William R. Boos – curriculum vitae

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Education

Ph.D. in Atmospheric Science, Massachusetts Institute of Technology, 2008

Thesis: Wind-evaporation feedback, angular momentum conservation, and the abrupt onset of monsoons. *Advisor:* Kerry Emanuel

Professional M.S. in Geosystems, Massachusetts Institute of Technology, 2002

B.S. with Honors in Physics, B.A. in Math, State University of New York, Binghamton, 1997

Professional Appointments

Assistant Professor, July 2010–present Department of Geology and Geophysics, Yale University

Postdoctoral Fellow, June 2008–June 2010 Department of Earth and Planetary Sciences, Harvard University

Postdoctoral Associate, February 2008–June 2008 Department of Earth, Atmospheric and Planetary Sciences, Massachusetts Institute of Technology

Analyst, July 1997–June 1999 Andersen Consulting (now Accenture), New York, NY

Fellowships and Honors

Young Investigator Research Award, Office of Naval Research, 2011 James R. Holton Junior Scientist Award, American Geophysical Union, 2010 Reginald A. Daly Postdoctoral Fellowship & Harvard Environmental Fellowship, 2008–2010 Martin Fellowship for Sustainability, MIT, 2004-2005 MIT Departmental Scholarship in Earth and Planetary Science, 2002

Advising

Supervisor for John Hurley and Xavier Levine (postdoctoral fellows), Jun Zhai, Ravi Shekhar, and Varun Murthy (doctoral students), and Sarah Ditchek (undergraduate intern)

Thesis committee member for Alison Nugent, Dea Doklestic, Peter Douglas, Elizabeth Brown, Mengnan Zhao, Shineng Hu (all Yale doctoral students), and Michael Byrne (MIT doctoral student)

Grants and Awards

Office of Naval Research Young Investigator Award (PI), 2011-2014: Understanding the global distribution of monsoon depressions.

National Science Foundation Campus Cyberinfrastructure (one of three co-PIs with PI Andrew Sherman), 2012-2014: The Future of Research and Collaboration – the Dedicated Science Network.

Comer Science and Education Foundation (PI), 2011-2012: Theoretical scaling of the hydrological cycle in simulations of Holocene and Last Glacial Maximum climates.

Professional Activities

Yale representative at the University Corporation for Atmospheric Research annual meeting, 2011

Reviewer for: American Journal of Science, Climate Dynamics, Eos, Environmental Research Letters, Geophysical Research Letters, Journal of the Atmospheric Sciences, Journal of Climate, Journal of Geophysical Research, Journal of the Meteorological Society of Japan Journal of Physical Oceanography, Meteorology and Atmospheric Physics, Monthly Weather Review, Nature, Nature Climate Change, Proceedings of the National Academy of Sciences of the USA, Quarterly Journal of the Royal Meteorological Society, Science, Tellus,

Consultant to Institute for Civil Society, Newton, MA, 2002-2004 Composed content as part of team of authors for a CD-ROM presentation on climate change

FloodSafe Honduras, Honduras and Cambridge, MA, 2005-2007 Led hydrology team, supporting implementation of early warning system for floods in Honduras

Club of Rome, Hamburg, Germany, 2002-2005 Member of "think tank 30," a group of young advisors on global humanitarian issues

Publications

W. R. Boos and T. A. Shaw: The effect of moist convection on the tropospheric response to tropical and subtropical zonally asymmetric torques. Submitted to *Journal of the Atmospheric Sciences*.

J. V. Hurley and W. R. Boos: Interannual variability of monsoon precipitation and subcloud equivalent potential temperature. In review at *Journal of Climate*.

W. R. Boos and J. V. Hurley, 2013: Thermodynamic bias in the multi-model mean boreal summer monsoon. In press at *Journal of Climate*.

W. R. Boos and Z. Kuang, 2013: Sensitivity of the South Asian monsoon to elevated and non-elevated heating. *Scientific Reports*, **3**, 1192; doi:10.1038/srep01192.

W. R. Boos, 2012: Thermodynamic scaling of the hydrological cycle of the last glacial maximum. *Journal of Climate*, **25**, 992-1006.

T. A. Shaw and W. R. Boos, 2012: The tropospheric response to tropical and subtropical zonallyasymmetric torques: Analytical and idealized numerical model results. *Journal of the Atmospheric Sciences*, **69**, 214-235.

W. R. Boos, 2011: Cold winters from warm oceans. *Nature* News & Views, **471**, 584-586. This is a commentary on the paper by Kaspi & Schneider in same issue.

A. Solodoch, W. R. Boos, Z. Kuang, and E. Tziperman, 2011: Excitation of intraseasonal variability in the equatorial atmosphere by Yanai Wave Groups via WISHE-Induced convection. *Journal of the Atmospheric Sciences*, **68**, 210-225.

W. R. Boos and Z. Kuang, 2010: Mechanisms of poleward-propagating, intraseasonal convective anomalies in cloud-system resolving models. *Journal of the Atmospheric Sciences*, **67**, 3673-3691.

J. Nie, W. R. Boos, and Z. Kuang, 2010: Observational evaluation of a convective quasi-equilibrium view of monsoons. *Journal of Climate*, **23**, 4416-4428.

P. Molnar, W. R. Boos, and D. S. Battisti, 2010: Orographic controls on climate and paleoclimate of Asia: thermal and mechanical roles for the Tibetan Plateau. *Annual Review of Earth and Planetary Sciences*, **38**, 77-102.

W. R. Boos and Z. Kuang, 2010: Dominant control of the South Asian monsoon by orographic insulation versus plateau heating. *Nature*, **463**, 218-222.

W. R. Boos and K. A. Emanuel, 2009: Annual intensification of the Somali jet in a quasi-equilibrium framework: observational composites. *Quarterly Journal of the Royal Meteorological Society*, **135**, 319-335.

W. R. Boos and K. A. Emanuel, 2008: Wind-evaporation feedback and the axisymmetric transition to angular momentum conserving flow. *Journal of the Atmospheric Sciences*, **65**, 3758-3778.

W. R. Boos and K. A. Emanuel, 2008: Wind-evaporation feedback and abrupt seasonal transitions of weak, axisymmetric Hadley circulations. *Journal of the Atmospheric Sciences*, **65**, 2194-2214.

W. Boos, H. Virji, and B. Wang, 2008: International capacity-building in monsoon science. *Eos, Transactions American Geophysical Union*, **89**, 135.

W. R. Boos, J. R. Scott, and K. A. Emanuel, 2004: Transient diapycnal mixing and the meridional overturning circulation. *Journal of Physical Oceanography*, **34**, 334-341.

Presentations

Invited talks

"Subtropical heat lows and monsoon circulations,"

American Mathematical Society meeting, San Diego, January 2013

Fall 2012 Meeting of the American Geophysical Union, San Francisco

Commonwealth Scientific and Industrial Research Organisation (CSIRO), Aspendale, Australia, November 2012

Monash University, Melbourne, Australia, November 2012

Keynote at annual workshop of Center for Australian Weather and Climate Research, Melbourne, Australia, November 2012

Purdue University, October 2012

Texas A&M, September 2012

New York University Abu Dhabi, United Arab Emirates, March 2012

"The hydrological cycle of the last glacial maximum"

Fall 2012 Meeting of the American Geophysical Union, San Francisco

Yale Institute for Biospheric Studies, Global Change Seminar, February 2011

Yale Atmosphere, Ocean, and Climate Dynamics Seminar, October 2010

Comer Abrupt Climate Change Conference, September 2010

"Planetary-scale rain anomalies caused by small-scale wave breaking in the upper troposphere" Bureau of Meteorology, Melbourne, Australia, November 2012

MIT Atmospheric Science Seminar, October 2012

Yale Geology and Geophysics Faculty Seminar, August 2011

"A thermodynamic assessment of climate model simulations of monsoons"

Workshop on Convection, Water Vapor, and Climate, Harvard University, March 2012

Yale Global Change seminar, February 2012

Fall 2011 Meeting of the American Geophysical Union, San Francisco

Comer Abrupt Climate Change Conference, Wisconsin, September 2011

"Towards a theory for where rain falls over tropical continents"

Yale Society of Physics Students, October 2011

Regional meeting of the American Mathematical Society, Worcester, MA, April 2011

Yale Climate and Energy Initiative seminar, January 2011

"The mean state and interannual variability of observed monsoons," Pacific Institute for Mathematical Sciences, Banff, Canada, May 2011

"The present and future state of the tropical atmosphere," Western Connecticut State University, October 2010

"Poleward migrations of the Intertropical Convergence Zone in analytical and cloud resolving models,"

Yale University, September 2010

Courant Institute of Mathematical Sciences, November 2009

"What causes the South Asian monsoon? Plateau heating versus orographic insulation," Lamont-Doherty Earth Observatory, October 2009

"The onset of monsoons on seasonal to geological time scales"

Scripps Institution of Oceanography, May 2009

Yale University, March 2009

"Moist frontogenesis in axisymmetric Hadley circulations," Society for Industrial and Applied Mathematics Annual Meeting, San Diego, CA, July 2008

"Wind-evaporation feedbacks and the dynamics of monsoons," Harvard University, February 2008

"Angular momentum conservation in Hadley circulations and monsoons," University of Colorado at Boulder, April 2007

Conference presentations

"Thermodynamic bias in the multi-model mean boreal summer monsoon," W. R. Boos, Conference on Opportunities and Challenges in Monsoon Prediction, Indian Institute of Tropical Meteorology, Pune, India, February 2012

"The tropospheric response to tropical and subtropical zonally-asymmetric torques," W. R. Boos and T. A. Shaw

poster at the Fall 2011 Meeting of the American Geophysical Union, San Francisco

talk at the American Meteorological Society's 18th Conference on Atmospheric and Oceanic Fluid Dynamics, Spokane, WA, June 2011

talk at the Fifth Northeast Tropical Workshop, Dedham, MA, May 2011

"Dynamic and thermodynamic controls on the hydrological cycle of the last glacial maximum," W. R. Boos, poster at the Fall 2010 Meeting of the American Geophysical Union, San Francisco

"Mechanism of poleward propagating, intraseasonal convective anomalies in a model with explicit convection," W. R. Boos and Z. Kuang, talk at the American Meteorological Society's 29th Conference on Hurricanes and Tropical Meteorology, Tucson, Arizona, May 2010

"Dominant control of the South Asian monsoon by orographic insulation versus plateau heating," W. R. Boos and Z. Kuang, poster at the American Meteorological Society's 29th Conference on Hurricanes and Tropical Meteorology, Tucson, Arizona, May 2010

"Mechanisms of the dominant pattern of subseasonal variability of the tropical atmosphere," W. R. Boos and Z. Kuang, talk at Workshop on Large-scale Circulations in Moist Convecting Atmospheres, Harvard University, October 2009

"Mechanism of poleward propagating, intraseasonal convective anomalies in a model with explicit convection," W. R. Boos and Z. Kuang, talk at the American Meteorological Society's 17th Conference on Atmospheric and Oceanic Fluid Dynamics, Stowe, VT, June 2009

"What causes the South Asian monsoon? Plateau heating versus orographic insulation," W. R. Boos and Z. Kuang, talk at the Fourth Northeast Tropical Workshop, Rensselaerville, NY, June 2009

"The effect of MIT convection and clouds on climate simulated by CAM 3.5," W. R. Boos, K. A. Emanuel, and M. J. Iacono, poster at the 13th Annual CCSM workshop, Breckenridge, Colorado, June 2008

"Annual intensification of the Somali jet in a quasi-equilibrium framework: observational composites," W. R. Boos, talk at the American Meteorological Society's 28th Conference on Hurricanes and Tropical Meteorology, Orlando, Florida, May 2008

"Wind-evaporation feedback and the transition to axisymmetric, angular momentum conserving Hadley flow," W. R. Boos, poster at the American Meteorological Society's 28th Conference on Hurricanes and Tropical Meteorology, Orlando, Florida, April 2008

"Seasonal intensification of the Somali jet in a quasi-equilibrium framework," W. R. Boos and K. A. Emanuel, talk at the Summer School on Tropical Multiscale Convective Systems, University of Victoria, Canada, August 2007

"A wind-evaporation mechanism for the abrupt seasonal transition of Hadley circulations," W. R. Boos and K. A. Emanuel, talk at the American Meteorological Society's 16th Conference on Atmospheric and Oceanic Fluid Dynamics, Santa Fe, New Mexico, June 2007

"Mechanisms of the seasonal intensification of the Somali jet," W. R. Boos, talk at the Third Northeast Tropical Workshop, Dedham, Massachusetts, June 2007

"Seasonal transitions of zonally symmetric circulations," W. R. Boos, talk at the American Meteorological Society's 27th Conference on Hurricanes and Tropical Meteorology, Monterey, California, April 2006

"Intraseasonal modulation of Hadley circulations by wind-evaporation feedback," W. R. Boos, talk at the Second Northeast Tropical Workshop, Rensselaerville, New York, June 2005

"Cloud-radiative interactions with upper-tropospheric circulations," W. R. Boos and S. Bony, poster at the Fall 2004 Meeting of the American Geophysical Union, San Francisco

"Semi-Empirical Definition of the Galaxy-Quasar Transition Zone for 1.2m Schmidt Cameras," W. R. Boos, M. M. Chester, and P. D. Usher, Bulletin of the American Astronomical Society, 1996, 28, 1321

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