

# SLOAN COATS

## Curriculum Vitae

Woods Hole Oceanographic Institution  
266 Woods Hole Rd. (MS 23)  
Woods Hole, MA 02540

Phone: 508-289-3509  
E-mail: scoats@whoi.edu  
Web: scoatsclim.github.io

### PROFESSIONAL APPOINTMENTS

<b>Woods Hole Oceanographic Institution</b> , Woods Hole, MA Assistant Scientist	2018-
<b>National Center for Atmospheric Research</b> , Boulder, CO Advanced Studies Program	2016-2017
<b>University of Colorado</b> , Boulder, CO CIRES Research Associate	2015-2016

### EDUCATION

<b>Columbia University</b> , New York, NY Ph.D., Atmospheric Science, Department of Earth and Environmental Sciences*	2015
M.A., Atmospheric Science, Department of Earth and Environmental Sciences <i>*Dissertation awarded the Science for Society Prize</i>	2012
<b>University of California at Berkeley</b> , Berkeley, CA B.A., <i>High Honors</i> , Environmental Economics and Policy	2009
B.S., <i>High Honors</i> , Geography	2009

### TEACHING EXPERIENCE

<b>MIT-WHOI Joint Program</b> , Woods Hole, MA Instructor: Geodynamics Seminar Series: North Atlantic Climate and Civilization	Spring 2019
Instructor: Current Climate Change Topics	Fall 2018
<b>University of Colorado, Dept. of Atmospheric and Oceanic Sciences</b> , Boulder, CO Lecturer: Atmospheric and Oceanic Sciences 1060: Our Changing Environment	Spring 2016
<b>Columbia University, Dept. of Earth &amp; Environmental Sciences</b> , New York, NY Teaching Assistant: Earth and Environmental Science 2100: The Climate System	Fall 2012
Teaching Assistant: Earth and Environmental Science 2100: The Climate System	Fall 2011

### PUBLICATIONS

#### Published and In Press

- Samanta, D., K.B. Karnauskas, N. Goodkin, **S. Coats**, J.E. Smerdon and L. Zhang, Coupled model biases breed spurious low-frequency variability in the tropical pacific ocean, *Geophysical Research Letters*, 2018. DOI: <https://doi.org/10.1029/2018GL079455>

22. Herrera-Hernandez, D.A., T.R. Ault, J.T. Fasullo, **S. Coats**, C.M. Carrillo, B.I. Cook and A.P. Williams, Exacerbation of the 2013-2016 Pan-Caribbean drought by anthropogenic warming, *Geophysical Research Letters*, 2018. DOI: <https://doi.org/10.1029/2018GL079408>
21. Cook, B.I., A.P. Williams, J.E. Smerdon, J.G. Palmer, E.R. Cook, D.W. Stahle and **S. Coats**, Cold tropical Pacific sea surface temperatures during the late sixteenth-century North American megadrought, *Journal of Geophysical Research: Atmospheres*, 2018. DOI: <https://doi.org/10.1029/2018JD029323>
20. Parsons, L., **S. Coats** and J.T. Overpeck, The continuum of drought in Southwestern North America, *Journal of Climate*, 2018. DOI: <https://doi.org/10.1175/JCLI-D-18-0010.1>
19. **Coats, S.** and K.B. Karnauskas, A role for the Equatorial Undercurrent in the ocean dynamical thermostat, *Journal of Climate*, 2018. DOI: <https://doi.org/10.1175/JCLI-D-17-0513.1>
18. Stevenson, S., J.T. Overpeck, J. Fasullo, **S. Coats**, L. Parsons, B. Otto-Bliesner, T. Ault, G. Loope and J. Cole, Climate Variability, Volcanic Forcing, and Last Millennium Hydroclimate Extremes, *Journal of Climate*, 2018. DOI: [10.1175/JCLI-D-17-0407.1](https://doi.org/10.1175/JCLI-D-17-0407.1)
17. Ault, T., S. St. George, J.E. Smerdon, **S. Coats**, J.S. Rankin, C.C. Carillo, B.I. Cook and S. Stevenson, A robust null hypothesis for the potential causes of megadrought in western North America, *Journal of Climate*, 2018. DOI: [10.1175/JCLI-D-17-0154.1](https://doi.org/10.1175/JCLI-D-17-0154.1)
16. **Coats, S.** and K.B. Karnauskas, Are simulated and observed 20th century tropical Pacific sea surface temperature trends significant relative to internal variability?, *Geophysical Research Letters*, 2017. DOI: [10.1002/2017GL074622](https://doi.org/10.1002/2017GL074622)
15. Smerdon, J.E., J. Luterbacher, S.J. Phipps, K.J. Anchukaitis, T. Ault, **S. Coats**, et al., Comparing proxy and model estimates of hydroclimate variability and change over the Common Era, *Climate of the Past Discussions*, 2017. DOI: [10.5194/cp-13-1851-2017](https://doi.org/10.5194/cp-13-1851-2017)
14. Lehner, F., **S. Coats**, T.F. Stocker, A.G. Pendergrass, B.M. Sanderson, C.C. Raible and J.E. Smerdon, Projected drought risk in 1.5°C and 2.0°C warmer climates, *Geophysical Research Letters*, 2017. DOI: [10.1002/2017GL074117](https://doi.org/10.1002/2017GL074117)
13. Baek, S.H., J.E. Smerdon, **S. Coats**, B.I. Cook, R. Seager and A.P. Williams, Seasonality and teleconnection signals across the North American, Monsoon Asia, and Old World Drought Atlas, *Journal of Climate*, 2017. DOI: [10.1175/JCLI-D-16-0766.1](https://doi.org/10.1175/JCLI-D-16-0766.1)
12. Scheff, J., R. Seager, H. Liu and **S. Coats**, Are glacials dry? Consequences for paleoclimatology and for greenhouse warming, *Journal of Climate*, 2017. DOI: [10.1175/JCLI-D-16-0854.1](https://doi.org/10.1175/JCLI-D-16-0854.1)
11. **Coats, S.** and J.S. Mankin, The challenge of accurately quantifying future megadrought risk in the American Southwest, *Geophysical Research Letters*, 2016. DOI: [10.1002/2016GL070445](https://doi.org/10.1002/2016GL070445)
10. **Coats, S.**, J.E. Smerdon, B.I. Cook, R. Seager, E.R. Cook and K.J. Anchukaitis, Internal ocean-atmosphere variability drives megadroughts in Western North America, *Geophysical Research Letters*, 2016. DOI: [10.1002/2016GL070105](https://doi.org/10.1002/2016GL070105)
9. **Coats, S.**, J.E. Smerdon, K.B. Karnauskas and R. Seager, The improbable but unexceptional occurrence of North American megadrought clustering during the Medieval Climate Anomaly, *Environmental Research Letters*, 2016. DOI: [10.1088/1748-9326/11/7/074025](https://doi.org/10.1088/1748-9326/11/7/074025)
8. Cook, B.I., E.R. Cook, J.E. Smerdon, R. Seager, A.P. Williams, **S. Coats**, D.W. Stahle and J.V. Diaz, North American megadroughts in the Common Era: Reconstructions and simulations, *WIREs Climate Change*, 2016. DOI: [10.1002/wcc.394](https://doi.org/10.1002/wcc.394)

7. **Coats, S.**, D. Griffin, R. Seager, J.E. Smerdon and B.I. Cook, Winter-to-summer precipitation phasing in southwestern North America: A multi-century perspective from paleoclimatic model-data comparisons, *Journal of Geophysical Research: Atmospheres*, 2015. DOI: 10.1002/2015JD023085
6. Smerdon, J.E., **S. Coats** and T.R. Ault, Model-dependent spatial skill in pseudoproxy experiments testing climate field reconstruction methods for the Common Era, *Climate Dynamics*, 2015. DOI: 10.1007/s00382-015-2684-0
5. **Coats, S.**, B.I. Cook, J.E. Smerdon and R. Seager, North American pan-continental droughts in model simulations of the last millennium, *Journal of Climate*, 2015. DOI: 10.1175/JCLI-D-14-00634.1
4. **Coats, S.**, J.E. Smerdon, B.I. Cook and R. Seager, Are simulated megadroughts in the North American southwest forced?, *Journal of Climate*, 2015. DOI: 10.1175/JCLI-D-14-00071.1
3. Cook, B.I., J.E. Smerdon, R. Seager and **S. Coats**, Global warming and 21st century drying, *Climate Dynamics*, 2014. DOI: 10.1007/s00382-014-2075-y
2. **Coats, S.**, J.E. Smerdon, B.I. Cook and R. Seager, Stationarity of the tropical Pacific teleconnection to North America in the CMIP5/PMIP3 model simulations, *Geophysical Research Letters*, 2013. DOI: 10.1002/grl.50938
1. **Coats, S.**, J.E. Smerdon, R. Seager, B.I. Cook and J.F. González-Rouco, Megadroughts in southwestern North America in millennium-length ECHO-G simulations and their comparison to proxy drought reconstructions, *Journal of Climate*, 2013. DOI: 10.1175/JCLI-D-12-00603.1

#### Non Peer-Reviewed

1. **Coats, S.** and J.E. Smerdon, Climate variability: The Atlantic's internal drum beat, *Nature Geoscience*, 2017. DOI: 10.1038/ngeo2970

#### SELECTED PRESENTATIONS

10. **Coats, S.**, Reconciling contradictory tropical Pacific climate changes with the equatorial undercurrent, Princeton Climate Seminar Series, 2018 (Oral), UConn Center for Integrative Geosciences Seminar Series, 2018 (Oral).
9. **Coats, S.**, Paleoclimate constraints on the spatiotemporal scales of past and future droughts in climate models, GFDL Formal Seminar, 2017 (Oral), PAGES OSM, 2017 (Oral), AGU Fall Meeting, 2017 (Oral).
8. **Coats, S.**, Characterizing North American droughts under different forcings in the CESM LME, PAGES YSM, 2017 (Poster) and CESM Working Group Meeting, 2017 (Poster).
7. **Coats, S.** and K.B. Karnauskas, Global warming and tropical Pacific sea surface temperature: Why models and observations do not agree, AGU Fall Meeting, 2016 (Oral) and EGU Meeting, 2017 (Oral).
6. **Coats, S.**, J.E. Smerdon, B.I. Cook, R. Seager, E.R. Cook and K.J. Anchukaitis, Internal ocean-atmosphere variability drives megadroughts in Western North America, CLIVAR Workshop on Decadal Variability and Predictability, 2015 (Oral) and AGU Fall Meeting, 2015 (Oral).
5. **Coats, S.**, B.I. Cook, J.E. Smerdon and R. Seager, North American pan-continental droughts in model simulations of the last millennium, AGU Fall Meeting, 2014 (Oral).
4. **Coats, S.**, J.E. Smerdon, B.I. Cook and R. Seager, Are simulated megadroughts in the North American southwest forced?, AGU Fall Meeting, 2013 (Poster).

3. **Coats, S.**, J.E. Smerdon, B.I. Cook and R. Seager, Stationarity of the tropical Pacific teleconnection to North America in the CMIP5/PMIP3 model simulations, Third International Workshop on Climate Informatics, 2013 (Poster).
2. **Coats, S.**, J.E. Smerdon, R. Seager, B.I. Cook and J.F. González-Rouco, Megadroughts in southwestern North America in millennium-length ECHO-G simulations and their comparison to proxy drought reconstructions, AGU Fall Meeting, 2012 (Poster).
1. **Coats, S.**, Q. Fu, J.E. Smerdon, A. Banerjee and R. Seager, Model-data comparisons of hydroclimate variability in the North American southwest using Markov Random Field methods for drought detection, Second International Workshop on Climate Informatics, 2012 (Oral + Poster).

## MENTORING

Nathaniel Mollica (MIT-WHOI Joint Program, Advisory Committee)  
 Mathew Osmann (MIT-WHOI Joint Program, Advisory Committee)  
 Elizabeth Wallace (MIT-WHOI Joint Program, Advisory Committee)  
 Anna Black (Williams College '19, WHOI Summer Student Fellow, Primary Advisor)

## FELLOWSHIPS AND AWARDS

DEES Science for Society Prize	2015
AGU Fall Meeting Outstanding Student Presentation Award	2013
Phi Beta Kappa	2009

## SERVICE AND OUTREACH

WHOI High Performance Computing Advisory Committee	2018-
ASP Thompson Lecture Organizing Committee	2016-2017
LDEO Division of Ocean and Climate Physics Seminar Organizer	2014-2015
Earth Institute Student Advisory Council	2012-2013
Reviewer: Journal of Climate, Geophysical Research Letters, Environmental Research Letters, Nature Climate Change, Nature Geoscience, Nature Communications, Journal Geophysical Research: Oceans.	2013-