

Dargan M. W. Frierson

CONTACT INFORMATION	Dept. of Atmospheric Sciences Box 351640 Seattle, WA 98195-1640	<i>E-mail:</i> dargan@atmos.washington.edu <i>Phone:</i> (206) 685-7364 <i>Website:</i> http://www.atmos.washington.edu/~dargan
RESEARCH INTERESTS	Atmospheric general circulation, water vapor, climate change	
EMPLOYMENT	University of Washington , Department of Atmospheric Sciences Assistant Professor, September 2007-present University of Chicago , Department of Geophysical Sciences NOAA Climate and Global Change Postdoctoral Fellow, September 2005-August 2007 <ul style="list-style-type: none">• Host: Raymond T. Pierrehumbert	
EDUCATION	Princeton University , Princeton, New Jersey, 2000-2005 Ph.D., Applied Mathematics, December 2005 <ul style="list-style-type: none">• Dissertation Topic: "Studies of the General Circulation of the Atmosphere with a Simplified Moist General Circulation Model"• Advisor: Isaac M. Held, Geophysical Fluid Dynamics Laboratory M.S., Applied Mathematics, May 2002 North Carolina State University , Raleigh, North Carolina, 1996-2000 B.S., Mathematics and Physics, with minors in English and Italian, May 2000 <ul style="list-style-type: none">• 4.0 GPA• Valedictorian	
HONORS AND AWARDS	Department of Atmospheric Sciences Annual Teaching Award, 2009. NSF CAREER Faculty Early Career Development Award, 2009-2014. University of Washington Royalty Research Fund Award, 2009-2010. NOAA Climate and Global Change Postdoctoral Fellowship, 2005-2007. National Science Foundation Graduate Research Fellowship, 2000-2003. NCSU College of Physical and Mathematical Sciences Scholarly Achievement Award, spring 2000. NCSU College of Physical and Mathematical Sciences Research Award, spring 2000.	
PUBLISHED WORK	Elliott, W. P. and D. M. W. Frierson. Atmospheric Structure. In press, <i>The Encyclopedia of Weather and Climate</i> , 2nd Edition. Sobel, A. H., Maloney, E. D., Bellon, G., and D. M. W. Frierson. Surface fluxes and tropical intraseasonal variability. Accepted to <i>Journal of Advances in Modeling Earth Systems</i> . Mitchell, J. L., Pierrehumbert, R. T., Frierson, D. M. W., and R. Caballero. The impact of methane thermodynamics on seasonal convection and circulation in a model Titan atmosphere. <i>Icarus</i> , 203, 250-264, doi:10.1016/j.icarus.2009.03.043, 2009. Kang, S. M., Frierson, D. M. W., and I. M. Held. The tropical response to extratropical thermal forcing in an idealized GCM: The importance of radiative feedbacks and convective parameterization.	

J. Atmos. Sci., 66, 2812-2827, doi:10.1175/2009JAS2924.1, 2009.

Sobel, A. H., Maloney, E. D., Bellon, G. and D. M. Frierson. The Role of Surface Heat Fluxes in Tropical Intraseasonal Oscillations. *Nature Geoscience*, 1, 653-657, doi:10.1038/ngeo312, 2008

Chen, G., Lu, J. and D. M. W. Frierson. Phase Speed Spectra and the Latitude of Surface Westerlies: Interannual Variability and Global Warming Trend. *J. Climate*, 21, 5942-5959, doi:10.1175/2008JCLI2306.1, 2008.

Lu, J., Chen, G., and D. M. W. Frierson. Response of the Zonal Mean Atmospheric Circulation to El Niño versus Global Warming. *J. Climate*, 21, 5835-5851, doi:10.1175/2008JCLI2200.1, 2008.

Pauluis, O. M., Frierson, D. M. W., and A. J. Majda. Precipitation Fronts and the Reflection and Transmission of Tropical Disturbances. *Q. J. Roy. Met. Soc.*, 134, 913-930, doi:10.1002/qj.250, 2008.

Kang, S. M., Held, I. M., Frierson, D. M. W. and M. Zhao. The Response of the ITCZ to Extratropical Forcing: Idealized Slab Ocean Experiments with a GCM. *J. Climate*, 21, 3521-3532, doi:10.1175/2007JCLI2146.1, 2008.

Frierson, D. M. W. Midlatitude Static Stability in Simple and Comprehensive General Circulation Models. *J. Atmos. Sci.*, 65, 1049-1062, doi:10.1175/2007JAS2373.1, 2008.

Lin, J.-L., Lee, M.-I., Kim, D., Kang, I.-S., and D. M. W. Frierson. The Impacts of Convective Parameterization and Moisture Triggering on AGCM-Simulated Convectively Coupled Equatorial Waves. *J. Climate*, 21, 883-909, doi:10.1175/2007JCLI1790.1, 2008.

Frierson, D. M. W., Lu, J. and G. Chen. The Width of the Hadley Circulation in Simple and Comprehensive General Circulation Models. *Geophys. Res. Lett.*, 34, L18804, doi: 10.1029/2007GL031115, 2007.

Frierson, D. M. W. Convectively Coupled Kelvin Waves in an Idealized Moist General Circulation Model. *Journal of the Atmospheric Sciences*, 64, 2076-2090, doi:10.1175/JAS3945.1, 2007.

Garner, S. T., Frierson, D. M. W., Held, I. M., Pauluis, O. M. and G. K. Vallis. Resolving Convection in a Global Hypohydrostatic Model. *Journal of the Atmospheric Sciences*, 64, 2061-2075, doi:10.1175/JAS3929.1, 2007.

Frierson, D. M. W. The Dynamics of Idealized Convection Schemes and Their Effect on the Zonally Averaged Tropical Circulation. *Journal of the Atmospheric Sciences*, 64, 1959-1976, doi:10.1175/JAS3935.1, 2007.

Frierson, D. M. W., Held, I. M. and P. Zurita-Gotor. A Gray-Radiation Aquaplanet Moist GCM. Part II: Energy Transports in Altered Climates. *Journal of the Atmospheric Sciences*, 64, 1680-1693, doi:10.1175/JAS3913.1, 2007.

Frierson, D. M. W. Robust Increases in Midlatitude Static Stability in Global Warming Simulations. *Geophysical Research Letters*, 33, L24816, doi:10.1029/2006GL027504, 2006.

Mitchell, J. L., Pierrehumbert, R. T., Frierson, D. M. W., and R. Caballero. The Dynamics Behind Titan's Methane Clouds. *Proceedings of the National Academy of Sciences*, 103, 18421-18426, doi:10.1073/pnas.0605074103, 2006.

Pauluis, O. M., Frierson, D. M. W., Garner, S. T., Held, I. M., and G. K. Vallis. The Hypo-hydrostatic Rescaling and Its Impacts on Modeling of Atmospheric Convection. *Theoretical and Computa-*

tional Fluid Dynamics, 20, 485-499, doi:10.1007/s00162-006-0026-x, 2006.

Frierson, D. M. W., Held, I. M. and P. Zurita-Gotor. A Gray-Radiation Aquaplanet Moist GCM. Part I: Static Stability and Eddy Scales. *Journal of the Atmospheric Sciences*, 63, 2458-2566, doi:10.1175/JAS3753.1, 2006.

Frierson, D. M. W., Majda, A. J. and O. M. Pauluis. Large Scale Dynamics of Precipitation Fronts in the Tropical Atmosphere: A Novel Relaxation Limit. *Communications in Mathematical Sciences*, 2, 605-640, 2004.

Blondin, J. M., Chevalier, R. A. and D. M. Frierson. Pulsar Wind Nebulae in Evolved Supernova Remnants. *Astrophysical Journal*, 563, 806-815, 2001.

SUBMITTED/IN
PREPARATION

Kidston, J., Frierson, D. M. W., and J. A. Renwick. On the Dynamical Mechanism of Mid-latitude Jet Stream Variability and Annular Modes. Submitted to *Journal of Climate*.

Frierson, D. M. W., Kim, D., Kang, I.-S., Lee, M.-I., and J.-L. Lin. Structure of AGCM-Simulated Convectively Coupled Equatorial Waves and Sensitivity to Convective Parameterization. Submitted to *Journal of the Atmospheric Sciences*.

Lu, J., Frierson, D. M. W., and G. Chen. The location of the midlatitude storm tracks in an idealized GCM. In preparation for *Journal of the Atmospheric Sciences*.

Haaq-Misra, J., Lee, S., and D. M. W. Frierson. Hadley Circulations in Moist and Dry Atmospheres. In preparation for *Geophys. Res. Lett.*

Hwang, Y.-T. and D. M. W. Frierson. Moist Static Energy Fluxes in Simulations of Global Warming. In preparation for *J. Atmos. Sci.*

INVITED LECTURES

NYU Center for Atmosphere Ocean Science Colloquium, April 2005.

NCAR IMAGE Workshop on Multi-scale Interactions in a GCM Grid Box, November 2005.

Columbia University IGERT Joint Program Colloquium, February 2006.

University of Washington Clouds and Precipitation Seminar, April 2006.

NCAR IMAGE Workshop on Multiscale Processes for Low Frequency Variability, Climate, and Climate Change Response, May 2006.

NYU Center for Atmosphere Ocean Science Colloquium, December 2006.

University of Washington Climate Dynamics Seminar, February 2007.

Stony Brook University Institute of Terrestrial and Planetary Atmospheres Seminar, February 2007.

Colorado State University Department of Atmospheric Science Colloquium, April 2007.

University of Washington Atmospheric Sciences Colloquium, November 2007.

Princeton University Program in Applied and Computational Mathematics Colloquium, November 2007.

MIT MASS Seminar, April 2008.

Oregon State University Mathematics Colloquium, June 2008.

SIAM Minisymposium on Tropical Convection, Waves, and Large Scale Dynamics, July 2008.

MetStroem Summer School on Multiscale Problems in Fluid Dynamics and Meteorology, invited lecture series, August 2008.

Multiscale Processes in the Tropics Workshop at Banff International Research Station, April-May 2009.

Global Climate Monitoring and Modeling Workshop, Seoul National University, June 2009.

Workshop on Large-Scale Circulations in Convecting Atmospheres, Harvard University, October 2009.

University of Toronto Atmospheric Physics Noble Seminar Series, November 2009.

University of Reading Meteorology Department Seminar, November 2009.

UK Met Office Hadley Centre Seminar, November 2009.

Institute for Pure and Applied Mathematics Workshop on Model and Data Hierarchies for Simulating and Understanding Climate: Tutorials, March 2010.

Institute for Pure and Applied Mathematics Workshop on Equation Hierarchies for Climate Modeling, March 2010.

Oberwolfach Workshop on Mathematical Theory and Modelling in Atmosphere-Ocean-Science, August 2010.

ADVISING

University of Washington Department of Atmospheric Sciences **2007-present**
Current students: Marshall Stoner (M.S. student, 4th year), Yen-Ting Hwang (M.S. student, 3rd year), Jack Scheff (M.S. student, 2nd year).
Undergraduate research advising: Robert Marshall (spring 2009-present), Josh Smith (summer 2009-present)
Serving on Ph.D. or Masters committee of 13 additional students.

TEACHING EXPERIENCE

University of Washington Department of Atmospheric Sciences **2008-present**
Taught ATM S 509/OCEAN 512: Geophysical Fluid Dynamics I in winter 2008, ATM S 542: Geophysical Fluid Dynamics II, Balance Dynamics in spring 2008 and spring 2009, ATM S 591: Modeling the General Circulation of the Atmosphere in autumn 2008, ATM S 442/504: Atmospheric Motions II in winter 2009, and PCC/ATM S/OCEAN/ESS 587: Climate Dynamics in autumn 2009.

COMMUNITY OUTREACH EXPERIENCE

Outreach, University of Washington Dept. of Atmospheric Sciences **2009-present**
Co-writing of short films on atmospheric science concepts for elementary and middle school audiences.

Guest Lecturer, Scholars in the Schools Program **2002 - 2004**
Giving talks to elementary school students (K-5th grades) about weather and climate. Spoke at more than 15 schools to over 1000 students.

Coach, Princeton Charter School MathCounts Team

2000 - 2003

A weekly practice preparing middle school students for a math competition.

ACADEMIC SERVICE Reviewer for Journal of the Atmospheric Sciences, Journal of Climate, Geophysical Research Letters, Science, Nature, Nature Geoscience, Quarterly Journal of the Royal Meteorological Society, Tellus A, Dynamics of Atmospheres and Oceans, Proceedings of the National Academy of Sciences, Atmospheric Science Letters, Journal of Geophysical Research-Atmospheres, Communications in Mathematical Sciences, Geoscientific Model Development, Climate Dynamics, Journal of Advances in Modeling Earth Systems, the National Science Foundation, and the National Oceanic and Atmospheric Administration.

Department of Atmospheric Sciences undergraduate curriculum committee member (helped design climate track within the undergraduate atmospheric sciences degree). Faculty advisor for undergraduate climate track. ATM S 111 homework committee chair. Departmental website redesign committee member. Program on Climate Change governing board member. Earth and Environmental Sciences B.S. degree committee member.