

Marissa M. Tremblay

Scottish Universities Environmental Research Centre (SUERC)

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EDUCATION

University of California, Berkeley	2012–2017
Ph.D., Earth and Planetary Science (EPS)	
Dissertation: <i>Reconstructing past Earth and planetary surface temperatures with cosmogenic noble gases</i>	
Barnard College of Columbia University	2008–2012
B.A. Environmental Science, <i>summa cum laude</i>	
Thesis: <i>Late Miocene tilting of the Resting Spring Range, California, with implications for models of crustal extension</i>	

PROFESSIONAL APPOINTMENTS

Assistant Professor, Purdue University	from August 2019
Newton International Fellow, Scottish Universities Environmental Research Centre	2018–present
UC President’s Postdoctoral Fellow, University of California, Davis	2017
Teaching Assistant, University of California, Berkeley	2012–2017
Research Assistant, University of California, Berkeley	2012–2017

HONORS AND AWARDS

Charles & Nancy Naeser Prize, International Standing Committee on Thermochronology	2018
Marie Skłodowska-Curie Individual Fellowship	2018
The Royal Society Newton International Fellowship	2017
University of California President’s Postdoctoral Fellowship	2017
Lamont-Doherty Earth Observatory Postdoctoral Fellowship (<i>declined</i>)	2017
Louderback Award, UC Berkeley EPS	2015
National Science Foundation Graduate Research Fellowship	2014
Outstanding Graduate Student Mentor, New Experiences for Research and Diversity in Science 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 (NOAA) Ernest F. Hollings Scholar	2010

PUBLICATIONS

In review/revision:

13. 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., Condon, D.J., and Haileab, B., The lead-up to the Sturtian Snowball Earth: Neoproterozoic chemostratigraphy time-calibrated by the Tambien Group of Ethiopia, *in revision*.

In print/accepted:

12. **Tremblay, M.M.**, Shuster, D.L., Spagnolo, M., Renssen, H., Ribolini, A., Temperatures recorded

by cosmogenic noble gases since the last glacial maximum in the Maritime Alps, accepted, *Quaternary Research*.

11. Dygert, N., Jackson, C.R.M., Hesse, M.A., **Tremblay, M.M.**, Shuster, D.L., Gu, J.T., 2018 Plate tectonic cycling modulates Earth's $^3\text{He}/^{22}\text{Ne}$ ratio, *Earth and Planetary Science Letters*, 498, 309-321. doi:10.1016/j.epsl.2018.06.044
10. Ingalls, M., Rowley, D., Olack, G., Currie, B., Li, S., Schmidt, J., **Tremblay, M.**, Shuster, D.L., Lin, D., and Colman, A., 2017, Paleocene to Pliocene low-latitude high elevation of southern Tibet: Implications for tectonic models of India-Asia collision, Cenozoic climate, and geochemical weathering, *Geological Society of America Bulletin*, 130, 307-330. doi:10.1130/B31723.1
9. **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*, 205, 14-30. doi:10.1016/j.gca.2017.02.013
8. 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*, 121. doi:10.1002/2016JE005154
7. Schmidt, J.L., Zeitler, P.K., Pazzaglia, F.J., **Tremblay, M.M.**, Shuster, D.L., and Fox, M., 2015, Knickpoint evolution on the Yarlung Tsangpo, southern Tibet: Evidence for a regional late Cenozoic base level adjustment, *Earth and Planetary Science Letters*, 430, 448-457. doi:10.1016/j.epsl.2015.08.041
6. **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*, 112(39), 12030-12035. doi:10.1073/pnas.1515652112
5. 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*, 43(4), 323-326. doi:10.1130/G36347.1
4. Brecker, 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*, 123, 83-98. doi:10.1007/s10533-014-0054-3
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*, 142, 186-204. doi:10.1016/j.gca.2014.08.010
2. **Tremblay, M.M.**, Shuster, D.L., and Balco, G., 2014, Cosmogenic noble gas paleothermometry. *Earth and Planetary Science Letters*, 400, 195-205. doi:10.1016/j.epsl.2014.05.040
1. 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*, 28, 79-90. doi:10.1002/palo.20013

CONFERENCE PROCEEDINGS (LAST 3 YEARS)

16. **Tremblay, M.M.**, Domingos, R., Militzer, B., and Shuster, D.L., 2018, Experimental and theoretical constraints on helium diffusion in quartz. 16th International Conference on Thermochronology, Quedlinburg, Germany.
15. **Tremblay, M.M.**, Uebner, M., Shuster, D.L., Stock, G.M., and Balco, G., 2018, Late Quaternary

- temperatures recorded by cosmogenic ^3He in Yosemite Valley rock avalanche deposits. 28th Annual V.M. Goldschmidt Conference, Boston, USA. (*invited*)
14. Guralnik, B., **Tremblay, M.M.**, Phillips, M., Gribenski, N., Valla, P.G., and Hippe, K., 2018, Cosmogenic ^3He – ^{10}Be – ^{14}C dating quantifies Alpine climate response to global warming. 28th Annual V.M. Goldschmidt Conference, Boston, USA.
 13. **Tremblay, M.M.**, Cohen, B.E., Mark, D.F., Ickert, R.B., and Smith, C.L., 2018, Revisiting the $^{40}\text{Ar}/^{39}\text{Ar}$ chronology of lunar meteorite NWA 773 provides new constraints on its diachronous geologic history. 6th European Lunar Symposium, Toulouse, France.
 12. **Tremblay, M.M.**, Willett, S.D., Shuster, D.L., Fox, M., Zeitler, P.K., Schmidt, J.L., Winn, C., and Karlstrom, K.E., 2018, The Neogene evolution of topography and rivers along the Indus-Yarlung Suture Zone, southern Tibet. European Geophysical Union General Assembly, Vienna, Austria. (*invited*)
 11. **Tremblay, M.M.**, Willett, S.D., Fox, M., and Shuster, D.L., 2017, Incorporating $^4\text{He}/^3\text{He}$ thermochronometry datasets into exhumation rate inversions. 27th Annual V.M. Goldschmidt Conference, Paris, France.
 10. **Tremblay, M.M.**, Fox, M., Schmidt, J.L., Willet, S., Zeitler, P.K., and Shuster, D.L., 2016. Constraining spatiotemporal patterns in exhumation across the southern Tibetan plateau from inversion of low-temperature thermochronometric data. American Geophysical Union Fall Meeting, San Francisco, USA.
 9. Dygert, N.J., Jackson, C., Hesse, M.A., **Tremblay, M.M.**, Shuster, D.L., and Gu, J., 2016, Plate Tectonic Cycling and Whole Mantle Convection Modulate Earth's $^3\text{He}/^{22}\text{Ne}$ Ratio. American Geophysical Union Fall Meeting, San Francisco, USA.
 8. Zuzva, A.V., Li, B., **Tremblay, M.M.**, Chen, X., Shuster, D.L., and Yin, A., 2016. Cenozoic Development of the Northern Tibetan Plateau and the Onset of Thrust and Strike-slip faulting: Constraints from Apatite and Zircon (U-Th)/He and Fission-Track Thermochronometry. American Geophysical Union Fall Meeting, San Francisco, USA.
 7. Park, Y., MacLennan, S.A., Swanson-Hysell, N., Maloof, A.C., Schoene, B., Alene, M., **Tremblay, M.M.**, Anttila, E., and Haileab, B., 2016. The Onset of the Sturtian Snowball Earth: New Geochronology and Chemostratigraphy from the Tambien Group of Ethiopia. American Geophysical Union Fall Meeting, San Francisco, USA.
 6. **Tremblay, M.M.**, Shuster, D.L., Fox, M., Schmidt, J.L., Tripathy-Lang, A., and Zeitler, P.K., 2016. The thermochronometric record of landscape evolution in the Lhasa terrane, southern Tibet. Geological Society of America Meeting, Denver, USA. (*invited*)
 5. Christie-Blick, N., Almeida, R.V., Vankeuren, M.A., **Tremblay, M.M.**, Anders, M.H., Cochran, J.R., Hemming, S.R., Walker, C.D., and Renik, B., 2016. Mechanisms of crustal extension in the Basin and Range Province, western United States. 35th International Geological Congress, Cape Town, South Africa.
 4. **Tremblay, M.M.**, and Shuster, D.L., 2016. Constraining paleotemperatures of planetary surfaces with cosmogenic neon in feldspars. 26th Annual V.M. Goldschmidt Conference, Yokohama, Japan.
 3. Shuster, D.L., Reiners, P.W., Ault, A.K., Deng, X., and **Tremblay, M.M.**, 2016, Constraining time and temperature from $^4\text{He}/^3\text{He}$ thermochronometry of polycrystalline Fe- and Mn-oxides. 26th Annual V.M. Goldschmidt Conference, Yokohama, Japan.
 2. **Tremblay, M.M.**, Spagnolo, M., Ribolini, A., and Shuster, D.L., 2016. Reconstructing temperatures in the Maritime Alps, Italy, since the Last Glacial Maximum using cosmogenic noble gas paleothermometry. European Geophysical Union General Assembly, Vienna, Austria.
 1. **Tremblay, M.M.**, and Shuster, D.L., 2016. New experimental constraints on neon diffusion

kinetics in feldspars. Developments In Noble Gas Understanding and Expertise Workshop, Nancy, France.

INVITED LECTURES

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, University of California Berkeley	May 2017
Department of Earth and Planetary Sciences, University of California 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

STUDENTS SUPERVISED

PhD students

John Carter (co-advisor, SUERC) 2018-present

Undergraduate students

Abigail Robinson (University of St Andrews, Paneth Meteorite Trust Intern)	Summer 2018
Matthew Kirk (UC Berkeley)	2017–2018
Tristan Bench (UC Berkeley)	2016–2017
Maura Uebner (UC Berkeley, Honors Thesis)	2015–2017
Sylvia Woodmansee (UC Berkeley)	Summer 2015
Sarah Beroff (UC Berkeley, New Experiences for Research and Diversity in Science)	Summer 2013

PROFESSIONAL AND DEPARTMENTAL SERVICE

Journal Referee, <i>Earth and Planetary Science Letters</i> ; <i>Geochemistry, Geophysics, Geosystems</i> ; <i>Geochimica et Cosmochimica Acta</i> ; <i>The Journal of Geology</i> ; <i>Meteoritics & Planetary Science</i> ; <i>Science Advances</i> ; <i>Tectonics</i>	
Coordinator, SUERC seminar series	2018-2019
Member, SUERC self-assessment team, Athena-SWAN Charter application	2018
Outstanding Student Paper Award Coordinator & Student Travel Grant Reviewer, Volcanology, Geochemistry, and Petrology Section, American Geophysical Union	2017-2018
Session Convener, “ <i>Innovations and Advances and in Thermochronology</i> ” 27 th Annual V.M. Goldschmidt Conference	2017
Co-coordinator, Center for Isotope Geochemistry seminar series, UC Berkeley	2017
Session Convener, “ <i>Novel Geochemical Approaches for Quantifying Rates of Surface Processes</i> ” 26 th Annual V.M. Goldschmidt Conference	2016
Graduate Student Representative, Earth and Planetary Science, UC Berkeley	2015
Co-coordinator, EPS graduate student brown bag seminar, UC Berkeley	2013-2014

TEACHING

Field Instructor, EARTH 2004 Structure, Maps and Exploration, U Glasgow	Spring 2018
Instructor, “ <i>Principles of Geochronology</i> ,” University of St Andrews MSc Geochemistry Program (short course at SUERC)	Spring 2018
Instructor, “ <i>Geochronology of extraterrestrial materials</i> ,” British Planetary Science Congress (short course at SUERC)	Fall 2017
Graduate Instructor, EPS 124/224 Isotope Geochemistry, UC Berkeley	Spring 2017
Graduate Instructor, EPS 116 Structural Geology and Tectonics, UC Berkeley	Spring 2016
Graduate Instructor, EPS 124/224 Isotope Geochemistry, UC Berkeley	Spring 2015
Graduate Instructor, EPS 117 Geomorphology, UC Berkeley	Fall 2014
Graduate Instructor, EPS 131 General Geochemistry, UC Berkeley	Spring 2013
Undergraduate Instructor, EESC V2200 Solid Earth, Columbia University	Spring 2010

OUTREACH AND VOLUNTEERING

Pen pal, Letters to a Pre-Scientist	2018-2019
Mentor, Society of Women in the Physical Sciences, UC Berkeley	2013-2015
Co-coordinator, EPS graduate student outreach, Bay Area Scientists in Schools	2014-2015
Research Mentor, UCB New Experiences for Research and Diversity in Science program	2013
Alumni Admissions Representative, Barnard College	2014-present

PROFESSIONAL MEMBERSHIPS

American Geophysical Union (2009–present); European Association of Geochemistry (2018–present); European Geosciences Union (2016–present); Geochemical Society (2012–present); Geological Society of America (2009–present); Meteoritical Society (2017–present); Quaternary Research Association (2018–present); Scottish Alliance for Geoscience, Environment and Society (2017–present).