

## Danielle P. Santiago Ramos, Ph.D.

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Assistant Professor | Department of Marine and Coastal Sciences  
Rutgers, The State University of New Jersey  
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### EDUCATION

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**Ph.D.**, Geosciences | *Princeton University, Princeton, NJ* 2019  
Advisor: Dr. John A. Higgins

**B.A.**, Geology (*magna cum laude*) | *Amherst College, Amherst, MA* 2013  
Advisor: Dr. David S. Jones

### PROFESSIONAL EXPERIENCE

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**Assistant Professor** 2022 - present  
*Department of Marine and Coastal Sciences | Rutgers University* New Brunswick, NJ

**Research Scientist** Fall 2021  
*Division of Science and Research | NJ Department of Environmental Protection* Trenton, NJ

**Lecturer** Fall 2021  
*Department of Geosciences | Princeton University* Princeton, NJ

**Postdoctoral Scholar & Investigator** 2019 – 2021  
*Geology & Geophysics Department | Woods Hole Oceanographic Institution* Woods Hole, MA

**Graduate Research Assistant** 2013 – 2019  
*Higgins Lab, Department of Geosciences | Princeton University* Princeton, NJ

### RESEARCH INTERESTS

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My research is mainly focused on the application of stable and radiogenic isotopes as tools in the investigation of the following topics:

- Links between ocean chemistry, carbon cycle, and Earth's long-term climate stability
- Controls on the timing, style, and extent of hydrothermal alteration of oceanic crust
- The role of secondary silicate formation in global biogeochemical cycles
- Deep cycling of volatiles and incompatible elements in subduction zones
- Osmotic regulation in plant and animal cells

## PUBLICATIONS

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### Peer-reviewed articles:

1. **Santiago Ramos, D.P.**, Nielsen, S.G., Coogan, L.A., Scheuermann, P.P., Seyfried Jr., W.E., and Higgins, J.A. (2022) The effect of high-temperature alteration of oceanic crust on the potassium isotopic composition of seawater. *Geochimica et Cosmochimica Acta*, 339:1-11.
2. Higgins, J.A., **Santiago Ramos, D.P.**, Gili, S., Spetea, C., Kanoski, S., Ha, D., McDonough, A.A., and Young, J.H. (2022) Stable potassium isotopes ( $^{41}\text{K}/^{39}\text{K}$ ) track transcellular and paracellular potassium transport in biological systems. *Frontiers in Physiology*.
3. de Obeso, J.C., **Santiago Ramos, D.P.**, Higgins, J.A., and Kelemen, P.B. (2021) A Mg isotopic perspective on the mobility of magnesium during serpentinization and carbonation of the Oman ophiolite. *Journal of Geophysical Research: Solid Earth*, 126(2).
4. Mayfield, K.K., Eisenhauer, A., **Santiago Ramos, D.P.**, Higgins, J.A., Horner, T.J., Auro, M., Magna, T., Moosdorf, N., Charette, M.A., Gonnee, M.E., Brady, C.E., Komar, N., Peucker-Ehrenbrink, B., and Paytan, A. (2021) The importance of groundwater discharge in the marine isotope budgets of Li, Mg, Ca, Sr, and Ba. *Nature Communications*, 12(1), 1-9.
5. **Santiago Ramos, D.P.**, Coogan, L.A., Murphy, J.G., and Higgins, J.A. (2020) Low-temperature oceanic crust alteration and the isotopic budgets of potassium and magnesium in seawater. *Earth and Planetary Science Letters*, 541, 116290.
6. **Santiago Ramos, D.P.**, Morgan, L.E., Lloyd, N.S., and Higgins, J.A. (2018) Reverse weathering in marine sediments and the geochemical cycle of potassium in seawater: Insights from the K isotopic composition ( $^{41}\text{K}/^{39}\text{K}$ ) of deep-sea pore-fluids. *Geochimica et Cosmochimica Acta*, 236:99-120.
7. Morgan, L.E., **Santiago Ramos, D.P.**, Davidheiser-Kroll, B., Faithfull, J., Lloyd, N., Ellam, E., and Higgins, J.A. (2018) High-precision  $^{41}\text{K}/^{39}\text{K}$  measurements by MC-ICP-MS indicate terrestrial variability of  $\delta^{41}\text{K}$ . *Journal of Analytical Atomic Spectrometry*, 33:175-186.
8. Higgins, J.A., Blättler, C.L., Lundstrom, E.A., **Santiago Ramos, D.P.**, Akhtar, A.A., Crüger Ahm, A-S., Bialik, O., Holmden, C., Bradbury, H., Murray, S.T., and Swart, P.K. (2018) Mineralogy, early marine diagenesis, and the chemistry of shallow-water carbonate sediments. *Geochimica et Cosmochimica Acta*, 220:512-534.
9. Dunlea, A. G., Murray, R. W., **Santiago Ramos, D. P.**, and Higgins, J. A. (2017) Cenozoic global cooling and increased seawater Mg/Ca via reduced reverse weathering. *Nature Communications*, 8:844.
10. Jones, D. S., Creel, R. C., Rios, B. A., and **Santiago Ramos, D. P.** (2015) Chemostratigraphy of

an Ordovician-Silurian carbonate platform:  $\delta^{13}\text{C}$  records below glacioeustatic exposure surfaces. *Geology*, 43:59-62.

Selected conference abstracts:

11. **Santiago Ramos, D.P.**, Coogan, L.A., and Higgins, J.A. (2018) Low-temperature oceanic crust alteration and the isotopic budgets of K and Mg in seawater. *Goldschmidt Geochemistry Conference, Boston, MA (oral presentation)*.
12. **Santiago Ramos, D.P.**, Coogan, L.A., and Higgins, J.A. (2017) A multi-proxy isotope study ( $\delta^{41}\text{K}$ ,  $\delta^{26}\text{Mg}$ ,  $^{87}\text{Sr}/^{86}\text{Sr}$ ) of low-temperature oceanic crust alteration: the Troodos Ophiolite and Ocean Drilling Program Hole 801C. *American Geophysical Union Fall Meeting, New Orleans, LA (oral presentation)*.
13. **Santiago Ramos, D.P.** and Higgins, J.A. (2017) Potassium cycling in seawater and aquatic organisms: Insights from stable potassium isotopes ( $^{41}\text{K}/^{39}\text{K}$ ). *Goldschmidt Geochemistry Conference, Paris, France (poster)*.
14. **Santiago Ramos, D.P.** and Higgins, J.A. (2017) Potassium isotopic composition of marine and freshwater fish: An example of diffusive K fractionation in biological systems. *Northeastern Geobiology Symposium, University of Connecticut, Storrs, CT (oral presentation)*.
15. **Santiago Ramos, D.P.** and Higgins, J.A. (2016) Assessing the role of clay authigenesis in the seawater potassium cycle: A paired K and Mg isotope study of deep-sea pore-fluids. *American Geophysical Union Fall Meeting, San Francisco, CA (oral presentation)*.
16. **Santiago Ramos, D.P.** and Higgins, J.A. (2015) Understanding potassium isotope fractionation during authigenic clay formation in pore-fluid systems: Implications for the  $\delta^{41}\text{K}$  of seawater. *American Geophysical Union Fall Meeting, San Francisco, CA (poster)*.
17. **Santiago Ramos, D.P.** and Jones, D.S. (2013) Assessing the potential effects of dolomitization on the sulfur isotopic composition of late Ordovician-early Silurian dolomites from the Basin and Range province, Nevada. *Northeastern Geological Society of America Annual Meeting, Bretton Woods, NH (poster)*.

**INVITED TALKS**

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Rutgers University, Earth and Planetary Sciences   New Brunswick, NJ	2021
Woods Hole Oceanographic Institution, Geology & Geophysics   Woods Hole, MA	2021
Purdue University, Earth, Atmospheric, and Planetary Sciences   West Lafayette, IN	2021
University of Victoria, School of Earth and Ocean Sciences   Victoria, BC, Canada	2021
University of Washington, School of Oceanography   Seattle, WA	2020

University of Southern California, Department of Earth Sciences   Los Angeles, CA	2020
Lamont-Doherty Earth Observatory, Geochemistry Seminar   Palisades, NY	2018
AGU Fall Meeting, Session V14A   San Francisco, CA	2017

Guest Lecturer:

Surface Earth Dynamics Class, Amherst College   Amherst, MA	2017
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**HONORS, AWARDS, AND FELLOWSHIPS**

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Postdoctoral Scholar, Woods Hole Oceanographic Institution (WHOI)	2019 - 2021
Walbridge Fund Graduate Award, Princeton Environmental Institute	2018
The Forris Jewett Moore Graduate Fellowship, Amherst College	2016 - 2017
Outstanding Student Presentation Award, AGU Fall Meeting, San Francisco, CA	2016
The Graduate School Teaching Award, Princeton University	2015
The John Mason Clarke 1877 Graduate Fellowship, Amherst College	2014 - 2015
Arnold Guyot Teaching Award, Princeton University	2014
Graduate Engineering Council Teaching Award, Princeton University	2014
Canadian Geology Fund, Princeton University (Graduate Fellowship)	2014
Phi Beta Kappa, Amherst College	2013
Sigma Xi, Amherst College	2013
The Belt-Brophy Prize, Amherst College	2012
The Richard M. Foose Scholarship, Amherst College	2011 - 2012
The Harvey Blodgett & Phi Delta Theta Scholarships, Amherst College	2011
The Koenig Scholarship, Amherst College (Undergraduate Fellowship)	2009 - 2013

**PROFESSIONAL SERVICE AND COMMUNITY OUTREACH**

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Peer-review contributions:

*Journals:* Geology

Chemical Geology  
Earth and Planetary Sciences  
Geochimica et Cosmochimica Acta

*Other:* Reviewer for a NASA panel

Mentoring:

Lívia Medeiros, US graduate school applications ( <i>pro bono</i> consulting)	2020
Vinicius Amaral, Princeton University Senior Thesis (now graduate student at UC Santa Cruz)	2017

Joan Cannon, Princeton University Junior Research Project 2013

Other volunteer work:

Latinas in Earth and Planetary Sciences (GeoLatinas) 2019 - present  
*Leadership Council & Professional Development Facilitator*

Woods Hole Committee on Diversity & Inclusion 2020 - 2021  
*Academic Recruitment Volunteer*

High School Science & Engineering Fair, Bourne, MA 2019  
*Judge*

Princeton Women in Geosciences (PWIGS), Princeton University 2014 - 2019  
*Board Member & Graduate Student Mentor*

Letters to a Pre-Scientist 2017  
*Scientist Pen Pal (to an elementary-school student in an underserved community)*

Latino Graduate Students Association (LGSA), Princeton University 2017  
*Professional Development Chair*

Trenton Area Soup Kitchen, Trenton, NJ (Adult Learning Center) 2015  
*GED Tutor*

International Students Association, Amherst College 2009 - 2013  
*Student Volunteer*

Science blog contribution:

Mehra, A. and **Santiago Ramos, D.** Did a change in phosphorus cycling lead to the diversification of macroscopic life? *Geobites.org*; Sept 8, 2020.

**FIELD EXPERIENCE**

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IODP Expedition 393, South Atlantic Transect (8 weeks) 2022

Little Hot Creek, Long Valley Caldera, CA (1 week) 2015

Troodos Ophiolite Complex, Cyprus (1 week) 2013

Northeastern Basin and Range, Ely, NJ (3 weeks) 2012

YBRA Geology Field School, Red Lodge, MT (5 weeks) 2011