



# DR. ALEXANDRA ATLEE PHILLIPS

## MOBILE

858.699.1133

## EMAIL

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## EDUCATION

**2011 - 2015**

Bachelor of Arts, Biology  
*College of Creative Studies, UC Santa Barbara*

**2015 - 2018**

Master of Science, Geochemistry  
*Department of Geological and Planetary Sciences, Caltech*

**2018 - 2021**

Doctorate of Philosophy, Geochemistry  
*Department of Geological and Planetary Sciences, Caltech*

## RESEARCH

**2021 - present**

Postdoctoral Researcher  
*Department of Earth Sciences, UC Santa Barbara*  
*Large Lakes Observatory, University of Minnesota Duluth*

- First investigation of Lake Superior's sedimentary S cycle
- Trained and mentored undergraduate and graduate students
- Methods used: XAS, IC, EA, LCMS, 16S, metagenomics

**2015 - 2021**

Graduate Student Researcher  
*Department of Geological and Planetary Sciences, Caltech*

- Developed first isotope measurements of the S amino acids
- Applied my novel methods to constrain ocean nutrient cycling
- Oversaw microbial ecology time series at Mono Lake, CA
- Led collaborative DEI project on role models on social media
- Successfully applied for NSF grant in chemical oceanography
- Methods used: EA-IRMS, LCMS, GCMS, MC-ICP-MS, NMR, 16S

## AWARDS

**January 2021**

AGU Outstanding Student Presentation Award  
*Given to the top 2% of conference presentations on oceanography*

**November 2020**

Caltech GSC Mentorship Award  
*Awarded annually to two Caltech students for excellence in mentoring*

**June 2020**

Caltech GPS Diversity, Equity, and Inclusion Outreach Award  
*Awarded to three students for exceptional DEI outreach activity*

|                     |   |
|---------------------|---|
| <b>May 2020</b>     | Caltech Y Lucy Guernsey Service Award<br><i>Given to two students annually for volunteer service to the community</i>     |
| <b>January 2020</b> | AGU Outstanding Student Presentation Award<br><i>Given to the top 2% of conference presentations on science education</i> |
| <b>June 2019</b>    | Birch Aquarium Ten Years of Service Award<br><i>Recognition for ten years of volunteer service as an aquarium docent</i>  |
| <b>June 2015</b>    | UCSB Highest Honors<br><i>Awarded to all UCSB graduates with over a 3.87 cumulative GPA</i>                               |
| <b>June 2015</b>    | UCSB University Award of Distinction<br><i>Given to ten graduates with history of service to the UCSB community</i>       |

## **FELLOWSHIPS**

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|--------------------|--|
| <b>2019 - 2020</b> | American Geophysical Union Voices for Science<br><i>Science Policy Track</i> |
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## **PROFESSIONAL ACTIVITY**

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|--------------------|---|
| <b>Summer 2017</b> | Agouron International Geobiology Course |
|--------------------|---|

## **OUTREACH**

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|-----------------------|--|
| <b>2018 - present</b> | Founder, Women Doing Science<br><i>Women Doing Science is a social media movement with ~100,000 followers that increases the visibility of diverse female scientists</i>                       |
| <b>2020 - present</b> | Founder, Wonder Fund by Women Doing Science and AGU<br><i>The Wonder Fund seeks to provide travel grants and mentorship opportunities to Black and Indigenous female geoscientists</i>         |
| <b>2020 - present</b> | Mentor, UC Santa Barbara LEADS<br><i>This program pairs upper division STEM students from underrepresented groups with research advisors on campus</i>   |
| <b>2020 - 2021</b>    | Member, Geochemical Society DEI Committee<br><i>This committee seeks to address diversity, equity, and inclusion, with members assisting on social media, town halls, and other efforts</i>    |
| <b>2017 - 2021</b>    | Geochemistry Representative, Caltech Women in GPS<br><i>Caltech WING is the women's group in the division, hosting journal clubs on DEI topics, speaker coffee hours and networking events</i> |

- 2017 - 2021** Mentor, Westridge School for Girls Research in Science Program  
*Mentored three high school seniors through their school year, supervising research projects and a final poster presentation*
- 2018 - 2021** Founder, Caltech Y RISE SAT/ACT Math Summer Prep Program  
*As an extension of RISE, this summer course offers free private math tutoring to students from the Pasadena Unified School District*
- 2019 - 2021** Member, GPS Local Student Committee  
*Members of the LSC advocate for graduate student issues such as access to software and division diversity and inclusion*
- 2016 - 2020** Tutor, Caltech Y RISE Program  
*Pasadena students failing math and science are paired with Caltech students for the school year for private tutoring and homework help*
- 2009 - 2019** Docent, Birch Aquarium at Scripps Institution of Oceanography  
*Docents facilitate the translation of SIO research to the San Diego public through tours, kelp tank presentations, and guest interaction*
- 2011 - 2015** Coordinator, UCSB Fifth Grade Chemistry Outreach  
*Santa Barbara elementary schools visit UCSB chemistry labs, where they are guided through five stations with chemical reactions*

## FIELD EXPERIENCE

- July 2015** R/V Blue Heron (ORGS-2), 4 days  
*Duluth, Mn to Duluth, Mn*
- September 2020** R/V Atlantic Explorer (BATS-372), 7 days  
*St Georges, BDA to St Georges, BDA*
- June 2015** R/V Atlantis (SEEPS-15), 18 days  
*St Petersburg, FL to St Petersburg, FL*
- September 2013** R/V Atlantis (SEEPS-13), 21 days  
*San Francisco, CA to San Diego, CA*

## TEACHING ASSISTANT

- Fall 2019** Anatomy of an IRMS, Caltech
- Summer 2019** Agouron International Geobiology Course

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| <b>Spring 2019</b> | Organic Geochemistry, Caltech           |
| <b>Summer 2018</b> | Agouron International Geobiology Course |
| <b>Spring 2018</b> | Stable Isotope Geochemistry, Caltech    |
| <b>Fall 2017</b>   | Introduction to Geobiology, Caltech     |
| <b>Spring 2013</b> | General Chemistry Lab, UCSB             |

## WORKSHOPS

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|--------------------|--|
| <b>Fall 2020</b>   | A scientist's ten step guide to engaging in policy<br><i>Caltech Y Student Activism Speaker Series</i>             |
| <b>Summer 2019</b> | Figure making for scientists with Affinity Designer<br><i>Caltech Geological and Planetary Sciences Department</i> |
| <b>Winter 2019</b> | Isotopes and Instagram!<br><i>Introduce a Girl to Engineering Day, Society of Women Engineers</i>                  |
| <b>Winter 2019</b> | Creating Math Skills Worksheets<br><i>Caltech Y Tutor Workshop Series</i>  |
| <b>Fall 2019</b>   | Bridging the GAP: geosciences and politics<br><i>Caltech Geological and Planetary Sciences Department</i>          |
| <b>Fall 2018</b>   | Outreach opportunities at Caltech and the community<br><i>Caltech Center for Teaching, Learning and Outreach</i>   |
| <b>Winter 2016</b> | Building relationships with students: Do's and Don'ts<br><i>Caltech Y Tutor Workshop Series</i>                    |
| <b>Winter 2015</b> | Methane bubbles, dry ice flowers, and other reactions!<br><i>UCSB Science and Technology MESA Day</i>              |
| <b>Spring 2014</b> | Chemical reactions and college chemistry<br><i>UCSB College Link Outreach Program</i>                              |

## PUBLICATIONS

### In Preparation

**Phillips, A.A.**, White, M.E., Seidel, M., Wu, F., Pavia, F.J., Kemeny, P.C., Ma, A.C., Aluwihare, L.I., Dittmar, T., Sessions, A.L. Resolving sources of marine dissolved organic matter (DOM) via novel sulfur isotope analysis.

**Phillips, A.A.**, Walsh, C.R., Grayson, K.A., Penney, C.E., Husain, F., Women Doing Science Team. Diversity on social media: a case study with the Women Doing Science Instagram.

### Accepted

Silverman, S.N., **Phillips, A.A.**, Weiss, G.M., Wilkes, E., Eiler, J., Sessions, A.L. Considerations for sample preparation of amino acids for compound and position specific isotope analysis. *Organic Geochemistry*. **Invited**.

### Published

**Phillips, A.A.**, Speth, D.R., Miller, L.G., Wang, X.T., Wu, F., Medeiros, P.M., Monteverde, D.R., Osburn, M.R., Berelson, W.W., Betts, H.L., Wijker, R.S., Mullin, S.W., Johnson, H.A., Orphan, V.J., Geobiology Course 2017, Geobiology Course 2018, Sessions, A.L. (2021). Microbial succession and dynamics in meromictic Mono Lake, CA. *Geobiology*. 19:376-393.

**Phillips, A.A.**, Wu, F., Sessions, A.L. Compound-specific sulfur isotope analysis of cysteine and methionine via preparatory liquid chromatography and elemental analyzer isotope-ratio mass spectrometry. (2021). *Rapid Communications in Mass Spectrometry*. 35.

Hetherington, E.D., **Phillips, A.A.** (2020). A Scientist's guide for engaging in policy in the United States. *Frontiers in Marine Science*. 7:1-8.

### CONFERENCES

Hetherington, E., **Phillips, A.A.** (2020). Answering the 'how to': a scientist's guide to policy. *Ocean sciences meeting*.

**Phillips, A.A.** (2020) Science communications lessons from the Women Doing Science Instagram. *AGU Fall Meeting*. **Invited**.

**Phillips, A.A.** (2019). How 8½ doctors learned to talk to policymakers. *AGU Fall Meeting*. **Invited**.

**Phillips, A.A.**, Speth, D.R., Miller, L.G., Wu, F., Wang, T.W., Potocek, D., Medeiros, P.M., Osburn, M.R., Johnson, H., Trower, L., Berelson, W.W., West, A.J., Fischer, W.W., Orphan, V.J., Betts, H., Sessions, A.L. (2019). Microbial succession in hypersaline, alkaline, Mono Lake, CA. *AGU Fall Meeting*.

**Phillips, A.A.**, Ward, B., Grayson, K., Lopez, G., Dong, G., Husain, F., Verba, C. (2019). Communicating science to the world from your phone: stories from the Women Doing Science Instagram. *AGU Fall Meeting*.

Tracey, J., Hobart, K., Rusley, C., Steinsdóttir, H., Weisend, R., **Phillips, A.A.**, Speth, D.R., Laso Perez, R., Tully, B.J., Miller, L., Fischer, W.W., Sessions, A.L., Orphan, V.J. (2019). Metagenomic exploration of the Mono Lake Water column: how microbes thrive despite high salt and arsenic concentrations. *AGU Fall Meeting*.

**Phillips, A.A.**, Wu, F., Sessions, A.L. (2018). Compound specific  $\delta^{34}\text{S}$  measurements of the sulfur amino acids cysteine and methionine. *Organic Geochemistry Gordon Research Conference*. *Invited*.

**Phillips, A.A.**, Wu, F., Bowlen, B.A., Sessions, A.L. (2018). Compound specific sulfur isotopes of the amino acids cysteine and methionine. *AGU Fall Meeting*.

Figueroa, M.C., Parra, S.A., Zhu, Q., Conley, B., Speth, D.R., Monteverde, D., **Phillips, A.A.**, Sessions, A.L., Orphan, V.J., Fischer, W.W., Miller, L. (2018). Spatial and temporal dynamics of microbial sulfur cycling during the onset of meromixis in Mono Lake, California. *AGU Fall Meeting*.

Hughes, E.R., Wang, T.X., Hancock, L.G., Sessions, A.L., Behl, R.J., Wu, F., **Phillips, A.A.**, Bates, S.M., Fischer, W.W., Lyons, T.W. (2018). Sulfur isotope composition of organic matter from the Monterey formation: implications for California margin redox conditions in the late Miocene. *AGU Fall Meeting*.

**Phillips, A.A.**, Fairbanks, D., Wells, M., Fullerton, K.M., Bao, R., Johnson, H., Speth, D.R., Stamps, B.W., Miller, L., Sessions, A.L. (2017). Dynamics of biogeochemical sulfur cycling in Mono Lake. *AGU Fall Meeting*.

Fairbanks, D., **Phillips, A.A.**, Wells, M., Bao, R., Fullerton, K.M., Stamps, B.W., Speth, D.R., Johnson, H., Sessions, A.L. (2017). Microbial ecology of soda lakes: investigating sulfur and nitrogen cycling at Mono Lake, CA, USA. *AGU Fall Meeting*.