

## **R. Paul Acosta**

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### **Research Interest**

Paleoclimate, mountain climate change, and tropical monsoon dynamics using Earth System Numerical Models.

### **Current Position**

Post-Doctoral Fellow

### **Education Background**

1. Doctorate in Atmospheric and Earth Sciences, Purdue University (2016-2018)
2. Staff Researcher at University of New Hampshire (2014-2016)
3. Master of Science in Atmospheric Sciences, Purdue University (2012-2013)
4. Bachelor of Science in Earth Science with concentration in Environmental Science University of California Santa Cruz (2008-2012)

### **Peer Reviewed Publications**

1. Aron P. G., C. J. Poulsen, R. P. Fiorella, N. E. Levin, R. P. Acosta, B. J. Yanites, E. J. Cassel “Variability and controls on d18O, d-excess, and d17O in Southern Peruvian precipitation” *JGR Atmospheres* (2021). <https://doi.org/10.1029/2020JD034009>
2. Acosta, R. P. & Huber, M. “Competing Topographic Mechanisms for the Summer Indo-Asian Monsoon” *Geophys. Res. Lett.* (2020). <https://doi.org/10.1029/2019GL085112>
3. Komurcu M., K. A. Emanuel, M. Huber R. P. Acosta “High Resolution Climate Projections for the Northeastern United States using Dynamical Downscaling at Convection Permitting Scales” *Earth and Space Science* (2018) <https://doi.org/10.1029/2018EA000426>
4. Acosta, R. P. & Huber, M. The neglected Indo-Gangetic Plains low-level jet and its importance for moisture transport and precipitation during the peak summer monsoon. *Geophys. Res. Lett.* (2017). <https://doi.org/10.1002/2017GL074440>
5. Acosta, R. P. (2013). *The influence of the Tibetan Plateau elevation on the global and Asian monsoons* (Order No. 1553487). Available from Dissertations & Theses @ CIC Institutions; ProQuest Dissertations & Theses Global. (1518149402).
6. Weiss-Penzias, P. S., C. Ortiz Jr., R. P. Acosta, W. Heim, J. P. Ryan, D. Fernandez, J. L. Collett Jr., and A. R. Flegal (2012), Total and monomethyl mercury in fog water from the central California coast, *Geophys. Res. Lett.*, 39, L03804, doi:10.1029/2011GL050324.

### **Current Research Projects**

1. (In prep) R. Paul. Acosta, J. Zhu, C.J. Poulsen “Invisible Andes during warm climatic periods: aggregative impact of CO<sub>2</sub> and Paleoboundary Conditions on water isotopes”
2. (In review) R. Paul. Acosta, J.B. Ladant, J. Zhu, C.J. Poulsen “Evolution of the Atlantic ITCZ and its implications on the South American and African monsoons and

rainforests”

3. (In review) R. Paul, Acosta, M. Huber Evaluating paleoenthalpy as a measure of paleotopography using climate models
4. (In review) D. Gaskell, M. Huber, C. O’Brien, G. N. Inglis, R. P. Acosta, C. J. Poulsen “A 95-myr continuous record of sea-surface temperatures and polar amplification from planktonic foraminiferal  $\delta^{18}\text{O}$ ”

### **Awards**

1. Postdoctoral Fellowship at University of Michigan (2019-2021)
2. NCAR Campaign Storage Resource Allocation (150 TB computing space) (2019)
3. Purdue EAPS Outstanding Atmospheric Graduate Student (2018)
4. Purdue EAPS Outstanding Graduate Student Poster Presentation Award (2018)
5. Purdue Climate Change Research Center Conference Travel Grant (Nov 2016-17)
6. NCAR ASP Summer Program NSF funded (June 2017)
7. Purdue, EAPS Graduate Student Oral Presentation Award (2017)
8. University of Chicago, Rossbyalooza NSF travel grant (July 2016)
9. University of New Hampshire NRESS Student Science Award (Feb 2016)
10. University of New Hampshire NRESS Department Travel Grant (Dec 2015)
11. EPSCoR NSF Student Scholarship (January 2014 – August 2016)
12. Purdue Graduate Student Government Travel Grant (Dec 2013)
13. NCAR CESM summer tutorial travel scholarship (July 2013)
14. Purdue Doctoral Ross Fellowship (2012-2013)
15. Friends of Long Marine Lab Student Research and Education Award (2011-2012)
16. Senior Thesis: Total mercury concentration in sediment from continental shelf of central California

### **Journal Reviewer**

1. American Geophysical Union: Geophysical Research Letters, Journal of Geophysical Research Atmospheres, and Paleoceanography & Paleoclimatology
2. Geosociety: Geology
3. Elsevier: Earth and Planetary Research Letters
4. Geoscientific Model Development

### **Presentations**

1. Acosta R. P. “The Role of Tectonics and Paleogeography on Monsoon systems” invited talk at LSCE, Paris France 2021
2. Acosta R. P., Poulsen C. and Zhu J. “Paleoclimate simulation of South America during the middle Miocene and early Eocene” Oral Presentation, AGU Fall 2020
3. Acosta R. P., Poulsen C. “Andean Orogeny through the Cenozoic” AGU Fall 2019
4. Acosta R. P. “Rising to the Heavens”, Purdue EAPS 591 graduate course “Southeast Asia Tectonics: Puzzles, Monsoons and Oil” Guest lecture 2018
5. Acosta R. P. Huber M Regional Climate Influence of the Himalayan Tibetan Plateau on the Indo-Asian Monsoon, Oral Presentation, AGU Fall 2017
6. Acosta R. P. Huber M. Topographic controls on the Indo-Asian monsoon, paleoclimate meeting Oral Presentation, CBEP Sep 2017

7. Acosta R. P., Huber M. The Southeast Moisture Transport Across the Indo-Gangetic Plain during Peak Monsoon Season Presented at American Geophysical Union fall science meeting (Dec 2016)
8. Acosta R. P., Huber M. “An over estimation of topographic diabatic heating and precipitation in NCAR CAM simulations during the Indo-Asian monsoon season” Presented at AGU fall science meeting (Dec 2015)
9. Acosta R. P., Huber M. “The Indo-Asian monsoon with high-resolution CAM model” Presented at New England EPSCoR meeting (March 2015) and University of New Hampshire, graduate research conference Oral Presentation April 2015
10. Acosta R. P., Huber M. “Are model-data differences in the Indo-Asian monsoon due to model or data biases?” Presented at American Geophysical Union fall science meeting (December 2014)
11. Muge Komurcu, R. Paul Acosta, Jonathan Buzan, Matthew Huber “Dynamically Downscaling and Model Calibration for Simulating Regional Climate Change in New Hampshire.” Presented at American Geophysical Union fall science meeting (Dec 2014)
12. Acosta R.P., Goldner A., Herold, N., Huber M. “Does the Tibetan Plateau influence the upwelling system of the Arabian Sea and Bay of Bengal?” Presented at American Geophysical Union ocean sciences meeting (2014)
13. Acosta R.P., Goldner A., Herold, N., Huber M. “Is the Tibetan Plateau important for the global monsoon?” Presented at American Geophysical Union fall meeting (2013)
14. R. Paul Acosta, Peter Scott Weiss-Penzias, Victoria Bauer, John Phillip Ryan, Arthur Russell Flegal. “Total mercury concentration in sediment from the continental shelf of central California” Presented at American Geophysical Union 2012, and Purdue GIS day

### **Summer Programs**

1. MioMeet, Stockholm University (June 2019)
2. NCAR ASP summer colloquium (June 2017)
3. University of Chicago climate and statistics workshop, Rossbypalooza (July 2016)
4. NCAR Community Earth System Model winter modeling meeting (Feb 2016)
5. Yale, Synoptic-Scale and Intraseasonal Variability in Monsoons (Apr 2015)
6. Mountains and High Plateaus – University of Michigan Summer school (Aug 2015)
7. USGS COAWST Modeling System Training (Aug 2014)
8. NCAR Weather Research Forecasting, Regional Climate summer tutorial (Jul 2014)
9. NCAR Weather Research Forecasting summer tutorial (Jul 2014)
10. NCAR Community Earth System Model summer tutorial (Jun 2013)
11. Urbino Paleoclimate school (Jul 2012)

### **Masters Research Projects**

1. Climatic impact of Himalayan-Tibetan Mountains on the Asian Monsoons using NCAR CAM4 GCM

### **Undergraduate Research Projects** (December 2010-June 2012)

1. Measurement of total, monomethyl mercury and ions in the fog and rain at Santa Cruz CA
2. Measurement of total mercury speciation in ocean sediment at Santa Cruz, CA

### **Teaching Experience**

1. Teaching assistant, Purdue University. Data Analysis Techniques in Earth and Atmospheric Sciences (EAPS 509, Fall 2018)
2. Teaching Assistant, Purdue University. “Planetary Geology” (EAPS 556, Fall 2018)
3. Teaching Assistant, Purdue University. “Energy and Society” (EAPS 375, Summer 2018)
4. Teaching assistant, Purdue University. Dynamic Earth (EAS 191, Fall 2012)
5. Purdue Climate Change Research Center Undergrad Mentor (Summer 2013)
6. Teaching assistant, UCSC. TA’s apprentice in an upper-division earth science coursework (Evolution of Earth 110A) (Fall 2011)
7. Research Assistant and lab technician, UCSC. Dr. Peter Weiss in Russ Flegal Laboratory, (12/2010- 06/2012) <http://news.ucsc.edu/2012/12/coastal-mercury.html>
8. Research Assistant and lab technician at UCSC with Dr. Priya Ganguli in Flegal Laboratory, (12/2010- 06/2012) -<http://www.priyaganguli.com/teaching-philosophy/field-lab-mentees>

### **Computational Skills**

1. Operating systems: Windows and Mac
2. Programming Language: C, Unix, NCL, NCO, Python, Matlab and R
3. Community Earth System Model (CESM)
4. Weather Research Forecasting Model (WRF)

### **Extracurricular and Outreach Experience**

1. Purdue University, EAPS-Imagination Center Passport Day (11-2017)
2. Purdue EAPS Solar Eclipse outreach event (08-2017)
3. Purdue University, EAPS-Imagination Center Passport Day (11-2016)
4. University of New Hampshire, NRESS department social and outreach committee member (Fall and Spring 2016)
5. University of New Hampshire - Climate, Coffee and Tea meetings (2014-15)
6. Student judge for Undergraduate Research Conference Interdisciplinary Science and Engineering Symposium (2014 and 2016)
7. Volunteer Annual University of New Hampshire Oyster River Duck Race (2014-15)
8. Event coordinator for Graduate Student Association at Purdue Earth, Planetary and Atmospheric Department (2012-13)
9. Cowell college orientation leader, UCSC. Assist freshmen move in and plan various events and projects throughout the year (2009-12)