

**TODD PORTER MITCHELL***Curriculum Vitae*

Research Scientist / Meteorologist

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mitchell@atmos.washington.edu, <http://www.linkedin.com/in/toddmitchellphd>**RESEARCH INTERESTS**

Observational studies of ocean and atmosphere dynamics, atmospheric chemistry, and biological systems. Recent work involves characterizing global World Wide Lightning Location Network (WWLLN) lightning estimates, and relating them to satellite precipitation and model vertical velocity. The research question is what does lightning tell us about the atmospheric circulation that we don't already know from precipitation? A second activity is the analysis of simulated daily precipitation for the Pacific Northwest.

**EDUCATION**

- 1990 Ph. D. Atmospheric Sciences, University of Washington, Seattle WA  
Dissertation title: The Annual March of Convection, Sea Surface Temperature, and Surface Wind in the Tropics
- 1980 B.S. Atmospheric Sciences, Oregon State University, Corvallis OR

**EXPERIENCE**

- Sept. 2014–present Research Scientist / Engineer 4, Joint Institute for the Study of the Atmosphere and Ocean, University of Washington, Seattle WA
- July–Aug. 2014 Consulting Meteorologist, University of Miami, Miami FL
- 1993–2013 Research Scientist / Engineer 4, Climate Impacts Group, Joint Institute for the Study of the Atmosphere and Ocean, University of Washington, Seattle WA
- 1992 Visiting Scientist, Universities Space Research Association, Goddard Space Flight Center / National Aeronautics and Space Administration, Greenbelt MD
- 1990–92 National Research Council Associate, Goddard Space Flight Center / National Aeronautics and Space Administration, Greenbelt MD
- 1982 Meteorologist, Massachusetts Institute of Technology, Cambridge MA
- 1982 Meteorologist, Atmospheric and Environmental Research, Cambridge MA
- 1981 Physical Scientist, MA-COM Sigma Data, Goddard Institute for Space Studies / National Aeronautics and Space Administration, New York NY
- 1978–79 Meteorologist, Bonneville Power Administration, Vancouver WA

**RECENT PRESENTATIONS**

- 2017: Simulations of historical extreme Pacific Northwest Precipitation. Northwest Weather Workshop, NOAA Pacific Marine Environmental Laboratory, Seattle WA, 3 March

**SELECTED PUBLICATIONS**

- 2017: Thornton, J. A., K. S. Virts, R. H. Holzworth, and T. P. Mitchell: Lightning enhancement over major oceanic shipping lanes. *Geophys. Res. Lett.*, doi:10.1002/2017GL074982.
- 2010: Smoliak, B. V., J. M. Wallace, M. T. Stoelinga, and T. P. Mitchell: Application of partial least squares regression to the diagnosis of year-to-year variations in Pacific Northwest snowpack and Atlantic hurricanes. *Geophys. Res. Lett.*, 37, L03801, doi:10.1029/2009GL041478.
- 2007 Mitchell, T. P. and E.S. Sarachik: El Niño. pp. 98-103 in Vol. 6, 2007 McGraw-Hill Encyclopedia of Science and Technology, 10th Edition. New York NY: McGraw-Hill Publishing.
- 2006 Schwing, F. B., N. A. Bond, S. J. Bograd, T. P. Mitchell, M. A. Alexander, and N. Mantua: Delayed coastal upwelling along the U.S. West Coast in 2005: A historical perspective. *Geophys. Res. Lett.*, 33, L22S01, doi:10.1029/2006GL026911.

## **TODD P. MITCHELL** (*continued*)

- 1998 Wallace, J. M., E. M. Rasmusson, T. P. Mitchell, V. E. Kousky, E. S. Sarachik, and H. von Storch: On the structure and evolution of ENSO-related climate variability in the tropical Pacific: lessons from TOGA. *J. Geophys. Res.*, 103, C7, doi:10.1029/97JC02905.
- 1997 Mitchell, T. P. and W. Blier: The variability of wintertime precipitation in the region of California. *J. Climate*, 10, 2261-2276.
- 1992 Mitchell, T. P. and J. M. Wallace: On the annual cycle in equatorial convection and sea surface temperature. *J. Climate*, 5, 1140-1156.
- 1989 Wallace, J. M., T. P. Mitchell, and C. Deser: The influence of sea-surface temperature on surface wind in the eastern equatorial Pacific: seasonal and interannual variability. *J. Climate*, 2, 1500-1506.

## **ONLINE CONTRIBUTIONS**

- 2008-present Publish a [netCDF operators](#) (data analysis utilities) cookbook (20 users/day)
- 1998-present Annual updates of the [Sahel precipitation](#) index and analyses (10 users/day)
- 1993-present Updates of the JISAO [Climate data archive](#) (15 users/day)
- 1993-present Expert [advice on data sets and analysis software](#).
- 2009-10 Publish a monthly Pacific Northwest [climate summary and outlook](#) (10 users/day)

## **OUTREACH**

- 2016 Provided a tutorial on how to make an effective scientific poster to UW summer interns
- 2013-14 Gave lectures on predicting sea surface temperatures and hurricanes for the UW Program on the Environment (ENVIR 250: Data Types and Methods for Environmental Science)
- 2012 Organized a class to discuss Lester Brown's "World on the Edge" (environmental issues)
- 2008-10 Taught atmospheric physics and climate to high school students for UW [Gear Up](#)
- 2004-07, 2011-present Led Mountaineers beach clean-up backpack trips at Olympic National Park, in conjunction with [CoastSavers.org](#)
- 2007, 2009 Public and high school lectures on global and Pacific Northwest climate variability

## **COMPUTER SKILLS**

Extensive use of MATLAB software in Apple and LINUX environments; Python, FORTRAN, and C programming languages; and command line netCDF operators (NCOs) to manipulate large files (~1 Gb)

## **SELECTED COMMITTEES and PANELS**

- 2009 National Oceanic and Atmospheric Administration Climate Variability and Predictability Panel
- 2003 National Academy of Science Workshop on Creating Climate Data Records from NOAA Operational Satellites
- 1999-2000 American Meteorological Society Committee on Climate Variations

## **OTHER ACTIVITIES**

- Volunteer with the Center for Education, Science, and Conservation in the Tambopata Region (Peruvian Amazon; 2017-present), fundraising
- Chairperson, Seattle branch Backpacking Committee of The Mountaineers, including organizing an annual class for 40 students (2006-11, 2014-present)
- Volunteer with Seattle Tilth Edible Plant Sale (2005-present)
- Backpacking leader and navigation instructor with the Mountaineers (2000-present)