KATHLEEN A. SCHIRO

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EDUCATION

University of California, Los Angeles | Los Angeles, CA **2017**
PhD, Atmospheric and Oceanic Sciences
"Thermodynamic Controls on Deep Convection in the Tropics: Observations and Applications to Modeling"

University of California, Los Angeles | Los Angeles, CA **2013**
M.S., Atmospheric and Oceanic Sciences

Johns Hopkins University | Baltimore, MD **2011**
B.A., Earth and Planetary Sciences

PROFESSIONAL APPOINTMENTS

Assistant Professor | Dept. of Environmental Sciences, University of Virginia **2020 – present**

JPL Postdoctoral Scholar | NASA Jet Propulsion Laboratory, Pasadena, CA **2018 – 2020**

Caltech Postdoctoral Scholar | NASA Jet Propulsion Laboratory, Pasadena, CA **2017 – 2018**

Staff Research Associate | Dept. of Atmospheric and Oceanic Sciences, UCLA **2017**

Research Assistant | Dept. of Atmospheric and Oceanic Sciences, UCLA **2011 – 2017**

AWARDS

Jakob Bjerknes Memorial Research Award | Dept. of Atmospheric and Oceanic Sciences, UCLA **2017**
The UCLA AOS graduate student award for academic excellence and outstanding research (dissertation award)

Dissertation Year Fellowship | UCLA **2016**

Best Poster Presentation | WCRP Latin America and Caribbean Conference **2014**

Second Place Poster Presentation | AMS Annual Meeting, 28th Conference on Hydrology **2014**

Morris Neiburger Memorial Teaching Award | Dept. of Atmospheric and Oceanic Sciences, UCLA **2013**
"In recognition of excellence in the teaching of Atmospheric and Oceanic Sciences"

Brian Bosart Graduate Student Award | Dept. of Atmospheric and Oceanic Sciences, UCLA **2013**
"For unselfish service to fellow students and positive contributions to department life while demonstrating a firm commitment to academics."

Group Achievement Award | NASA Ames Research Center **2012**
"For the outstanding achievement by the Ames Railroad Valley experiment team during the 2011 Railroad Valley Vicarious Calibration Campaign."

Dept. of Atmospheric and Oceanic Sciences Fellowship | UCLA **2011**

PUBLICATIONS

(h-index **12** | i10 index **13**)

22. **Schiro, K. A.**, H. Su, F. Ahmed, N. Dai, C. E. Singer, P. Gentine, G. S. Elsaesser, J. H. Jiang, and J. D. Neelin, 2021: Model spread in tropical low cloud feedback tied to overturning circulation response to warming, *Nature Communications, in revision.*

21. **Schiro, K. A.** and H. Su, 2021: Interactions between tropical clouds and large-scale atmospheric circulation in present and future climate. *AGU Clouds and Climate Monograph, in revision.*

20. Jiang, J. H., H. Su, L. Wu, C. Zhai, and **K. A. Schiro**, 2021: Improvements in cloud and water vapor simulations over the tropical oceans in CMIP6 compared to CMIP5. *Earth and Space Science, 8(5), e2020EA001520.*

19. **Schiro, K. A.**, S. C. Sullivan, Y.-H. Kuo, H. Su, P. Gentine, G. Elsaesser, J. H. Jiang, and J. D. Neelin, 2020:

Environmental controls on tropical mesoscale convective system precipitation intensity. *Journal of the Atmospheric Sciences,* 77(12), 4233-4249.

18. Zhang, C., S. Xie, C. Tao, S. Tang, T. Emmenegger, J. D. Neelin, **K. A. Schiro**, W. Lin, 2020: The ARM Data-oriented Metrics and Diagnostics Package for Climate Models. *Bulletin for the American Meteorological Society (BAMS),* 101(10), E1619-E1627.

17. Kuo, Y. H., J. D. Neelin, J. F. Booth, C.-C. Chen, W.-T. Chen, A. Gettelman, X. Jiang, E. Maloney, C. R. Mechoso, Y. Ming, **K. A. Schiro**, C. J. Seman, C.-M. Wu, and M. Zhao, 2020: Convective transition statistics over tropical oceans for climate model diagnostics: GCM performance. *J. Atmos. Sci., 77(1), 379-403.*

16. Sullivan, S. C., **K. A. Schiro**, J. Yin, and P. Gentine, 2019: Changes in precipitation extremes from organized convection with El Niño warming. *Geophysical Research Letters, 47(14),* e2020GL087663.

15. **Schiro, K. A**., H. Su, Y. Wang, B. G. Langenbrunner, J. H. Jiang, and J. D. Neelin, 2019: Relationships between tropical circulation and high cloud fraction changes with warming revealed by perturbation physics experiments in CESM. *Geophysical Research Letters, DOI:* 10.1029/2019GL083026

14. Sullivan, S. C., **K. A. Schiro**, C. Stubenrauch, and P. Gentine, 2019: The response of organized convection throughout the tropics to El Nino warming. *Journal of Geophysical Research: Atmospheres,* 124, 8481-8500.

13. Wang, D., S. E. Giangrande, **K. A. Schiro**, M. P. Jensen, and R. A. Houze, 2019: The Characteristics of Tropical and Midlatitude Mesoscale Convective Systems as Revealed by Radar Wind Profilers. *Journal of Geophysical Research: Atmospheres,* 124(8), 4601-4619.

12. **Schiro, K. A.** and J. D. Neelin, 2019: Deep Convective Organization, Moisture Vertical Structure and Convective Transition using Deep-Inflow Mixing. *Journal of the Atmospheric Sciences,* 76(4), 965-987.

11. Chakraborty, S., **K. A. Schiro**, R. Fu, and J. D. Neelin, 2018: On the role of aerosols, humidity, and vertical wind shear in the transition to deep convection at the Green Ocean Amazon 2014/5 site. *Atmos. Chem. Phys.,* **18**(15), DOI:10.5194/acp-18-11135-2018.

10. **Schiro, K. A.**, F. Ahmed, S. E. Giangrande, and J. D. Neelin, 2018: GOAmazon campaign points to deep-inflow approach to deep convection across scales. *Proc. Natl. Acad. Sci.,* 115(18), 4577-4582.

9. Kuo, Y-H., **K. A. Schiro**, and J. D. Neelin, 2018: Convective transition statistics over tropical oceans for climate model diagnostics: Observational baseline. *J. Atmos. Sci.*, 75, 1553-1570.

8. **Schiro, K. A.** and J. D. Neelin, 2018: Tropical Continental Downdraft Characteristics: Mesoscale Systems versus Unorganized Convection. *Atmospheric Chemistry and Physics*, 18, 1997-2010.

7. B. R. Lintner, D. K. Adams, **K. A. Schiro**, A. Stansfield, A. da Rocha, and J. D. Neelin, 2017: Relationships among climatological moisture vertical structure, column water vapor, and precipitation over the central Amazon in CMIP5 models. *Geophysical Research Letters,* 44, DOI: 10.1002/2016GL071923.

6. Sperber, K. R., E. Cuisinier, A. Kitoh, C. R. Mechoso, A. Moise, W. Moufouma-Okia, **K. A. Schiro**, and A. G. Turner, 2017: The Global Monsoon System: Research and Forecast (3rd Edition) - Chapter 7: Modelling Monsoons. World Scientific Series on Asia-Pacific Weather and Climate: Vol. 9.

5. **Schiro, K. A.**, J. D. Neelin, D. K. Adams, B. R. Lintner, 2016: Deep Convection and Column Water Vapor over Tropical Land vs. Tropical Ocean: A comparison between the Amazon and the Tropical Western Pacific. *Journal of the Atmospheric Sciences,* **73**(10), 4043–4063.

4. Xue, Y., F. De Sales, W. K. M Lau, A. Boone, K. M. Kim, G. Wang, F. Kucharski, **K. A. Schiro**, M. Hosaka, S. Li, C. R. Mechoso, L. M. Druyan, I. S. Sanda, W. Thiaw, N. Zeng, R. E. Comer, Y-K Lim, S. Mahanama, G. Song, Y. Gu, M. Chin, P. Dirmeyer, S. M. Hagos, E. Kalnay, A. Kitoh, L. R. Leung, C-H. Lu, N. M. Mahowald, S. Schubert, Z. Zhang, 2016: West African monsoon decadal variability and drought and surface-related forcings: Second West African Monsoon Modeling and Evaluation Project Experiment (WAMME II). *Climate Dynamics,* DOI 10.1007/s00382-016-3224-2.

3. Boone, A., Y. Xue, F. De Sales, R. Comer, S. Hagos, S. Mahanama, **K. A. Schiro**, G. Song, G. Wang and C. R. Mechoso, 2016: The regional impact of Land-Use Land-cover Change (LULCC) over West Africa from an

ensemble of global climate models under the auspices of the WAMME2 project. *Climate Dynamics.*

2. Yates, E. L., A. M. Detweiler, L. T. Iraci, B. M. Bebout, C. P. McKay, **K. A. Schiro**, E. J. Sheffner, C. A. Kelley, J. M. Tadić, M. Loewenstein, 2013: Assessing the role of alkaline soils on the carbon cycle at a playa site. *Environmental Earth Science,* **70**, 1047-1056.

1. Yates, E. L., **K. A. Schiro**, M. Lowenstein, E. J. Sheffner, L. T. Iraci, J. M. Tadic, and A. Kuze, 2011: Carbon Dioxide and Methane at a Desert Site – A Case Study at Railroad Valley Playa. *Atmosphere*, 2, 702-711.

INVITED TALKS

ICTP-UNITS-UNIAQ Weather and Climate: From Fundamentals to Applications | Virtual **2022**
Impacts of deep convection on tropical low cloud feedback and climate sensitivity

University at Albany Dept. of Atmospheric and Environmental Sciences Seminar | Albany, NY **2022**
Impacts of deep convection on tropical low cloud feedback and climate sensitivity

American Geophysical Union Fall Meeting | New Orleans, LA **2021**
Thermodynamic controls on atmospheric deep convection in the tropical Pacific: new insights from combining observations across multiple platforms

American Geophysical Union Fall Meeting | New Orleans, LA **2021**
Environmental controls on the lifecycle of tropical mesoscale convective systems

Florida State University Dept. of Earth, Ocean, and Atmospheric Science Seminar | Virtual **2021**
Model spread in tropical low cloud feedback tied to overturning circulation response to warming

Monash University School of Earth, Atmosphere and Environment Seminar | Virtual **2021**
Model spread in tropical low cloud feedback tied to overturning circulation response to warming

University of Wisconsin Madison Dept. of Atmospheric and Oceanic Sciences Seminar | Virtual **2021**
Impacts of deep convection on low cloud feedbacks and climate sensitivity

US CLIVAR Tropical Pacific Observing Needs Workshop Plenary Talk | Virtual **2021**
Atmospheric Observing Needs

NASA Goddard Space Flight Center Climate and Radiation Seminar | Virtual **2020**
Environmental controls on tropical mesoscale convective system precipitation intensity

UC Irvine Department of Earth System Science Seminar | Irvine, CA **2020**
Environmental controls on the onset, intensity, and organization of tropical deep convection

UVA Department of Environmental Sciences Seminar | Charlottesville, VA **2020**
What controls the onset and intensity of tropical precipitation?

MIT Program in Atmospheres, Oceans, and Climate (PAOC) Colloquium | Cambridge, MA **2019**
Relationships between tropical ascent and high cloud changes with warming and directions toward model improvement

UMBC Department of Physics Seminar | Baltimore, MD **2019**
Relationships between tropical ascent and high cloud changes with warming and directions toward model improvement

American Geophysical Union Fall Meeting | Washington, DC **2018**
Deep convection in the tropics across scales: Observations and directions towards improved parameterization

JPL Center for Climate Sciences Friday Seminar Series | Pasadena, CA **2017**
Moisture Vertical Structure, Deep Convective Organization, and Convective Transition in the Amazon and Tropical Western Pacific

UNAM Course on the Physics of Tropical Convection | Mexico City, MX **2016**
Criticality and Deep Convection in the Tropics

CONFERENCE PRESENTATIONS (*awarded)

American Meteorological Society Annual Meeting | Virtual **2022**
Model spread in tropical low cloud feedback tied to overturning circulation response to warming *(oral)*

American Meteorological Society Annual Meeting | Virtual **2022**
Evaluating Characteristics of Tropical Oceanic Mesoscale Cold Pools and their Collocated Parent Convective Systems *(poster)*
Presenting author: Piyush Garg (postdoctoral advisee)

American Geophysical Union (AGU) Fall Meeting | New Orleans, LA **2021**
Thermodynamic Controls on Deep Convection Development in the Southeastern United States Summer *(poster)*
Presenting Author: Rebecca Hall (undergraduate advisee)

CFMIP (Climate Feedback Model Intercomparison Project) Conference | Virtual **2021**
Model spread in tropical low cloud feedback tied to overturning circulation response to warming *(poster)*

American Meteorological Society 34th Conference on Hurricanes and Tropical Meteorology | Virtual **2021**
Impacts of deep convection on cloud feedbacks and climate sensitivity *(oral)*

American Meteorological Society (AMS) Annual Meeting | Virtual **2021**
Impacts of deep convection on cloud feedbacks and climate sensitivity *(oral)*

American Geophysical Union (AGU) Fall Meeting | Virtual **2020**
Greater tropical ascent area reduction linked to higher equilibrium climate sensitivity in CMIP6 *(poster)*

American Geophysical Union (AGU) Fall Meeting | San Francisco, CA **2019**
Tropical deep convection and its relation to cloud and moisture vertical structures in A-Train observations and CMIP6 *(oral)*

JPL Postdoc Day | Pasadena, CA **2019**
Relationships between tropical ascent and high cloud changes with warming revealed by perturbation physics experiments in CESM *(poster)*

American Meteorological Society (AMS) Annual Meeting | Phoenix, AZ **2019**
Sensitivity of Hadley circulation changes under warming to physical parameters in CESM *(oral)*

American Geophysical Union (AGU) Fall Meeting | Washington, DC **2018**
Sensitivity of Hadley circulation changes under warming to physical parameters in CESM *(oral)*

Asia Oceana Geosciences Society (AOGS) Annual Meeting | Honolulu, HI **2018**
Relation between Hadley ascent tightening and tropical high clouds under warming and sensitivity to physical parameters in CESM *(oral)*

JPL Postdoc Day | Pasadena, CA **2018**
Sensitivity of Hadley ascent and high clouds to warming and physical parameters in CESM *(poster)*

American Physical Society (APS) Annual Meeting | Los Angeles, CA **2018**
Deep-inflow approach to mesoscale-organized and unorganized deep convection and the likely role of coherent structures *(oral)*

American Geophysical Union (AGU) Fall Meeting | New Orleans, LA **2017**
Moisture Vertical Structure, Deep Convective Organization, and Convective Transition in the Amazon *(poster)*

American Geophysical Union (AGU) Fall Meeting | San Francisco, CA **2016**
Boundary Layer vs. Free Tropospheric Controls on Deep Convection at the GOAmazon site *(oral)*

Graduate Climate Conference (GCC) | Seattle, WA **2016**
Controls on Deep Convection over the Amazon: A Comparison to the Tropical Western Pacific *(oral)*

American Geophysical Union (AGU) Fall Meeting | San Francisco, CA **2015**
On the Relationship between Column Water Vapor and Deep Convection during GOAmazon 2014-2015: A Comparison to the Tropical Western Pacific" *(poster)*

*World Climate Research Programme (WCRP) Conference for Latin America and the Caribbean | Montevideo,

Uruguay **2014**
Variability and Predictability of the South American Monsoon System *(poster)*

*American Meteorological Society (AMS) 28th Conference on Hydrology | Atlanta, GA **2014**
Variability in the South American Monsoon System: A Multi-Model Study *(poster)*

World Meteorological Organization (WMO) Fifth International Workshop on Monsoons | Macau, China
Modelling Monsoons *(oral)* **2013**

World Meteorological Organization (WMO) Fifth International Workshop on Monsoons | Macau, China
Simulations of the South American Monsoon System: A Multi-Model Study *(poster)* **2013**

WCRP Variability of the American Monsoon System (VAMOS)/Coordinated Regional Downscaling Experiment (CORDEX) Workshop on Latin-America and Caribbean | Lima, Peru **2013**
Simulations of the South American Monsoon System: A Multi-Model Study *(poster)*

American Geophysical Union (AGU) Fall Meeting | San Francisco, CA **2011**
In-Situ Greenhouse Gas Measurement Comparisons in Railroad Valley, NV to Identify Local Point Sources and Quantify their Influences on Observed Background Concentrations *(poster)*

American Geophysical Union (AGU) Fall Meeting | San Francisco, CA **2010**
Measuring Carbon Dioxide and Methane Concentrations in Railroad Valley, Nevada to Support GOSAT Satellite Validation and Global Flux Research *(poster)*

TEACHING

University of Virginia

EVSC 4380/7380: Climate Modeling and Analysis **F21**
EVSC 5310: Tropical Meteorology **F22, S21**
EVSC 7082: Careers in Environmental Sciences **S21**
EVSC 3300: Atmosphere and Weather **S21, S22**
EVSC 3301: Atmosphere and Weather Laboratory **S21, S22**

Previous Appointments

Adjunct Lecturer | American Jewish University, Los Angeles, CA **Fall 2014**
NSC250: Climate Change

Teaching Assistant | Dept. of Atmospheric and Oceanic Sciences, UCLA **2012-2014**
AOS103: Physical Oceanography
AOS1: Climate Change: From Puzzles to Policy
AOS2: Air Pollution

SERVICE

Internal

Organizer, Dept. of Environmental Sciences Graduate Careers Seminar **2021**
Co-Organizer, Dept. of Environmental Sciences Weekly Seminar **2020-present**
Member, Graduate Admissions Committee, Dept. of Environmental Sciences **2020-present**
Member, EVSC Unlearning Racism in Geosciences Pod **2021**
Mentor, Virginia-North Carolina Louis Stokes Alliance for Minority Participation **2021**

Editorial

Associate Editor, Monthly Weather Review **2020-2021**

Reviewing

Proposal panel reviewer | NASA **2019, 2021**
Proposal panel reviewer | Department of Energy **2019, 2021, 2022**
Proposal panel reviewer | NOAA **2022**
Reviewer for *Nature Reviews, Nature Climate Change, Geophysical Research Letters, Atmospheric Chemistry and*

Physics, Quarterly Journal of the Royal Meteorological Society, Journal of Climate, Journal of the Atmospheric Sciences, Journal of Geophysical Research: Atmospheres, Climate Dynamics, Climate Research, and *Atmosphere.*

Conferences and Workshops

Outstanding Student Presentation Award (OSPA) Judge | American Geophysical Union **2017-2021**
Chair, Convection Session | AMS Conference on Hurricanes and Tropical Meteorology **2021-2022**
Chair, Tropical Mesoscale Convective Systems | AMS Conference on Mesoscale Meteorology **2022**

Community

Outreach Presentation, TemperPak, Richmond, VA **2020**
Climate change: Scientific understanding, projections, uncertainties, and mitigation
Outreach Presentation, Solar Reserve, Santa Monica, CA **2017**
Climate change: Scientific understanding, projections, uncertainties, and mitigation
Media Outreach, CBS19 News, Charlottesville, VA **2021**
Understanding how climate change can impact severe weather outbreaks
Climate Assembly, Mar Vista Elementary, Los Angeles, CA **2017**
Climate Assembly, Franklin Elementary, Los Angeles, CA **2017**
Explore Your Universe, UCLA **2014-2016**

PROFESSIONAL MEMBERSHIPS

American Geophysical Union (since 2010)

American Meteorological Society (since 2014)

American Physical Society (since 2017)