

Etienne Dunn-Sigouin

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Summary

Climate scientist with specialization in atmospheric dynamics. Advanced experience working with observational and general circulation model data and running idealized climate models. Emphasis on stratosphere-troposphere coupling, wave-mean flow interaction and mid-latitude climate variability.

Education

Ph.D. Candidate, Columbia University 2012-present
Department of Earth and Environmental Sciences
Advisor: Tiffany Shaw
Committee: Lorenzo Polvani, Richard Seager, Mingfang Ting
Ph.D. Anticipated Fall 2017

M.Sc. McGill University 2010-2012
Department of Atmospheric and Oceanic Sciences
Advisor: Seok-Woo Son

B.Sc. McGill University 2007-2010
Honours, Minor in Mathematics
Department of Atmospheric and Oceanic Sciences

Research Experience

Doctoral Dissertation, Columbia University 2012-present

- Documented lifecycle of extreme stratospheric heat flux events in reanalysis
- Calibrated idealized model to produce events and compared with reanalysis
- Performed idealized experiments to understand dynamics of events

Research collaboration Fall 2016

- Collaboration with Karen McKinnon, Andrew Poppick and Clara Deser
- Produced observational estimate of historical surface temperature trend variability due to internal variability to form 'Observational Large Ensemble'

Research collaboration Fall 2014

- Collaboration with Elizabeth Barnes, Giacomo Masato, Tim Woollings
- Analyzed historical trends in blocking frequency linked to Arctic amplification

Masters Thesis, McGill University 2010-2012

- Developed a novel atmospheric blocking identification algorithm
- Analysis of blocking in Canadian forecast model to understand model biases
- Determined future changes in blocking frequency and duration in CMIP5 models

Research Assistant, McGill University 2010-2012

- Research under supervision of Frederick Fabry
- Analyzed different radar scanning strategies to improve operational forecasts

Publications	<p>Dunn-Sigouin E. and Shaw T., 2015: Comparing and contrasting extreme stratospheric events, including their coupling to the tropospheric circulation, <i>Journal of Geophysical Research</i>, doi: 10.1002/2014JD022116</p> <p>Barnes E.A., Dunn-Sigouin E., Masato G., Woollings T., 2014: Exploring recent trends in Northern Hemisphere blocking*, <i>Geophysical Research Letters</i>, doi: 10.1002/2013GL058745</p> <p>Dunn-Sigouin E. and Son S-W, 2013: Northern Hemisphere blocking frequency and duration in the CMIP5 models, <i>Journal of Geophysical Research</i>, doi: 10.1002/jgrd.50143</p> <p>Dunn-Sigouin E., Son S-W, Lin H., 2013: Evaluation of Northern Hemisphere blocking climatology in the Global Environment Multiscale model, <i>Monthly Weather Review</i>, doi: 10.1175/MWR-D-12-00134.1</p>
Manuscripts in Progress	<p>McKinnon K., Poppick A., Dunn-Sigouin E., Deser C., 2016: An "Observational Large Ensemble" to compare observed and modeled temperature trend uncertainty due to internal variability, submitted to <i>Journal of Climate</i>.</p> <p>Dunn-Sigouin E. and Shaw T., 2016: Extreme stratospheric heat flux events in an idealized model. Part 2: Dynamics of extreme negative events, in prep for <i>Journal of Atmospheric Science</i></p> <p>Dunn-Sigouin E. and Shaw T., 2016: Extreme stratospheric heat flux events in an idealized model. Part 1: Model calibration and comparison with reanalysis, in prep for <i>Journal of Atmospheric Science</i></p>
Conference / Workshop Presentations	<p>Dunn-Sigouin E. and Shaw T.: Dynamics of extreme negative stratospheric planetary wave heat flux events (talk), presented at AGU 2016, San Francisco CA, USA.</p> <p>Dunn-Sigouin E.: Present day and future trends in Northern Hemisphere blocking (Invited talk), presented at Workshop on Atmospheric blocking April 2016, Reading, England.</p> <p>Dunn-Sigouin E. and Shaw T.: Comparing and contrasting extreme stratospheric events, including their coupling to the tropospheric circulation (talk), presented at AMS/AOFD middle atmosphere conference 2015, Pheonix AZ, USA.</p> <p>Dunn-Sigouin E. and Shaw T.: The lifecycle of Northern Hemisphere Upward wave coupling between the troposphere and stratosphere (talk), presented at AMS/AOFD middle atmosphere conference 2013, Newport RI, USA.</p> <p>Dunn-Sigouin E. and Son S-W.: Evaluation of Northern Hemisphere blocking climatology in Global Environmental Multiscale (GEM) model (talk), presented at CMOS conference 2012, Montreal, Canada.</p>
Summer School	<p>Rosbypallooza summer school, August 2016 University of Chicago, Chicago Illinois, USA</p>
Awards	<p>WMO early career scientist travel award April 2016 Workshop on Atmospheric blocking, Reading, England</p>

	NSERC (Natural Sciences and Engineering Research Council of Canada) Postgraduate Scholarship Doctoral award	2012
	GEC3 Global Environmental and Climate Change Centre award	2011
	FQRNT (Fonds Quebecois de la Recherche sur la Nature et les Technologies) Masters Research Scholarship	2010
Skills	Languages: English and French Programming: Matlab, Fortran, Shell script, NCL Software Latex, word, Inkscape, Powerpoint	
Teaching	Teaching Assistant: <i>Geophysical Fluid Dynamics</i> , Columbia University <i>Earth's Environmental System: Climate</i> , Columbia University <i>Models, climate, Natural and Human Systems</i> , Columbia University <i>Science of storms</i> , McGill University <i>Waves and Stability</i> , McGill University <i>Dynamics of Current Climates</i> , McGill University	Fall 2014 Spring 2013 Fall 2012 Spring 2012 Fall 2011 Spring 2011
Outreach	Citizen Schools teaching apprenticeship Lamont Doherty Earth Observatory Open House American Museum of Natural History Sun-Earth day	Fall 2015 2014, 2016 2016
Community Participation	Lamont Doherty Ocean-climate-physics seminar organizer Reviewer for <i>Journal of Climate</i> , <i>Geophysical Research letters</i> , <i>Atmospheric Chemistry and Physics</i> Member of American Meteorological Society (AMS) and American Geophysical Union (AGU)	2016-2017