gulley, J. (2022). Modeling the Influence of Moulin Shape on Subglacial Hydrology. *Journal of Geophysical Research: Earth Surface*, *127*(8). doi:10.1029/2022jf006674
4. **Mejia, J.**, Gulley, J., Trunz, C., Covington, M., Bartholomaus, T., Xie, S., & Dixon, T. (2021). Isolated cavities dominate Greenland Ice Sheet dynamic response to lake drainage. *Geophysical Research Letters*, *48*, 1–11. doi:10.1029/2021GL094762 (pdf).
3. Breithaupt, C., Gulley, J., Moore, P., Fullmer, S., Kerans, C., & **Mejia, J.** (2021). Flank margin caves can connect to regionally extensive touching vug networks before burial: implications for cave formation and fluid flow. *Earth Surface Processes and Landforms*, 1–24. doi:10.1002/esp.5114
2. Covington, M. D., Gulley, J. D., Trunz, C., **Mejia, J.**, & Gadd, W. (2020). Moulin Volumes Regulate Subglacial Water Pressure on the Greenland Ice Sheet. *Geophysical Research Letters*, *47*(20), doi:10.1029/2020GL088901.
1. Aiken, C., **Zimmerman, J.**, Peng, Z., & Walter, J. (2015). Triggered Seismic Events along the Eastern Denali Fault in Northwest Canada Following the 2012 M_w 7.8 Haida Gwaii, 2013 M_w 7.5 Craig, and Two M_w >8.5 Teleseismic Earthquakes. *Bulletin of the Seismological Society of America*, *105*, 1053–1057. doi:10.1785/0120140156

PUBLICATIONS - in review

13. Trunz, C., **Mejia, J.**, Covington, M., Poinar, K., Andrews, L., Gulley, J., & Siegel, V. (2023). Greenland moulin lifespan: Field observations reveal short moulin life spans on the Pâkitsoq region in Greenland. *Journal of Glaciology*. *In Review*.

DATA & SOFTWARE PRODUCTS

- Mejia, J.** & Gulley, J. (2023). Supraglacial stream mapping and elevation determination for two mid-elevation catchments in the Paakitsoq region of the western Greenland Ice Sheet. *Arctic Data Center*.
- Mejia, J. Z.** (2022). DiurnalExtrema: A python package for the automatic extraction of diurnal extrema values from timeseries data (v.1.0.0). *Zenodo*. doi:10.5281/zenodo.6812156
- Mejia, J.**, Trunz, C., Gulley, J., & Covington, M. (2021). Surface meltwater production timeseries for Sermeq Avannarleq, western Greenland Ice Sheet from 2017–2018. *Arctic Data Center*. doi:10.18739/A2V97ZS6G.
- Trunz, C., **Mejia, J.**, Covington, M., Siegel, V., Conlon, B., & Gulley, J. (2021). Supraglacial stream discharge measurements from six catchments within the Pâkitsoq region of Sermeq Avannarleq, western Greenland Ice Sheet 2017–2018. *Arctic Data Center*. doi:10.18739/A2D21RK53.
- Breithaupt, C., Knoll, R., Gulley, J., & **Mejia, J.** (2021). Monitoring Line Hole Well Field, San Salvador Island, Bahamas, 2015–2017, *HydroShare*, doi:10.4211/hs.bb01ce1e21214f93b197d6855823af53
- Breithaupt, C. I., Knoll, R. A., Gulley, J. D., & **Mejia J. Z.** (2021). GRC Weather Station Data, San Salvador Island, Bahamas. *HydroShare*. doi:10.4211/hs.31b7c356119241e0a9b1f6f56a9cb44e

Knoll, R. A., Breithaupt, C. I., Gulley, J. D., & **Mejia, J. Z.** (2021). Pressure, Temperature, and Specific Conductivity Measurements from Lakes on San Salvador Island, Bahamas. *HydroShare*. doi:10.4211/hs.6d479a668f6c40a289d09e6c95ecf250

Mejia, J. Z., Trunz, C., Covington, M. D., Gulley, J. D., & Breithaupt, C. (2020). Moulin hydrological measurements from Sermeq Avannarleq, West Greenland Ice Sheet from 2017–2018. *Arctic Data Center*. doi:10.18739/A2M03XZ13.

Mejia, J. Z., Trunz, C., Covington, M. D., & Gulley, J. D. (2020). Meteorological data from two on-ice weather stations at 780 and 950 m.a.s.l. elevations in the ablation area of Sermeq Avannarleq, West Greenland from 2017–2018. *Arctic Data Center*. doi:10.18739/A2CF9J745.

Mejia, J. Z., Gulley, J. D., & Dixon, T. H. (2020). West Greenland Moulins 2017–2019 Sermeq Avannarleq, UNAVCO, GPS/GNSS Observations Data set. doi:10.7283/VT31-EK40

SELECTED CONFERENCE PROCEEDINGS & PRESENTATIONS

Mejia, J. (2023). Following the water on Helheim Glacier. Pegrum Lecture *Buffalo, NY*. **Invited**.

Mejia, J., Poinar, K., Meyer, C., & Chu, W. (2023). Integrating observations and modeling to investigate firn aquifer hydrology and its role in crevasse propagation on Helheim Glacier. AGU Fall Meeting, *San Francisco, CA*. **Invited**.

Mejia, J., Bassis, J., Stearns, L., & Miller, L. (2023). Virtual Ice Community Engagement (VICE) Squads: Building Inclusivity and Collaboration in Cryospheric Sciences. AGU Fall Meeting 2023.

Mejia, J., Goliber, S., & Bash, E. (2023). Developing a Code Incubator for the Cryospheric Sciences. AGU Fall Meeting, *San Francisco, CA*.

Mejia, J. & Poinar, K. (2022). Building *crevprop* an open source crevasse propagation model to investigate a firn-aquifer's ability to drive hydrofracture on Helheim Glacier. AGU Fall Meeting, *Chicago, IL*.

Mejia, J., Stearns, L., Bassis, J., Simkins, L., Lummus, M., Barnett, C., Shahin, M., Burton, J., Goliber, S., Duddu, R., Ultee, E., Trunz, C., & Stevens, N. (2022). CryoCommunity: On the need for strategic goals to guide EDI efforts across the polar sciences. AGU Fall Meeting, *Chicago, IL*. **Invited**.

Shafer, C., **Mejia, J.**, & Poinar, K. (2022) Seismoelectric exploration of a perennial firn aquifer at Helheim Glacier, Greenland. AGU Fall Meeting 2022, *Chicago, IL*.

Sommers, A., Meyer, C., Morlighem, M., Rajaram, H., Poinar, K., Chu, W., & **Mejia, J.** (2022). Winter Subglacial Hydrology Modeling: High Water Pressure and Spatially Variable Transmissivity. AGU Fall Meeting, *Chicago, IL*.

Mejia, J., Poinar, K., Meyer, C., Chu, W., Sommers, A., Young, T., Horlings, B. I., Shafer, C., & Clavette, R. (2022). Does water from firn aquifers reach the bed? The International Firn Workshop, June 2022.

Mejia, J. Z., Gulley, J. D., Trunz, C., Covington, M. D., Bartholomaeus, T., Breithaupt, C., Knoll, R., Siegel, V., Xie, S., & Dixon, T. (2021) Spatial and Temporal Lags in Meltwater Propagation Through the Greenland Ice Sheet Hydraulic System. AGU Fall Meeting, *New Orleans, LA*.

Mejia, J., Barnett, C., Bassis, J., Duddu, R., Goliber, S., Lummus, M., Shahin, M., Simkins, L., Stearns, L., Trunz, C., & Ultee, E. (2021) Best practices for building a more inclusive glaciology through <http://cryocommunity.org>. AGU Fall Meeting, *New Orleans, LA*. **Invited**.

- Trunz, C., **Mejia, J.**, Covington, M., Poinar, K., Andrews, L., Siegel, V., & Gulley, J. (2021). Field observations reveal short moulin lifespans on the Pakitsoq region of the Greenland Ice Sheet. AGU Fall Meeting, *New Orleans, LA*.
- Mejia, J. Z.**, Gulley, J. D., Trunz, C., Covington, M. D., Bartholomaus, T., Xie, S., & Dixon, T. (2020). Rapid Supraglacial Lake Drainages Dewater Isolated Cavities and Decrease Ice Velocity in Western Greenland. AGU Fall Meeting, *San Francisco, CA*.
- Trunz C., Poinar, K., Andrews, L. C., Covington, M. D., **Mejia, J. Z.**, Gulley, J. D., Siegel, V. S., & Breithaupt, C. (2020). Combined Modeled and Explored Moulin Shape Informs Subglacial Pressure Dynamics in Western Greenland, AGU Fall Meeting, *San Francisco, CA*.
- Bartholomaus, T., Trunz, C., **Mejia, J.**, Gulley, J., Covington, M., & Dixon, T. (2020). Persistent, stable, sub-flotation-pressure conduits beneath the inland Greenland Ice Sheet. AGU Fall Meeting.
- Mejia, J. Z.**, Gulley, J. D., Trunz, C., Xie, S., Breithaupt, C., Siegel, V. L., Knoll, R. A., Covington, M. D., & Dixon, T. H., (2019). Direct Observations of Supraglacial Stream Basin Breaching on the Western Greenland Ice Sheet During 2017 and 2018. AGU Fall Meeting.
- Trunz, C., Poinar, K., Covington, M., Andrews, L., **Mejia, J.**, Siegel, V., Gulley, J., & Breithaupt, C. (2019). Modeling the Impact of Evolving Moulin Shape on Subglacial Pressure and Conduit Evolution. AGU Fall Meeting.
- Mejia, J. Z.**, Gulley, J. D., Covington, M. D., Trunz, C., Breithaupt, C., Dixon, T. H., & Barnes, A. (2017). Down the Drain: Understanding how meltwater cascades through the GrIS hydrological system to impact ice velocity. AGU Fall Meeting.
- Covington, M. D., Trunz, C., Gulley, J. D., **Mejia, J. Z.**, & Breithaupt, C. (2017). Dynamics of subglacial conduits driven by diurnal meltwater pulses to moulins. AGU Fall Meeting, 2017, C22A-04.
- Mejia, J.**, & Larsen, C. (2015). A high-resolution GPS motion record of variations in the rate of glacial speed related to water inputs on Yaktse Glacier, south central Alaska 2009-2011. AGU Fall Meeting

TEACHING

Syracuse University

EAR 203 Earth Systems Science, S25

EAR 204 Introduction to Field Methods, S25

EAR 401/601 The Cryosphere: Snow, Ice, and Permafrost, F25

PROFESSIONAL SERVICE

University at Buffalo URGE Pod

2022–2023

MARS Glaciology URGE Pod

2021–2023

The International Firn Workshop, Coordinator

June 2022

Peer review: Nature Comms., Journal of Glaciology, The Cryosphere, JGR (*average 3 manuscripts/year*)

Referee, Proposals: NSF Office of Polar Programs (*average 2 proposals/year*)

Panel Member: NSF Office of Polar Programs (2022)

OUTREACH & COMMUNITY INVOLVEMENT

WiSE/CSTEP: Stages in Research Career Paths for Women in STEM <i>Invited Panelist</i>	November 2023
New Faculty Academy: Writing, Publishing, & Media Interactions <i>Invited Speaker</i>	February 2023
Polar Impact's "What makes a mentor?" <i>Invited Panelist</i>	September 2022
Core developer of CryoCommunity	2021–present
Spoonbill Career Panel Speaker	March 2021
Volunteer with Inspiring Girls Expeditions	2015–2019
Onsite Coordinator: Girls on Ice Alaska	Summer 2018
Geoscience Graduate Student Organization: Treasurer	2018–2020
Glaciology Consultant–National Geographic Documentary	

SELECTED PRESS

- Kowk, R. (2025). Minutiae: The Tiny Details That Scientists Pursue to Illuminate Big Questions. *Sourcebooks. Book chapter dedicated to Postdoctoral Research on Helheim Glacier*
- McCoy, B. (Producer). 2023, January 11. How Glaciers Move. (A. Scott, Interviewer; episode 823). *NPR Short Wave*. <https://www.npr.org/2023/01/09/1147828400/how-glaciers-move>
- Hsu, C. (2022). UB scientists spend five days on Helheim Glacier. [online] *UBNow Research News*. Available at: <https://www.buffalo.edu/ubnow/stories/2022/10/helheim-glacier-fieldwork.html>
- Mejia, J. (2020). "Calling: Earth #031 - Jessica Mejia, Glaciologist" *Calling: Earth*. 35. https://scholarcommons.usf.edu/geo_podcasts/35

PROFESSIONAL MEMBERSHIPS

American Geophysical Union
International Glaciological Society
International Association of Cryospheric Science
Seismological Society of America
American Association for the Advancement of Science
Association for Women Geoscientists

CERTIFICATIONS

NOLS Wilderness First Responder (Dec. 2018)
USF Scientific Diver
CPR
Emergency Oxygen Provider

HONORS

Fred L. & Helen M. Tharp Scholarship, 2020 (\$5,000) Texas A&M University, Dean's List, 2013
Fred L. & Helen M. Tharp Scholarship, 2019 (\$5,000) Texas A&M University, President's Scholars Award, 2012
SIGMA PI SIGMA (ΣΠΣ), Physics Honor Society, 2013 Richland College, Leadership Award, 2010