

Aaron Donohoe
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Education

2004-2011 **University of Washington, Seattle, WA**

Doctor of Philosophy received April, 2011, Department of Atmospheric Sciences.

- Dissertation title: “Radiative and dynamic controls of global scale energy fluxes”
- Doctoral Qualification topic: “Causes of Reduced Storm Activity in a General Circulation Model Simulation of the Last Glacial Maximum”
- Committee: David Battisti (Chair), Gerard Roe, Dargan Frierson, Greg Hakim, and Julian Sachs

1999-2003 **Bowdoin College, Brunswick, ME**

A.B. in Physics Summa Cum Laude awarded May 2003.

- Honors Topic: “Biases in Inferred Carbon Sources due to Selective Atmospheric Sampling of Carbon Dioxide”
- Advisor: Mark Battle

2001 **University of Otago, Dunedin, New Zealand**

One semester as an international student with course work in Geology, Chemistry and Physics.

Peer Reviewed Publications

2017 Green, B. A., J. Marshall and A. Donohoe. Impact of multi-decadal SST variability on shifts in the inter-tropical convergence zone. Accepted, *Geophysical Research Letters*.

2017 Singh, H.K.A, C.M. Bitz, A. Donohoe and P.J. Rasch: A Lagrangian perspective on high-latitude precipitation; source regions, seasonality and changes under global warming. Accepted, *Journal of Climate*.

2017 Donohoe, A. and A. Voigt. Shifts in the region of tropical precipitation under global warming in Wang, S.-Y. J.-H. Yoon, C. Funk and R.R. Gillies (eds.) *Climate extremes: patterns and mechanisms*. AGU-Wiley books. ISBN: 978-1-119-06784-9

2016 Donohoe, A. Atmospheric science: Energy and Precipitation. *Nature Geoscience*. 9, 861-862.

2016 Armour, K.C., J. Marshall, J. Scott, A. Donohoe and E.R Newsom. Southern Ocean warming delayed by circumpolar upwelling and equatorward transport. *Nature Geoscience*. 9, 549–554.

2016 Singh, H., C.M. Bitz, A. Donohoe, J. Nusbaumer and D.C. Noone. A mathematical framework for analysis of water tracers. Part II: understanding large-scale perturbations in the hydrological cycle due to CO₂ doubling. *Journal of Climate*. Doi/10.1175/JCLI-D-16-0293.1.

2016 Liu, X., D.S. Battisti and A. Donohoe. The zonally averaged tropical precipitation in the mid-Holocene; role of ocean heat transport. *Accepted. Journal of Climate*.

2016 Singh, H., A. Donohoe, C.M. Bitz, J. Nusbaumer and D.C. Noone. Greater aerial moisture transport with warming amplify interbasin salinity contrast. *Geophysical Research Letters*. 43 (16), 8677–8684.

2014 Donohoe, A., K.C. Armour, A.G. Pendergrass and D.S. Battisti: Shortwave and longwave contributions to global warming under increasing CO₂. *Proceedings of the National Academy of Sciences*. 111 (47), 16700-16705

2014 J. Bandoro, S. Solomon, D.W.J. Thompson, A. Donohoe, and B.D. Santer: Influence of the Antarctic ozone hole on the seasonal changes in climate in the Southern Hemisphere. *Journal of Climate*, 27, 6245-6264.

2014 Donohoe, A.D., J. Marshall, D. Ferreira, K. Armour: The inter-annual variability of tropical precipitation and inter-hemispheric energy transport. *Journal of Climate*. 27, 3377–3392.

2014 McGee, D., A. Donohoe, J. Marshall, D. Ferreira: Quantitative estimates of past changes in ITCZ position. *Earth and Planetary Science Letters*. 390, 69-79.

2013 Frierson, D.M.W, Y.T. Hwang, N.S. Fuckar, R. Seager, S.M. Kang, A. Donohoe, X. Liu, D.S. Battisti: Why does tropical rainfall peak in the Northern Hemisphere? The role of the oceans meridional overturning circulation. *Nature Geoscience*, 6, 940–944. doi:10.1038

2013 Donohoe, A., D.M.W. Frierson and D.S. Battisti: The effect of ocean mixed layer depth on climate in slab ocean aquaplanet experiments. *Climate Dynamics*. DOI 10.1007/s00382-013-1843-4. 15 pages.

2013 Marshall, J., A. Donohoe, D. Ferreira, D. McGee: Global energy constraints on cross-equatorial energy transport and the mean position of the ITCZ. *Climate Dynamics*. DOI 10.1007/s00382-013-1767-z. 14 Pages.

2013 Donohoe, A. and D.S. Battisti: The seasonal cycle of atmospheric heating and temperature. *Journal of Climate*, 26, 4962-4980.

2013 Donohoe, A., J. Marshall, D. Ferreira and D McGee: The relationship between ITCZ location and atmospheric heat transport across the equator: from the seasonal cycle to the Last Glacial Maximum. *Journal of Climate*, 26, 3597-3618.

2012 Donohoe, A. and D.S. Battisti: What controls meridional heat transport in global climate models? *Journal of Climate*, 25, 3832-50.

2011 Donohoe, A. and D.S. Battisti: Atmospheric and surface contributions to planetary albedo. *Journal of Climate*, 24, 4401-17.

2009 Donohoe, A. and D.S. Battisti: The amplitude asymmetry between synoptic cyclones and anticyclones: implications for filtering methods in feature tracking. *Mon. Wea. Rev.*, 137, 3874-87.

2009 Donohoe, A. and D.S. Battisti: Causes of Reduced North Atlantic Storm Activity in a CAM3 Simulation of the Last Glacial Maximum. *Journal of Climate*, 32, 4793-4808.

Research Experience

2014-present **Applied Physics Lab, University of Washington, Seattle, WA**
Research Associate in the Polar Science Center.

2011-2014 **Massachusetts Institute of Technology, Cambridge, MA**
NOAA Global Change Postdoctoral Fellow hosted by John Marshall.

2004-2011 **University of Washington, Seattle, WA**
Research Assistant in the Department of Atmospheric Sciences.

Field Experience: Greenland Summit air and snow sampling with the Eric Steig Group (2005), Blue Glacier, Mount Olympus, WA, glacier monitoring (2005-present), Quinalt mixed precipitation monitoring network, Olympic Mountains, WA (2004-present).

2003 **Scripps Institute of Oceanography, San Diego, CA**
Developmental Technician, Bob Guza group, Nearshore Canyon Experiment. Worked as a member of research group responsible for a dense network of *en situ* measurements of pressure and velocity in a surf zone.

2003 **Bowdoin College, Brunswick, ME**
Undergraduate student, honors work. Assessed impact that baseline selection of atmospheric carbon dioxide measurements has on inverse calculations of terrestrial and ocean carbon sources.

2002 **Woods Hole Oceanographic Institute, Falmouth, MA**
Summer Student Fellow, Department of Physical Oceanography. Advisor: Al Plueddemann. Performed data analysis to assess the momentum transfer across the air sea interface and the form of bottom drag in a rectilinear tidal flow.

2001

Frost Gulley Stream Team Freeport, ME

Hydrological Researcher. Developed and implemented rating curves to monitor watershed discharge as a part of a student research group.

Teaching Experience

2014 University of Washington. Co-directed a graduate level special topics seminar (ATMOS/OCE/ESS 586) on climate feedbacks and energy balance models. Guest lecturer in graduate level introduction to atmospheric sciences (ATMOS 501)

2010 University of Washington. Co-directed a graduate level special topics seminar (ATMOS/OCE/ESS 586) on climate feedbacks with Gerard Roe.

2009, 2007 Cornish College. Guest Lecturer: Gave several lectures on climate dynamics for Introduction to Climate Change Class

2007 University of Washington. Teaching Assistant in ATMOS/OCE/ESS 587: Climate Dynamics. Gave several lectures, created and graded homework and projects.

2006 University of Washington. Teaching Assistant, ATMOS 101: Weather. Lead two discussion sections per week, additional review sessions, developed and graded all homeworks and exams.

2003 Bowdoin College. Teaching Assistant in Physics 101. Ran extra help/review sessions and graded homework assignments.

Leadership Experience

Co-founder of Graduate Climate Conference (GCC). Founded and organized the first Graduate Climate Conference at the University of Washington in 2005. Raised funds, selected attendees, organized conference proceeding and logistics and lead sessions. There have since been a total of 6 conferences with over 400 attendees representing more than 30 different institutions and with secured NSF funding. The conference leadership was passed onto other UW and MIT graduate students after the 4th conference, but I continue to play a role in the long term vision of the conference.

Clivar International Scientific Steering Committee. Early career scientist committee member.

Current and Pending Research Funding

2017-2019 (Awarded) National Science Foundation – Antarctic Research Program. *Donohoe, Aaron, Eduardo Blanchard-Wrigglesworth and Axel Schweiger.* What processes drive Southern Ocean sea ice variability and trends? Insights from the energy budget of the coupled cryosphere-ocean-atmosphere system. \$414,000.

2017-2019 (Pending) National Science Foundation – Paleo Perspectives on Climate Change (P2C2). *Donohoe, Aaron and Alyssa Atwood.* The expansion/contraction of the intertropical convergence zone; an emerging mechanism of tropical precipitation changes for reinterpreting paleoclimate records. \$343,000.

2016-2018 (Pending) NASA Modeling, Analysis and Prediction Program. *Donohoe, Aaron, Norman Loeb, Piers Forster and Kyle Armour.* The estimation of climate sensitivity from the interannual variability of satellite observations. \$268,000.

Fellowships and Awards

- NOAA Global Change Postdoctoral Fellowship (Hosted by John Marshall at the Massachusetts Institute of Technology, 2011-2013)
- National Science Foundation Graduate Fellow (2006-2009)
- Gary Comer Abrupt Climate Change Fellow(2005-2006)
- Program on Climate Change Fellow (2004)
- Achievement Award for Colleges Scientists (ARCS) Fellow (2004-2007).
- Phi Beta Kappa Alpha of Maine
- Bowdoin book prize winner and Sarah and Jamnes Bowdoin scholar
- Recipient of Edward Acorn Prize (Religion Department at Bowdoin College) and Bradley Noel Prize in Experimental Physics.

Conferences/Workshops Attended/Talks Given

- 2017, Atmosphere and Ocean Fluid Dynamics Conference, Portland, OR.** Oral presentation.
- 2017, Lamont-Doherty Laboratory, Palisades, NY.** Invited Speaker.
- 2017, Cornell University, Ithaca, NY.** Invited Speaker.
- 2017, Colorado State University, Fort Collins, CO.** Invited Speaker.
- 2017, Georgia Tech, Atlanta, GA.** Invited Speaker.
- 2016, US Clivar Phenomena, Observations and Synthesis Panel (POS), Seattle, WA.** Invited speaker.
- 2016, University of Washington, Seattle, WA.** Atmospheric sciences dynamics seminar.
- 2016, AGU Ocean Sciences Meeting, New Orleans, LA,** Session chair: US Clivar global mean energy imbalance and the hiatus.
- 2015, University of Reading, Reading, U.K.** Seminar speaker.
- 2015, CLIVAR international, CONCEPT-HEAT workshop, Exeter, U.K.** Invited workshop participant and presenter.
- 2015, Columbia University workshop on Monsoons and ITCZ, New York City, NY.** Invited speaker.
- 2015, CERES Science Team Meeting, Seattle, WA.** Contributed science presentation.
- 2015, Whistler, BC, Canada.** Oral presentation and Canadian Meteorological and Oceanography Society congress.
- 2015, Caltech, Pasadena, CA.** Seminar speaker.
- 2015, Jet Propulsion Lab, Pasadena, CA.** Invited seminar
- 2014, AGU Fall Meeting, San Francisco, CA.** Session chair: Innovative Insights into the Climate System and Climate Models: Exploring Scales and Parameter Spaces
- 2014, Colorado State University, Fort Collins CO.** Invited colloquium speaker.
- 2014, University of Washington, Seattle WA** Invited colloquium speaker.
- 2014, Applied Physics Lab, Seattle WA** Invited seminar.
- 2014, Steamboat Springs, CO** Invited Speaker, NOAA Global Change summer institute

2014, NASA Langley, VA Invited external speaker, CERES Science Team Meeting
2014, Massachusetts Institute of Technology, MA Invited SACK lunch seminar
2014, Harvard University, MA Invited speaker, ClimateTea seminar
2014, Ocean Sciences Meeting, Honolulu, Hawaii. Clivar International Session Chair.
2014, UC Berkeley, CA. Invited seminar in Earth and Planetary Science Department.
2014, INSTAAR, Boulder, CO. Invited Seminar.
2013, AGU Fall Meeting, San Francisco, CA. Presentation in decadal predictability session.
2013, Woods Hole Oceanographic Institute, Massachusetts. Invited seminar in paleoclimate seminar.
2013, SUNY Albany, New York. Invited Colloquium speaker.
2013, Stony Brook University New York. Invited seminar.
2013, New London New Hampshire. Gordon Radiation and Climate Conference. Attendee.
2013, Newport Rhode Island. Atmospheric and Oceanic Fluid Dynamics Conference, Speaker.
2013, Kiel Germany. Clivar International Scientific Steering Committee. Invited committee member.
2013, Bowdoin College, ME. Invited Seminar in Physics Department.
2013, University of Auckland, New Zealand. Invited seminar and lecture in Department of Physics.
2013 Middlebury, VT. Invited speaker, Earth Science seminar.
2012 San Francisco, CA. AGU Fall Meeting. Speaker in Paleo-hydrology session.
2012 Columbia University, NY. Invited speaker in Colloquium in Climate Science
2012 Massachusetts Institute of Technology, MA. SACK Lunch seminar speaker
2012 Steamboat Spring Colorado. NOAA Global Change summer institute. Speaker and attendee.
2012 Yale University, CT.. Invited speaker in climate seminar.
2012, San Francisco, CA. AGU Fall Meeting. Presenter in The Changing Seasonality of the Arctic Session.
2011, Friday Harbor WA. Invited lecturer. Advanced Climate Dynamics Course on Warm Climates
2011, Seattle Washington. University of Washington Department of Atmospheric Sciences Colloquium speaker.
2010, San Francisco, CA. AGU Fall Meeting. Speaker in Atmospheric Sciences, General Contributions, Climate and Radiation.
2010, Emuclaw WA. 4th Annual Graduate Climate Conference. Speaker in Atmospheric and Ocean Dynamics Session.
2010, Friday Harbor WA. University of Washington Program on Climate Change Summer Institute: Climate Feedbacks.
2009, San Francisco, CA. AGU Fall Meeting. Speaker in high-latitude climate feedback session.
2009, University of Washington. Dynamics Seminar Speaker.
2009, National Academies of Science: BASC Annual Board Meeting, Seattle, WA. Invited Speaker.

2009, Pasadena, CA. Ocean and Atmosphere Energy Transport Conference. Poster presentation.

2009, Enumclaw, WA. 3rd Annual Graduate Climate Conference. Speaker in Atmospheric Dynamics Session.

2008, San Francisco, CA. AGU Fall Meeting. Speaker in mid-latitude cyclone session.

2008, University of Washington. Dynamics Seminar Speaker.

2008, Friday Harbor Labs, WA. University of Washington Program on Climate Change Summer Institute: The ocean circulation and climate change. Attendee.

2007, Enumclaw, WA. 2nd Annual Graduate Climate Conference. Co-organizer, Paleoclimate Session Chair, Speaker.

2007, Friday Harbor Labs, WA. University of Washington Program on Climate Change Summer Institute: Biogeochemical coupling to climate. Attendee.

2007, Valle de Aosta, Italy. Alpine Summer School- Convective Processes in Climate dynamics/ Attendee.

2007, Lamont Doherty Observatory, New York. Gary Comer Abrupt Climate Change Roundtable/ Invited Speaker.

2007, University of Washington. Dynamics Seminar Speaker.

2006, Cambridge University, England. Geophysical Fluid Dynamics Summer School. Attendee.

2006, Enumclaw, WA. 1st Annual Graduate Climate Conference. *Co-founder of Conference*, Dynamics Session Chair, Speaker.

2006, Lamont Doherty Observatory, New York. Gary Comer Abrupt Climate Change Roundtable/ Poster Presentation.

2005, Leavenworth, WA. University of Washington Program on Climate Change Summer Institute: El Nino. Attendee.

Peer reviewer for: Science. Nature. PNAS. Nature Geosciences. Journal of Climate. Journal of Atmospheric Sciences. Climate Dynamics. Geophysical Research Letters. Journal of Geophysical Research. Quarterly Journal of the Royal Meteorological Society. American Institute of Physics Advances.

Professional Experience (not already listed)

Appalachian Mountain Club/ Maine Woods Initiative **Gorham, NH**
Professional trail crew member/ chain saw operator and grip hoist technician. Cut 15 miles of cross country ski and hiking trails in a newly acquired conservation area in the 100 mile wilderness of Maine. Finished trail work included rock step construction and heavy bridge construction out of locally fabricated materials. Lived in the backcountry and coordinated volunteer trail work. Summer of 2004.

Student Conservation Association/ Baxter State Park **Millinocket, ME**
SCA Resource Assistant/ Summer Trail Crew. Participated in trail maintenance, rock step and water bar construction, bog bridging, and new trail cutting. Learned skills of chain saw, bush saw and grip hoist operation. Summer 2000.

Student Conservation Association/ Payette National Forest

McCall, ID

High School Trail Crew Member/ Backcountry Rehabilitation Crew. Partook in trail rehabilitation operating sixteen miles into the backcountry of a designated wilderness. Trained in hand tool/cross cut operation and fire suppression. Summer 1998.

Additional Activities

- Graduate Student Representative for the Department of Atmospheric Science (UW, 2008-2009)
- Certifications in Wilderness First Aid, Anaphylaxis response, professional CPR, life guarding, Avalanche Education (I), Glacier Travel and Crevasse Rescue, Chainsaw Operation.
- President of the Bowdoin Society of Physics Students (2002-2003)
- Club Head of the Service and Ecology Club and leader in the Bowdoin Outing Club
- Member of the Bowdoin College Varsity Indoor and Outdoor Track Teams, letter winner (1999-2003)
- Student Mentor and Tutor for local high school students
- Social House leader in charge of organizing campus events for an affiliate of 250 students
- Captain of varsity soccer (1998), alpine skiing(1999), and track and field (1999) teams at Acton-Boxborough Regional High School and Dual County League All Star (track 1997-1999, soccer 1998, skiing 1999)