

Jason C. Furtado

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University of Oklahoma School of Meteorology
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EDUCATION

GEORGIA INSTITUTE OF TECHNOLOGY

Atlanta, GA

Ph.D. - Earth and Atmospheric Sciences

Dec 2010

- **Dissertation Title:** On the Uncertainties and Dynamics of Pacific Interannual and Decadal Climate Variability and Climate Change
- **Thesis Advisor:** Dr. Emanuele Di Lorenzo

Graduate Certificate in Public Policy – Concentration in Environmental Policy

Sep 2009

COLORADO STATE UNIVERSITY

Fort Collins, CO

M.S. - Atmospheric Science

Aug 2005

- **Thesis Title:** On the Balanced Response of the Troposphere to Variability in the Extratropical Stratosphere
- **Thesis Advisor:** Dr. David W. J. Thompson

LYNDON STATE COLLEGE

Lyndonville, VT

B.S. - Meteorology & B.S. – Mathematics

May 2002

PROFESSIONAL EXPERIENCE

UNIVERSITY OF OKLAHOMA

Norman, OK

Assistant Professor, School of Meteorology

2015 – Present

- **Courses Taught**
 - METR 1014 – Introduction to Weather and Climate (*Undergraduate*)
 - METR 4322 – Physical Meteorology III: Radiation and Climate (*Undergraduate*)
 - METR 5433 - Advanced Statistical Meteorology (*Graduate*)
- **Graduate Students Advised**
 - Matthew Green (M.S.)
 - Yujia You (M.S.)
 - Gregory Jennrich (M.S.)
- **Thesis & Dissertation Committee Member**
 - Paul Flanagan (Ph.D.) (2016 –)
 - Ryan Lagerquist (Ph.D.) (2017 –)
 - Allison Brannon (M.S.) (2016 – 2017)
 - Erik Loken (M.S.) (2016 – 2017)
 - James Danco (M.S.) (2015 – 2016)

Affiliate Faculty, South Central Climate Science Center

2016 – Present

BOSTON UNIVERSITY

Boston, MA

Lecturer, Department of Earth & Environment

2014 – 2015

- **Courses Taught**
 - GE310 – Climate and the Environment (*Undergraduate*)
 - GE507 – Dynamical Oceanography (*Undergraduate/Graduate*)

ATMOSPHERIC AND ENVIRONMENTAL RESEARCH, INC.

Lexington, MA

Staff Scientist

2011 – 2015

- Researching large-scale climate dynamics.
- Conducting interdisciplinary, client-driven weather/climate research projects.
- Developing and managing weather forecast products for clients.
- Co-authoring blog series on the sub-seasonal NH climate variability.
- Presenting research results in peer-reviewed journals and at conferences.

PRIVATE ACADEMIC TUTORING

2005 – 2012

- Science, math and SAT prep for high school and college students

GEORGIA INSTITUTE OF TECHNOLOGY

Atlanta, GA

Graduate Research Assistant

2005 – 2010

- Studied Pacific decadal variability and associated dynamics in observations, targeted modeling experiments, and existing coupled climate model output.

Graduate Teaching Assistant

2007 – 2010

- Advanced Environmental Data Analysis (*Graduate*) (Fall 2008, 2010)
- Introduction to Environmental Science (*Undergraduate Honors*) (Fall 2007)

Guest Lecturer, Energy, Environment, and the Energy Cycle

Spring 2008

Georgia Tech Athletics Weather Forecaster

2008 – 2010

- Provided forecasts and live weather monitoring for NCAA games.

Georgia Tech Athletic Association Tutor

2005 – 2006

- Held one-on-one and group tutoring sessions with student athletes in mathematics.

COLORADO STATE UNIVERSITY

Fort Collins, CO

Graduate Research Assistant

2002 – 2005

- Investigated relationships between extratropical stratospheric variability and tropospheric weather and climate patterns using a simple 2-D model.

Graduate Teaching Assistant

Spring 2004

- General Circulation of the Atmosphere (*Graduate*)

LYNDON STATE COLLEGE

Lyndonville, VT

Math Lab Tutor

1999 – 2002

REFEREED PUBLICATIONS

IN PREP

Angst, M.♦, B. Elmer♦, B. Newman♦, and J. C. Furtado, 2017: The association between El Niño event intensity and North American winter weather. *Geophys. Res. Lett.*, in prep.

Furtado, J. C., J. Cohen, E. Becker, and D. Collins, 2017: Evaluation of the forecast skill of sudden stratospheric warming events in the NMME Phase-2 Models. *Climate Dyn.*, in prep.

Green, M. R.* and J. C. Furtado, 2017: The joint influence of the Madden-Julian Oscillation and the stratospheric polar vortex on subseasonal North American weather. *J. Climate*, in prep.

You, Y.* and J. C. Furtado, 2017: The South Pacific Meridional Mode and its role in interannual and decadal Pacific decadal variability. *J. Climate*, in prep.

♦ Undergraduate Advisee

* Graduate Advisee

UNDER REVIEW

Flanagan, P. X., J. B. Basara, **J. C. Furtado**, and X. Xiao, 2017: Primary atmospheric drivers of pluvial years in the United States Great Plains. *J. Hydrometeor.*, under review.

PUBLISHED

21. You, Y.*, and **J. C. Furtado**, 2017: The role of South Pacific atmospheric variability in the development of different types of ENSO. *Geophys. Res. Lett.*, in press.
20. Anderson, B. T., **J. C. Furtado**, D. J. S. Gianotti, and E. Di Lorenzo, 2017: Tracking the Pacific Decadal Precession. *J. Geophys. Res.*, 122, 3214–3227, doi:10.1002/2016JD02596.
19. Anderson, B. T., D. J. S. Gianotti, G. Salvucci, and **J. C. Furtado**, 2016: Dominant timescales of potentially predictable precipitation variations across the continental United States. *J. Climate*, 29, 8881–8897, doi: 10.1175/JCLI-D-15-0635.1.
18. **Furtado, J. C.**, J. Cohen, and E. Tziperman, 2016: The combined influences of autumnal snow and sea ice on Northern Hemisphere winters. *Geophys. Res. Lett.*, 43, doi: 10.1002/2016GL068108.
17. Anderson, B. T., D. J. S. Gianotti, **J. C. Furtado**, and E. Di Lorenzo, 2016: A decadal precession of atmospheric pressures over the North Pacific. *Geophys. Res. Lett.*, 42, doi: 10.1002/2016GL068206.
16. Di Lorenzo, E., G. Liguori, N. Schneider, **J. C. Furtado**, B. T. Anderson, and M. A. Alexander, 2015: ENSO and meridional modes: A null hypothesis for Pacific climate variability, *Geophys. Res. Lett.*, **42**, 9440 – 9448.
15. **Furtado, J. C.**, J. L. Cohen, A. H. Butler, E. E. Riddle, and A. Kumar, 2015: Eurasian snow cover variability and links to winter climate in the CMIP5 models. *Climate Dyn.*, **45**, 2591 – 2605.
14. Cohen, J., J. A. Screen, **J. C. Furtado**, M. Barlow, D. Whittleston, D. Coumou, J. Francis, K. Dethloff, D. Entekhabi, J. Overland, and J. E. Jones, 2014: The relationship between recent Arctic Amplification and extreme mid-latitude weather. *Nature Geoscience*, **7**, 627 – 637.
13. Cohen, J., **J. C. Furtado**, J. Jones, M. Barlow, D. Whittleston, and D. Entekhabi, 2014: Linking Siberian snow cover to precursors of stratospheric variability. *J. Climate*, **27**, 5422 – 5432.
12. Di Lorenzo, E., V. Combes, J. E. Keister, T. P. Strub, A. C. Thomas, P. J. S. Franks, M. D. Ohman, **J. C. Furtado**, A. Bracco, S. J. Bograd, W. T. Peterson, F. B. Schwing, S. Chiba, B. Taguchi, S. Hormazabal, and C. Parada, 2013: Synthesis of Pacific Ocean climate & ecosystems dynamics. *Oceanography*, **26**, 68 – 81, <http://dx.doi.org/10.5670/oceanog.2013.76>.
11. Cohen, J. L., J. Jones, **J. C. Furtado**, and E. Tziperman, 2013: Warm Arctic, cold continents: A common pattern related to Arctic sea ice melt, snow advance, and extreme winter weather. *Oceanography*, **26**, <http://dx.doi.org/10.5670/oceanog.2013.70>.
10. Anderson, B. T., **J. C. Furtado**, K. M. Cobb and E. Di Lorenzo, 2013: Extratropical forcing of El Niño/Southern Oscillation asymmetry. *Geophys. Res. Lett.*, **40**, 4916 – 4921.
9. Riddle, E. E., A. H. Butler, **J. C. Furtado**, J. L. Cohen, and A. Kumar, 2013: CFSv2 ensemble prediction of the wintertime Arctic Oscillation. *Climate Dyn.*, **41**, 1099 – 1116.
8. **Furtado, J. C.**, E. Di Lorenzo, B. T. Anderson, and N. Schneider, 2012: Linkages between the North Pacific Oscillation and central tropical Pacific SSTs at low frequencies. *Climate Dyn.*, **39**, 2833 – 2846.
7. Cohen, J., **J. C. Furtado**, M. A. Barlow, V. A. Alexeev, and J. C. Cherry, 2012: Asymmetric seasonal temperature trends. *Geophys. Res. Lett.*, **39**, L04705, doi: 10.1029/2011GL050582.
6. Cohen, J., **J. C. Furtado**, M. A. Barlow, V. A. Alexeev, and J. C. Cherry, 2012: Arctic warming, increasing

snow cover, and widespread boreal winter cooling. *Env. Res. Lett.*, **7**, 014007, doi: 10.1088/1748-9326/7/1/014007.

5. **Furtado, J. C.**, and E. Di Lorenzo, 2011: Pacific climate variability in IPCC coupled climate models. In PICES Scientific Report No. 40: Report of Working Group 20 on Evaluations of Climate Change Projections, 165 pp.
4. **Furtado, J. C.**, E. Di Lorenzo, N. Schneider, and N. Bond 2011: North Pacific decadal variability and climate change in the IPCC AR4 models. *J. Climate*, **24**, 3049 – 3067.
3. Di Lorenzo, E., K. M. Cobb, **J. C. Furtado**, N. Schneider, B. Anderson, A. Bracco, M. A. Alexander, and D. Vimont, 2010: Central Pacific El Niño and decadal climate change in the North Pacific. *Nature Geoscience*, **3**, 762 – 765
2. **Furtado, J. C.**, E. Di Lorenzo, K. M. Cobb, and A. Bracco, 2009: Paleoclimate reconstructions of tropical sea surface temperatures from precipitation proxies: Methods, uncertainties and nonstationarity. *J. Climate*, **22**, 1104 – 1123.
1. Thompson, D. W. J., **J. C. Furtado**, and T. G. Shepherd, 2006: On the tropospheric response to anomalous stratospheric wave drag and radiative heating. *J. Atmos. Sci.*, **63**, 2616 – 2629.

OTHER WRITTEN CONTRIBUTIONS

Cohen, J. L., and **J. C. Furtado**, 2015: “How climate change may be producing more blockbuster snowstorms.” *Capital Weather Gang / The Washington Post*. 9 Mar 2015

CONFERENCE, WORKSHOP, & OTHER PRESENTATIONS

NOAA MAPP Seminar Series	Feb 2017
97th Annual Meeting of the American Meteorological Society	Jan 2017
Department of Environmental Sciences Colloquium, University of Virginia (Invited)	Nov 2016
SCENARIO Workshop, University of Reading, Reading, UK	Jun 2016
4th Annual South Central Climate Science Center Workshop, Fort Worth, TX	Nov 2015
National Weather Center Colloquium, OU School of Meteorology (Invited)	Mar 2015
2013 Fall Meeting of the American Geophysical Union, San Francisco, CA	Dec 2013
2012 Fall Meeting of the American Geophysical Union, San Francisco, CA	Dec 2012
27 th NOAA Climate Diagnostics Workshop, Fort Collins, CO	Oct 2012
NOAA Climate Prediction Center, Camp Springs, MD (Invited)	Feb 2012
WCRP Open Science Conference, Denver, CO	Oct 2011
2010 Fall Meeting of the American Geophysical Union, San Francisco, CA	Dec 2010
90 th Annual Meeting of the American Meteorological Society, Atlanta, GA	Jan 2010
Eastern Pacific Ocean Conference, Fallen Leaf Lake, CA	Sep 2008
IUGG XXIV 2007, Perugia, Italy	Jul 2007
Advanced Study Program “The Art of Climate Modeling”, Boulder, CO	Jun 2006
NASA/GISS, New York, NY (Invited)	Mar 2005

CURRENT RESEARCH GRANTS

- (1) **PI** - Investigating the Underlying Mechanisms and Predictability of the MJO - NAM Linkage in the NMME Phase-2 Models. NOAA - 07/01/16 - 06/30/19, \$185,543.
- (2) **Co-PI** - PREEVENTS Track 2: Collaborative Research: Developing a Framework for Seamless Prediction of Sub-Seasonal to Seasonal Extreme Precipitation Events in the United States. NSF - 07/01/17 - 06/30/22. \$1,842,562.

- (3) **Co-PI** - Collaborative Research: Structure and Influence of Coherent Vertical Pulses of Wave Activity Flux in Observations and Models, from Daily to Seasonal Timescales. NSF - 08/15/17 - 8/14/20. \$231,521.

PAST RESEARCH GRANTS

- (1) **PI** - Analysis of Oklahoma Transportation Infrastructure Investments for Climate Change Adaptation. Southern Plains Transportation Center - 07/01/16 – 06/30/17 \$12,600
- (2) **PI** - Evaluating Sudden Stratospheric Warmings and NAM Predictability in the NMME Phase-2 System. NOAA - 08/01/15 – 07/31/16 \$59,118
- (3) **Co-I** - Combined Influence of Snow Cover and North African/Mediterranean Temperature and Precipitation. NSF - 06/1/13 - 05/31/16, \$234,449.
- (4) **Co-I** - Implementation and Validation of Solar Variability in Radiation Code RRTMG_SW. NASA - 08/01/13 – 07/31/16, \$215,926.00.
- (5) **Co-I** - Identifying Mechanisms of AMOC Variability in ECCO State Estimates and CMIP5 Models. NOAA – 08/01/13 – 07/31/16, \$310,659.00.

AWARDS & HONORS

2015 AGU Editor's Citation for Excellence for Refereeing - *Geophysical Research Letters* • AER 2014 Employee of the Year • Verisk Climate 2014 Team of the Year • Georgia Tech Presidential Fellowship • Georgia Tech EAS Chair Service Award • Top National Forecaster, National Collegiate Weather Forecasting Contest / WxChallenge - Salt Lake City, UT (2006), Pensacola, FL (2006), Tucson, AZ (2008) • Colorado State 3F Fellowship • AMS/NASA Earth Science Enterprise Fellowship • AMS Howard T. Orville Scholarship in Meteorology • Lyndon State College Presidential Scholar • Martin Luther King Jr. Foundation Scholar

SERVICE & LEADERSHIP

Member , NOAA MAPP Subseasonal-to-Seasonal (S2S) Task Force	2016 – Present
Faculty Panelist , OU School of Meteorology High School Visitation Days	2016 – Present
Member , OU School of Meteorology Undergraduate Curriculum Committee	2016 – Present
Member , NOAA NMME Task Force	2015 – Present
Local Manager , OU WxChallenge Team	2015 – Present
Member , weather.ou.edu Development Committee, OU School of Meteorology	2015 – Present
Graduate Admissions Committee , OU School of Meteorology	2015 – Present
Proposal Review Panelist , National Science Foundation	2014 – Present
Member , AMS Weather Analysis and Forecasting Committee	2014 – Present
Peer Reviewer , <i>J. Climate</i> , <i>J. Geophys. Res.</i> , <i>Deep Sea Res.</i> , <i>Climate Dyn.</i> , <i>Q. J. Roy. Meteor. Soc.</i> , <i>Atmos. Sci. Lett.</i> , <i>Intl. J. Climatology</i> , <i>Geophys. Res. Lett.</i> , <i>J. Meteor. Soc. Japan</i>	2003 – Present
Participant , NSF Effectively Communicating Science Workshop – Expert Witness Training Program	Aug 2016
Chairman , SoM Reanalysis Data Bank Committee	2015 – 2017
High School Debate Judge , Boston Debate League	2013 – 2015
Volunteer , Belmont High School Career Night	Sep 2014
Co-Convener , Natural and Societal Impacts of Decadal Climate Variability, AGU	Dec 2013
Speaker , First Lego League Competition	Nov 2013
Guest Lecturer , The Climate System, University of Massachusetts, Lowell	Apr 2012
Contributing Member , PICES Working Group 20	2011
Secretary , Metro Atlanta Chapter of the American Meteorological Society	2009 – 2010

Member , Prospective Graduate Student, Social, and Undergraduate Committees	2009 – 2010
Speaker , Public outreach program for elementary students about science/weather	2008 – 2010
Local Manager , National Collegiate Weather Forecasting Contest / WxChallenge	2002 – 2010
Radio DJ , KCSU 90.5 FM	2003 – 2005
Radio DJ , WWLR 91.5 FM	2002
President , Lyndon State College Chapter of the American Meteorological Society	2001 – 2002

MEDIA APPEARANCES / INTERVIEWS

"July ranks as second hottest month on record." - <i>CBS News / AP</i>	17 Aug 2017
"The numbers are in on this freakishly warm February" – <i>CBS News / AP</i>	17 Mar 2017
"Beyond the extreme': Scientists marvel at 'increasingly non-natural' Arctic warmth" - <i>Capital Weather Gang / The Washington Post</i>	1 Feb 2017
"Scientists react to Earth's warmest year: 'We are heading into a new unknown'" - <i>Capital Weather Gang / The Washington Post</i>	18 Jan 2017
"Earth sets hottest year record for third-straight Ume." - <i>AP</i>	18 Jan 2017
"Polar Vortex: The chilly science of an Arctic blast." - <i>Livescience</i>	15 Jan 2017
"The Polar Vortex is back - Ugh" - <i>NBC Connecticut</i>	13 Dec 2016
"Arctic air poised to invade the U.S. after record warm Nov" – <i>Mashable</i>	30 Nov 2016
"Earth's 16-month record heat streak ends but warming remains" - <i>AP</i>	18 Oct 2016
"Scientists' annual physical of planet: 'Earth's fever rises'" - <i>AP</i>	2 Aug 2016
"Earth's relentless streak of record-warm months expands to seven" – – <i>Capital Weather Gang / The Washington Post</i>	16 May 2016
"Panasonic (Yes, Panasonic) May Have Created the World's Best Weather Model" - <i>Slate</i>	9 May 2016
"Earth's hot streak continues for a record 11 months" – <i>CBS News / AP</i>	19 Apr 2016
"Beyond record hot, February was 'astronomical' and 'strange'" - <i>AP</i>	17 Mar 2016
"Panel: Finding Climate Fingerprints in Wild Weather Is Valid" - <i>ABC News / AP</i>	11 Mar 2016
"El Niño Weakens a Tad, but We Won't Feel That for Months" - <i>ABC News / AP</i>	18 Feb 2016
"How melting Arctic ice may have set off era of vicious East Coast snow storms" - <i>Capital Weather Gang / The Washington Post</i>	5 Feb 2016
"All the winter's a weird weather stage; Here are the players" - <i>AP</i>	7 Jan 2016
"Arctic outbreak barreling toward U.S. may be Storm Frank's revenge" – <i>Mashable</i>	4 Jan 2016
"By one measure, this wicked El Niño is the strongest ever recorded: What it means" - <i>Capital Weather Gang / The Washington Post</i>	16 Nov 2015
Hurricane Patricia Coverage - <i>OU Nightly</i>	23 Oct 2015
"Heating Up: El Niño Could Increase Business for Climate Forecasters" - <i>The Journal Record</i>	20 Aug 2015

PROFESSIONAL MEMBERSHIPS

American Geophysical Union, American Meteorological Society, National Weather Association