

Dr. Sophia K.V. Hines

Lamont-Doherty Earth Observatory
61 Route 9W ◊ Palisades, NY 10964
sophiakvhines.com ◊ shines@ldeo.columbia.edu

EDUCATION

California Institute of Technology 2011–2018

Ph.D. in Geochemistry, Division of Geological and Planetary Sciences

Thesis title: “Glacial Ocean Dynamics: Insight from Deep-Sea Coral Reconstructions and A Time-Dependent Dynamical Box Model”

Advisor: Jess Adkins

Carleton College 2007–2011

B.A. in Chemistry, *Magna cum laude*

PROFESSIONAL APPOINTMENTS

California Institute of Technology Nov. 2017–March 2018

Postdoctoral researcher in Global Environmental Science

Lamont-Doherty Earth Observatory of Columbia University April 2018–present

Lamont Postdoctoral Research Fellowship

PEER-REVIEWED PUBLICATIONS

1. A. F. Thompson, **S. K. Hines**, and J. F. Adkins, A Southern Ocean mechanism for climate transients through the last glacial, *Journal of Climate* (*in press*).
2. **S. K. Hines**, A. F. Thompson, and J. F. Adkins, The role of the Southern Ocean in abrupt transitions and hysteresis in glacial ocean circulation, *Paleoceanography and Paleoclimatology* (2019).
3. J. Gruetzner, F. J. Jimenez Espejo, N. Lathika, G. Uenzelmann-Neben, I. R. Hall, S. R. Hemming, L. J. LeVay, and the Expedition 361 Scientists, A New Seismic Stratigraphy in the Indian-Atlantic Ocean Gateway Resembles Major Paleo-Oceanographic Changes of the Last 7 Ma, *Geochemistry, Geophysics, Geosystems*, (2019).
4. D. N. Tanguana, K.-H. Baumann, J. Just, L. J. LeVay, S. Barker, L. Brentegana, D. De Vleeschouwer, I. R. Hall, S. Hemming, R. Norris, **the Expedition 361 Shipboard Scientific Party**, The last 1 million years of the extinct genus *Discoaster*: Plio-Pleistocene environment and productivity at Site U1476 (Mozambique Channel), *Palaeogeography, Palaeoclimatology, Palaeoecology*, (2018).
5. X. T. Wang, D. M. Sigman, M. G. Prokopenko, J. F. Adkins, L. F. Robinson, **S. K. Hines**, J. Chai, A. S. Studer, A. Martinez-Garcia, G. H. Haug, Deep-sea coral evidence for lower Southern Ocean surface nitrate concentrations during the last ice age, *PNAS*, (2017).
6. T. Struve, T. van de Flierdt, L. F. Robinson, L. I. Bradtmiller, **S. K. Hines**, J. F. Adkins, M. Lambelet, K. C. Crocket, K. Kreissig, B. Coles, M. E. Auro, Neodymium isotope analyses after combined extraction of actinide and lanthanide elements from seawater and deep-sea coral aragonite, *Geochemistry, Geophysics, Geosystems*, (2015).
7. **S. K. Hines**, J. R. Southon, J. F. Adkins, Time series of radiocarbon in Southern Ocean intermediate water for the past 30,000 years, *Earth and Planetary Science Letters*, (2015).

8. S. Bush, G. M. Santos, X. Xu, J. Southon, N. Thiagarajan, **S. K. Hines**, J. F. Adkins, Simple, rapid and cost effective: A screening method for ^{14}C analysis of small carbonate samples, *Radio-carbon*, (2013).

PUBLICATIONS IN REVIEW AND IN PREPARATION

S. K. Hines, J. M. Eiler, J. R. Southon, and J. F. Adkins, Dynamic intermediate waters across the late glacial revealed by paired radiocarbon and clumped isotope temperature records, *Paleoceanography and Paleoclimatology* (*in review*).

NON-PEER-REVIEWED PUBLICATIONS

I. R. Hall, S. R. Hemming, L. J. LeVay, and **the Expedition 361 Scientists**, 2017. South African Climates (Agulhas LGM Density Profile). Proceedings of the International Ocean Discovery Program, 361: College Station, TX (International Ocean Discovery Program).

ACADEMIC HONORS AND FELLOWSHIPS

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| Lamont Postdoctoral Research Fellowship | 2018 |
| Caltech nominee for the Schmidt Science Fellowship | 2017 |
| NOSAMS Graduate Student Fellowship-Woods Hole Oceanographic Institute | 2013 |
| Caltech Institutional Fellowship | 2011–2012 |

FIELD EXPERIENCE

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| R/V JOIDES Resolution—IODP Expedition 361 | 2016 |
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INVITED SEMINARS

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| Geology and Geophysics seminar, WHOI | 2018 |
| Atmosphere, Ocean, and Climate Sack Lunch Seminar, MIT | 2018 |
| Guest seminar at University of Washington Department of Oceanography | 2017 |
| Lamont-Doherty Earth Observatory Geochemistry seminar | 2016, 2017 |
| UC Berkeley Isotope Geochemistry seminar | 2017 |
| University of Southern California Paleoenvironmental seminar | 2016 |

CONFERENCE PRESENTATIONS

S. K. Hines, A. F. Thompson, J. F. Adkins, The dynamics of abrupt transitions and hysteresis in glacial ocean circulation, Talk, Comer Climate Conference (2018).

S. K. Hines, J. M. Eiler, J. F. Adkins, Intermediate water temperature and radiocarbon records from the North Atlantic and Southern Ocean across the most recent glacial termination, Talk, Goldschmidt (2017).

S.K. Hines, J. F. Adkins, A. F. Thompson, Insight into glacial interhemispheric ocean dynamics using a time-dependent box model with realistic ocean physics, Talk, NCAR Southern Ocean Workshop (2017).

S. K. Hines, A. F. Thompson, J. F. Adkins, Using a time-dependent dynamical box model to understand Intermediate Water records of radiocarbon and temperature, Poster, AGU Fall Meeting (2016).

S. K. Hines, J. M. Eiler, J. F. Adkins, A deep-sea coral clumped isotope and radiocarbon record from Southern Ocean intermediate water spanning the most recent glacial termination.

- Talk presented at AGU Fall Meeting in San Francisco, CA (2015)
- Poster presented at ICP12 conference in Utrecht, Netherlands (2016)

S. K. Hines, J. R. Southon, J. F. Adkins, Time series of radiocarbon in Southern Ocean intermediate water for the past 30,000 years.

- Poster presented at Goldschmidt in Sacramento, CA (2014)
- Talk presented at IPODS conference in Bern, Switzerland (2014)

TEACHING EXPERIENCE

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| Guest lectures at Columbia in ‘Introduction to Terrestrial Paleoclimate’ and ‘Southern Ocean Overturning Circulation’ | 2018 |
| Participated in ‘Principles of University Teaching and Learning in STEM’ course at Caltech | 2017 |
| Marine Geochemistry TA for Prof. Jess Adkins | 2015 |
| Paleoceanography TA for Prof. Jess Adkins | 2014 |

OUTREACH

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| American Museum of Natural History EarthFest exhibit with link to the JOIDES Resolution | (2019) |
| Volunteer at the Intrepid Museum Kid’s Week | (2019) |
| Volunteer at Lamont-Doherty Earth Observatory Open House | (2018) |
| Helped organize Caltech Division Geological and Planetary Sciences booth at the Los Angeles March for Science | (2017) |
| Led tours for school groups through Caltech Center for Teaching, Learning and Outreach | |
| - Linde-Robinson Building Coelostat tour for middle school group and high school Astronomy club | (2017) |
| - Pi-day presentations on deep ocean and cave research for a group of third-graders and middle school girl scouts | (2017) |
| Led lab tours for high school students from Pasadena | (2015) |
| Co-taught seminar on the ocean and climate change for a group of Kindergarten students | (2013) |