

James A. Johnstone

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Qualifications

- More than 10 years of experience in statistical climate research, with multiple highly-publicized first-author studies.
- Expert in the integration and multivariate analysis of diverse datasets to attack scientific questions from multiple angles.
- Independent-minded leader of ambitious, cutting-edge research projects, collaborating with international experts, writing scientific publications, public speaking, and interacting with scientific and popular media.

Education

Ph.D. 2008 M.A. 2002

University of California, Berkeley

(Geography)

Ph.D. Dissertation:

Climate Variability of Northern California and its Global Connections

M.A. Thesis: Variability and Change in the Daily Frequency and Intensity of Winter Precipitation in the Western United States, 1901-1997

B.A. 1993

University of Virginia

(Economics, French)

Professional Experience

10/2013 to present

Independent Climate Analyst

Developing new models of historical climate variability and change for seasonal to decadal climate prediction.

9/2010 to 9/2013

Postdoctoral Research Associate, University of Washington

Joint Institute for the Study of the Atmosphere and Ocean (JISAO)

Developed a stochastic time series model relating coastal temperatures to regional circulation on monthly to century scales. Led a groundbreaking study identifying the atmospheric origins of Pacific coast climate variability and changes. Conducted public outreach with national and international media.

2/2010 to 8/2010

Visiting Scientist

JISAO/Climate Impacts Group, University of Washington

Accepted invited position to collaborate with experts in ocean-atmosphere variability.

1/2009 to 12/2009

Postdoctoral Scholar, University of California, Berkeley

Department of Environmental Science, Policy and Management

Led the first studies of northern California fog variability and coast redwood tree responses to regional climate. Successfully integrated hourly station records, gridded marine-based observations and plant physiological data to isolate complex multivariate climate phenomena. Developed and validated statistical models identifying plant responses to seasonal hydroclimate anomalies.

2002-2008

Teaching/Research Assistant, University of California, Berkeley.

Performed course lectures and led student discussions on topics in physical geography.

Grants and Awards

Co-Principal Investigator, National Science Foundation Grant. 2010. \$635,739 (grant awarded but declined). Late Holocene Climate Variability from Stable Isotope Ratio Analysis of Coast Redwood Tree Ring Cellulose.

Graduate Fellowship, Berkeley Atmospheric Sciences Center. 2005. Competitive \$10,000 fellowship awarded for atmospheric research.

Save-the-Redwoods League Research Grant. 2002. \$30,000. Reconstructing Historical Patterns of Fog Water Utilization and Coastal Climate Using Tree Ring Isotope Chronologies of *Sequoia sempervirens*.

University of California Regents Fellowship. 1997-2001. Four-year, \$80,000 graduate fellowship.

Scientific Publications

Lead-author publications:

Johnstone, J. A., and N. J. Mantua (2014), Atmospheric controls on northwest United States air temperatures, 1948-2012. *Proceedings of the National Academy of Sciences*. Reply to critics, illustrating circulation influences on Pacific Northwest warming over the past half-century.

Johnstone, J. A., and N. J. Mantua (2014), Atmospheric controls on northeast Pacific temperature variability and change, 1900-2012, *Proceedings of the National Academy of Sciences*. A comprehensive ocean-atmosphere history of the NE Pacific and coastal western North America, illustrating atmospheric controls on temperature changes from 1900-2012 using several independent datasets.

Johnstone, J. A., J. S. Roden, and T. E. Dawson (2013), Oxygen and carbon stable isotopes in coast redwood tree rings respond to spring and summer climate signals, *Journal of Geophysical Research: Biogeosciences*. First study to identify and interpret climatic signals in tree-rings of coast redwood.

Johnstone, J. A. (2011), A quasi-biennial signal in western US hydroclimate and its global teleconnections, *Climate Dynamics*, 36(3-4), 663-680. Identified a persistent cyclic mode of western US climate, placing it in the context of more than 80 similar phenomena identified around the globe since the late 1800s.

Johnstone, J. A., and T. E. Dawson (2010), Climatic context and ecological implications of summer fog decline in the coast redwood region, *Proceedings of the National Academy of Sciences*, 107(10), 4533-4538. First study to identify sources of Northern California coastal fog variability and trends. Highlighted by the New York Times, NPR, CBS Radio, the San Francisco Chronicle (front page story), the BBC and other national/international media.

Additional Publications:

Moore, Stephanie, **Johnstone, J.A.,** Banas, N.S., Salathè, Jr., E.P. Present-day and future climate pathways affecting the harmful algal blooms species *Alexandrium catenella* in Puget Sound, WA, USA. *Harmful Algae*.

O'Brien T.A., Sloan, L.C., Chuang, P.Y., Faloona, I.C., **Johnstone, J.A.** (2013). Multidecadal simulation of coastal fog with a regional climate model. *Climate Dynamics*, 1-12.

Roden, J.S., **Johnstone, J.A.,** Dawson T.E. (2011) Regional And Watershed-Scale Coherence In the Stable-Oxygen and Carbon Isotope Ratio Time Series In Tree Rings Of Coast Redwood (*Sequoia sempervirens*) *Tree-Ring Research* 67 (2), 71-86.

Roden, J.S, **Johnstone, J.A.,** Dawson, T.E. (2009) Intra-annual variation in the stable oxygen and carbon isotope ratios of cellulose in tree rings of coast redwood (*Sequoia sempervirens*). *The Holocene* 19 (2), 189-197.

Programming skills

Expert in MATLAB, basic knowledge of R.

Invited Talks and public presentations

2016

Changes in the weather and Climate Change: The role of dynamics in modern warming: University of Washington, Department of Atmospheric Sciences Dynamics Seminar..

The role of the atmosphere in northeast Pacific warming: Century-long trends and recent anomalies. Pacific Anomalies Workshop, University of Washington.

2015

Dynamical components of northeast Pacific and tropical sea surface warming. University of Washington, Department of Atmospheric Sciences Colloquium presentation.

2012

Evolution of the NE Pacific Ocean-Atmosphere since 1900. Washington Dept. of Fish and Wildlife, Olympia, WA.

2010

Variability and Trends in the Summer Climate of the US Pacific Coast. American Geophysical Union Annual Meeting, San Francisco, CA.

Summer fog variability in the coast redwood region: Pacific climate context and ecological implications. Climate Impacts Group, University of Washington.

Climatology of summer fog in the coast redwood region. National Weather Service Forecast Office, Eureka, CA.

Climatic context and ecological implications of summer fog decline in the coast redwood region. Redwood National Park Headquarters, Orick, CA.

Climatic context and ecological implications of summer fog decline in the coast redwood region. NOAA-USGS Field Office, Arcata, CA.

2009

Summer fog variability in the coast redwood region: climatic relevance and ecological implications. Carnegie Department of Global Ecology, Stanford University.

Historical fog variability in the coast redwood region. Redwoods and Climate Change Workshop. Save the Redwoods League, Sausalito, CA, 2009.