

James K. Muller

Scripps Institution of Oceanography, UC San Diego
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EDUCATION **PhD, Earth Science** **2019–2025 (expected)**
Scripps Institution of Oceanography, UC San Diego, CA, USA
“*Petrogenesis of tectonically enigmatic volcanism*”

AM, Earth & Planetary Sciences **2016–2019**
Harvard University, MA, USA

MA, Geological & Environmental Science **2014–2016**
Queens College, City University of New York, NY, USA
“*Tephrostratigraphy of the AD 1730–1736 Timanfaya eruption, Lanzarote, Canary Islands: Insights to the dynamics of large basaltic fissure eruptions*”

BA, Geology **2009–2013**
Pomona College, CA, USA
“*Age and origin of the Malapai Hill Basalt, Joshua Tree National Park, CA, USA*”

Field camp **2012**
Frontiers Abroad, University of Canterbury, New Zealand

EXPERIENCE **2019–present** Graduate Student Researcher, Teaching Assistant (UC San Diego)
 2016–2019 Graduate Researcher, Teaching Fellow (Harvard University)
 2015 Hydrogeologist (Thomas Harder & Co., Inc.)
 2015–2016 Private tutor (self-employed)
 2014–2016 Lab Instructor, Teaching Assistant (CUNY Queens College)
 2013–2014 Hydrogeologist I (Leggette, Brashears, & Graham, Inc.)
 2013 Grader, Teaching Assistant (Pomona College)

PUBLICATIONS *PUBLISHED*

1. Durkin, K., P. R. Castillo, S. M. Straub, S. Mallick, A. Saal, **J. K. Muller** (2025) Widespread contamination of the Pacific upper mantle during the Cretaceous: *Marine Geology*, 107460, [doi:10.1016/j.margeo.2024.107460](https://doi.org/10.1016/j.margeo.2024.107460).
2. **Muller, J. K.**, M.-A. Longpré (2024) Tephra dispersal and composition reveal the explosive onset of a large basaltic fissure eruption: Timanfaya, Lanzarote 1730–1736 CE: *Bulletin of Volcanology*, vol. 86, no. 38, [doi:10.1007/s00445-024-01729-5](https://doi.org/10.1007/s00445-024-01729-5).

IN REVIEW

1. **Muller, J. K.**, E. J. Chin, Young, enigmatic lavas from a fossil slab remnant beneath Baja California, Mexico. *Geology*. (manuscript available upon request)

IN PREPARATION

1. **Muller, J. K.**, E. C. McIntosh, S. T. Curran, B. H. Gruber, J. Lyakov, S. Maher, E. J. Chin, J. M. D. Day, Hot, or not? Testing hotspot and lithospheric extension models for the formation of the Fieberling-Guadalupe Seamount Trail, eastern North Pacific Ocean. *expected submission early 2025*

CONFERENCE PROCEEDINGS

1. Wilson, A. M., C. Pagniello, J. S. Greenbaum, K. Auzenne, M. C. Kerr, K. Barbeau, W. Chapman, J. Dedrick, C. J. Ellis, M. M. Faulkner, K. Guirguis, A. Ho, L. Hoffman, J. Kalansky, J. A. MacKinnon, **J. K. Muller**, P. Mulrooney, M. Nelson, N. Oakley, S. Ogle, A. Rodriguez, L. M. Russell, R. Sanchez, M. Sierks, A. Schulberg, P. Yao, 2021, URGE at Scripps Institution of Oceanography — Accomplishments, challenges, and future plans: American Geophysical Union Fall Meeting, New Orleans, LA, Abstracts, no. U35A-2268.
2. **Muller, J. K.**, M. S. Kemmerlin, J. M. Gonzalez-Santana, H. I. Shamloo, Y. J. Tan, Y. Zhan, C. M. Smith, M. Myers, P. M. Gregg, G. A. Abers, T. A. Plank, P. J. Wallace, B. J. Andrews, D. C. Roman, G. Bergantz, K. M. Cooper, 2019, Tectonic and compositional controls on magma storage depths globally: Results from CIDER 2019: American Geophysical Union Fall Meeting, San Francisco, CA, Abstracts, no. V23D-0256.
3. Schools, J., J. V. Adams, K. Chotalia, **J. K. Muller**, E. C. Weidner, M. I. Billen, L. N. Moresi, M. S. Miller, 2019, Slab-wedge coupling promotes deep subduction of sediment: Geodynamic insights to mantle geochemical heterogeneity: American Geophysical Union Fall Meeting, San Francisco, CA, Abstracts, no. DI33B-0036.
4. Thompson, E.C., E. Bredow, N. Creasy, K.E. Godfrey, **J. K. Muller**, M. Xu, C. Wang, M. Ballmer, S. Huang, G. Morra, S. Mukhopadhyay, 2019, Thermochemical evolution of mantle plumes observed spatially: *Geophysical Research Abstracts* v. 21, no. EGU2019-10523-1.
5. **Muller, J. K.**, J. Schools, K. Chotalia, E. Weidner, J. V. Adams, M. Billen, L. Moresi, M. Miller, L. Waszek, T. Becker, C. Lithgow-Bertelloni, L. Stixrude, D. Weis, 2018, Can a subducted sedimentary layer survive into the deep mantle? American Geophysical Union Fall Meeting, Washington, D.C., Abstracts, no. DI23B-0040.
6. Thompson, E. C., E. Bredow, N. Creasy, K. E. Godfrey, **J. K. Muller**, M. Xu, C. Wang, M. Ballmer, S. Huang, G. Morra, S. Mukhopadhyay, 2018, Thermochemical evolution of mantle plumes observed spatially: American Geophysical Union Fall Meeting, Washington, D.C., Abstracts, no. T51D-0196.
7. Ferguson, D. J., C. H. Langmuir, Y. Li, K. Costa, P. Huybers, J. McManus, S. Carbotte, **J. K. Muller**, 2018, Time-series for mid-ocean ridge magmas from sediment-hosted volcanic glasses: 28th Goldschmidt Conference, Boston, MA, Abstracts, no. 698.
8. Longpré, M.-A., **J. K. Muller**, P. Beaudry, A. Andronikides, A. Felpeto, 2017, Historical volcanic eruptions in the Canary Islands, tephra composition, and insights into the crystal cargo of basaltic magmas: American Geophysical Union Fall Meeting, New Orleans, LA, Abstracts, no. V23C-0494.
9. **Muller, J. K.**, M.-A. Longpré, 2015, Reconstructing the 1730-1736 Timanfaya eruption (Lanzarote, Canary Islands) using tephrostratigraphy: 26th IUGG General Assembly, Prague, Czech Republic, Abstracts, no. VS24-5093.
10. **Muller, J. K.**, P. Beaudry, M.-A. Longpré, 2015, Exploring the eruptive sequence and chemical evolution of the AD 1730-1736 Timanfaya eruption, Lanzarote, Canary Islands: 2015 AGU Joint Assembly, Montreal, Canada, Abstracts, no. VGP24A-0398.
11. **Muller, J. K.**, J. S. Lackey, B. R. Jicha, R. W. Hazlett, I. N. Bindeman, 2014, Age and origin of the Malapai Hill basalt, Joshua Tree National Park, California: Geological Society of America Abstracts with Programs, 46(5).

12. Murphy, B. S., K. S. Metcalfe, G. Ruiz, L. G. Curtin, S. R. Chestler, J. C. Penido, **J. K. Muller**, E. B. Grosfils, 2012, Magma reservoir rupture beneath a Venusian edifice: when does lithospheric flexure become important? 43rd Lunar and Planetary Science Conference, The Woodlands, TX, Abstracts, no. 1060.
13. Lackey, J. S, K. Beeler, M. Williams, **J. K. Muller**, I.N. Bindeman, J.W. Valley, 2011, Resolving the cementation history of sandstones in the Long Valley Caldera, CA: 43rd American Chemical Society Western Regional Meeting, Pasadena, California, Abstracts, no. 240.
14. **Muller, J. K.**, Y. Ma, J. G. Muller, Y. L. Chiu, S. G. Memtsoudis, 2010, The prevalence of comorbidities in patients with pulmonary hypertension undergoing knee arthroplasty: American Society of Anesthesiologists, 2010 Annual Meeting, San Diego, CA, Abstracts, no. A1419.

AWARDS

- 2024** Departmental research grant (\$1500, UC San Diego)
2023 Departmental travel grant (\$1500, UC San Diego)
2020 Grant-in-Aid of Research (\$1000, Sigma Xi)
2020 Shepard Foundation research grant (\$1969, UC San Diego)
2015 Inductee, Sigma Xi Honor Society (Queens College, CUNY)
2015 Grad Student Research Grant (\$1250, Geological Society of America)
2015 Roux Tuition Award (\$2975, Queens College, CUNY)
2015 Gural Scholarship (\$3000, Queens College, CUNY)
2013 R. Strehle Memorial Award (\$1000, Pomona College)

SERVICE

- Undergraduate student research mentor (UC San Diego)2024–present*
Kris Wang: “Characterization of volcanic rocks from Isla Guadalupe, Mexico”
- Alumni admissions interviewer (Pomona College)2013–present*
- Student member, geophysics faculty search committee (UC San Diego) 2024*
- Leadership member, IAVCEI Early Career Researchers Network 2015–2023*
- Session convenor (IAVCEI Scientific Assembly, Rotorua, New Zealand) 2023*
“Unmasking the lithosphere: Mantle to surface perspectives on magma heterogeneity”
- Undergraduate student research mentor (UC San Diego)2022–2023*
George Lee: “Translating what rocks say: learning the magmatic history of the Golden Trout Volcanic Field (California, USA) from chemical analyses of lava-hosted olivine crystals”
- Student member, tectonics faculty search committee (UC San Diego) 2020*
- Organizer, SIO graduate student community events (UC San Diego) 2019–2020*
- Organizer, in-house departmental seminars (Harvard)2016–2019*
- Student member, EPS inclusive spaces committee (Harvard)2018–2019*
- Student committee member, EPS tectonics faculty search (Harvard) 2019*
- Organizer, student field trips (Harvard)2016–2018*

Undergraduate student research mentor (Queens College, CUNY)2015
 Anju Singh: “Zoning in olivine crystals from the 1730–6 Lanzarote eruption”

Student field trip organizer (Queens College, CUNY) 2015

Guest lecture/demo (Inst. de Educación Sec. les Zonzamas, Lanzarote) 2015

Co-leader, Desert Institute lecture and field trip (Joshua Tree NP Assoc.) 2013

Geology demonstrator (Pomona College Alumni Weekend) 2012–2013

**RESEARCH
FIELDWORK**

SEA-GOING

2024 Mariana Trench (TN-438: R/V T. G. Thompson, ROV Jason; 24 days)
2023 Mariana Trench (KH23-9: R/V Hakuho Maru; 18 days)
2020 Fieberling Seamounts (SR20-02: R/V Sally Ride; 10 days)

ON-SHORE

2024 Isla Guadalupe, MEX (22 days)
2021 Sierra Nevada, CA, USA (3 days)
2021 Golden Trout Volcanic Field, CA, USA (7 days)
2020 Golden Trout Volcanic Field, CA, USA (4 days)
2015 Lanzarote, Canary Islands, ESP (30 days)

WORKSHOPS

2019 CIDER, UC Berkeley
2018 CIDER, UC Santa Barbara
2017 IAVCEI Tephra workshop, Portland, OR
2015 IAVCEI Tephra workshop, Prague, Czech Republic
2015 SIMS workshop, UC Los Angeles

**PROFESSIONAL
ASSOCIATIONS**

American Geophysical Union
Geological Society of America
International Assoc. of Volcanology & Chemistry of Earth’s Interior
Geochemical Society
American Institute of Professional Geologists
Sigma Xi