

Marissa M. Tremblay

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EDUCATION

University of California, Berkeley (UC Berkeley) Ph.D., Earth and Planetary Science (EPS) Advisor: David L. Shuster	2012–2017
Barnard College of Columbia University B.A. Environmental Science, <i>summa cum laude</i>	2008–2012

PROFESSIONAL APPOINTMENTS

Associate Professor, Purdue University Department of Earth, Atmospheric, and Planetary Sciences (EAPS)	2026–present
Affiliated Faculty, University of Wisconsin-Madison Department of Geoscience	2026–present
Faculty Guest Researcher, Los Alamos National Laboratory	2026–present
Assistant Professor, Purdue University Department of Earth, Atmospheric, and Planetary Sciences (EAPS)	2019–2026
Honorary Assistant Professor, University of Wisconsin-Madison Department of Geoscience	2022–2023
Postdoctoral Researcher & Newton International Fellow of the Royal Society Scottish Universities Environmental Research Centre (SUERC) Mentor: Darren Mark	2017–2019
University of California President's Postdoctoral Fellow University of California, Davis Mentor: Sujoy Mukhopadhyay	2017

HONORS AND AWARDS

Seeds for Success Acorn Award, Purdue Office of Research	2025
Undergraduate Mentoring Award, Purdue College of Science	2025
Antarctica Service Medal	2023
Sloan Research Fellowship, Alfred P. Sloan Foundation	2022
Marion Milligan Mason Award for Women in the Chemical Sciences, American Association for the Advancement of Science	2020
Doris M. Curtis Outstanding Woman in Science Award, Geological Society of America	2020
Citation for Excellence in Refereeing, American Geophysical Union	2018
Charles & Nancy Naeser Prize, Intl. Standing Committee on Thermochronology	2018
Marie Skłodowska-Curie Individual Fellowship (declined)	2018
The Royal Society Newton International Fellowship	2017
University of California President's Postdoctoral Fellowship	2017
Lamont-Doherty Earth Observatory Postdoctoral Fellowship (declined)	2017
Louderback Award, UC Berkeley EPS	2015
National Science Foundation Graduate Research Fellowship	2014
Outstanding Graduate Student Mentor, NERDS program, UC Berkeley	2013
Richards Family Graduate Fellowship, UC Berkeley	2012

Departmental Honors, Barnard College Environmental Science	2012
Distinction, Senior Thesis, Barnard College Environmental Science	2012
Phi Beta Kappa	2011
Barry M. Goldwater Scholarship	2011
National Oceanic and Atmospheric Administration Ernest F. Hollings Scholar	2010

PUBLICATIONS (^G = graduate student supervised; ^U = undergraduate student; ^P = postdoc)

Peer-reviewed

- Pickersgill, A.E., Christou, E., **Tremblay, M.M.**, Barfod, D.N., Rasmussen, C., Mark, D.F., Lee, M.R., Schmieder, M., Collins, G.S., Dymock, R., Gulick, S.P.S., Kring, D.A., Morgan, J.V., Osinski, G.R., Swindle, T., Tikoo, S., Wittmann, A., and the Expedition 364 Scientists, 2026, A long-lived impact-generated hydrothermal system at the Chicxulub impact structure. *Communications Earth & Environment*, v. 7(470). DOI: 10.1038/s43247-026-03618-5
- Weeks, C., Stanley, J.R., and **Tremblay, M.M.**, 2026, Post-Laramide Extension and Erosion in the Madison and Gallatin Ranges of Southwest Montana from Apatite (U-Th-Sm)/He Thermochronometry. *Lithosphere*, v. 2026(1). DOI: 10.2113/2026/lithosphere_2025_149
- Bristol, K.E., Sprain, C.J., Mittal, T., Monteiro, A., Duraiswami, R., **Tremblay, M.M.**, and Mijjium, M.^G, 2026, Geomagnetic Variability in a Post-Superchron Geodynamo: Insights from the Deccan Traps. *Journal of Geophysical Research: Solid Earth*, v. 131, e2025JB033124. DOI: 10.1029/2025JB033124
- Orellana-Salazar, Y., Marcott, S.A., **Tremblay, M.M.**, Romero, M.^G, Moreno-Yaeger, P., Mixon, E.M., Jones, A.G., and Barth, A.M., 2026, A ³He-based Holocene glacial chronology from Villarrica volcano, Chile. *Quaternary Science Reviews*, v. 372, 109707. DOI: 10.1016/j.quascirev.2025.109707
- Collops, C.L., van der Beek, P., Amalberti, J., Sobel, E., **Tremblay, M.M.**, and Bernard, M., 2025, Evaluating the resolving power of apatite ⁴He/³He thermochronology: Insights from the Fish Canyon Tuff. *Geology*. DOI: 10.1130/G53000.1
- Blevins, A.M., Minton, D.A., Huang, Y.H., Du, J., **Tremblay, M.M.**, and Fassett, C.I., 2025, Constraining the source craters of Apollo impact melts. *Journal of Geophysical Research: Planets*, v. 130(8), e2025JE009137. DOI: 10.1029/2025JE009137.
- Tremblay, M.M.**, Fayon, A.K., Guo, H.^P, Zeitler, P.K., and Idleman, B.D., 2025, Deformation modulates helium diffusion in apatite. *Geochemical Perspective Letters*, v. 35, p. 49-54. DOI: 10.7185/geochemlet.2523
- Mijjium, M.^G, and **Tremblay, M.M.**, 2025, Helium diffusion kinetics in enstatite, kamacite, and albite, with implications for the cosmic ray exposure ages of enstatite (E) chondrites. *ACS Earth and Space Chemistry*, v. 9(7), p. 1881-1892. DOI: 10.1021/acsearthspacechem.5c00112
- Guo, H.^P, **Tremblay, M.M.**, Zeitler, P.K., Idleman, B.D., and Fayon, A.K. 2025, Systematics of helium diffusion sinks in apatite demonstrated by ⁴He/³He degassing experiments and modeling. *Geochimica et Cosmochimica Acta*, v. 400, p. 115-128. DOI: 10.1016/j.gca.2025.05.036
- Blevins, A.M., Minton, D.A., Huang, Y.H., Du, J., **Tremblay, M.M.**, and Fassett, C.I., 2025, Apollo Impact Melts Record a Rapidly Declining Impact Rate in the Late Imbrian. *Journal of Geophysical Research: Planets*, v. 130, e2024JE008722. DOI: 10.1029/2024JE008722
- Mijjium, M.^G, Bristol, K.E., Bono, R.K., Sprain, C.J., Lifton, N., and **Tremblay, M.M.**, 2025, A model framework for scaling pre-Quaternary cosmogenic nuclide production rates. *Geochemistry, Geophysics, Geosystems*, v. 26, e2024GC012020. DOI: 10.1029/2024GC012020
- Mijjium, M.^G, Andrews, B., McCoy, T., Corrigan, C., Caffee, M.W., and **Tremblay, M. M.**, 2025, Using micro-computed tomography (μCT) to determine subsample-specific cosmogenic noble gas production rates of enstatite (E) chondrites. *Meteoritics and Planetary Science*, p. 1-22. DOI: 10.1111/maps.143091

- Tremblay, M.M.**, Mark, D.F., Barfod, D.N., Cohen, B.E., Ickert, R.B., Lee, M.R., Tomkinson, T., and Smith, C.L., 2024, Dating of recent aqueous activity on Mars. *Geochemical Perspective Letters*, v. 32, p. 58-62. DOI: 10.7185/geochemlet.2443
- Singer, B.S., Moreno-Yaeger, P., Townsend, M., Huber, C., Cuzzzone, J., Edwards, B.R., Romero, M.^G, Orellana-Salazar, Y., Marcott, S., Breunig, R., Ferrier, K., Scholz, K., Coonin, A.N., Alloway, B.V., **Tremblay, M.M.**, Stevens, S., Fustos-Toribio, I., Moreno, P.I., Vera, F., and Amigo, A., 2024, New perspectives on ice forcing in continental arc magma plumbing systems. *Journal of Volcanology and Geothermal Research*, v. 455, 108187. DOI: 10.1016/j.jvolgeores.2024.108187
- Fink, J.^G, **Tremblay, M.M.**, Tobin, T.S., Stockli, L.D., Stockli, D.F., and Ickert, R.B., 2024, Diagenesis of fossil gar fish scales with implications for geochronology and paleoenvironmental applications. *Geochimica et Cosmochimica Acta*, v. 372, p. 196-213. DOI: 10.1016/j.gca.2024.03.004
- Collops, C.L., van der Beek, P.A., Amalberti, J., Denker, A., **Tremblay, M.M.**, Hajdas, W., Bernard, M., Dittwald, A.H., and Bundesmann, J., 2024, Improving the accessibility and efficiency of proton irradiations for ⁴He/³He thermochronology. *Geochemistry, Geophysics, Geosystems*, v. 25(2), e2023GC011334. DOI: 10.1029/2023GC011334
- Guralnik, B., **Tremblay, M.M.**, Phillips, M., Sellwood, E.L., Gribenski, N., Presl, R., Haberkorn, A., Sohbaty, R., Shuster, D.L., Valla, P., Jain, M., Schindler, K., Hippe, K., and Wallinga, J., 2024, Three centuries of snowpack decline at an Alpine pass revealed by cosmogenic paleothermometry and luminescence photochronometry. *Geophysical Research Letters*, v. 51, e2023GL107385. DOI: 10.1029/2023GL107385
- Gribenski, N., **Tremblay, M.M.**, Valla, P.G., Guralnik, B., Balco, G., and Shuster, D.L., 2022, Cosmogenic ³He paleothermometry on post-LGM glacial bedrock within the central European Alps. *Geochronology*, v. 4, p. 641-663. DOI: 10.5194/gchron-4-641-2022.
- O'Brien, A.C., Hallis, L.J., Regnault, C., Morrison, D., Blackburn, G., Steele, A., Daly, L., Tait, A., **Tremblay, M.M.**, Telenko, D., Gunn, G., McKay, E., Maria, N., Salik, M.A., Ascough, P., Toney, J., Griffin, S., Whitfield, P., and Lee, M., 2022, Using Organic Contaminants to Constrain the Terrestrial Journey of the Martian Meteorite Lafayette. *Astrobiology*, v. 22(11), DOI: 10.1089/ast.2021.0180
- van Zalinge, M.E., Mark, D.F., Sparks, R.S.J., **Tremblay, M.M.**, Keller, C.B., Cooper, F.J., and Rust, A., 2022, Timescales for pluton growth, magma chamber formation and super-eruptions. *Nature*, v. 608, p. 87-92. DOI: 10.1038/s41586-022-04921-9
- Dai, J., Fox, M., Han, X., **Tremblay, M.M.**, Xu, S., Liu, B., Li, H., Shuster, D.L., and Wang, C., 2021, Two stages of accelerated exhumation in the middle reach of the Yarlung River, southern Tibet since the mid-Miocene. *Tectonics*, v. 40, e2020TC006618. DOI: 10.1029/2020TC006618
- Domingos, R., **Tremblay, M.M.**, Militzer, B., and Shuster, D.L., 2020, Simulations and experiments reveal effect of nanopores on helium diffusion in quartz. *ACS Earth and Space Chemistry*, v. 4(11), p. 1906-1912. DOI: 10.1021/acsearthspacechem.0c00187
- Carter, J.N.^G, Ickert, R.B., Mark, D.F., **Tremblay, M.M.**, Cresswell, A., and Sanderson, D.C.W., 2020, Production of ⁴⁰Ar by an overlooked mode of ⁴⁰K decay with implications for K-Ar geochronology. *Geochronology*, v. 2, p. 355-365. DOI: 10.5194/gchron-2-355-2020
- Tremblay, M.M.**, and Cassata, W.S., 2020, Noble gas thermochronology of extraterrestrial materials. *Elements*, v. 16(5), p.331-336. DOI: 10.2138/gselements.16.5.331
- Zeitler, P.K., and **Tremblay, M.M.**, 2020, Measuring noble gases for thermochronology. *Elements*, v. 16(5), p. 343-344. DOI: 10.2138/gselements.16.5.343
- Carter, J.N.^G, **Tremblay, M.M.**, and Mark, D.F., 2020, A Bayesian approach to the deconvolution of ⁴⁰Ar/³⁹Ar data from mineral mixtures. *Chemical Geology*, v. 554, 119784. DOI: 10.1016/j.chemgeo.2020.119784
- Park, Y., Swanson-Hysell, N.L., MacLennan, S.A., Maloof, A.C., Gebreslassie, M., **Tremblay, M.M.**, Schoene, B., Alene, M., Antilla, E.S.C., Tesema, T., and Haileab, B., 2020, The lead-up to the Sturtian Snowball Earth: Neoproterozoic chemostratigraphy time-calibrated by the Tambien Group of Ethiopia. *Geological Society of America Bulletin*, v. 132(5-6), p. 1119-1149. DOI: 10.1130/B35178.1

- Tremblay, M.M.**, Shuster, D.L., Spagnolo, M., Renssen, H., and Ribolini, A., 2019, Temperatures recorded by cosmogenic noble gases since the last glacial maximum in the Maritime Alps: *Quaternary Research*, v. 91(2), p. 829-847. DOI: 10.1017/qua.2018.109
- Dyger, N., Jackson, C.R.M., Hesse, M.A., **Tremblay, M.M.**, Shuster, D.L., and Gu, J.T., 2018, Plate tectonic cycling modulates Earth's $^3\text{He}/^{22}\text{Ne}$ ratio. *Earth and Planetary Science Letters*, v. 498, p. 309-321. DOI: 10.1016/j.epsl.2018.06.044
- Ingalls, M., Rowley, D., Olack, G., Currie, B., Li, S., Schmidt, J., **Tremblay, M.**, Shuster, D.L., Lin, D., and Colman, A., 2018, Paleocene to Pliocene low-latitude, high elevation basins of southern Tibet: Implications for tectonic models of India-Asia collision, Cenozoic climate, and geochemical weathering. *Geological Society of America Bulletin*, v. 130(1-2), p. 307-330. DOI: 10.1130/B31723.1
- Tremblay, M.M.**, Shuster, D.L., Balco, G., and Cassata, W.S., 2017, Neon diffusion kinetics and implications for cosmogenic neon paleothermometry in feldspars. *Geochimica et Cosmochimica Acta*, v. 205, p. 14-30. DOI: 10.1016/j.gca.2017.02.013
- Garrick-Bethell, I., Weiss, B.P., Shuster, D.L., Tikoo, S.M., and **Tremblay, M.M.**, 2017, Further evidence for early lunar magnetism from troctolite 76535. *Journal of Geophysical Research: Planets*, v. 122(1), p. 76-93. DOI: 10.1002/2016JE005154
- Schmidt, J.L., Zeitler, P.K., Pazzaglia, F.J., **Tremblay, M.M.**, Shuster, D.L., and Fox, M., 2015, Knickpoint evolution on the Yarlung river: Evidence for late Cenozoic uplift of the southeastern Tibetan plateau. *Earth and Planetary Science Letters*, v. 430, p. 448-457. DOI: 10.1016/j.epsl.2015.08.041
- Tremblay, M.M.**, Fox, M., Schmidt, J.L., Tripathy-Lang, A., Wielicki, M.M., Harrison, T.M., Zeitler, P.K., and Shuster, D.L., 2015, Erosion in southern Tibet shut down at ~10 Ma due to enhanced rock uplift within the Himalaya. *Proceedings of the National Academy of Sciences*, v. 112(39), p. 12030-12035. DOI: 10.1073/pnas.1515652112
- Swanson-Hysell, N.L., Maloof, A.C., Condon, D.J., Jenkin, G.R.T., Alene, M., **Tremblay, M.M.**, Tesema, T., Rooney, A.D., and Haileab, B., 2015, Stratigraphy and geochronology of the Tambien Group, Ethiopia: Evidence for globally synchronous carbon isotope change in the Neoproterozoic. *Geology*, v. 43(4), p. 323-326. DOI: 10.1130/G36347.1
- Breecker, D.O., Bergel, S., Nadel, M., **Tremblay, M.M.**, Osuna-Orozco, R., Larson, T.E., and Sharp, Z.D., 2015, Minor stable carbon isotope fractionation between respired carbon dioxide and bulk soil organic matter during laboratory incubation of topsoil. *Biogeochemistry*, v. 123, p. 83-98. DOI: 10.1007/s10533-014-0054-3
- Tremblay, M.M.**, Shuster, D.L., and Balco, G., 2014, Diffusion kinetics of ^3He and ^{21}Ne in quartz and implications for cosmogenic noble gas paleothermometry. *Geochimica et Cosmochimica Acta*, v. 142, p. 186-204. DOI: 10.1016/j.gca.2014.08.010
- Tremblay, M.M.**, Shuster, D.L., and Balco, G., 2014, Cosmogenic noble gas paleothermometry. *Earth and Planetary Science Letters*, v. 400, p. 195-205. DOI: 10.1016/j.epsl.2014.05.040
- Straub, M., **Tremblay, M.M.**, Sigman, D.M., Studer, A.S., Ren, H., Toggweiler, J.R., and Haug, G.H., 2013, Nutrient conditions in the subpolar North Atlantic during the last glacial period reconstructed from foraminifera-bound nitrogen isotopes. *Paleoceanography*, v. 28, p. 79-90. DOI: 10.1002/palo.20013

In review or revision

Moreno-Yager, P., Singer, B.S., Jicha, B.R., Kurz, M., Edwards, B.R., **Tremblay, M.M.**, Fustos-Toribio, I., Vera, F., Mixon, E., Breunig, R., Flores, F., Hickey-Vargas, R., and Licciardi, J.M., Rapid Pleistocene to Recent Growth of Villarrica volcano. In revision.

Other publications

Ketcham, R.A., **Tremblay, M.M.**, Abbey, A.L., Baughman, J.S., Cooperdock, E.H.G., Jepson, G., Murray, K.E., Odum, M.L., Stanley, J.R., and Thurston, O.G., 2022, Report from the 17th International Conference on Thermochronology. *Earth and Space Sciences Open Archive*. DOI: 10.1002/essoar.10511082.1

Cohen, B.A., Zellner, N., Wadhwa, M., Turrin, B., **Tremblay, M.M.**, and 26 others, 2020, Geochronology as a Framework for Inner Solar System History. *Bulletin of the American Astronomical Society*, v. 53, no. 4, p. 020. DOI: 10.3847/25c2cf.1b2670e3

CONFERENCE PROCEEDINGS, LAST 3 YEARS

- Mijum, M., Corrigan, C.M., McCoy, T.J., **Tremblay, M.M.**, Gooding, T., and Wardell, L.R., 2026, Understanding the relationship between CR clan meteorites using noble gases to infer early solar system environments. 88th Annual Meeting of The Meteoritical Society, Frankfurt, Germany.
- Mijum, M.^G, **Tremblay, M.M.**, Anand, K.P., Minton, D.A., Caffee, M.W., and Welten, K.C., 2026, Constraining the thermal histories of enstatite (E) chondrites during their cosmic ray exposure using ³He and ²¹Ne. 36th Annual V.M. Goldschmidt Conference, Montreal, Canada.
- Ickert, R.B., **Tremblay, M.M.**, and Dziekonski, E.T., 2026, Long term behavior of ATONA-type charge-collection amplifiers on the Phoenix TIMS and NGX noble gas mass spectrometer. 36th Annual V.M. Goldschmidt Conference, Montreal, Canada.
- Mijum, M.^G, **Tremblay, M.M.**, Anand, K.P., Minton, D.A., Caffee, M.W., and Welten, K.C., 2026, Constraining the thermal histories of enstatite (E) chondrites during their cosmic ray exposure using ³He and ²¹Ne. Developments in Noble Gas Understanding and Expertise (DINGUE IX), Ottawa, Canada.
- Guo, H.^P, Zeitler, P.K., Idleman, B.D., **Tremblay, M.M.**, and McDannell, K.T., 2026, Continuous ramped heating analysis of helium in apatite and insights into (U-Th)/He thermochronology. Developments in Noble Gas Understanding and Expertise (DINGUE IX), Ottawa, Canada.
- Ickert, R.B., **Tremblay, M.M.**, and Dziekonski, E.T., 2026, Long term behavior of ATONA-type charge-collection amplifiers on the Phoenix TIMS and NGX noble gas mass spectrometer. Developments in Noble Gas Understanding and Expertise (DINGUE IX), Ottawa, Canada.
- Tremblay, M.M.**, and Lifton, N.L., 2026, Evaluating the potential for diffusive CO₂ loss during *in situ* ¹⁴C extraction. 7th Workshop on Cosmogenic Nuclides (COSMO2026), Aix en Provence, France.
- Tremblay, M.M.**, Guo, H.^P, Dziekonski, E., Ickert, R.B., and Blair, D., 2026, Helium-based thermochronometry and cosmogenic noble gas geochemistry in the Thermochronology @ Purdue (T@P) noble gas mass spectrometry facility. European Geophysical Union, Vienna, Austria.
- Zhan, W.^G, Gong, L., **Tremblay, M.M.**, Currie, M.E., and McMillan, M., 2026, Post-rift evolution of the southeastern Australia Great Escarpment from apatite ⁴He/³He thermochronology. European Geophysical Union, Vienna, Austria.
- Gong, L., Zhan, W.^G, Curry, M.E., **Tremblay, M.M.**, and McMillan, M., 2026, Combining landscape evolution and thermo-kinematic modeling to investigate the post-rifting evolution of the Great Escarpment, SE Australia. European Geophysical Union, Vienna, Austria.
- Tremblay, M.M.**, Guo, H.^P, Zhan, W.^G, Montejo, C., Stanley, J.R., Jepson, G., Fayon, A.K., Idleman, B.D., and Zeitler, P.K., 2026, Linking complex helium behavior to crystal-chemical characteristics to advance apatite (U-Th)/He thermochronology. Mineralogical Society of America Annual Meeting, Tucson, AZ.
- Curtis, A.C.^G, **Tremblay, M.M.**, Eddy, M.P., Miller, R.T., and Ickert, R.B., 2025, The Exhumation Response to the Eocene Collision of Siletzia in the North Cascades, WA. American Geophysical Union Fall Meeting, New Orleans, LA.
- Orellana-Salazar, Y., Marcott, S.A., **Tremblay, M.M.**, Romero, M.^G, Moren-Yaeger, P., Stevens, S., Mixon, E.E., Jones, A.G., and Barth, A.M., 2025, Glacial Landforms on Active Andean Volcanoes: Holocene glacier reconstructions from Southern Chile. American Geophysical Union Fall Meeting, New Orleans, LA.
- Romero, M.^G, Marcott, S.A., Cuzzone, J., **Tremblay, M.M.**, and Jones, A.G., 2025, Reconstructing the Demise of the Patagonian Ice Sheet During the Last Deglaciation. American Geophysical Union Fall Meeting, New Orleans, LA.

- Guo, H.^P, Remian, B.^U, and **Tremblay, M.M.**, 2025, Detrital Apatite Thermochronology of ODP sediments Reveals Mid-Pleistocene Decrease of Glacial Erosion Rates in the Mid-latitude Patagonian Andes. American Geophysical Union Fall Meeting, New Orleans, LA.
- Stanley, J.R., **Tremblay, M.M.**, Jepson, G., Montejo, C., and Zhan, W.^G, 2025, Dislocations in Apatite Trap Helium and Cause (U-Th)/He Date Overdispersion. American Geophysical Union Fall Meeting, New Orleans, LA.
- Tye, A., Payrola, P., Hardy, A., Casas, A., Ledesma, J., McMillan, M., Schoenbohm, L., Sim, J., and **Tremblay, M.M.**, 2025, Miocene extension of the hinterland Antofalla Basin, southern central Andes: Relationship to lithospheric foundering. Geological Society of America Annual Meeting, San Antonio, TX.
- Sprain, C.J., Bristol, K.E., Mittal, T., Fendley, I., **Tremblay, M.M.**, Mijum, M.^G, Duraiswami, R., and Monteiro, A., 2025, Using Quantitative Paleosecular Variation Analysis to Refine the Tempo of Deccan Eruptions. Geological Society of America Annual Meeting, San Antonio, TX.
- Tremblay, M.M.**, Stanley, J.R., Jepson, G., Montejo, C., and Zhan, W.^G, 2025, Evidence that dislocations in apatite trap helium and cause (U-Th)/He date overdispersion. 19th International Conference on Thermochronology, Kanazawa, Japan.
- Zhan, W.^G, **Tremblay, M.M.**, Curry, M.E., and McMillan, M., 2025, Reevaluating the Formation and Retreat of the Great Escarpment in Southeast Australia with $4\text{He}/3\text{He}$ Thermochronology. 19th International Conference on Thermochronology, Kanazawa, Japan.
- Ickert, R.B., **Tremblay, M.M.**, Guenther, W.R., and Cooperdock, E.H.G., 2025, Developing community U-Th-Sm-Ca-Zr isotopic spikes and reference solutions for the thermochronology community. 19th International Conference on Thermochronology, Kanazawa, Japan.
- Collops, C., van der Beek, P., Amalberti, J., Sobel, E.R., **Tremblay, M.M.**, and Bernard, M., 2025, Assessing apatite $4\text{He}/3\text{He}$ systematics with the Fish Canyon Tuff. 19th International Conference on Thermochronology, Kanazawa, Japan.
- Tremblay, M.M.**, Lifton, N.A., Cherkauer, K.A., Apel, E.V., Goss, G.A., and Tiwari, A., Timing of deglaciation at McCullough Gulch, Southern Rocky Mountains, USA, documented with cosmogenic nuclides. Geochronology Gordon Research Conference, Newry, ME.
- Zhan, W.^G, Liu, T., Hemming, S.R., and **Tremblay, M.M.**, Investigating Desert Paleo River Terrace Surface Erosion with Paired Cosmogenic Nuclide–Varnish Microlamination Dating. Geochronology Gordon Research Conference, Newry, ME.
- Orellana-Salazar, Y., Marcott, S.A., **Tremblay, M. M.**, Moreno-Yaeger, P., Romero, M.^G, and Mixon, E.E., 2025, A 3He -based Holocene glacial chronology from Villarica volcano, Chile. European Geophysical Union, Vienna, Austria.
- Romero, M.^G, Marcott, S.A., Cuzzone, J., **Tremblay, M.M.**, and Jones, A.G., 2025, A Data-Model Comparison of Ice Sheet Demise in Northern Patagonia During the Last Deglaciation. European Geophysical Union, Vienna, Austria.
- Montejo, C., Stanley, J.R., **Tremblay, M.M.**, Weeks, C., and Zhan, W.^G, 2025, $4\text{He}/3\text{He}$ thermochronometry reveals the late Cenozoic exhumation history of the Gallatin River catchment, SW Montana. Geological Society of America Rocky Mountain Section Meeting, Provo, UT.
- Curtis, A.C.^G, **Tremblay, M.M.**, Eddy, M.P., and Woolery, C.^U, 2025, The exhumation response to Siletzia collision and associated tectonic reorganization recorded in the thermal histories of Eocene plutons in the North Cascades, WA. Geological Society of America Cordilleran Section Meeting, Sacramento, CA.
- Montejo, C., Stanley, J.R., **Tremblay, M.M.**, Weeks, C., and Zhan, W.^G, 2025, $4\text{He}/3\text{He}$ thermochronometry reveals the late Cenozoic exhumation history of the Gallatin River catchment, SW Montana. Geological Society of America Rocky Mountain Section Meeting, Provo, UT.
- Mijum, M.^G, and **Tremblay, M.M.**, 2025, Helium diffusion kinetics in enstatite, kamacite, and albite, with implications for the cosmic ray exposure ages of enstatite (E) chondrites. Lunar and Planetary Science Conference, The Woodlands, TX.
- Blevins, A.M., Minton, D.A., Huang, Y.H., Du, J., **Tremblay, M.M.**, and Fassett, C.I., 2025, Using numerical modeling and Bayesian inference to constrain the source craters of Apollo impact melts. Lunar and Planetary Science Conference, The Woodlands, TX.

- Romero, M.^G, Marcott, S.A., Cuzzone, J., **Tremblay, M.M.**, and Jones, A.G., 2025, A Data-Model Comparison of Ice Sheet Demise in Northern Patagonia During the Last Deglaciation. European Geophysical Union, Vienna, Austria.
- Orellana-Salazar, Y., Marcott, S.A., **Tremblay, M. M.**, Moreno-Yaeger, P., Romero, M.^G, and Mixon, E.E., 2025, A ³He-based Holocene glacial chronology from Villarica volcano, Chile. European Geophysical Union, Vienna, Austria.
- Tremblay, M.M.**, Mark, D.F., Barfod, D.N., Cohen, B.E., Ickert, R.B., Lee, M.R., Tomkinson, T., and Smith, C.L., 2024, Dating of recent aqueous activity on Mars. American Geophysical Union Fall Meeting, Washington, D.C.
- Bristol, K.E., Sprain, C.J., Mittal, T., Monteiro, A., Duraiswami, R., **Tremblay, M.M.**, and Mijum, M.^G, 2024, Mantle Plumes and Geomagnetic Intensity Variations: Insights from the Deccan Traps. American Geophysical Union Fall Meeting, Washington, D.C.
- Montejo, C. Stanley, J., **Marissa, M.M.**, Weeks, C., and Zhan, W., 2024, Unravelling the Role of the Yellowstone Hotspot in the Late Cenozoic Exhumation History of the Gallatin River Catchment, Gallatin County, Southwest Montana. American Geophysical Union Fall Meeting, Washington, D.C.
- Romero, M.^G, Marcott, S.A., Cuzzone, J., **Tremblay, M.M.**, Jones, A.G., Hietpas, E., and Orellana Salazar, Y., 2024, A Record of Northern Patagonian Ice Sheet Thinning During the Last Deglaciation. American Geophysical Union Fall Meeting, Washington, D.C.
- Tremblay, M.M.**, Lifton, N.A., Cherkauer, K.A., Apel, E.V.^G, Goss, G.A., and Tiwari, A., 2024, Timing of deglaciation from multiple cosmogenic nuclides in bedrock at McCullough Gulch, Southern Rocky Mountains, USA. Geological Society of America Annual Meeting, Anaheim, CA.
- Guo, H.^P, **Tremblay, M.M.**, Zeitler, P.K., Idleman, B.D., and Fayon, A.K., 2024, Temperature-sensitive trapping of helium in apatite: insights from ⁴He/³He diffusion experiments. 34th Annual V.M. Goldschmidt Conference, Chicago, IL.
- Guo, H.^P, Fayon, A.K., **Tremblay, M.M.**, Zeitler, P.K., and Idleman, B.D., 2024, Investigating how deformation and pressure influence the behavior of helium in apatite. 34th Annual V.M. Goldschmidt Conference, Chicago, IL.
- Mijum, M.^G, **Tremblay, M.M.**, Andrews, B.J., McCoy, T.J., Corrigan, C.M., Caffee, M.W., Balco, G., and Shollenberger, Q.R., 2024, Effects of subsample heterogeneity and diffusion kinetics on the exposure ages of enstatite (E) chondrites. 87th Annual Meeting of The Meteoritical Society, Brussels, Belgium.
- Tremblay, M.M.**, 2024, Opportunities and challenges for reconstructing past Earth and planetary surface temperatures with cosmogenic noble gases. 6th Workshop on Cosmogenic Nuclides (COSMO2024), Cologne, Germany.
- Mijum, M.^G, Bristol, K.E., Bono, R.K., Sprain, C.J., Lifton, N., and **Tremblay, M.M.**, 2024, A model framework for scaling pre-Quaternary cosmogenic nuclide production rates. 6th Workshop on Cosmogenic Nuclides (Cosmo2024), Cologne, Germany.
- Montejo, C, Stanley, J.R., **Tremblay, M.M.**, and Weeks, C., 2024, Examining the Late Cenozoic exhumation history of the Gallatin River catchment and its relationship to the Yellowstone hotspot, Gallatin County, southwest Montana. Geological Society of America Joint Cordilleran and Rocky Mountain Section Meeting, Spokane, WA.
- Guo, H.^P, Remian, B.^U, and **Tremblay, M.M.**, 2024, Mid-Pleistocene changes in glacial erosion rates in the mid-latitude Patagonian Andes revealed by detrital thermochronology of ocean sediments. Geological Society of America Joint North Central and South Central Section Meeting, Springfield, MO.
- Tremblay, M.M.**, Bourikas, T.^U, Bergelin, M., and Balco, G., 2024, A proxy system model framework for reconstructing past environmental conditions with cosmogenic noble gases. European Geophysical Union, Vienna, Austria.
- Guo, H.^P, Zeitler, P.K., Idleman, B., and **Tremblay, M.M.**, 2024, Helium diffusion systematics in apatites: lessons from Continuous Ramped Heating analysis. European Geophysical Union, Vienna, Austria.

Bourikas, T.^U, **Tremblay, M.M.**, Lamp, J.L., Balco, G., and Granger, D.E., 2024, Relationships between temperature, elevation, and surface exposure age in the McMurdo Dry Valleys, Antarctica. European Geophysical Union, Vienna, Austria.

Blevins, A.M., Minton, D.A., Huang, Y.H., Du, J., and **Tremblay, M.M.**, 2024, Modeling the source of impact melt at the Apollo 14-17 sites. Lunar and Planetary Science Conference, The Woodlands, TX.

Mijjū, M.^G, Andrews, B.A., McCoy, T.J., Corrigan, C.M., Caffee, M.W., and **Tremblay, M.M.**, 2024, Using micro-computed tomography to determine subsample-specific cosmogenic noble gas production rates of E chondrites. Lunar and Planetary Science Conference, The Woodlands, TX.

CURRENT EXTERNAL FUNDING

Purdue Resources Empowering Coordinated Investigations for Sample Exploration (PRECISE) 2025–2028
Co-PI, NASA Planetary Science Enabling Facilities Program

Collaborative Research: RUI: Resolving the effects of lithospheric foundering on orogenesis: An example from the southern Puna plateau, Argentina 2024–2027
Co-PI, NSF Tectonics Program

Collaborative research: Reevaluating the timing and driver of escarpment retreat in southeast Australia 2024–2027
PI, NSF Geomorphology & Land Use Dynamics Program

INVITED LECTURES

Los Alamos National Laboratory	May 2026
Department of Earth and Environmental Sciences, Columbia University	February 2026
Department of Environmental Science and Geology, Wayne State University	October 2025
Department of Earth and Spatial Sciences, University of Idaho	April 2025
Department of Geological Sciences, University of Florida	February 2025
Department of Earth and Environmental Science, Lehigh University	November 2024
Dept. of Earth, Environmental, and Planetary Sciences, Brown University	October 2024
Department of Earth Sciences, Dartmouth College	October 2024
6 th Workshop on Cosmogenic Nuclides (COSMO24)	May 2024
Department of Earth and Environmental Sciences, Columbia University	February 2024
Department of Geology, Carleton College	January 2024
Institute of Geosciences, University of Potsdam	November 2023
Department of Geology, University of Kansas	February 2023
School of Earth and Space Exploration, Arizona State University	February 2023
Dept. of Earth and Environmental Sciences, Syracuse University	September 2022
Department of Geosciences, Missouri University of Science and Technology	February 2022
Department of Earth Sciences, University of Geneva	December 2021
Jackson School of Geosciences, University of Texas at Austin	November 2021
Department of Earth and Environmental Sciences, UT Arlington	October 2021
Department of Earth and Planetary Sciences, University of New Mexico	September 2021
Department of Geological Sciences and Engineering, Queen's University	March 2021
Department of Earth Sciences, University of Geneva	December 2020
Purdue Climate Change Research Center	December 2020
Department of Geophysical Sciences, University of Chicago	November 2020
Department of Geology, Carleton College	October 2020

Department of Earth and Atmospheric Sciences, Indiana University	October 2020
Department of Geology and Geophysics, Louisiana State University	October 2020
Department of Earth and Environmental Sciences, Vanderbilt University	February 2020
Department of Geosciences, Princeton University	November 2019
Department of Geology, University of Illinois Urbana-Champaign	October 2019
The Hutton Club, University of Edinburgh	November 2018
School of Geographical & Earth Sciences, University of Glasgow	March 2018
School of Earth and Environmental Sciences, University of Manchester	February 2018
Department of Geoscience, University of Wisconsin–Madison	February 2018
Department of Earth, Atmospheric, and Planetary Sciences, Purdue University	February 2018
Department of Geology and Geophysics, Yale University	February 2018
School of School of Earth and Ocean Sciences, University of Victoria	January 2018
Department of Earth, Ocean and Ecological Sciences, University of Liverpool	November 2017
School of Earth and Environmental Sciences, University of St Andrews	November 2017
Department of Earth and Planetary Science, UC Berkeley	May 2017
Department of Earth and Planetary Sciences, UC Davis	March 2017
Department of Geological Sciences, Stanford University	February 2017
Department of Earth Science, University of California, Santa Barbara	January 2017
Department of Geography and Environment, University of Aberdeen	October 2015
Scottish Universities Environmental Research Centre	October 2015

RESEARCH ADVISING

Postdoctoral researchers

Dr. Hongcheng Guo, Purdue University, EAPS	2023–2025
<i>Current position: Postdoctoral Scholar, University of Potsdam</i>	
Dr. Nicholas Meszaros, Purdue University, EAPS	2023–2024
<i>Current position: Assistant Professor, Northern Kentucky University</i>	

PhD students

Wenbo Zhan, Purdue University, EAPS	2023–present
Matias Romero, UW-Madison, Geoscience (co-advised with Shaun Marcott)	2022–present
Dr. Moshammam Mijum, Purdue University, EAPS	2020–2025
<i>Current Position: Peter Buck Postdoctoral Fellow, Smithsonian Museum of Natural History</i>	
Dr. John Carter, SUERC (co-advised with Darren Mark)	2018–2021
<i>Current Position: Postdoctoral Scholar, Berkeley Geochronology Center</i>	

MS students

Addison Curtis, Purdue University, EAPS	2023–2025
<i>Current Position: PhD Student, University of Maryland</i>	
John Fink, Purdue University, EAPS	2020–2023
<i>Current Position: PhD student, Boise State University</i>	

Undergraduate & postbaccalaureate research assistants

Benjamin Kenworthy, Purdue EAPS	2026
Brianna Petruccelli, Purdue EAPS	2026
Trent Sample, Purdue EAPS	2026
Hannah Tharrington, Purdue Chemistry	2025
Zachary Rynder, Purdue EAPS	2024–2025

Cayden Woolery, Purdue EAPS (REAL Scholar)	2024
Abbigail Mackey, Purdue EAPS	2024
Ain Sofea Zulkarnain, Purdue EAPS	2024
Taylor Bourikas, Purdue EAPS	2023–2024
Kamden Maddox, Purdue EAPS	2023–2024
Bethany Remian, Purdue EAPS	2023–2024
Kevin Rivera-Monserrate, Purdue EAPS	2022–2024
John Herring, Purdue EAPS (URSA Scholar)	2020–2023
Sui Xiong Tay, Purdue Materials Science Engineering	2022–2023
Gabrielle Wagner, Purdue EAPS	2023
Justin Daisey, Purdue EAPS	2022
Devin Blair, Purdue EAPS	2021–2022
Brittany Linn, Purdue Chemistry	2021
Juliana Peckenpaugh, Purdue EAPS	2020–2021
Simon Mason, Purdue Computer Science (Summer Stay Scholar)	2020
Isabella Zuffoletti, Purdue EAPS (URSA Scholar)	2020
Samantha Golding, Purdue EAPS	2019–2020
Abigail Robinson, SUERC (Paneth Meteorite Trust Intern)	2018
Matthew Kirk, UC Berkeley EPS	2017–2018
Tristan Bench, UC Berkeley EPS	2016–2017
Maura Uebner, UC Berkeley EPS (Honors thesis)	2015–2017
Sylvia Woodmansee, UC Berkeley EPS	2015
Sarah Beroff, UC Berkeley EPS (NERDS program)	2013

PhD student advisory committees

Yasmeen Orellano-Salazar, University of Wisconsin-Madison, Geoscience	2024–present
Xianmei Huang, Purdue University, EAPS (committee chair)	2023–present
Carlos Montejo, University of Idaho, Geological Sciences	2023–present
Gryphen Goss, Yale University, Earth and Planetary Sciences	2021–present
Dr. Alexander Kling, Purdue University, EAPS	2025–2026
Dr. Austin Blevins, Purdue University, EAPS (committee chair)	2019–2025
Dr. Riley McGlasson, Purdue University, EAPS	2021–2024
Dr. Erin Donaghy, Purdue University, EAPS (committee chair)	2020–2024
Emily Apel, Purdue University, EAPS	2021–2023
Dr. Angus Moore, Purdue University, EAPS	2020–2023
Dr. Laura Chaves, Purdue University, EAPS (committee chair)	2019–2023
Dr. Alexandria Koester, Purdue University, EAPS	2019–2023
Dr. Sean Wiggins, Purdue University, EAPS	2020–2022

MS student advisory committees

Chloë Weeks, University of Idaho, Geological Sciences	2021–2022
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PhD student examining committees

Marcelline Péan, Université Grenoble Alpes, Institute of Earth Sciences	2026
Dr. Joanne Elkadi, University of Lausanne, Institute of Earth Surface Dynamics	2022

TEACHING

Purdue University (as Instructor)

EAPS 100 Planet Earth	Spring 2021, 2022, 2023, 2024, 2025, 2026
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EAPS 353 Earth Surface Processes	Fall 2026
EAPS 446 Geochemistry	Fall 2025
EAPS 591 Geo/cosmochemistry	Fall 2020
EAPS 504 Geologic Dating Methods	Fall 2019, 2021, 2024

UNIVERSITY & DEPARTMENT SERVICE

University Service

Faculty Mentor, Emerging Leaders Science Scholars Program	2023–present
EAPS representative, College of Science Faculty Council	2024–2025
Fellowship Review Committee, Purdue Graduate School	2023–2025
Search Committee, Frederick L. Hovde Dean of the College of Science	2023
Career Mentor, Focus Forward Fellowship, Military Family Research Institute	2023
Judge, Purdue Undergraduate Research Conference	2020, 2024, 2025

Department Service

Seminar Committee, Purdue EAPS	2024–present
Strategic Planning Committee, Purdue EAPS	2024–present
Safety Committee, Purdue EAPS	2020–present
Executive Committee, Purdue EAPS	2021–2024
Organizer, EAPS Geology & Geophysics ‘Gaggle’ talk series	2020–2024
EAPS Advisor, Advanced Materials cluster search	2023
Ad hoc search committee in aqueous geochemistry	2022
Graduate Committee, Purdue EAPS	2019–2021
Outreach Committee, Purdue EAPS	2019–2021

Service in Former Departments

Coordinator, SUERC seminar series	2018–2019
Member, SUERC self-assessment team, Athena-SWAN Charter application	2018
Co-coordinator, Center for Isotope Geochemistry seminar series, UC Berkeley	2017
Graduate Student Representative, Earth and Planetary Science, UC Berkeley	2015
Co-coordinator, EPS graduate student brown bag seminar, UC Berkeley	2013–2014

PROFESSIONAL SERVICE

Peer-reviewed Journals

Associate Editor, <i>Geochronology (GChron)</i>	2019–present
Associate Editor, <i>The Journal of Geology</i>	2023–2026
Guest Editor, <i>Elements</i> magazine, Noble Gas Thermochronology thematic issue	2019–2020
Journal Referee: <i>American Journal of Science</i> ; <i>Applied Geochemistry</i> ; <i>Boreas</i> ; <i>Chemical Geology</i> ; <i>Chemical Physics</i> ; <i>Earth and Planetary Science Letters</i> ; <i>Earth Surface Dynamics</i> ; <i>Geochemical Perspective Letters</i> ; <i>Geochemistry</i> , <i>Geophysics</i> , <i>Geosystems</i> ; <i>Geochimica et Cosmochimica Acta</i> ; <i>Geochronology</i> ; <i>Geological Society of America Bulletin</i> ; <i>Geology</i> ; <i>Geophysical Research Letters</i> ; <i>Geosphere</i> ; <i>Journal of Analytical Atomic Spectrometry</i> ; <i>Journal of Geology</i> ; <i>Journal of the Geological Society</i> ; <i>Journal of Geophysical Research: Earth Surface</i> ; <i>Journal of Geophysical Research: Planets</i> ; <i>Meteoritics & Planetary Science</i> ; <i>Nature</i> ; <i>Nature Geoscience</i> ; <i>Nature Communications</i> ; <i>Palaeogeography</i> , <i>Palaeoclimatology</i> , <i>Palaeoecology</i> ; <i>Quaternary Geochronology</i> ; <i>Quaternary Science Reviews</i> ; <i>Science Advances</i> ; <i>Tectonics</i> .	

Funding Agencies

Proposal Review Panelist: *American Association for the Advancement of Science Research Competitiveness Program; National Aeronautics and Space Administration; National Science Foundation; Advancing Geochronology Science, Spaces, and Systems (AGeS³)*

Ad Hoc Proposal Referee: *American Chemical Society Petroleum Research Fund; European Commission; National Aeronautics and Space Administration; National Geographic; National Science Foundation; UK Science and Technology Facilities Council; W.M. Keck Foundation*

Conferences and Workshops

Chair, Gordon Research Conference on Geochronology	2025–present
Chair, Scientific Committee, 20 th International Conference on Thermochronology (Thermo2027)	2025–present
Vice Chair, Gordon Research Conference on Geochronology	2023–2025
Scientific Committee, 19 th International Conference on Thermochronology (Thermo2025)	2025
Scientific Committee, 18 th International Conference on Thermochronology (Thermo2023)	2022–2023
Organizing Committee, 17 th International Conference on Thermochronology (Thermo2021)	2019–2021
Invitee and participant, Workshop on the future of the Cooperative Institute for Dynamic Earth Research (CIDER)	2024
Discussion Leader, <i>Evolution of the Lithosphere</i> , Gordon Research Conference on Geochronology	2023
Invitee and participant, Strategic Planning Summit, American Association for the Advancement of Science	2021
Discussion Moderator, National Academies of Sciences, Engineering, and Medicine Workshop, <i>Identifying New Community-Driven Science Themes for NSF's Support of Paleoclimate Research</i>	2021
Session Convener, “Methodological Developments” COSMO2026 Conference	2026
Session Convener, “Understanding Erosional to Depositional Landscape Dynamics” American Geophysical Union Fall Meeting	2025
Session Convener, “Noble Gas Thermochronology Techniques” Thermo2025 Conference	2025
Session Convener, “What’s the cosmognosis? Recent Advances in Understanding Earth and Planetary Processes with Cosmogenic Nuclides” Geological Society of America Annual Meeting	2024
Session Convener, “Novel advances in understanding the behavior of noble gases in geologic materials” 34 th Annual V.M. Goldschmidt Conference	2024
Session Convener, “Developments and Challenges in (U-Th-Sm)/He Thermochronology” Thermo2023 Conference	2023
Session Convener, “Investigating Earth surface processes using cosmogenic nuclides, non-traditional isotope systems, and other novel proxies” 32 nd Annual V.M. Goldschmidt Conference	2022
Session Convener, “Charles and Nancy Naeser Early Career Session” Thermo2021 Conference	2021
Session Convener, “Additional Noble Gas and Solid State Thermochronometers” Thermo2021 Conference	2021
Session Convener, “Advances and applications in Quaternary geochronology” American Geophysical Union Fall Meeting	2019

Session Convener, <i>"Innovations and Advances and in Thermochronology"</i> 27 th Annual V.M. Goldschmidt Conference	2017
Session Convener, <i>"Novel Geochemical Approaches for Quantifying Rates of Surface Processes"</i> 26 th Annual V.M. Goldschmidt Conference	2016

Society Leadership & Volunteering

Member-at-Large, Doris M. Curtis Memorial Fund for Women in Science Award	2026–present
Member, International Standing Committee on Thermochronology	2023–present
Member-at-Large: Early Career Professional, Penrose Conferences & Thompson Field Forum Committee, Geological Society of America	2022–2025
Member, Mineralogical Society of America Award Nomination Committee	2023–2024
Outstanding Student Paper Award Coordinator & Student Travel Grant Reviewer, VGP Section, American Geophysical Union	2017–2018

OUTREACH AND VOLUNTEERING

SciLine Expert Source, American Association for the Advancement of Science	2020–present
Classroom visits on Antarctica, Indianapolis Public Schools	2023
Speaker, Indiana Astronomical Society 2020 program series	2020
Guest, Purdue College of Science <i>Superheroes of Science</i> podcast	2019, 2023
Volunteer, Skype a Scientist	2019–2021
<i>Science-A-Thon</i> , Earth Science Women's Network	2018–2021
Pen pal, Letters to a Pre-Scientist	2018–2021

PROFESSIONAL MEMBERSHIPS

American Association for the Advancement of Science (2020–present); American Geophysical Union (2009–present); European Association of Geochemistry (2018–present); Geochemical Society (2012–present); Geological Society of America (2009–present); Mineralogical Society of America (2020–present); Meteoritical Society (2017–present).