

Paul W. Staten

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Areas of specialization

Atmospheric Dynamics • Climate-cloud Interactions • Remote Instrumentation • Climate Change.

Appointments Held

2015–present	Assistant Professor, Department of Geological Sciences, Indiana University Bloomington
2013–2014	Postdoctoral Research Fellow, NASA Jet Propulsion Laboratory, California Institute of Technology
2006–2013	Research Assistant, Department of Atmospheric Sciences, University of Utah
2005	Intern, NASA Jet Propulsion Laboratory

Education

2013	Ph.D. Atmospheric Sciences, University of Utah <i>Dissertation:</i> The response of the general circulation to imposed forcings. <i>Committee:</i> Thomas Reichler (chair), John Horel, Jian Lu, James Steenburgh, Courtenay Strong.
2008	M.S. Meteorology, University of Utah <i>Thesis:</i> An evaluation of radio occultation measurements for long-term tropopause monitoring. <i>Committee:</i> Thomas Reichler (chair), Gerald Mace, Chuntao Liu.
2013	ESA Earth Observation Summer School on Earth System Modeling and Monitoring
2008	C-SPARC Summer School on Dynamics, long-term memory, and trends in the climate system
2006	B.S. Mathematics, Weber State University

Honors, Awards, & Fellowships

2013–2014	Caltech Postdoctoral Fellowship
2010–2012	NSF GK-12 Fellowship
2008	Zipser Award for Excellence in Graduate Research
2007–2010	NASA Earth and Space Science Fellowship
2006	Graduate Fellowship, University of Utah
2006	Outstanding Math Graduate, Weber State University, Ogden, UT

2005 Summer Undergraduate Research Fellowship, California Technical Institute, CA
2001 Presidential Scholarship, Weber State University, Ogden, UT

Publications & talks

JOURNAL ARTICLES

- 2019 Staten, P. W., K. M. Grise, S. M. Davis, K. Karnauskas, and N. Davis, Regional widening of tropical overturning; forced change, natural variability, and recent trends. *J. Geophys. Res. Atmos.*, (under revision)
- 2018 Grise, K. M. S. M. Davis, I. R. Simpson, D. W. Waugh, Q. Fu, R. J. Allen, K. H. Rosenlof, C. C. Ummenhofer, K. B. Karnauskas, A. C. Maycock, X. Quan, T. Birner, and P. W. Staten, [Recent Tropical Expansion: Natural Variability or Forced Response](#) *J. Clim.*, (early release), doi:10.1175/JCLI-D-18-0444.1
- 2018 Staten, P. W., J. Lu, K. M. Grise, S. M. Davis, and T. Birner, (2018): [Re-examining tropical expansion](#), *Nature Climate Change*, 8, 9, 768–775, doi:10.1038/s41558-018-0246-2.
- 2018 Grise, K. M., S. M. Davis, P. W. Staten, and O. Adam, (2018): [Regional and Seasonal Characteristics of the Recent Expansion of the Tropics](#), *J. Clim.*, 0, doi:10.1175/JCLI-D-18-0060.1.
- 2018 Waugh, D. W., K. M. Grise, W. Seviour, S.M. Davis, N. Davis, O. Adam, S.-W. Son, I. R. Simpson, P. W. Staten, A. C. Maycock, C.C. Ummenhofer, T. Birner, and A. Ming (2018): [Revisiting the Relationship among Metrics of Tropical Expansion](#), *J. Clim.*, 0, doi:10.1175/JCLI-D-18-0108.1.
- 2018 Adam, O., Grise, K. M., Staten, P., Simpson, I. R., Davis, S. M., Davis, N. A., Waugh, D. W., Birner, T., and Ming, A., [The TropD software package \(v1\): standardized methods for calculating tropical-width diagnostics](#), *Geosci. Model Dev.*, 11, 4339-4357, doi:10.5194/gmd-11-4339-2018.
- 2017 Lu, Jian, D. Xue, G. Chen, L. R. Leung, P. W. Staten (2017): [Enhanced hydrological extremes in the western United States under global warming through the lens of water vapor wave activity](#), *npj Climate and Atmospheric Science*, 1, 1, doi:10.1038/s41612-018-0017-9.
- 2016 Staten, P. W., B. Kahn, M. Schreier, and A. Heidinger (2016): [Subpixel characterization of HIRS spectral radiances using AVHRR and Clavr-X](#), *J. Atmos. Ocean Tech.*, 33, 7, doi:10.1175/JTECH-D-15-0187.
- 2016 Palipane, E., J. Lu, P. W. Staten, et al. (2016): [Investigating the zonal wind response to SST warming using transient ensemble AGCM experiments](#), *Clim. Dyn.*, doi:10.1007/s00382-016-3092-9.
- 2016 Conrick, R., N. L. Curtis, P. W. Staten, C. Kirkpatrick (2016): [The relationships between temperature gradient and wind during cold frontal passages in the eastern United States: a numerical modeling study](#), *Atmos. Sci. Lett.*, 17, 339–345, doi:10.1002/asl.663
- 2014 Staten, P. W., T. Reichler, and J. Lu (2014): [The transient circulation response to external forcings](#), *J. Climate*, 27, 9323–9336, doi:10.1175/JCLI-D-14-00035.1.
- 2013 Staten, P.W., and T. Reichler (2013): [On the ratio between shifts in the eddy-driven jet and the Hadley cell edge](#), *Clim. Dynam.*, 42, 1229-1242, doi:10.1007/s00382-013-1905-7.
- 2011 Staten, P. W., J. Rutz, T. Reichler, and J. Lu (2011): [Breaking down the tropospheric circulation response by forcing](#), *Clim. Dynam.*, 39, 2361-2375, doi:10.1007/s00382-011-1267-y.
- 2009 Staten, P. W., and T. Reichler (2009): [Apparent precision of GPS Radio Occultation Temperatures](#), *Geophys. Res. Lett.*, 36, L24806, doi:10.1029/2009GL041046.
- 2008 Staten, P. W., and T. Reichler (2008): [Use of radio occultation for long-term tropopause studies: uncertainties, biases, and instabilities](#), *J. Geophys. Res.*, 113, D00B05, doi:10.1029/2008JD009886.

CONFERENCE PRESENTATIONS

- 2018 Staten P. W., K. M. Grise, S. M. Davis, K. M. Karnauskas, (2018): "Regional tropical expansion—forced, unforced, and observed," *American Geophysical Union Fall Meeting*, Washington DC, (USA), 9–14 December, (poster)
- 2018 Luan, L., P. W. Staten, K. Keshavamurthy, (2018): "The Seasonal and Annual Changes of the Tropical Belt," *American Geophysical Union Fall Meeting*, Washington DC, (USA), 9–14 December, (poster)
- 2018 Grise, K. M., Staten, P. W. Staten, O. Adam (2018): "Regional and Seasonal Characteristics of the Recent Expansion of the Tropics," *American Geophysical Union Fall Meeting*, Washington DC, (USA), 9–14 December, (poster)
- 2018 Staten, P. W., K. M. Grise: "Widening of the Regional Meridional Overturning Circulation" *American Meteorological Society 98th Annual Meeting*, 10 January, (poster)
- 2018 Grise, K. M., S. M. Davis, P. W. Staten (2018): "Regional and Seasonal Characteristics of the Recent Expansion of the Tropics in the Northern Hemisphere", *American Meteorological Society 98th Annual Meeting*, 10 January, (poster)
- 2018 Liu, X., P. W. Staten (2018): "Understanding the Cloud-dynamics Interactions in the Southern Oceans and Tropics by Using Legacy Satellites", *American Meteorological Society 98th Annual Meeting*, 7 January, (poster)
- 2018 Luan, L., X. Meng, S. Lyu, P. W. Staten, B. Han, Z. Li, L. Zhao (2018): "Simulation on the Afternoon Convective Precipitation Triggered by Soil Moisture over the Tibetan Plateau", *American Meteorological Society 98th Annual Meeting*, 7 January, (poster)
- 2017 Grise, K. M., P. W. Staten (2017): "Tropical Widening: What, When, Where (and Why)", *UCAR Community Programs Seminar*, 13 October, (invited talk)
- 2017 Staten, P. W., G. Chen, J. Lu (2017): The Response of Water Vapor Wave Activity to Warming, *21st Conference on Atmospheric and Oceanic Fluid Dynamics/19th Conference on the Middle Atmosphere*, Portland (OR), 25–30 June, (poster).
- 2017 Staten, P. W., (2017): Regional Widening of the Tropics Report, *International Space Science Institute Tropical Width Diagnostics Intercomparison Project working group meeting*, Bern, Switzerland, 13–17 March, (talk).
- 2016 Liu, X., P. W. Staten, B. H. Kahn, M. Schreier (2016): A13C-0270 Detecting Changes in Southern Ocean Cloud Properties Using Legacy Satellites, *AGU Fall Meeting*, San Francisco (CA), 12–16 December, (poster).
- 2015 Conrick, R., N. L. Curtis, P. W. Staten, C. Kirkpatrick (2015): An analysis of surface gradient relationships during cold front events in the eastern United States: a numerical modeling study, *27th Conference On Weather Analysis And Forecasting/23rd Conference On Numerical Weather Prediction*, Chicago (IL), 28 June–3 July, (poster).
- 2015 Staten, P., T. Reichler, and J. Lu (2015): Circulation widening in an instantaneously forced climate, *20th Conference on Atmospheric and Oceanic Fluid Dynamics*, Minneapolis (MN), 15–19 June, (talk).
- 2015 Staten, P. (2015): Indiana's Climate - The last billion years, and the next hundred, *Crossroads Geology Conference*, Bloomington (IN), 27–28 March, (keynote talk).
- 2014 Staten, P., B. Kahn, M. Schreier, A. Heidinger (2014): Comparing sources of variability in cloud-characterized HIRS radiances, *AGU Fall Meeting*, San Francisco (CA), 15–19 December, (poster).
- 2014 Staten, P., B. Kahn, and T. Reichler (2014): How does the changing general circulation affect observed cloud types?, *94th American Meteorological Society Annual Meeting*, Atlanta (GA), 2–6 February, (poster).
- 2013 Staten, P., B. Kahn, and T. Reichler (2013): How do cloud-types affect inter-satellite biases?, *AGU Fall Meeting*, San Francisco (CA), 9–13 December, (talk).
- 2012 Reichler, T., P. Staten, and J. Lu (2012): Latitudinal shifts in precipitation: the role of anthropogenic forcings, *AGU Fall Meeting*, San Francisco (CA), 3-7 December, (talk).
- 2012 Staten, P. and T. Reichler, J. Lu (2012): The relationship between latitudinal shifts in the eddy-driven jet and the Hadley cell, *AGU Fall Meeting*, San Francisco (CA), 3-7 December, (poster).
- 2011 Staten, P.W., T. Reichler, and J. Lu (2011): Southern hemisphere circulation shifts in a warming

- climate, *WCRP Open Science Conference*, Denver (CO), 24–28 October, (poster).
- 2010 Staten, P.W., T. Reichler, and J. Lu (2010): Understanding the Direct and Indirect Circulation Response to Radiative Forcings, *AGU Fall Meeting*, San Francisco (CA), 13–17 December, (poster).
- 2010 Staten, P.W., T. Reichler, J. Rutz, and J. Kim (2010): How Ozone Depletion Causes Southern Hemispheric Climate Change, *AGU 2010 Meeting of the Americas*, Foz do Iguassu, Brazil, 8–12 August, (talk).
- 2008 Staten, P.W. and T. Reichler (2008): Practical GPS RO Temperature Precision, *AGU Fall Meeting*, San Francisco (CA), 15–19 December, (poster).
- 2008 Staten, P.W. and T. Reichler (2008): Space-Born Detection of Long-Term Tropopause Trends, *SPARC General Assembly*, Bologna, Italy, 31 August–5 September, (poster).
- 2008 Staten, P.W. and T. Reichler (2008): Space-Born Detection of Long-Term Tropopause Trends, *C-SPARC Summer School on dynamics, long-term memory, and trends in the climate system*, Banff, Canada, 17–23 May, (poster).
- 2007 Staten, P.W. and T. Reichler (2007): Can radio occultation be used to discern long-term tropopause trends? *EMS7/ECAM8 Abstracts*, Vol. 4, EMS2007-A-00531, *7th EMS Annual Meeting / 8th ECAM*, El Escorial, Spain, 1–5 October, (talk).
- 2007 Sellar, R. G., J. D. Farmer, P. Gardner, P. Staten, A. Kieta, J. Huang (2007): Improved spectrometric capabilities for in-situ microscopic imagers, *Seventh International Conference on Mars*, Pasadena (CA), 9–13 July (poster).

LETTERS

- 2018 Serra, Y.L., J.S. Haase, D.K. Adams, Q. Fu, T.P. Ackerman, M.J. Alexander, A. Arellano, L. Back, S. Chen, K. Emanuel, Z. Fuchs, Z. Kuang, B. Mapes, D. Neelin, D. Raymond, A.H. Sobel, P.W. Staten, A. Subramanian, D.W. Thompson, G. Vecchi, R. Wood, and P. Zuidema (2018), [The Risks of Contracting the Acquisition and Processing of the Nation’s Weather and Climate Data to the Private Sector](#). *Bull. Amer. Meteor. Soc.*, 99, 869–870, doi:10.1175/BAMS-D-18-0034.1.

TECHNICAL REPORTS

- 2018 Widhalm, M., Hamlet, A. Byun, K., Robeson, S., Baldwin, M., Staten, P., Chiu, C., Coleman, J., Hall, E., Hoogewind, K., Huber, M., Kieu, C., Yoo, J., Dukes, J.S. 2018. [Indiana’s Past & Future Climate \(2018\): A Report from the Indiana Climate Change Impacts Assessment](#). *Purdue Climate Change Research Center, Purdue University. West Lafayette, Indiana.*

Teaching

INDIANA UNIVERSITY BLOOMINGTON

Assistant Professor of Atmospheric Sciences

Courses taught: *Intro to Atmospheric Sciences*, *Extreme Weather and its Impacts*, *Dynamic Meteorology II*, *Atmospheric Instrumentation and Remote Sensing*

UNIVERSITY OF UTAH

Classroom Scientist, Think Globally Learn Locally

Group Discussion Leader, IDL Discussion Group

Teaching Assistant, Atmospheric Dynamics

WEBER STATE UNIVERSITY

Mathematics Tutor
Supplemental Instructor, Elementary Linear Algebra

Professional Activities

Reviewer for *Climate Dynamics, Atmospheric Chemistry and Physics, JGR Atmospheres, Journal of Climate Geophysical Research Letters, QJRMS, Atmospheric Measurement Techniques, Atmospheric Chemistry and Physics, Proceedings of the Indiana Academy of Science*

Co-Chair, US CLIVAR Working Group on the changing Width of the Tropical Belt, 2016–present

Member, ISSI Tropical Width Diagnostics Working Group, 2016–2018

Advisor, Indiana University Bloomington Chapter of the American Meteorological Society, 2016–present

Member, Caltech Postdoctoral Association Career Committee, 2013

Treasurer, American Meteorological Society, University of Utah Chapter, 2008–2009

Member, American Geophysical Union, 2006–present

Member, American Meteorological Society, 2006–present