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PROFESSIONAL PREPARATION

University of California, Santa Cruz	B. S. Physics	2001-2005
University of California, Santa Cruz	M. S. Earth Science	2006-2008
University of California, Santa Cruz	Ph. D. Earth Science	2008-2011
Lawrence Berkeley National Lab	Postdoc, Climate Science	2011-2013

ACADEMIC POSITIONS HELD

2025-present	Associate Professor, IU Bloomington
2020-present	Visiting Faculty, LBNL
2020-2025	Assistant Professor, IU Bloomington
2017-2019	Career Earth Research Scientist, LBNL
2015-2019	Climate and Atmosphere Process Program Lead, LBNL
2015-2018	Assistant Adjunct Professor, UC Davis
2014-2017	Career-Track Earth Research Scientist, LBNL
2011-2013	Geological Postdoctoral Fellow, LBNL
2010	Associate in Atmospheric Sciences, UC Davis
2009-2011	Ph. D. Candidate, UC Santa Cruz
2006-2009	Graduate Student Researcher, UC Santa Cruz
2006	Research Consultant, LANL
2004-2005	Research Assistant, UC Santa Cruz
2004	Student Intern, SLAC

SUMMARY OF RESEARCH AND IMPACT METRICS

H-Index	27 or 34 (Web of Science vs Google Scholar)
Num. of Peer Reviewed Papers	63
Total Citations	2,878 or 4,604 (Web of Science vs Google Scholar)
Invited talks	17
PI/Co-PI/Co-I Funding	$32M across 11 grants
Publication Rate (since 2020)	7 papers/year
	2 papers/year (self/student/postdoc as first author)

PEER REVIEWED PUBLICATIONS, CHRONOLOGICAL

Note: '*' indicates a major mentoring role.

2025 [63] Kamnani*, D., **OBrien**, T. A., Smith, S., Staten, P. W., & Shields, C. A. (2025). Regional and temporal variability of atmospheric river seasonality: Influences of detection algorithms and moisture transport dynamics. *Journal of Geophysical Research: Atmospheres*, 130. https://doi.org/10.1029/2024JD043032

[62] Quagraine*, K. T., **OBrien**, T. A., Quagraine, K. A., Kravitz, B., & Tilmes, S. (2025a). Assessing changes in atmospheric rivers under stratospheric aerosol injection using arise-sai-1.5. *Environmental Research: Climate*, 4, 025016. https://doi.org/10.1088/2752-5295/ade61a

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[59] Quagraine*, K. T., **OBrien**, T. A., & Zhou, Y. (2025b). Similarities in meteorological composites among different atmospheric river detection tools during landfall over western coastal north america. *Journal of Geophysical Research: Atmospheres*, 130, e2024JD042163. https://doi.org/10.1029/2024JD042163

[58] Dong, B., Ullrich, P., Lee, J., Gleckler, P., Chang, K., & **O'Brien**, T. A. (2025). A new metrics framework for quantifying and intercomparing atmospheric rivers in observations, reanalyses, and climate models. *Geoscientific Model Development*, 18, 961–976. https://doi.org/10.5194/gmd-18-961-2025

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[56] Tsai, W., Duan, S., **OBrien**, T. A., Catto, J. L., Ullrich, P. A., Zhou, Y., Leung, L. R., Feng, Z., Boos, W. R., Suhas, D. L., Ahmed, F., & Neelin, J. D. (2025). Cooccurring atmospheric features and their contributions to precipitation extremes. *Journal of Geophysical Research: Atmospheres*, 130. https://doi.org/10.1029/2024JD041687

[55] Willard, J. D., Harrington, P., Subramanian, S., Mahesh, A., **OBrien**, T. A., & Collins, W. D. (2025). Analyzing and exploring training recipes for large-scale transformer-based weather prediction. *Artificial Intelligence for the Earth Systems*. https://doi.org/10.1175/AIES-D-24-0061.1

[54] O'loughlin, R. J., Li, D., Neale, R., & **O'Brien**, T. A. (2025). Moving beyond post hoc explainable artificial intelligence: a perspective paper on lessons learned from dynamical climate modeling. *Geosci. Model Dev*, 18, 787–802. https://doi.org/10.5194/gmd-18-787-2025

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[52] Liu, X., Saravanan, R., Fu, D., Chang, P., Patricola, C. M., & **O'Brien**, T. A. (2024). How Do Climate Model Resolution and Atmospheric Moisture Affect the Simulation of Unprecedented Extreme Events Like the 2021 Western North American Heat Wave? *Geophysical Research Letters*, 51. https://doi.org/10.1029/2024GL108160

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[46] Vishnu, S., Risser, M. D., **O'Brien**, T. A., Ullrich, P. A., & Boos, W. R. (2023). Observed increase in the peak rain rates of monsoon depressions. *NPJ Climate and Atmospheric Science*, 6, 111. https://doi.org/10.1038/s41612-023-00436-w

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[36] **O'Brien**, T. A., Wehner, M. F., Payne, A. E., Shields, C. A., Rutz, J. J., Leung, L., Ralph, F. M., Collow, A., Gorodetskaya, I., Guan, B., Lora, J. M., McClenny, E., Nardi, K. M., Ramos, A. M., Tomé, R., Sarangi, C., Shearer, E. J., Ullrich, P. A., Zarzycki, C., Loring, B., Huang, H., *IndaDíaz, H. A., Rhoades, A. M., & Zhou, Y. (2021b). Increases in Future AR Count and Size: Overview of the ARTMIP Tier 2 CMIP5/6 Experiment. *Journal of Geophysical Research: Atmospheres*, 24. https://doi.org/10.1029/2021JD036013

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2020

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2019

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2018

[18] Shields, C. A., Rutz, J. J., Leung, L. R., Ralph, F. M., Wehner, M. F., **O'Brien**, T. A., & Pierce, R. (2019). Defining Uncertainties through Comparison of Atmospheric River Tracking Methods. *Bulletin of the American Meteorological Society*, 100(2), ES93–ES96. https://doi.org/10.1175/BAMS-D-18-0200.1

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2016

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2015

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2010 [3] **O'Brien**, T. A., Sloan, L. C., & Snyder, M. A. (2010e). Can ensembles of regional climate model simulations improve results from sensitivity studies? *Climate Dynamics*, 37(5-6), 1111–1118. https://doi.org/10.1007/s00382-010-0900-5

2007 [2] Bridges, F., Downs, C., **O'Brien**, T., Jeong, I. K., & Kimura, T. (2007a). Limitations on the extent of off-center displacements in TbMn O3 from EXAFS measurements. *Physical Review B - Condensed Matter and Materials Physics*, 76(9), 1–11. https://doi.org/10.1103/PhysRevB.76.092109

[1] **O'Brien**, T., Bridges, F., Downward, L., Mitchell, J., & Zheng, H. (2007a). Evidence for magnetic dimerons in the anisotropic bilayer system La1.2Sr1.8Mn2O7: An EXAFS study. *Physical Review B*, 75(6), 064417. https://doi.org/10.1103/PhysRevB.75.064417

INVITED TALKS

Note: '*' indicates a major mentoring role.

2025 [17] **O'Brien**, T. A. (2025). Rivers in the Sky: What are they, how we identify them, and why this matters for our understanding of extreme weather. University of Maryland Earth System Science Interdisciplinary Center, 5 May 2025 (Invited). https://go.umd.edu/obrien. University of Maryland Earth System Science Interdisciplinary Center, 5 May 2025 (Invited)

2023 [16] **O'Brien**, T. A. (2023). Producing Credible Climate Projections at Decision Relevant Scales. Johns Hopkins University Wolman Seminar 11 April 2023 (Invited), Johns Hopkins University Wolman Seminar 11 April 2023 (Invited)

2022 [15] **O'Brien**, T. A., Payne, A. E., Wehner, M. F., Shields, C. A., Collow, A., Leung, L. R., Ralph, F. M., & Rutz, J. (2022d). The Argument for Using More than One AR Detector: Results and Recommendations from the ARTMIP Tier 2 C20C+ and CMIP5/6 Experiments. AMS Annual Meeting 2022 (Invited), AMS Annual Meeting 2022 (Invited)

2021 [14] **O'Brien**, T. A., *Trapp, T. A., *Burkle, T. W., & *Krauter, M. (2021a). A Regional Climate Model Framework for Understanding Coastal Climate. AGU Fall Meeting 2021 (Invited), AGU Fall Meeting 2021 (Invited)

2019 [13] **O'Brien**, T. A. (2019b). Probabilistic Detection of Extreme Weather Systems. Workshop on Risk Analysis for Extremes in the Earth System, Berkeley, CA. (Invited), Workshop on Risk Analysis for Extremes in the Earth System, Berkeley, CA. (Invited)

2017 [12] **O'Brien**, T. A. (2017c). A Case for Missing Physics in Climate Models. San Jose State University Climate and Meteorology Seminar, San Jose, CA. (Invited), San Jose State University Climate and Meteorology Seminar, San Jose, CA. (Invited)

[11] **O'Brien**, T. (2017b). The Uncertain Future of Coastal Fog. Riparian Summit 2017, Davis, CA. (Invited), Riparian Summit 2017, Davis, CA. (Invited)

2016 [10] **O'Brien**, T. A., Collins, W., Rauscher, S., Kashinath, K., Rübel, O., S, B., Gu, J., Krishnan, H., & Ullrich, P. (2016a). Understanding the resolution dependence of precipitation statistical fidelity in hindcast simulations. AGU Fall Meeting, San Francisco CA. (Invited), AGU Fall Meeting, San Francisco CA. (Invited)

[9] **O'Brien**, T. A., Collins, W., Rauscher, S., Kashinath, K., Rübel, O., S, B., Gu, J., Krishnan, H., Ullrich, P., & Donner, L. (2016b). A case for missing cloud physics in climate models. AGU Fall Meeting, San Francisco CA. (Invited), AGU Fall Meeting, San Francisco CA. (Invited)

[8] **O'Brien**, T. A. (2016). A Case for Missing Physics in Climate Models. UC Santa Cruz Whole Earth Seminar, Santa Cruz CA. (Invited), UC Santa Cruz Whole Earth Seminar, Santa Cruz CA. (Invited)

2015 [7] **O'Brien**, T. A. & Collins, W. (2015d). Frontiers in climate modeling at the watershed scale. 13th IWA Special Conference on Watershed and River Basin Management, San Francisco, CA. (Invited), 13th IWA Special Conference on Watershed and River Basin Management, San Francisco, CA. (Invited)

[6] **O'Brien**, T. A. (2015). Climate modeling of extremes: state of the science. Climate Change Impacts & Integrated Assessment Workshop XXI, Snowmass CO. (Invited), Climate Change Impacts & Integrated Assessment Workshop XXI, Snowmass CO. (Invited)

[5] **O'Brien**, T. A. & Collins, W. (2015a). Analyzing and leveraging self-similarity in climate models. EGU Spring Meeting, Vienna, Austria. (Invited), EGU Spring Meeting, Vienna, Austria. (Invited)

2013 [4] **O'Brien**, T. A., Collins, W., Li, F., Rauscher, S., Ringler, T., Taylor, M., Hagos, S., & Leung, L. (2013a). Observed Scaling in Clouds and Precipitation and Scale Incognizance in Regional to Global Atmospheric Models. Pacific Northwest National Laboratory Climate Physics Seminar, Richland, WA. (Invited), Pacific Northwest National Laboratory Climate Physics Seminar, Richland, WA. (Invited)

[3] **O'Brien**, T. A., Sloan, L., Chuang, P., & Faloona, I. (2013e). The Recent Decline of Coastal Fog and the Drying of the Coastal Boundary Layer. Oregon State University Physics of Oceans and Atmospheres Seminar Series, Corvallis, OR. (Invited), Oregon State University Physics of Oceans and Atmospheres Seminar Series, Corvallis, OR. (Invited)

2012 | [2] **O'Brien**, T. A., Sloan, L., Chuang, P., & Faloona, I. (2012e). Changes in California Coastal Dynamics over the Last 100 Years. ICTP RegCM Workshop, Trieste, Italy. (Invited), ICTP RegCM Workshop, Trieste, Italy. (Invited)

2011 | [1] **O'Brien**, T. A., Sloan, L., Chuang, P., & Faloona, I. (2011b). What has caused the long-term decline in California coastal fog? UC Davis Atmospheric Sciences Seminar, Davis, CA. (Invited), UC Davis Atmospheric Sciences Seminar, Davis, CA. (Invited)

OTHER PUBLISHED WORKS, CHRONOLOGICAL

This section contains conference proceedings and other works (e.g., technical reports) that appear outside of standard academic journals.
Note: '+' indicates that the work underwent peer-review.
Note: '*****' indicates a major mentoring role.
Note: '†' indicates that specified co-authors contributed equally to the manuscript.

\+ | [9] Lauer, A., Devaney, J., Kieu, C., Kravitz, B., **O'Brien**, T. A., Robeson, S. M., Staten, P. W., & Vu, T. A. (2023). A convection-permitting dynamically downscaled dataset over the midwestern united states. *Geoscience Data Journal*, 10, 429–446. https://doi.org/10.1002/gdj3.188

[8] Kravitz, B., Edmonds, D., Filippelli, G. M., Kieu, C., **O'Brien**, T. A., Robeson, S., Staten, P., Yanites, B., & Zhu, C. (2022). *Climate Change and Resilience in Indiana and Beyond*, (Chapter 2. Climate and Water Systems). Indiana University Press. https://doi.org/10.2307/j.ctv2vr8vq1.6

[7] **O'Brien**, T. A., Payne, A. E., Shields, C. A., Rutz, J., Brands, S., Castellano, C., Chen, J., Cleveland, W., DeFlorio, M. J., Goldenson, N., Gorodetskaya, I., *****Inda Díaz, H., Kashinath, K., Kawzenuk, B., Kim, S., Krinitskiy, M., Lora, J. M., McClenny, B., Michaelis, A., *****O'Brien, J., Patricola, C. M., Ramos, A. M., Shearer, E. J., Tung, W.-w., Ullrich, P. A., Wehner, M. F., Yang, K., Zhang, R., Zhang, Z., & Zhou, Y. (2020a). Detection Uncertainty Matters for Understanding Atmospheric Rivers. *Bulletin of the American Meteorological Society*, 101(6), E790–E796. https://doi.org/10.31223/osf.io/ftwgm

[6] Preston, K. T., Higuchi, S., Hanif, A., Hoell, A., Kosmal, A., Wuebbles, D., McRae, M., Pagliarello, M., Lee, R., Thompson, T., & **O'Brien**, T. (2019). Resilient Aviation Infrastructure Workshop: Assessing climate risks to land-based aviation infrastructure and ground support facilities. Technical report, DOD. https://www.serdp-estcp.org/News-and-Events/Conferences-Workshops/Past-RC-Workshops/Resilient-Aviation-Infrastructure-Workshop-Report-2019

\+ | [5] Houlton, B., Lund, J., Greco, S., London, J., Margolis, H., Niemeier, D., Ogden, J., Ostoja, S., Ullrich, P., Wheeler, S., Almaraz, M., Harrison, S., Middleton, B.-R., Moyle, P., Nichols, S., **O'Brien**, T., Pinkerton, K., & Roberts, C. (2018). Sacramento Summary Report. *California's Fourth Climate Change Assessment*, (Chapter SUM-CCCA4-2018-002). http://www.climateassessment.ca.gov/regions/docs/20180827-SacramentoValley.pdf

\+ | [4] †Mudigonda, M., †Kim, S., †*****Mahesh, A., Kahou, S., Kashinath, K., Williams, D., Michalski, V., **O'Brien**, T. A., & Prabhat, M. (2017). Segmenting and Tracking Extreme Climate Events using Neural Networks. *31st Conference on Neural Information Processing System*, 1–5. https://dl4physicalsciences.github.io/files/nips{_}dlps{_}2017{_}20.pdf

[3] Torregrosa, A., **O'Brien**, T. A., & Faloona, I. C. (2014). Coastal Fog, Climate Change, and the Environment. *Eos, Transactions American Geophysical Union*, 95(50), 473–474. https://doi.org/10.1002/2014EO500001

+ [2] Miller, N., Cayan, D., Duffy, P., Jin, H. H. J., Kanamaru, H., Kanamitsu, M., **O'Brien**, T., Schlegel, N., Sloan, L., Snyder, M., & Yoshimura, K. (2009). an Analysis of Simulated California Climate Using Multiple Dynamical and Statistical Techniques. Technical report. `http://www.energy.ca.gov/publications/displayOneReport.php?pubNum=CEC-500-2009-017-F`. *Peer Reviewed.*

[1] Bridges, F., Downward, L., Jiang, Y., & **O'Brien**, T. (2007b). What Can We Learn from a Detailed Study of the Temperature Dependence of σ, the Width of the Pair Distribution Function? *AIP Conference Proceedings*, volume 882, 59–63. `https://doi.org/10.1063/1.2644430`

MANUSCRIPTS IN REVIEW

Note: '*****' indicates a major mentoring role.

COMMUNITY AND PUBLIC SERVICE

- Interviewed by NYTimes on Atmospheric Rivers, May 3, 2025 (`https://nyti.ms/4m2815P`
- Organizing committee member, 2024 DOE PI Meeting, Fall 2024
- Guest on *Earth on the Rocks* podcast (`https://bit.ly/4hGOwwI`) December 6, 2024
- Interviewed for IU Research Impact article (`https://bit.ly/3WJzLkq`) November 13, 2024
- Featured in IU IT News and Events article along with two former ASURE students (`https://bit.ly/48OC0XE`)
- Gave public lecture on "Rivers in the Sky: Extreme Weather and Climate Change" at the August 2023 Food for Thought Lecture Series, Bloomington, IN (`https://bit.ly/41Q7SIS`)
- Co-led an Earth and Atmospheric Science day for the 2023 Holland RISE students, Tuesday 27 June 2023 (`https://bit.ly/3Hc6bfm`)
- Gave tutorial on the "Toolkit for Extreme Climate Analysis" at the 2023 Clemson Climate Extremes Conference
- Review panelist for 2023 DOE Early Career Research proposals
- Guest on Colin McEnroe (WNPR), 1 November, 2022 – discussed climate change and fog (`http://bit.ly/3G5SQUR`)
- Guest on KCBS Radio, 15 September, 2022 – discussed climate change and fog (`https://bit.ly/3rim3Fi`)
- Quoted in New York Times article on California coastal fog, 14 September, 2022 (`https://nyti.ms/3fuwqTz`)
- Topical editor for Geoscientific Model Development (2021-present)
- Guest on WFIU Noon Edition – discussed extreme weather and climate, 29 July, 2021 (`https://bit.ly/2VLUGXs`)
- Discussed climate context of June 2021 flooding in Indiana with multiple news organizations:
  - Guest on WFIU Newsdesk, 25 June, 2021 (`https://to.pbs.org/3lZrB63`)
  - Quoted in the Herald Times, 27 June, 2021 (`https://bit.ly/3AB3FtK`)

  - Quoted in B-Square Beacon article, 28 June, 2021 (`https://bit.ly/3xEIxAX`)

- Organizing committee member, 2020 DOE PI Meeting, Fall 2020
- Panelist, "K-12 Live Science Presents Science in the Sky July 31, 2020", Berkeley, CA
- Atmospheric River Tracking Method Intercomparison Project (ARTMIP) committee member (2019-present)
- Developer of free, multidimensional probability estimation tool, fastKDE
- Community contributor to the ICTP RegCM regional climate model
- Session co-convener for AGU Fall Meetings:
  - A51B (2023): Atmospheric Rivers: Processes, Impacts, and Uncertainties
  - A36B (2022): Advancing Understanding of the Hydrological Cycle and Its Extremes Through Objective Tracking of Weather Phenomena
  - A199 (2020): Atmospheric Rivers: Processes, Impacts, and Uncertainty Quantification
  - A33N (2019): Fog: Atmosphere, Biosphere, Ocean, and Land Interactions
  - A026 (2018): Boundary Layer Clouds: Atmosphere, Biosphere, Ocean, and Land Interactions
  - A23E (2016): Fog: Atmosphere, Biosphere, Ocean, and Land Interactions
  - A32E (2015): Fog: Atmosphere, Biosphere, Ocean, and Land Interactions
  - A52B (2014): Innovative Insights into the Climate System and Climate Models: Exploring Scales and Parameter Spaces
  - A14B (2014): Fog: Atmosphere, Biosphere, Ocean, and Land Interactions
  - A033 (2013): Fog: Atmosphere, Biosphere, land, and ocean interactions
  - A025 (2012): Coastal Fog: Atmosphere, Biosphere, Ocean, and Land Interactions
  - A066 (2012): Scale Dependence, Scale Invariance, and Scale Aware Parameterization
- Host and Organizer, 3rd ARTMIP Workshop, October 16 – 18, 2019 (report available online)
- Co-organizer, 2018 DOE PI Meeting, Fall 2018
- Steering committee member and report co-author: DOE/NOAA Workshop on High-Resolution Coupling and Initialization to Improve Predictability and Predictions in Climate Models, September 30 – October 2, 2015 (report available online)
- Organizing committee, 2016 DOE/RGCM PI Meeting, Fall 2016
- Organizing committee, 2015 DOE/RGCM Team Leads Meeting, Fall 2015
- Invited participant in interdisciplinary Fog as a System workshop, 2013
- Guest on KQED Forum – discussed heatwaves and climate, 23 June, 2017 (`http://bit.ly/2t4wIad`)
- Referee for: JGR - Atmospheres, J. Clim., J. Atmos. Sci., Clim. Dyn., Earth Interact., Atmos. Sci. Lett., Science Advances, Geosci. Model Devel., and GRL

INSTITUTIONAL SERVICE

- 2025-present, Policy Committee (elected), IU Earth and Atmospheric Sciences Dept.
- 2025-present, Secretary (elected), IU Bloomington Faculty Council
- 2023-present, Council Member (elected), IU Bloomington Faculty Council
- 2024-present, Chair, IU UFC Student Affairs Committee
- 2024-present, Council Member, IU University Faculty Council
- 2023-present, Advisory Board Member, IU Environmental Resilience Institute
- 2023-2025, Committee Member, Faculty and Academic Affairs Committee
- 2021-2025, Undergraduate Studies Committee, IU Earth and Atmospheric Sciences Dept.
- 2024-2025, Secretary (elected), IU LGBTQ+ Faculty and Staff Council
- 2023-2024, Committee Member, BA in Environmental Systems Science Curriculum Committee
- 2022-2023, Policy Committee (elected), IU Earth and Atmospheric Sciences Dept.
- 2021, Diversity & Inclusion Committee, IU Earth and Atmospheric Sciences Dept.
- 2020, Diversity & Inclusion pre-Committee, IU Earth and Atmospheric Sciences Dept.
- 2015-2019, Area Council, LBNL Earth and Environmental Sciences Area
- 2015-2019, Division Council, LBNL Climate and Ecosystem Sciences Division
- 2015-2019, Lead, LBNL Climate and Atmospheric Process Program Domain
- 2017-2018, Committee on Undergraduate Courses and Majors and Courses, UC Davis College of Agricultural and Environmental Sciences
- 2017, Internal Fellowship Review Committee, UC Davis Graduate Studies
- 2015-2017, Diversity and Inclusion Council, LBNL
- 2015-2016, Graduate Admission Committee, UC Davis Atmospheric Sciences Graduate Group
- 2014-2015, Deputy Lead, LBNL Climate Modeling Program
- Ph.D. Dissertation Committee Member:
  - 2025, Kwesi T. Quagraine, Indiana University, *Investigating the Drivers of Co-Occurring Weather Phenomena and Atmospheric Rivers and Their Effects on Precipitation*
  - 2025, James M. Ryan, Indiana University, *Identification and Predictability of Extreme Temperature Events*
  - 2023, Arjun Nellikkattil, Pusan National University, Department of Climate System, *Characteristics of Past, Present, and Future Atmospheric Rivers*
  - 2023, Dan Li, Indiana University, *Frontiers in Climate Science: Inquiries into Data and Methods*
  - 2022, Héctor Inda-Díaz, UC Davis, *The Quantification of Co-occurring Meteorological Extremes and the Anthropogenic Contribution to Hydrometeorological Variation*

  - 2019, John. P. O'Brien, UC Santa Cruz, *The Quantification of Co-occurring Meteorological Extremes and the Anthropogenic Contribution to Hydrometeorological Variation*
  - 2017, Alan Rhoades, UC Davis, *Understanding 21st Century Hydroclimatic Trends in Western USA Mountain Ranges Using Variable-Resolution CESM*
  - 2016, Xingying Huang, UC Davis, *Studying Regional Climate with Variable-Resolution CESM*

- M.S. Thesis Committee Member:
  - 2025, Brooke Santos, Indiana University, *Prolonged Flood Impacts of Extreme Events*
  - 2023, Mohammad Rubaiat Islam, Indiana University, *Spatiotemporal Distribution and Meteorological Signatures for the Co-Occurrence of Atmospheric Rivers and Tropical Cyclones*
  - 2023, Diya Kamnani, Indiana University, *Geographic Variation of Seasonality Associated with Atmospheric Rivers Based on Multiple Detection Techniques*
  - 2023, Kwesi Quagraine, Indiana University, *Atmospheric River Detection Algorithms Detect Different Phenomena - An Assessment of Detection Algorithms to Understand the Underlying Phenomena for Atmospheric Rivers Using Atmospheric Rivers Tracking Methods Intercomparison Project Catalog*
  - 2023, Quan Nguyen, Indiana University, *Deep Learning for Tropical Cyclone Formation Detection*
  - 2021, Abraham Lauer, Dynamical Downscaling over the Midwest: Extreme Precipitation Projections Under RCP8.5

- Qualifying Examination Committee Member:
  - 2024, Jeongyeon Han, Indiana University, *Morphodynamic Modeling and Analysis of Natural Levees in Decoupled Channel-levee System*
  - 2024, Diya Kamnani, Indiana University, *Atmospheric Rivers in Focus: Analyzing Seasonal Patterns, Moisture Sources, and Machine Learning Identification of Related Phenomena*
  - 2024, Trung Nguyen, Indiana University, *Dynamical downscaling to quantify extreme precipitation under stratospheric sulfate aerosol injection*
  - 2024, Kwesi Quagraine, Indiana University, *no title provided*
  - 2024, Hrishikesh Sivandanan, Indiana University, *no title provided*
  - 2024, Isioma Nwayor, Indiana University Bloomington, Department of Geography, *no title provided*
  - 2022, Dan Li, Indiana University Bloomington, Department of Philosophy of Science, *Frontiers in Climate Science: methodological inquiries*
  - 2019, Héctor Inda Díaz, University of California Davis, Department of Land, Air and Water Resources, *Toward theory-based detection of atmospheric rivers: Characterizing the size, Lagrangian properties, and coherent Lagrangian structures of atmospheric rivers*
  - 2018, Elizabeth McClenny, UC Davis, *Atmospheric Rivers in a Hierarchy of Models: Biases, Sensitivities, and Usability Insights*
  - 2017, John P. O'Brien, UC Santa Cruz, *The Quantification of Anthropogenic Contribution to Co-occurring Meteorological Extremes*
  - 2015, Meina Wang, UC Davis, *Observations and Regional Climate Simulations of Changes in Sea-Breeze and Coastal Fog*

TEACHING EXPERIENCE

Professor	EAS G-690	Advanced Earth Science Data Analysis	IU	Fall 2025
Professor	EAS E-122	Earth's Dynamic Atmosphere	IU	Spring 2025
Professor	EAS E-477	Current and Future Trends in Extreme Weather	IU	Fall 2024
Professor	EAS E-G77	Current and Future Trends in Extreme Weather	IU	Fall 2024
Professor	EAS E-122	Earth's Dynamic Atmosphere	IU	Spring 2024
Professor	EAS G-590	Advanced Earth Science Data Analysis	IU	Fall 2023
Professor	EAS A-434	Dynamic Meteorology 2	IU	Spring 2023
Professor	EAS A-534	Dynamic Meteorology 2	IU	Spring 2023
Professor	EAS E-474	Current and Future Trends in Extreme Weather	IU	Fall 2022
Professor	EAS E-574	Current and Future Trends in Extreme Weather	IU	Fall 2022
Professor	EAS E-122	Earth's Dynamic Atmosphere	IU	Spring 2022
Professor	EAS E-490	Python for Environmental Sciences	IU	Fall 2021
Professor	EAS E-122	Earth's Dynamic Atmosphere	IU	Spring 2021
Professor	EAS E-474	Current and Future Trends in Extreme Weather	IU	Fall 2020
Professor	EAS E-574	Current and Future Trends in Extreme Weather	IU	Fall 2020
Professor	EAS E-122	Earth's Dynamic Atmosphere	IU	Spring 2020
Professor	ATM298	Python for Environmental Sciences	UCD	Spring 2017
Professor	ATM290	Atmospheric Science Seminar	UCD	Spring 2017
Professor	ATM298	Python for Environmental Sciences	UCD	Spring 2016
Instructor	N/A	LaTeXfor Science	LBNL	Summer 2013
T.A.	ES110B	Earth as a Chemical System	UCSC	Winter 2011
Instructor	ATM120	Atm. Thermodyn. & Cloud Phys.	UCD	Fall 2010
T.A.	ES80C	Introduction to Weather and Climate	UCSC	Fall 2009
T.A.	ES110B	Earth as a Chemical System	UCSC	Winter 2009
T.A.	ES10	California Geology	UCSC	Fall 2007
T.A.	ES80D	Earth Sciences in the Cinema	UCSC	Spring 2007

CURRENT, PENDING, & PAST SUPPORT

Pending

N/A

Current

08/25–07/30	PI, Heising-Simons Foundation (*$726K*)	Coastal Fog: Basic Science, Water Resources, and Future Change
01/24–09/26	Co-PI, DOE Scientific Focus Area (*$9M, $702K at IU*)	Calibrated And Systematic Characterization, Attribution, and Detection of Extremes (CASCADE)
09/22–09/25	PI, DOE DE-FOA-0002593 (*$632K, $450K at IU*)	Investigating the Effects of Co-Occurring Weather Phenomena on Extreme Precipitation in Reanalysis, E3SM, and CMIP6

Past

10/19–12/23	Co-I, DOE Scientific Focus Area (*$11M, $415K at IU*)	Calibrated And Systematic Characterization, Attribution, and Detection of Extremes (CASCADE)
04/20–03/23	Co-PI, DOD RC19-F3-1391 (*$250K at IU*)	Process-based Evaluation of Temperature and Precipitation Projections and Downscaling Methods over the CONUS
10/18–09/21	Co-PI, DOE DE-FOA-0001862 (*$349K*)	Monsoon Extremes: Impacts, Metrics, and Synoptic-Scale Drivers
07/18–09/23	Co-I, DOE SC-FOA-0001862 (*$216K*)	Tropical Cyclone-Climate Interactions using E3SM
10/16–09/19	Co-PI, DOE Scientific Focus Area (*$7.4M*)	Calibrated And Systematic Characterization, Attribution, and Detection of Extremes (CASCADE)
10/16–09/19	Co-I, DOE DE-FOA-0001531 (*$1.5M*)	An Integrated Evaluation of the Simulated Hydroclimate System of the Continental US (Hyperion)
10/16–09/19	Co-I, NSF CoastalSEES (*$90K*)	Coastal fog-mediated interactions between climate change, upwelling, and coast redwood resilience: Projecting vulnerabilities and the human response (Summen Project)
10/15–09/18	Co-I, DOE DE-FOA-0001036 (*$150K*)	Developing Metrics to Evaluate the Skill and Credibility of Downscaling
10/13–09/16	Co-I, DOE Scientific Focus Area (*$6.3M*)	Calibrated And Systematic Characterization, Attribution, and Detection of Extremes (CASCADE)

Declined

10/24–09/27	Co-I, NSF CAIG (*$375K at IU*)	Collaborative Research: CAIG: A General and Comprehensive Software Framework for Data Curation, AI Modeling, and Project-based Learning for Addressing Geoscience Challenges
07/24–06/27	Co-I, DOE DE-FOA-0003228 (*$899K at IU*)	A deep learning framework for diagnosing bias and error propagation in E3SM

AWARDS:

- 2020 Department of Energy Certificate of Excellence "In appreciation of your leadership in conducting the Third Atmospheric River Transport Method Intercomparison Project (ARTMIP) Workshop"
- 2017 Spot Award for Outstanding Contributions to Diversity & Inclusion
- 2014 Editor's Citation for Excellence in Refereeing, *Geophysical Research Let-*

ters

GRADUATE AND POSTDOCTORAL ADVISORS:

Ph. D. Advisors: Lisa C. Sloan and Patrick Y. Chuang, *UC Santa Cruz*
Postdoctoral Advisor: William D. Collins, *Lawrence Berkeley National Lab*

GRADUATE AND POSTDOCTORAL ADVISEES:

Current
Diya Kamnani, *IU* (Ph.D. student 2021–present)
Kwesi Quagraine, *IU* (Ph.D. student 2021–present)
Joshua Elms, *IU* (M.S. student 2024–present)
Rebecca Porter, *IU* (M.S. student 2024–present)
Zebaze Sinclaire, *IU* (postdoc 2023–present)

Past
Kwesi Quagraine, *IU* (M.S. student 2021–2023)
Phu Nguyen, *IU* (M.S. student 2024)
Alexander Charn, *IU* (postdoc 2021–2023)
Mohammad Rubaiat Islam, *IU* (M.S. student 2021–2023)
Yang Zhou, *LBNL* (postdoc 2019–2022)
Héctor Inda Díaz, *LBNL/UC Davis* (Ph.D. student 2016–2022)
John P. O'Brien, *LBNL/UC Santa Cruz* (Ph.D. student 2014–2019)
Sarahí Arriaga-Ramirez, *LBNL/UC Davis* (M.S. student 2016–2020)
Nicholas Cavanaugh, *LBNL* (postdoc 2014–2016)

UNDERGRADUATE ADVISEES:

Current
Russell Broshears *IU* (undergraduate researcher, Summer 2025)
Delaney Kamstra *IU* (undergraduate researcher, Summer 2025)
Past
Rebecca Porter, *National Center for Atmospheric Research* (Summer 2024)
Varin Radia, *IU* (undergraduate researcher, Fall 2023–Summer 2024)
Joshua Elms, *IU* (undergraduate researcher, Spring 2023–Summer 2024)
Ethan Steward, *IU* (undergraduate researcher, Spring 2023–Spring 2024)
Jackson Toby *IU* (undergraduate (ASURE) researcher, Spring 2024)
Sofia Najjar *IU* (undergraduate (ASURE) researcher, Spring 2024)
Mason Knotts, *IU* (undergraduate researcher, Spring 2022)
Lia Castro-Sauer *IU* (undergraduate (ASURE) researcher, Spring 2022)
Brianna Pinnick*IU* (undergraduate (ASURE) researcher, Spring 2022)
Thomas Burkle, *IU* (undergraduate researcher, 2020–2022)
Miguel Contramaestre, *IU* (undergraduate researcher, 2021–2022)
Libby McKesson, *IU* (undergraduate researcher, 2021–2022)
Thomas Trapp, *IU* (undergraduate researcher, 2020–2022)
Michael Krauter, *IU* (undergraduate researcher, Summer 2020)
Hannah Isaacson, *IU* (undergraduate researcher, Fall 2020)
Mikayla Asher, *LBNL/U. Michigan* (undergraduate research intern, Summer 2019)
Ankur Mahesh, *LBNL/UC Berkeley* (undergraduate researcher 2017–2019)

OTHER SUPERVISEES

Noel Keen, *LBNL* (software developer 2018–2019)

PUBLIC PRESENTATIONS, CHRONOLOGICAL

Note: '*' indicates a major mentoring role.

2025

*Porter, R. Z., Shields, C. A., & **O'Brien**, T. A. (2025). Investigating Different RegCM5 Planetary Boundary Layer Parameterizations to Simulate an Atmospheric River Case Study. AMS Annual Meeting 2025, AMS Annual Meeting 2025

2024

Wang, H., Catto, J. L., **O'Brien**, T. A., Leung, L. R., Neelin, J. D., Tsai, W.-M., & Duan, S. (2024). Precipitation distribution associated with fronts co-occurring with atmospheric rivers and mesoscale convective systems. AGU Fall Meeting 2024, AGU Fall Meeting 2024

Collins, W. D., Mahesh, A., Bonev, B., Cohen, Y., Harrington, P., Kashinath, K., Kurth, T., North, J., **O'Brien**, T. A., Pritchard, M., Pruitt, D., Risser, M. D., Subramanian, S., & Willard, J. (2024a). What's past is prologue: Studies of extreme weather using machine learning and climate emulators. AGU Fall Meeting 2024, AGU Fall Meeting 2024

Mahesh, A., Collins, W. D., Harrington, P., Subramanian, S., Willard, J., Bonev, B., Cohen, Y., Brenowitz, N., Kashinath, K., Kurth, T., North, J., Elms, J., Risser, M. D., Pruitt, D., **O'Brien**, T. A., & Pritchard, M. (2024a). Design and generation of ensemble weather forecasts using spherical fourier neural operators. AGU Fall Meeting 2024, AGU Fall Meeting 2024

Rush, W., Lora, J. M., Skinner, C. B., Menemenlis, S., Shields, C. A., Ullrich, P., **O'Brien**, T. A., Brands, S., Guan, B., Mattingly, K. S., McClenny, E. E., Mundhenk, B. D., Nellikkattil, A. B., Shearer, E., Reid, K., Ramos, A., Tom, R., Leung, L. R., Wille, J., Ralph, F. M., Rutz, J., & Wehner, M. F. (2024). Atmospheric river detection under changing seasonality and mean-state climate: Artmip tier 2 paleoclimate experiments. AGU Fall Meeting 2024, AGU Fall Meeting 2024

*Kamnani, D., **O'Brien**, T. A., Smith, S. J., Staten, P. W., & Shields, C. A. (2024). Regional and temporal variability of atmospheric river seasonality: Influences of detection algorithms and moisture transport dynamics. AGU Fall Meeting 2024, AGU Fall Meeting 2024

*Quagraine, K., **O'Brien**, T. A., & Zhou, Y. (2024). Similarities in meteorological composites among different atmospheric river detection tools during landfall over western coastal north america. AGU Fall Meeting 2024, AGU Fall Meeting 2024

*Porter, R., Shields, C. A., & **O'Brien**, T. A. (2024). Investigating different regcm5 planetary boundary layer parameterizations to simulate an atmospheric river case study. AGU Fall Meeting 2024, AGU Fall Meeting 2024

Collins, W. D., Risser, M. D., Wehner, M. F., **O'Brien**, T. A., Huang, H., & Ullrich, P. (2024b). Challenges to predicting hydrological responses to future changes in regional and global aerosol burdens. AGU Fall Meeting 2024, AGU Fall Meeting 2024

North, J., Risser, M. D., Rhoades, A., Bercos-Hickey, E., & **O'Brien**, T. A. (2024). Statistical methods for identifying internal variability from observations. AGU Fall Meeting 2024, AGU Fall Meeting 2024

O'Brien, T. A., Loring, B., Dufek, A., Islam, M. R., Kamnani, D., Quagraine, K., & Kirkpatrick, C. (2024a). Atmospheric rivers in the eastern and midwestern united states associated with baroclinic waves. International Atmospheric River Conference, La Jolla, CA, June 2024, International Atmospheric River Conference, La Jolla, CA, June 2024

2023

*Elms, J., Mahesh, A., **O'Brien**, T. A., Collins, W. D., Zhou, Y., Subramanian, S., Pritchard, M. S., Cohen, Y., & Brenowitz, N. (2024). The Reliability Diagram: A Diagnostic Tool for Assessing Extreme Event Prediction in FourCastNet. AGU Fall Meeting 2023, AGU Fall Meeting 2023

*****Islam, M. R., **O'Brien**, T. A., Quagraine, K. T., & Ullrich, P. A. (2023). The co-occurrence of atmospheric rivers and tropical cyclones significantly increases moisture transport and precipitation intensity. AGU Fall Meeting 2023, AGU Fall Meeting 2023

*****Kamnani, D. & **O'Brien**, T. A. (2023). Atmospheric River Frequency Seasonality Depends on Location, Year, and Detection Techniques. AGU Fall Meeting 2023, AGU Fall Meeting 2023

Boos, W. R., Nair, V. S., Collins, W. D., Risser, M. D., **O'Brien**, T. A., & Ullrich, P. A. (2023). Past and future trends in South Asian monsoon depressions and their extreme rainfall. AGU Fall Meeting 2023, AGU Fall Meeting 2023

Dong, B., Ullrich, P. A., **O'Brien**, T. A., Zhou, Y., & Lee, J. (2023). Metrics for Evaluating Atmospheric Rivers in Climate Models. AGU Fall Meeting 2023, AGU Fall Meeting 2023

Mahesh, A., Cohen, Y., Brenowitz, N., Elms, J., Subramanian, S., Harrington, P., Anandkumar, A., Pathak, J., Kurth, T., Bonev, B., Pritchard, M. S., Kashinath, K., **O'Brien**, T. A., Nasr, A., Collins, W. D., & Taylor, J. (2023a). Evaluating Data-Driven Forecasts of Extreme Weather. AGU Fall Meeting 2023, AGU Fall Meeting 2023

Mahesh, A., **O'Brien**, T. A., Boos, W. R., & Collins, W. D. (2023b). Constraining Future Projections of Atmospheric Rivers using Poleward Latent Heat Transport. AGU Fall Meeting 2023, AGU Fall Meeting 2023

Neelin, J. D., Tsai, W.-M., Duan, S., **O'Brien**, T. A., Ullrich, P. A., Ahmed, F., Krasting, J. P., Radhakrishnan, A., Kuo, Y.-H., Boos, W. R., Catto, J. L., Leung, L. R., Feng, Z., Suhas, D., Zhou, Y., Kamnani, D., Liptak, J., Dong, W., Gettelman, A., Coleman, D., Maloney, E. D., Wing, A. A., Bitz, C. M., Neale, R. B., Ordonez, A. C., & Maroon, E. (2023). Closing Key Gaps in Climate Model Diagnostics. AGU Fall Meeting 2023, AGU Fall Meeting 2023

Rush, W., Lora, J. M., Skinner, C. B., Shields, C. A., Brands, S., Guan, B., Mattingly, K. S., McClenny, E. E., Mundhenk, B. D., Nellikkattil, A. B., **O'Brien**, T. A., Ramos, A. M., Reid, K., Shearer, E., Waliser, D. E., & Wille, J. (2023). Atmospheric River Detection Under Changing Mean-State Climate and Seasonality: ARTMIP Tier 2 Single-Forcing Paleoclimate Experiments. AGU Fall Meeting 2023, AGU Fall Meeting 2023

Staten, P. W. & **O'Brien**, T. A. (2023). A generalized method for retrieving stratospheric gravity wave properties from vertical GPS RO and other high-resolution soundings. AGU Fall Meeting 2023, AGU Fall Meeting 2023

Tsai, W.-M., Duan, S., **O'Brien**, T. A., Catto, J. L., Ullrich, P. A., Zhou, Y., Leung, L. R., Feng, Z., Boos, W. R., Suhas, D., Kamnani, D., Kuo, Y.-H., Ahmed, F., & Neelin, J. D. (2023). Toward better quantification of precipitation contributions and extremes using globally identified atmospheric features. AGU Fall Meeting 2023, AGU Fall Meeting 2023

Wehner, M. F., Risser, M. D., Collins, W. D., **O'Brien**, T. A., Huang, H., & Ullrich, P. A. (2023). Using Granger causal inference to separate the influence of sulfate aerosols and greenhouse gasses on mean and extreme precipitation in the conterminous United States (CONUS). AGU Fall Meeting 2023, AGU Fall Meeting 2023

O'Brien, T. A. (2023). Producing Credible Climate Projections at Decision Relevant Scales. Johns Hopkins University Wolman Seminar 11 April 2023 (Invited), Johns Hopkins University Wolman Seminar 11 April 2023 (Invited)

2022 *****Charn, A., **O'Brien**, T., Risser, M., Longmate, J., & Feldman, D. (2022a). Sign of observed California temperature trends depends on data set homogenization: implications for weighting and downscaling. AGU Fall Meeting 2022, AGU Fall Meeting 2022

Collow, A., Shields, C. A., , Rutz, J. J., Leung, L., Ralph, M., Wehner, M. F., **O'Brien**, T. A., & Payne, A. E. (2022a). Uncertainty in Atmospheric River Detection and Atmospheric River Induced Precipitation due to Reanalysis Selection. AGU Fall Meeting 2022, AGU Fall Meeting 2022

*****Inda Díaz, H. & **O'Brien**, T. (2022a). Relationship Between Atmospheric Rivers and the Dry Season Extreme Precipitation in Central-Western Mexico for past and future climates. AGU Fall Meeting 2022, AGU Fall Meeting 2022

*****Islam, M., **O'Brien**, T., *****Quagraine, K., & *****Kamnani, D. (2022). Analyzing the Effect of Tropical Cyclones on Atmospheric River Statistics and Dynamics. AGU Fall Meeting 2022, AGU Fall Meeting 2022

*****Kamnani, D. & **O'Brien**, T. (2022a). Geographic Variation of Seasonality Associated with Atmospheric Rivers Based on Multiple Detection Techniques. AGU Fall Meeting 2022, AGU Fall Meeting 2022

Mahesh, A., **O'Brien**, T., Loring, B., & Collins, W. (2022). Constraining Future Projections of Atmospheric Rivers using Poleward Latent Energy Transport. AGU Fall Meeting 2022, AGU Fall Meeting 2022

O'Brien, T., Loring, B., Dufek, A., *****Islam, M., *****Kamnani, D., *****Quagraine, K., & Kirkpatrick, C. (2022a). Relationship of Central North American Atmospheric Rivers to Mesoscale Convection and Extratropical Cyclones. AGU Fall Meeting 2022, AGU Fall Meeting 2022

*****Quagraine, K., **O'Brien**, T., & *****Islam, M. (2022c). Intercomparison of Atmospheric River Detectors to Analyze Differences in Meteorological Phenomena. AGU Fall Meeting 2022, AGU Fall Meeting 2022

Risser, M., Collins, W., Wehner, M., **O'Brien**, T., Paciorek, C., & Huang, H. (2022a). Anthropogenic Aerosols Mask Increases in US Rainfall by Greenhouse Gases. AGU Fall Meeting 2022, AGU Fall Meeting 2022

*****Zhou, Y., **O'Brien**, Collins, W., Shields, C. A., Loring, B., & Elbashandy, A. (2022a). Representation of Northern Pacific Atmospheric River Flavors in CESM2 Large Ensemble. AGU Fall Meeting 2022, AGU Fall Meeting 2022

*****Inda Díaz, H. & **O'Brien**, T. (2022b). Relationship Between Atmospheric Rivers and the Dry Season Extreme Precipitation in Central-Western Mexico for past and future climates. International Atmospheric Rivers Conference 2022, International Atmospheric Rivers Conference 2022

O'Brien, T., Wehner, M., Payne, A., Shields, C., Rutz, J., Leung, L., Ralph, F., Marqaudt-Collow, A., & the ARTMIP Community (2022c). Overview of the ARTMIP Tier 2 CMIP5/6 Experiment. International Atmospheric Rivers Conference 2022, International Atmospheric Rivers Conference 2022

*****Quagraine, K., **O'Brien**, T., & *****Islam, M. (2022a). Assessing Atmospheric River Detectors to Determine the Underlying Phenomena. International Atmospheric Rivers Conference 2022, International Atmospheric Rivers Conference 2022

Reid, K., **O'Brien**, T., King, A., & Lane, T. (2022). IVT during the 2021 East Australian Floods and Future Climate Projections. International Atmospheric Rivers Conference 2022, International Atmospheric Rivers Conference 2022

*****Zhou, Y., **O'Brien**, T., Collins, W., Shields, C., Loring, B., & Elbashandy, A. (2022b). Distinct characteristics of atmospheric river flavors. International Atmospheric Rivers Conference 2022, International Atmospheric Rivers Conference 2022

*Quagraine, K., **O'Brien**, T., & *Islam, M. (2022b). Assessing Atmospheric River Detectors to Determine the Underlying Phenomena. First Midwest Climate Workshop, First Midwest Climate Workshop

*Kamnani, D. & **O'Brien**, T. (2022b). Variation of seasonality associated with Atmospheric Rivers based on detection techniques . First Midwest Climate Workshop, First Midwest Climate Workshop

O'Brien, T., Loring, B., Dufek, A., *Islam, M., *Kamnani, D., *Quagraine, K., & Kirkpatrick, C. (2022b). Relationship of Central North American Atmospheric Rivers to Mesoscale Convection and Extratropical Cyclones. First Midwest Climate Workshop, First Midwest Climate Workshop

O'Brien, T. A., Payne, A. E., Wehner, M. F., Shields, C. A., Collow, A., Leung, L. R., Ralph, F. M., & Rutz, J. (2022d). The Argument for Using More than One AR Detector: Results and Recommendations from the ARTMIP Tier 2 C20C+ and CMIP5/6 Experiments. AMS Annual Meeting 2022 (Invited), AMS Annual Meeting 2022 (Invited)

Collow, A., Shields, C. A., Leung, L. R., **O'Brien**, T. A., Payne, A. E., Ralph, F. M., Rutz, J., & Wehner, M. F. (2022b). An Overview of ARTMIPs Tier 2 Reanalysis Intercomparison: Uncertainty in the Detection of Atmospheric Rivers and Their Associated Precipitation. AMS Annual Meeting 2022, AMS Annual Meeting 2022

Risser, M. D., Collins, W. D., Wehner, M. F., **O'Brien**, T. A., Paciorek, C. J., O'Brien, J. P., Patricola, C. M., Huang, H., & Ullrich, P. A. (2022b). Detection and Attribution of Regional Precipitation Change with Granger Causality: Overcoming Limited Observations, Modeling Uncertainty, and Large Internal Variability. AMS Annual Meeting 2022, AMS Annual Meeting 2022

2021 **O'Brien**, T. A., *Trapp, T. A., *Burkle, T. W., & *Krauter, M. (2021a). A Regional Climate Model Framework for Understanding Coastal Climate. AGU Fall Meeting 2021 (Invited), AGU Fall Meeting 2021 (Invited)

Risser, M. D., Collins, W. D., Wehner, M. F., **O'Brien**, T. A., Paciorek, C. J., O'Brien, J. P., Patricola, C. M., Huang, H., Ullrich, P. A., & Loring, B. (2021a). Detection and Attribution of Regional Precipitation Change with Granger Causality: Overcoming Limited Observations, Modeling Uncertainty, and Large Internal Variability. AGU Fall Meeting 2021, AGU Fall Meeting 2021

Collins, W. D., Risser, M. D., Wehner, M. F., **O'Brien**, T. A., Paciorek, C. J., O'Brien, J. P., Patricola, C. M., Huang, H., Ullrich, P. A., & Loring, B. (2021). Detection and Attribution of Regional Precipitation Change with Granger Causality: Approaches to Short- and Long-Lived Climate Forcers. AGU Fall Meeting 2021, AGU Fall Meeting 2021

*Inda Diaz, H. A., **O'Brien**, T. A., Zhou, Y., & Collins, W. D. (2021). Characterizing the size of Atmospheric Rivers using a perspective independent from the detection algorithm. AGU Fall Meeting 2021, AGU Fall Meeting 2021

Zhou, Y., Collins, W. D., & **O'Brien**, T. A. (2021). Contrasting Windy and Wet Atmospheric Rivers: Characteristics and Variability. AGU Fall Meeting 2021, AGU Fall Meeting 2021

Liu, X., Saravana, R., Chang, P., Fu, D., Patricola, C. M., & **O'Brien**, T. A. (2021a). Differing Evolutions of Flow and Moisture Bias in a Climate Model and Their Influences on Weather Extremes. AGU Fall Meeting 2021, AGU Fall Meeting 2021

Collow, A., Shields, C., Rutz, J., Wehner, M., Leung, R., Ralph, F. M., Payne, A., & **O'Brien**, T. (2021). An Overview of ARTMIP's Tier 2 Reanalysis Intercomparison: Uncertainty in the Detection of Atmospheric Rivers and Their Associated Precipitation. AMS Annual Meeting 2021, Online, AMS Annual Meeting 2021, Online

Liu, X., Saravanan, R., Chang, P., Patricola, C., & **O'Brien**, T. (2021b). The impact of systematic model errors on the simulation of atmospheric rivers. AMS Annual Meeting 2021, Online, AMS Annual Meeting 2021, Online

2020

Gutowski, W. J., Ullrich, P. A., Hall, A. D., Leung, L. R., **O'Brien**, T. A., & Patricola, C. M. (2020b). The ongoing need for high-resolution regional climate models: Process understanding and stakeholder information. AGU Fall Meeting 2020, Online, AGU Fall Meeting 2020, Online

*****Mahesh, A., **O'Brien**, T. A., Elbashandy, A., Guan, B., Kashinath, K., Leung, L. R., Lora, J. M., Loring, B., Mudigonda, M., Prabhat, M., & Collins, W. D. (2020b). Probabilistic detection of atmospheric rivers across climate datasets and resolutions with neural networks. AGU Fall Meeting 2020, Online, AGU Fall Meeting 2020, Online

Payne, A. E., Shields, C. A., **O'Brien**, T. A., Rutz, J. J., Leung, L. R., Ralph, F. M., Wehner, M. F., & Collow, A. (2020). Atmospheric rivers in a changing climate: An overview from the second phase of the atmospheric river tracking method intercomparison project (artmip). AGU Fall Meeting 2020, Online, AGU Fall Meeting 2020, Online

Rhoades, A., Jones, A. D., Kumarivastava, A., Huang, H., **O'Brien**, T. A., Patricola, C. M., Ullrich, P. A., Wehner, M. F., & Zhou, Y. (2020a). The shifting scales of western us landfalling atmospheric rivers under climate change. AGU Fall Meeting 2020, Online, AGU Fall Meeting 2020, Online

Risser, M. D., Wehner, M. F., *****O'Brien, J. P., Patricola, C. M., **O'Brien**, T. A., Collins, W. D., Paciorek, C. J., & Huang, H. (2020). High-resolution detection and attribution for extreme precipitation over the contiguous united states. AGU Fall Meeting 2020, Online, AGU Fall Meeting 2020, Online

Liu, X., Saravanan, R., Chang, P., Patricola, C., & **O'Brien**, T. A. (2020). Assessing the influence of background state and model bias on weather extremes using initialized ensembles in a climate model. AGU Fall Meeting 2020, Online, AGU Fall Meeting 2020, Online

O'Brien, T. A., Zhou, Y., Shields, C. A., Payne, A. E., Rutz, J. J., & Collins, W. D. (2020c). Uncertainty in current and projected atmospheric rivers: A call for process-oriented constraints on ar detection. AGU Fall Meeting 2020, Online, AGU Fall Meeting 2020, Online

*****Zhou, Y., **O'Brien**, T. A., Ullrich, P. A., Collins, W. D., Patricola, C. M., & Rhoades, A. (2020a). Uncertainties in atmospheric river life cycles by detection algorithms: Climatology and variability. AGU Fall Meeting 2020, Online, AGU Fall Meeting 2020, Online

Huang, H., Patricola, C. M., **O'Brien**, T. A., Bercos-Hickey, E., Zhou, Y., Collins, W. D., Rhoades, A., & Risser, M. D. (2020a). Sources of subseasonal-to-seasonal predictability of atmospheric rivers and precipitation in the western united states. AGU Fall Meeting 2020, Online, AGU Fall Meeting 2020, Online

O'Brien, T. A., Zhou, Y., Shields, C. A., Payne, A. E., Rutz, J. J., & Collins, W. D. (2020d). Uncertainty in current and projected atmospheric rivers: A call for process-oriented constraints on ar detection. 2020 International Atmospheric Rivers Conference, Online, 2020 International Atmospheric Rivers Conference, Online

*****Zhou, Y., **O'Brien**, T. A., Ullrich, P. A., Collins, W. D., Patricola, C. M., & Rhoades, A. (2020b). Uncertainties in atmospheric river life cycles by detection algorithms: Climatology and variability. 2020 International Atmospheric Rivers Conference, Online, 2020 International Atmospheric Rivers Conference, Online

Huang, H., Patricola, C. M., **O'Brien**, T. A., Bercos-Hickey, E., Zhou, Y., Collins, W. D., Rhoades, A., & Risser, M. D. (2020b). Sources of subseasonal-to-seasonal predictability of atmospheric rivers and precipitation in the western united states. 2020 International Atmospheric Rivers Conference, Online, 2020 International Atmospheric Rivers Conference, Online

Shields, C., Rutz, J., Payne, A., **O'Brien**, T., & Collow, A. (2020). Artmip: An overview and update. 2020 International Atmospheric Rivers Conference, Online, 2020 International Atmospheric Rivers Conference, Online

Timmermans, B., Collins, W., **O'Brien**, T., Stone, D., & Risser, M. (2020). Impact of parametric uncertainty in simulated climate extremes and attribution studies. EGU General Assembly, Online, EGU General Assembly, Online

Patricola, C. M., Williams, I. N., *OBrien, J. P., Risser, M. D., Rhoades, A., **O'Brien**, T. A., Ullrich, P. A., Stone, D. A., & Collins, W. D. (2020b). The Longitude of Tropical Pacific Deep Convection: A Perspective on ENSO Diversity and Implications for Western US Hydroclimate. 100^{th} AMS Annual Meeting, Boston, MA, 100^{th} AMS Annual Meeting, Boston, MA

*Mahesh, A., **O'Brien**, T., Kashinath, K., Mudigonda, M., Prabhat, M., Shields, C., Rutz, J., Leung, L., Payne, A., Ralph, F., Wehner, M., & Collins, W. (2020a). Using Deep Learning to Detect Atmospheric Rivers across Climate Datasets and Resolutions . 100^{th} AMS Annual Meeting, Boston, MA, 100^{th} AMS Annual Meeting, Boston, MA

2019 Rasch, P. J., Wang, H., Zhang, R., Singh, H. A., **O'Brien**, T. A., & Yoon, J.-H. (2019). High Latitude Water Vapor in CMIP6 models. AGU Fall Meeting, San Francisco, CA, AGU Fall Meeting, San Francisco, CA

Vishnu Sasidharan Nair, Boos, W. R., Ullrich, P. A., & **O'Brien**, T. A. (2019). Automated identification of South Asian monsoon low pressure systems: Historical variations across reanalysis products. AGU Fall Meeting, San Francisco, CA, AGU Fall Meeting, San Francisco, CA

O'Brien, T. A., Risser, M. D., Loring, B., Elbashandy, A., Paciorek, C. J., Charn, A. B., *Inda Díaz, H. A., *Mahesh, A., *OBrien, J. P., Patricola, C. M., *Arriaga Ramirez, S., Rhoades, A., Krishnan, H., Wehner, M. F., & Collins, W. D. (2019d). The Importance of Uncertainty in the Detection of Weather Events: Probabilistic Detection of Atmospheric Rivers. AGU Fall Meeting, San Francisco, CA, AGU Fall Meeting, San Francisco, CA

*Asher, M. & **O'Brien**, T. A. (2019). Investigating a Possible Relationship between Fog and Monsoon Surges. AGU Fall Meeting, San Francisco, CA, AGU Fall Meeting, San Francisco, CA

Payne, A. E., Shields, C. A., Rutz, J. J., Leung, L. R., **O'Brien**, T. A., Ralph, F. M., & Wehner, M. F. (2019). Atmospheric Rivers in a Changing Climate: An Overview from the Second Phase of the Atmospheric River Tracking Method Intercomparison Project (ARTMIP). AGU Fall Meeting, San Francisco, CA, AGU Fall Meeting, San Francisco, CA

Risser, M. D., Paciorek, C. J., Wehner, M. F., **O'Brien**, T. A., Patricola, C. M., & Collins, W. D. (2019c). Historical Relationships Between Climate Forcings and Observed Extreme Precipitation. AGU Fall Meeting, San Francisco, CA, AGU Fall Meeting, San Francisco, CA

Patricola, C. M., Williams, I. N., *OBrien, J. P., Risser, M. D., Rhoades, A., **O'Brien**, T. A., Ullrich, P. A., Stone, D. A., & Collins, W. D. (2019). The Longitude of Tropical Pacific Deep Convection: A Perspective on ENSO Diversity and Implications for Western US Hydroclimate. AGU Fall Meeting, San Francisco, CA, AGU Fall Meeting, San Francisco, CA

O'Brien, T. (2019a). Tier 2 CMIP5/6 Overview. 3rd ARTMIP Workshop, 3rd ARTMIP Workshop

O'Brien, T. A. (2019b). Probabilistic Detection of Extreme Weather Systems. Workshop on Risk Analysis for Extremes in the Earth System, Berkeley, CA. (Invited), Workshop on Risk Analysis for Extremes in the Earth System, Berkeley, CA. (Invited)

O'Brien, T., Risser, M., *Mahesh, A., Paciorek, C., Patricola, C., O'Brien, J., Loring, B., Elbashandy, A., Krishnan, H., Wehner, M., & Collins, W. (2019a). Probabilistic Detection of Atmospheric Rivers. International Meeting on Statistical Climatology, International Meeting on Statistical Climatology

O'Brien, T., *Mahesh, A., Risser, M., Paciorek, C., Wehner, M., Patricola, C., O'Brien, J., Prabhat, M., Loring, B., Elbashandy, A., & Collins, W. (2019c). Uncertainty in the Detection of Weather Phenomena in Climate Datasets: A Critical Data Analysis Problem Requiring Novel Solutions. Data Analytics for Climate and Earth, Data Analytics for Climate and Earth

Kashinath, K., Prabhat, M., Mudigonda, M., *Mahesh, A., Kim, S., Wu, J., Albert, A., Rupe, A., Fernandez, A., **O'Brien**, T., Wehner, M., & Collins, W. (2019). Deep Learning Recognizes Climate and Weather Patterns and Emulates Complex Processes Critical to the Modeling of Earth's Climate. 99th AMS Annual Meeting, Phoenix, AZ, 99th AMS Annual Meeting, Phoenix, AZ

O'Brien, T., *Mahesh, A., Risser, M., Paciorek, C., Wehner, M., Patricola, C., O'Brien, J., Prabhat, M., & Collins, W. (2019b). Probabilistic AR Detection for Understanding Western Coastal Hydroclimate. 99th AMS Annual Meeting, Phoenix, AZ, 99th AMS Annual Meeting, Phoenix, AZ

*Mahesh, A., **O'Brien**, T., Collins, W., Wehner, M., Prabhat, M., Kashinath, K., & Mudigonda, M. (2019). Probabilistic Detection of Extreme Weather Using Deep Learning Methods. 99th AMS Annual Meeting, Phoenix, AZ, 99th AMS Annual Meeting, Phoenix, AZ

Prabhat, Kurth, T., Treichler, S., Romero, J., Mudigonda, M., *Mahesh, A., **O'Brien**, T., Fatica, M., Houston, M., Kashinath, K., Matheson, M., Shankar, M., Wehner, M., & Collins, W. (2019). Exascale Deep Learning for Climate Science. 99th AMS Annual Meeting, Phoenix, AZ, 99th AMS Annual Meeting, Phoenix, AZ

2018 *Mahesh, A., **O'Brien**, T., Collins, W., Wehner, M., Prabhat, M., Kashinath, K., & Mudigonda, M. (2018a). Probabilistic detection of extreme weather using deep learning methods (Invited). AGU Fall Meeting, Washington, DC, AGU Fall Meeting, Washington, DC

Jian, C., Kashinath, K., Mudigonda, M., *Mahesh, A., **O'Brien**, T., Marcus, P., & Prabhat, M. (2018). Deep learning on the Sphere: Convolutional Neural Network on Unstructured Mesh. AGU Fall Meeting, Washington, DC, AGU Fall Meeting, Washington, DC

Kashinath, K., Prabhat, M., Mudigonda, M., *Mahesh, A., Kim, S.-K., Liu, Y., Kahou, S., Toms, B., Racah, E., Beckham, C., Pal, C., Maharaj, T., Biard, J., Kunkel, K., Williams, D., **O'Brien**, T., Wehner, M., & Collins, W. (2018). Deep Learning recognizes weather and climate patterns (Invited). AGU Fall Meeting, Washington, DC, AGU Fall Meeting, Washington, DC

*Mahesh, A., **O'Brien**, T., Collins, W., Wehner, M., Prabhat, M., Kashinath, K., & Mudigonda, M. (2018b). Using deep learning for probabilistic detection of extreme weather. AGU Fall Meeting, Washington, DC, AGU Fall Meeting, Washington, DC

Prabhat, M., Kurth, T., Treichler, S., Romero, J., Mudigonda, M., M, F., Houston, M., *Mahesh, A., Kashinath, K., Matheson, M., Shankar, M., **O'Brien**, T., Wehner, M., & Collins, W. (2018). Towards Exascale Deep Learning for Climate Science (Invited). AGU Fall Meeting, Washington, DC, AGU Fall Meeting, Washington, DC

O'Brien, T., Risser, M., O'Brien, J., Patricola, C., & Collins, W. (2018d). Chance Rather than Trends in the Unusual 2017 California Wet Season. AGU Fall Meeting, Washington, DC, AGU Fall Meeting, Washington, DC

Risser, M., Paciorek, C., Wehner, M., & **O'Brien**, T. (2018). Spatially-resolved trends in observed extreme precipitation over the United States. AGU Fall Meeting, Washington, DC, AGU Fall Meeting, Washington, DC

Prabhat, M., Racah, E., Biard, J., Liu, Y., Mudigonda, M., Kashinath, K., Beckham, C., Maharaj, T., Kahou, S., Pal, C., **O'Brien**, T., Wehner, M., Kunkel, K., & Collins, W. (2017b). Deep Learning for Extreme Weather Detection. AGU Fall Meeting, New Orleans, LA, AGU Fall Meeting, New Orleans, LA

Rhoades, A., Jones, A., **O'Brien**, T., Ullrich, P., & Zarzycki, C. (2018). Influences of Pacific Ocean domain extent on the western US hydroclimatology in variable-resolution CESM . AGU Fall Meeting, Washington, DC, AGU Fall Meeting, Washington, DC

Charn, A., Collins, W., Parishani, H., Risser, M., & **O'Brien**, T. (2018). Microphysical Sensitivity of Superparameterized Precipitation Extremes in the Continental US Due to Feedbacks on Large-scale Circulation. AGU Fall Meeting, Washington, DC, AGU Fall Meeting, Washington, DC

*O'Brien, J., **O'Brien**, T., Patricola, C., & Wang, S.-Y. (2018). Multivariate Metrics to Quantify Co-occurring Extremes Resulting from the Dipole Circulation Pattern. AGU Fall Meeting, Washington, DC, AGU Fall Meeting, Washington, DC

*Mahesh, A., **O'Brien**, T., Prabhat, M., Collins, W., & Liu, Y. (2018d). Assessing Uncertainty in Deep Learning Techniques that Identify Atmospheric Rivers in Climate Simulations. 2nd ARTMIP Workshop, Gaithersburg, MD, 2nd ARTMIP Workshop, Gaithersburg, MD

O'Brien, T., Kashinath, K., *Inda Díaz, H., & Collins, W. (2018a). Convective Aggregation and the Intensity, Duration, Area, and Frequency of Precipitation. 8th GEWEX Open Science Conference, Canmore, Canada, 8th GEWEX Open Science Conference, Canmore, Canada

O'Brien, T., O'Brien, J., Risser, M., Patricola, C., & Collins, W. (2018c). A Weakening of Rainy Events in CA. International Detection and Attribution Group Workshop, Berkeley, CA, International Detection and Attribution Group Workshop, Berkeley, CA

Timmermans, B., Collins, W., **O'Brien**, T., & Risser, M. (2018). Parameter uncertainty in simulations of extreme precipitation and attribution studies. International Detection and Attribution Group Workshop, Berkeley, CA, International Detection and Attribution Group Workshop, Berkeley, CA

*Arriaga Ramirez, S., **O'Brien**, T., Rhoades, A., & Ullrich, P. (2018). Evaluating Variable Resolution-CESM for the North American Monsoon System. 98th AMS Annual Meeting, Austin, TX, 98th AMS Annual Meeting, Austin, TX

Collins, W., Baird, J., Kashinath, K., Liu, Y., **O'Brien**, T., Pal, C., Prabhat, M., Racah, E., & Wehner, M. (2018). Deep Learning for Detecting Extreme Weather and Climate Patterns. 98th AMS Annual Meeting, Austin, TX, 98th AMS Annual Meeting, Austin, TX

*Mahesh, A., **O'Brien**, T., Prabhat, M., & Collins, W. (2018c). Assessing Uncertainty in Deep Learning Techniques that Identify Atmospheric Rivers in Climate Simulations. 98th AMS Annual Meeting, Austin, TX, 98th AMS Annual Meeting, Austin, TX

O'Brien, T., Kashinath, K., *Inda Díaz, H., & Collins, W. (2018b). Convective Aggregation and the Size Distribution of Updrafts. 98th AMS Annual Meeting, Austin, TX, 98th AMS Annual Meeting, Austin, TX

2017 *Inda Díaz, H. & **O'Brien**, T. (2017). Contrasting self-aggregation over land and ocean surfaces. AGU Fall Meeting, New Orleans, LA, AGU Fall Meeting, New Orleans, LA

*Mahesh, A., **O'Brien**, T., Prabhat, M., Collins, W., & Liu, Y. (2017). Assessing Uncertainty in Deep Learning Techniques that Identify Atmospheric Rivers in Climate Simulations. AGU Fall Meeting, New Orleans, LA, AGU Fall Meeting, New Orleans, LA

Prabhat, M., Racah, E., Biard, J., Liu, Y., Mudigonda, M., Kashinath, K., Beckham, C., Maharaj, T., Kahou, S., Pal, C., **O'Brien**, T., Wehner, M., Kunkel, K., & Collins, W. (2017b). Deep Learning for Extreme Weather Detection. AGU Fall Meeting, New Orleans, LA, AGU Fall Meeting, New Orleans, LA

Prabhat, M., Biard, J Ganguly, S., Ames, S., Kashinath, K., Kim, S.-K., Kahou, S., Maharaj, T., Beckham, C., **O'Brien**, T., Wehner, M., Williams, D., Kunkel, K., & Collins, W. (2017a). ClimateNet: A Machine Learning Dataset for Climate Science Research. AGU Fall Meeting, New Orleans, LA, AGU Fall Meeting, New Orleans, LA

O'Brien, T. A. (2017c). A Case for Missing Physics in Climate Models. San Jose State University Climate and Meteorology Seminar, San Jose, CA. (Invited), San Jose State University Climate and Meteorology Seminar, San Jose, CA. (Invited)

O'Brien, T. (2017b). The Uncertain Future of Coastal Fog. Riparian Summit 2017, Davis, CA. (Invited), Riparian Summit 2017, Davis, CA. (Invited)

O'Brien, T. (2017a). A Case for Missing Physics in Climate Models. 7th Annual oSTEM Conference, Chicago, IL, 7th Annual oSTEM Conference, Chicago, IL

Timmermans, B., Collins, W., **O'Brien**, T., & Risser, M. (2017a). Parameter uncertainty in simulations of extreme precipitation and attribution studies. AGU Fall Meeting, New Orleans, LA, AGU Fall Meeting, New Orleans, LA

Timmermans, B., Collins, W., **O'Brien**, T., & Risser, M. (2017b). Parametric uncertainty in simulations of extreme weather events. Statistical and Applied Mathematical Sciences Institute, Research Triangle Park, NC, Statistical and Applied Mathematical Sciences Institute, Research Triangle Park, NC

*O'Brien, J. & **O'Brien**, T. (2017a). Identifying and Understanding Regional Differences in Temperature and Precipitation in California Under the Influence of PDO. The 28th Pacific Climate Workshop, Pacific Grove, CA, The 28th Pacific Climate Workshop, Pacific Grove, CA

*O'Brien, J. & **O'Brien**, T. A. (2017b). Identifying and Understanding Regional Differences in Temperature and Precipitation in California Under the Influence of PDO. AMS Annual Meeting, Seattle, WA., AMS Annual Meeting, Seattle, WA

Wehner, M., Stone, D., Johnson, J., Loring, B., Krishnan, H., & **O'Brien**, T. A. (2017). High resolution climate model simulations of stabilized 1.5 and 2 degree warming scenarios. AMS Annual Meeting, Seattle, WA., AMS Annual Meeting, Seattle, WA

2016 *Inda Díaz, H., **O'Brien**, T. A., & Stone, D. (2016). The anthropogenic influence on heat and humidity in the US Midwest. AGU Fall Meeting, San Francisco, CA., AGU Fall Meeting, San Francisco, CA

O'Brien, T. A., Collins, W., Rauscher, S., Kashinath, K., Rübel, O., S, B., Gu, J., Krishnan, H., Ullrich, P., & Donner, L. (2016b). A case for missing cloud physics in climate models. AGU Fall Meeting, San Francisco CA. (Invited), AGU Fall Meeting, San Francisco CA. (Invited)

Wehner, M., Stone, D., Johnson, J., Loring, B., Krishnan, H., & **O'Brien**, T. A. (2016). High resolution climate model simulations of stabilized 1.5 and 2 degree warming scenarios. AGU Fall Meeting, San Francisco, CA., AGU Fall Meeting, San Francisco, CA

O'Brien, T. A., Collins, W., Rauscher, S., Kashinath, K., Rübel, O., S, B., Gu, J., Krishnan, H., & Ullrich, P. (2016a). Understanding the resolution dependence of precipitation statistical fidelity in hindcast simulations. AGU Fall Meeting, San Francisco CA. (Invited), AGU Fall Meeting, San Francisco CA. (Invited)

Timmermans, B., **O'Brien**, T. A., Wehner, M., & Krishnan, H. (2016). Uncertainty in extreme precipitation representation in numerical simulations and hydrological datasets. AGU Fall Meeting, San Francisco, CA., AGU Fall Meeting, San Francisco, CA

O'Brien, T. A. (2016). A Case for Missing Physics in Climate Models. UC Santa Cruz Whole Earth Seminar, Santa Cruz CA. (Invited), UC Santa Cruz Whole Earth Seminar, Santa Cruz CA. (Invited)

*Liu, Y., Kashinath, K., **O'Brien**, T. A., & Prabhat, M. (2016). Systematic Characterization of Cyclogenesis in High Resolution Climate Model Simulations. 32nd Conference on Hurricanes and Tropical Meteorology, San Juan, PR, 32nd Conference on Hurricanes and Tropical Meteorology, San Juan, PR

O'Brien, T. A., Kashinath, K., Cavanaugh, N., Collins, W., & O'Brien, J. (2016d). A Fast and Objective Multidimensional Kernel Density Estimation Method for Climate Data Analysis: fastKDE. AMS Annual Meeting, New Orleans, LA, AMS Annual Meeting, New Orleans, LA

Krishnan, H., Loring, B., Byna, S., Wehner, M., **O'Brien**, T. A., Prabhat, M., Paciorek, C., & Stone, D. (2016). Enabling End-to-End Climate Science Workflows in High Performance Computing Environments. AMS Annual Meeting, New Orleans, LA, AMS Annual Meeting, New Orleans, LA

Gittens, A., Cavanaugh, N., Kashinath, K., **O'Brien**, T. A., Prabhat, M., & Mahoney, M. (2016). Large-scale Parallelized EOF Computation on the CSFR Ocean Temperature Field. AMS Annual Meeting, New Orleans LA, AMS Annual Meeting, New Orleans LA

*Cavanaugh, N., **O'Brien**, T. A., & Collins, W. (2016). Reduced Weather Variability Indicated by Decreases in Atmospheric Energy Spectra. AMS Annual Meeting, New Orleans, LA, AMS Annual Meeting, New Orleans, LA

2015 **O'Brien**, T. A., Kashinath, K., & Collins, W. (2015a). A New Framework for Systematically Characterizing and Improving Extreme Weather Phenomena in Climate Models. AGU Fall Meeting, San Francisco, CA, AGU Fall Meeting, San Francisco, CA

Krishnan, H., Byna, S., Wehner, M., Gu, J., **O'Brien**, T. A., Loring, B., Stone, D., Collins, W., Prabhat, M., Liu, Y., Johnson, J., & Paciorek, C. (2015). Enabling Efficient Climate Science Workflows in High Performance Computing Environments. AGU Fall Meeting, San Francisco, CA, AGU Fall Meeting, San Francisco, CA

O'Brien, T. A., Kashinath, K., & Collins, W. (2015b). The Role of SST and Large-Scale Dynamical Motions on the Onset and Shutdown of the Super Greenhouse Effect. AGU Fall Meeting, San Francisco, CA, AGU Fall Meeting, San Francisco, CA

*Liu, Y., Rao, P., Kashinath, K., Prabhat, M., & **O'Brien**, T. A. (2015). Systematic Characterization of Cyclogenesis in High Resolution Climate Model Simulations. AGU Fall Meeting, San Francisco, CA, AGU Fall Meeting, San Francisco, CA

Collins, W., Wehner, M., **O'Brien**, T. A., Paciorek, C., Krishnan, H., Johnson, J., & Prabhat, M. (2015). Data informatics for the Detection, Characterization, and Attribution of Climate Extremes. AGU Fall Meeting, San Francisco, CA., AGU Fall Meeting, San Francisco, CA

*Cavanaugh, N., **O'Brien**, T. A., & Collins, W. (2015). Reduced weather variability indicated by decreases in atmospheric energy spectra. AGU Fall Meeting, San Francisco, CA, AGU Fall Meeting, San Francisco, CA

*O'Brien, J. & **O'Brien**, T. A. (2015). The Joint Statistics of California Temperature and Precipitation as a Function of the Large-scale State of the Climate. AGU Fall Meeting, San Francisco, CA, AGU Fall Meeting, San Francisco, CA

O'Brien, T. A. & Collins, W. (2015d). Frontiers in climate modeling at the watershed scale. 13th IWA Special Conference on Watershed and River Basin Management, San Francisco, CA. (Invited), 13th IWA Special Conference on Watershed and River Basin Management, San Francisco, CA. (Invited)

O'Brien, T. A. (2015). Climate modeling of extremes: state of the science. Climate Change Impacts & Integrated Assessment Workshop XXI, Snowmass CO. (Invited), Climate Change Impacts & Integrated Assessment Workshop XXI, Snowmass CO. (Invited)

O'Brien, T. A. & Collins, W. (2015b). Analyzing and leveraging self-similarity in climate models. San Jose State University Climate and Meteorology Seminar, San Jose, CA, San Jose State University Climate and Meteorology Seminar, San Jose, CA

O'Brien, T. A. & Collins, W. (2015c). Analyzing and leveraging self-similarity in climate models. UC Davis Atmospheric Science Seminar, Davis, CA, UC Davis Atmospheric Science Seminar, Davis, CA

O'Brien, T. A. & Collins, W. (2015a). Analyzing and leveraging self-similarity in climate models. EGU Spring Meeting, Vienna, Austria. (Invited), EGU Spring Meeting, Vienna, Austria. (Invited)

2014 **O'Brien**, T. A., Collins, W., Rauscher, S., & Ringler, T. (2014b). Scale-dependent vertical mass flux and a possible deficiency in current parameterization suites. Latsis Symposium, Zurich, Switzerland, Latsis Symposium, Zurich, Switzerland

O'Brien, T. A. (2014). Developing climate scenarios for the energy sector at LBNL/UC Berkeley. Climate Scenarios for the California Energy Sector, Sacramento CA, Climate Scenarios for the California Energy Sector, Sacramento CA

O'Brien, T. A., Collins, W., Kashinath, K., Rubel, O., & Krishnan, H. (2014a). Using the resolution dependence of modeled extreme event fidelity to drive model development: Model evaluation within the CASCADE SFA. DOE Integrated Climate Modeling Principal Investigator Meeting, Potomac, MD, DOE Integrated Climate Modeling Principal Investigator Meeting, Potomac, MD

O'Brien, T. A., Collins, W., Rauscher, S., Ringler, T., & Taylor, M. (2014c). Analyzing and leveraging self-similarity in climate models. UC Berkeley Geolunch Seminar, Berkeley, CA, UC Berkeley Geolunch Seminar, Berkeley, CA

O'Brien, T. A., Collins, W., Rauscher, S., Ringler, T., & Taylor, M. (2014d). Scale-dependent horizontal velocity fields drive vertical velocity resolution dependence. CESM Atmosphere Working Group Meeting, Boulder, CO, CESM Atmosphere Working Group Meeting, Boulder, CO

2013 **O'Brien**, T. A., Collins, W., Rauscher, S., & Ringler, T. (2013c). Fractal behavior drives resolution dependent vertical velocity fields. AGU Fall Meeting, San Francisco, CA, AGU Fall Meeting, San Francisco, CA

O'Brien, T. A., Collins, W., Li, F., Rauscher, S., Ringler, T., Taylor, M., Hagos, S., & Leung, L. (2013b). Observed Scaling in Clouds and Precipitation and Scale Incognizance in Regional to Global Atmospheric Models. CESM Atmosphere Working Group Meeting, Boulder, CO, CESM Atmosphere Working Group Meeting, Boulder, CO

O'Brien, T. A., Collins, W., Li, F., Rauscher, S., Ringler, T., Taylor, M., Hagos, S., & Leung, L. (2013a). Observed Scaling in Clouds and Precipitation and Scale Incognizance in Regional to Global Atmospheric Models. Pacific Northwest National Laboratory Climate Physics Seminar, Richland, WA. (Invited), Pacific Northwest National Laboratory Climate Physics Seminar, Richland, WA. (Invited)

O'Brien, T. A., Sloan, L., Chuang, P., & Faloona, I. (2013e). The Recent Decline of Coastal Fog and the Drying of the Coastal Boundary Layer. Oregon State University Physics of Oceans and Atmospheres Seminar Series, Corvallis, OR. (Invited), Oregon State University Physics of Oceans and Atmospheres Seminar Series, Corvallis, OR. (Invited)

2012 **O'Brien**, T. A., Collins, W., Li, F., Rauscher, S., Ringler, T., Taylor, M., Hagos, S., & Leung, L. (2012c). Observed Scaling in Clouds and Precipitation and Scale Incognizance in Regional to Global Atmospheric Models. AGU Fall Meeting, San Francisco, CA, AGU Fall Meeting, San Francisco, CA

Collins, W., **O'Brien**, T. A., & Li, F. (2012). Observational constraints on scale-awareness: Scale-incognizant parameterizations in the Community Atmosphere Model. Frontiers in Computational Physics O35, Frontiers in Computational Physics O35

O'Brien, T. A., Sloan, L., Chuang, P., Faloona, I., & Collins, W. (2012f). Simulating the Recent Decline in Coastal Fog. California Climate Change & Water Symposium, Davis, CA, California Climate Change & Water Symposium, Davis, CA

O'Brien, T. A., Collins, W., Sloan, L., Chuang, P., & Faloona, I. (2012d). Sea Surface Temperatures Drive Fog Variability but not the Long-term Trend. Eastern Pacific Ocean Conference, Mt Hood, OR, Eastern Pacific Ocean Conference, Mt Hood, OR

O'Brien, T. A., Sloan, L., Chuang, P., & Faloona, I. (2012e). Changes in California Coastal Dynamics over the Last 100 Years. ICTP RegCM Workshop, Trieste, Italy. (Invited), ICTP RegCM Workshop, Trieste, Italy. (Invited)

O'Brien, T. A., Collins, W., & Li, F. (2012b). Observational constraints on scale-awareness: Illumination of a scale-incognizant stratiform parameterization in CAM. BASC Symposium, Berkeley, CA, BASC Symposium, Berkeley, CA

2011 **O'Brien**, T. A., Sloan, L., Chuang, P., & Faloona, I. (2011a). Simulating Coastal Fog with a Regional Climate Model. AGU Fall Meeting, San Francisco, CA, AGU Fall Meeting, San Francisco, CA

O'Brien, T. A., Sloan, L., Chuang, P., & Faloona, I. (2011b). What has caused the long-term decline in California coastal fog? UC Davis Atmospheric Sciences Seminar, Davis, CA. (Invited), UC Davis Atmospheric Sciences Seminar, Davis, CA. (Invited)

2010 Snyder, M. & **O'Brien**, T. A. (2010). Regional climate model ensemble techniques: Towards higher spatial resolution probabilistic climate scenarios. AGU Fall Meeting, San Francisco, CA, AGU Fall Meeting, San Francisco, CA

Sloan, L., Graves, D., & Snyder, M. (2010). Climate Change and Wine: Observations, Impacts, and Implications. Seymour Center Lecture Series, Santa Cruz, CA, Seymour Center Lecture Series, Santa Cruz, CA

O'Brien, T. A., Sloan, L., Chuang, P., & Faloona, I. (2010b). Regional Simulation of Marine Stratus and Fog. UC Davis Symposium on Sea and Coast, Bodega Bay, CA, UC Davis Symposium on Sea and Coast, Bodega Bay, CA

O'Brien, T. A., Sloan, L., Chuang, P., & Rossiter, D. (2010c). What can a regional climate model tell us about the long term climatology of marine stratocumulus off California's coast? AMS Cloud Physics Conference, Portland, OR, AMS Cloud Physics Conference, Portland, OR

O'Brien, T. A., Sloan, L., Chuang, P., & Faloona, I. (2010a). Does a new boundary layer model improve simulation of coastal environments in RegCM3? ICTP RegCM Workshop, Trieste, Italy, ICTP RegCM Workshop, Trieste, Italy

O'Brien, T. A., Sloan, L., & Snyder, M. (2010d). Can Ensembles of Regional Climate Model Simulations Improve Results from Sensitivity Studies? BASC Symposium, Berkeley, CA, BASC Symposium, Berkeley, CA

2008 Snyder, M., **O'Brien**, T. A., & Sloan, L. (2008). Future Changes in Surface Winds in the Western U.S. due to Climate Change. AGU Fall Meeting, San Francisco, CA, AGU Fall Meeting, San Francisco, CA

Hutchison, K., **O'Brien**, T. A., & Sloan, L. (2008). The Regional Impact of Current and Future Dust Levels on Climate in Western North America. AGU Fall Meeting, San Francisco, CA, AGU Fall Meeting, San Francisco, CA

O'Brien, T. A., Hutchison, K., Sloan, L., & Solmon, F. (2008). Application of ICTP RegCM3' New Dust Model to Modern N. Americ: Challenges and Questions. AGU Fall Meeting, San Francisco, CA, AGU Fall Meeting, San Francisco, CA

2007 **O'Brien**, T. A., Solmon, F., Sloan, L., & Snyder, M. (2007b). Airborne Dust Modified the North American Climate During the 1930's Dust Bowl. AGU Joint Assembly, Acapulco, Mexico, AGU Joint Assembly, Acapulco, Mexico

2005 **O'Brien**, T. A., Downward, L., Larson, D., Downs, C., Bridges, F., Mitchell, J., & Zheng, H. (2005b). Evidence for Magnetic Dimerons in the Anisotropic Bilayer System La1.2Sr1.8Mn2O7: an EXAFS study. SSRL Users' Meeting Poster Session, Menlo Park, CA, SSRL Users' Meeting Poster Session, Menlo Park, CA

O'Brien, T. A., Downward, L., Larson, D., Downs, C., Bridges, F., Mitchell, J., & Zheng, H. (2005a). Anisotropic Local Distortion of La1.2Sr1.8Mn2O7 Through the Ferromagnetic Transition Temperature. American Physical Society Meeting, Los Angeles, CA, American Physical Society Meeting, Los Angeles, CA

2004 **O'Brien**, T. A., Downward, L., Larson, D., Downs, C., Bridges, F., Mitchell, J., & Zheng, H. (2004). Anisotropic Local Distortion of La1.2Sr1.8Mn2O7 Through the Ferromagnetic Transition Temperature. SSRL Users' Meeting Poster Session, Menlo Park, CA, SSRL Users' Meeting Poster Session, Menlo Park, CA