TIFFANY A. SHAW

The University of Chicago
Department of the Geophysical Sciences
Email: tas1@uchicago.edu

5734 South Ellis Ave.
Chicago, IL, 60637

EDUCATION

Ph.D. Physics, University of Toronto 2009
Doctoral Thesis: Energy and momentum consistency in subgrid-scale parameterization for climate models, Advisor: Prof. Theodore G. Shepherd
M.S. Physics, University of Toronto 2005
B.S. Atmospheric Science & Math, University of British Columbia 2004

PROFESSIONAL EMPLOYMENT

Assistant Professor of the Geophysical Sciences 2015 - present
The University of Chicago

Assistant Professor of Earth and Environmental Sciences 2011 - 2015
& Applied Physics and Applied Mathematics,
Columbia University

Natural Sciences and Engineering Research Council of 2010 - 2011
Canada (NSERC) Post-doctoral Fellow
Lamont-Doherty Earth Observatory &
Department of Applied Physics and Applied Mathematics,
Columbia University

Research Assistant Professor 2009 - 2010
Center for Atmosphere Ocean Science,
Courant Institute, New York University

AWARDS

Alfred P. Sloan Research Fellowship (Physics)	2015
NSF CAREER award	2013
Packard Fellowship in Science and Engineering	2012
American Geophysical Union James R. Holton Award	2011
NSERC Postdoctoral Fellowship	2009 - 2011
Marie Curie Sklodowska Association Fellowship	2008 - 2009
Zonta International Amelia Earhart Fellowship	2007 - 2009
NSERC Canada Graduate Scholarship	2005 – 2008
WHOI Geophysical Fluid Dynamics Fellowship	2005

PUBLICATIONS (* indicates a graduate student or post-doc supervised by T. A. Shaw)

Shaw, T. A., M. Baldwin, E. A. Barnes, R. Caballero, C. I. Garfinkel, Y.-T. Hwang, C. Li, P. A. O'Gorman, G. Riviere, I. R. Simpson, and A. Voigt, 2016: Storm track processes and the opposing influences of climate change, *Nature Geoscience*, 10.1038/ngeo2783.

Voigt, A.*, and **Shaw, T. A.**, 2016: Impact of regional atmospheric cloud-radiative changes on shifts of the extratropical jet stream in response to global warming, *J. Climate*, in press.

Wu, Y., and **Shaw, T. A.**, 2016: The Impact of the Asian Summer Monsoon Circulation on the Tropopause, *J. Climate*, in press.

Shaw, T. A., and A. Voigt*, 2016: Understanding the links between subtropical and extratropical circulation responses to climate change using aquaplanet model simulations, *J. Climate*, 29, 6637-6657.

Shaw, T. A., and A. Voigt*, 2016: What can moist thermodynamics tell us about circulation shifts in response to uniform warming?, *Geophys. Res. Lett*., 10.1002/2016GL068712.

England, M. R.*, **T. A. Shaw**, and L. M. Polvani, 2016: Troposphere-stratosphere dynamical coupling in the Southern high latitudes, and its linkage to the Amundsen Sea., *J. Geophys. Res.*, 10.1002/2015JD024254.

Simpson, I.*, R. Seager, M. Ting and **T. A. Shaw**, 2016: Causes of change in Northern Hemisphere winter meridional wind and regional hydroclimate, *Nature Climate Change*, 10.1038/nclimate2783.

Shaw, T. A., A. Voigt*, S. Kang and J. Seo, 2015: Response of the intertropical convergence zone to zonally-asymmetric subtropical surface forcing, *Geophys. Res. Lett*., 10.1002/2015GL066027.

Shaw, T. A. and A. Voigt*, 2015: Tug of war on summertime circulation between radiative forcing and sea surface warming. *Nature Geoscience*, 10.1038/ngeo2449.

Voigt, A.*, and **T. A. Shaw**, 2015: Radiative changes of clouds and water vapor shape circulation response to global warming. *Nature Geoscience*, 10.1038/ngeo2345.

Simpson, I.*, R. Seager, **T. A. Shaw**, and M. Ting, 2015: Mediterranean summer climate and the importance of the Zagros Mountains. *J. Climate*, 28, 1977-1996.

Dunn-Sigouin, E.*, and **T. A. Shaw**, 2014: Comparing and contrasting extreme stratospheric events, including their coupling to the tropospheric circulation, *J. Geophys. Res.*, 10.1002/2014JD022116.

Seager, R., D. Neelin, I. Simpson*, H. Liu, N. Henderson, **T. A. Shaw**, Y. Kushnir, M. Ting and B. Cook, 2014: Dynamical and thermodynamical causes of large-scale changes in the hydrological cycle over North America in response to global warming. *J. Climate*, submitted.

Shaw, T. A., J. Perlwitz and O. Weiner*, 2014: Troposphere-stratosphere coupling: Links to North Atlantic weather and climate, including their representation in CMIP5 models. *J. Geophys. Res.,* 10.1002/2013JD021191.

Seager, R., H. Liu, N. Henderson, I. Simpson*, C. Kelley, **T. A. Shaw**, Y. Kushnir and M. Ting, 2014: Causes of increasing aridification of the Mediterranean region in response to rising greenhouse gases. *J. Climate*, 27, 4655-4676.

Shaw, T. A., 2014: On the role of planetary-scale waves in the abrupt seasonal transition of the Northern Hemisphere general circulation, *J. Atmos. Sci.*, 71, 1725-1746.

Simpson, I.*, **T. A. Shaw**, and R. Seager, 2014: A diagnosis of the seasonally and longitudinally varying mid-latitude circulation response to global warming. *J. Atmos. Sci.*, 71, 2489-2515.

Shaw, T. A., and J. Perlwitz, 2014: On the control of the residual circulation and stratospheric temperature in the Arctic by planetary wave coupling. *J. Atmos. Sci.,* 71, 195-206.

Boos, W. R., and **T. A. Shaw**, 2013: The effect of moist convection on the tropospheric response to tropical and subtropical zonally asymmetric torques. *J. Atmos. Sci.*, 70, 4089-4111.

Shaw, T. A., and T. P. Lane, 2013: Toward an understanding of vertical momentum transport in cloud system resolving model simulations of organized tropical convection. *J. Atmos. Sci.,* 70, 3231-3247.

Laliberte, F.*****, **T. A. Shaw**, and O. Pauluis, 2013: A theory for the lower tropospheric structure of the moist isentropic circulation. *J. Atmos. Sci.*, 70, 843-854.

Charlton-Perez, A. J., M. P. Baldwin, T. Birner, R. X. Black, A. H. Butler, N. Calvo, N. A. Davis, E. P. Gerber, N. Gillett, S. Hardiman, J. Kim, K. Krueger, Y.-Y. Lee, E. Manzini, B. A. McDaniel, L. M. Polvani, T. Reichler, **T. A. Shaw**, M. Sigmond, S.-W. Son, M. Toohey, L. J. Wilcox, S. Yoden, B. Christiansen, F. Lott, D. Shindell, S. Yukimoto, and S. Watanabe, 2013: Mean climate and variability of the stratosphere in the CMIP5 models. *J. Geophys. Res.*, 118, 2494-2505.

Shaw, T. A., and J. Perlwitz, 2013: The life cycle of Northern Hemisphere downward wave coupling between the stratosphere and troposphere. *J. Climate*, 26, 1745-1763.

Wu Y.*, R. Seager, **T. A. Shaw** , M. Ting, and N. Naik, 2013: Atmospheric circulation response to an instantaneous doubling of carbon dioxide Part II: Atmospheric transient adjustment and its dynamics. *J. Climate*, 26, 918-935.

Shaw, T. A., and O. Pauluis, 2012: Tropical and subtropical meridional latent heat transports by disturbances to the zonal mean and their role in the general circulation. *J. Atmos. Sci*., 69,1872-1889.

Laliberte F.*****, **T. A. Shaw**, and O. Pauluis, 2012: Moist recirculation and water vapor transport on dry isentropes. *J. Atmos. Sci*., 69, 875-890.

Wu Y.*, R. Seager, M. Ting, N. Naik, and **T. A. Shaw**, 2012: Atmospheric circulation response to an instantaneous doubling of carbon dioxide Part I: Model experiments and transient thermal response in the troposphere. *J. Climate*, 25, 2862-2879.

Garfinkel, C. I., **T. A. Shaw**, D. L. Hartmann and D. W. Waugh, 2012: Does the Holton-Tan mechanism explain how the quasi-biennial oscillation modulates the Arctic polar vortex? *J. Atmos. Sci.*, 69, 1713-1733.

Gerber, E. P., A. Butler, N. Calvo, A. Charlton-Perez, M. Giorgetta, E. Manzini, J. Perlwitz, L. M. Polvani, F. Sassi, A. A. Scaife, **T. A. Shaw**, S.-W. Son, and S.Watanabe, 2012: Assessing and understanding the impact of stratospheric variability on the earth system. *Bull. Amer. Met. Soc.*, 10.1175/BAMS-d-11-00145.1, 845-859.

Shaw, T. A., and W. R. Boos, 2012: The tropospheric response to tropical and subtropical zonally-asymmetric torques: Analytical and idealized numerical model results. *J. Atmos. Sci.*, 69, 214-234.

Pauluis, O., **T. A. Shaw** and F. Laliberte*, 2011: A statistical generalization of the transformed Eulerian-mean circulation for an arbitrary vertical coordinate system. *J. Atmos. Sci*., 68, 1766-1783.

Shaw, T. A., J. Perlwitz, N. Harnik, P. A. Newman and S. Pawson, 2011: The impact of stratospheric ozone changes on downward wave coupling in the Southern Hemisphere. *J. Climate*, 24, 4210-4229.

Harnik, N., J. Perlwitz and **T. A. Shaw**, 2011: Observed decadal changes in downward wave coupling between the stratosphere and troposphere in the Southern Hemisphere. *J. Climate*, 24, 4558-4569.

Shaw, T. A., and E. Becker, 2011: Comments on “A spectral parameterization of drag, eddy-diffusion and wave heating for a three-dimensional flow induced by breaking gravity waves". *J. Atmos. Sci.*, 68, 2465-2469.

Hardiman S. C., N. Butchart, A. J. Charlton-Perez, **T. A. Shaw**, H. Akiyoshi, A. Baumgaertner, S. Bekki, P. Braesicke, M. Chipperfield, M. Dameris, R. R. Garcia, M. Michou, S. Pawson, E. Rozanov and K. Shibata, 2011: Improved predictability of the troposphere NAO using stratospheric final warmings, *J. Geophys. Res*., 116, 10.1029/2011JD015914.

Shaw, T. A., J. Perlwitz and N. Harnik, 2010: Downward wave coupling between the stratosphere and troposphere: The importance of meridional wave guiding and comparison with zonal-mean coupling. *J. Climate*, 23, 6365-6381.

Shaw, T. A., and J. Perlwitz, 2010: The impact of stratospheric model configuration on planetary scale waves in northern hemisphere winter. *J. Climate*, 23, 3369-3389.

M. J. Alexander, M. Geller, C. McLandress, S. Polavarapu, P. Preusse, F. Sassi, K. Sato, S. Eckermann, M. Ern, A. Hertzog, Y. Kawatani, M. Pulido, **T. A. Shaw**, M.

Sigmond, R. Vincent, S. Watanabe, 2010: Recent developments in gravity wave effects in climate models, and the global distribution of gravity wave momentum flux from observations and models. *Q. J. Roy. Meteor. Soc*., 136, 1103-1124.

Shaw, T. A., and T. G. Shepherd, 2009: A theoretical framework for energy and momentum consistency in subgrid-scale parameterization for climate models. *J. Atmos. Sci*., 66, 3095-3113.

Shaw, T. A., M. Sigmond, T. G. Shepherd, and J. F. Scinocca, 2009: Sensitivity of simulated climate to conservation of momentum in gravity wave drag parameterization. *J. Climate*, 22, 2726-2742.

Shaw, T. A., and T. G. Shepherd, 2008: Raising the roof. *Nature Geoscience*, 1, 12-13.

Shaw, T. A., and T. G Shepherd, 2008: Wave-activity conservation laws for the three-dimensional anelastic and Boussinesq equations with a horizontally homogeneous background flow. *J. Fluid Mech*., 594, 493-506.

Shaw, T. A., and T. G. Shepherd, 2007: Angular momentum conservation and gravity wave drag parameterization: Implications for climate models. *J. Atmos. Sci*., 64, 190-203.

Shaw, T. A., J.-L. Thiffeault, and C. R. Doering, 2007: Stirring up trouble: Multi-scale mixing measures for steady sources. Physica D, 231, 143-164.

Shepherd, T. G., and **T. A. Shaw**, 2004: The angular momentum constraint on climate sensitivity and downward influence in the middle atmosphere. *J. Atmos. Sci*., 61, 2899-2907.

PROFESSIONAL ACTIVITIES

Reviewer for Climate Dynamics, Geophysical Research Letters, Journal of the Atmospheric Sciences, Journal of Climate, Journal of Fluid Mechanics, Journal of Geophysical Research, Journal of Physical Oceanography, National Science Foundation, Nature, Nature Geoscience and Quarterly Journal of the Royal Meteorological Society

Associate Editor — 2016 - present
Journal of the Atmospheric Sciences

Faculty member, Geophysical Fluid Dynamics Program, — 2014 -present
Woods Hole Oceanographic Institution

Committee member, American Meteorological Society's — 2011 - present
Atmospheric and Oceanic Fluid Dynamics Committee
Chair of the organizing committee for the 19th conference

Committee member, World Meteorological Organization's — 2010 - present
Stratospheric Processes And their Role in Climate
Dynamic Variability Committee

External Advisory Panel member for the Center for Multiscale Modeling of Atmospheric Processes (CMMAP) A National Science Foundation Science and Technology Center 2012 - 2015