KAREN L. SMITH – CURRICULUM VITAE

Lamont-Doherty Earth Observatory
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EDUCATION:

2011 Ph.D, Physics, University of Toronto, Toronto, Canada
2007 M.S., Nutritional Sciences, University of Toronto, Toronto, Canada
2004 M.S., Environ. Science and Engineering, California Institute of Technology, Pasadena, CA
2002 B.S. (1st Class), Mathematics and Engineering, Queen's University, Kingston, Canada

PROFESSIONAL APPOINTMENTS:

2017 – Assistant Professor, Teaching-Stream
University of Toronto, Toronto, Canada
2014 – Associate Research Scientist
Lamont-Doherty Earth Observatory of Columbia University, Palisades, NY
2015 – Visiting Scientist
NASA Goddard Institute for Space Studies, New York, NY
2013 – 15 Natural Sciences and Engineering Research Council of Canada Postdoctoral Fellow
Lamont-Doherty Earth Observatory of Columbia University, Palisades, NY
2011 – 13 Postdoctoral Research Scientist
Lamont-Doherty Earth Observatory of Columbia University, Palisades, NY

PUBLICATIONS:

Refereed Journal Articles:

(03/16/2017: 19 Peer-reviewed publications; 352 citations; h-index = 9)

19. Zhang, P., Y. Wu and **K. L. Smith**: Prolonged Effect of the Stratospheric Pathway in Linking Barents-Kara Sea Sea Ice Variability to the Midlatitude Circulation in a Simplified Model in press, ***Climate Dynamics***.
18. England, M. R., L. M. Polvani, **K. L. Smith**, L. Landrum and M. M. Holland: Robust response of the Amundsen Sea Low to stratospheric ozone depletion ***Geophysical Research Letters***, doi:10.1002/2016GL070055.
17. **Smith, K. L.** and L. M. Polvani: Spatial patterns of recent Antarctic surface temperature trends and the importance of natural variability: Lessons from multiple reconstructions and the CMIP5 models, ***Climate Dynamics***, doi:10.1007/s00382-016-3230-4.
16. Wu, Y. and **K. L. Smith**, 2016: Response of the Northern Hemisphere midlatitude circulation to Arctic amplification in a simple atmospheric general circulation model, ***Journal of Climate***, doi.org/10.1175/JCLI-D-15-0602.1.
15. **Smith, K. L. a**nd R. K. Scott, 2016: The role of planetary waves in the tropospheric jet response to stratospheric cooling, ***Geophysical Research Letters***, doi: 10.1002/2016GL067849.
14. Previdi, M., **K. L. Smith** and L. M. Polvani, 2015: How well do the CMIP5 models simulate the Antarctic Atmospheric Energy Budget, Journal of Climate, doi: 10.1175/JCLI-D-15-0027.1.
13. Solomon, A., L. M. Polvani, R. Abernathy and **K. L. Smith**, 2015: The ozone hole's effects on the state of the Southern Ocean, ***Geophysical Research Letters***, doi: 10.1002/2015GL064744.

12. Neely, R. R., D. R. Marsh, **K. L. Smith**, S. M. Davis and L. M. Polvani, 2014: Biases in Southern Hemisphere climate trends induced by coarsely specifying the temporal resolution of stratospheric ozone, ***Geophysical Research Letters***, DOI: 10.1002/2014GL061627.
11. **Smith, K. L.**, R. R. Neely, D. R. Marsh and L. M. Polvani, 2014: The Specified Chemistry Whole Atmosphere Community Climate Model (SC-WACCM). ***Journal of Advances in Modeling the Earth System***, doi: 10.1002/2014MS000346.
10. **Smith, K. L.** and L. M. Polvani, 2014: The surface impacts of Arctic stratospheric ozone anomalies. ***Environmental Research Letters***, 9, 074015.
9. **Smith, K. L.**, M. Previdi and L. M. Polvani, 2013: The Antarctic atmospheric energy budget. Part II: The effect of ozone depletion and its projected recovery. ***Journal of Climate***, Vol. 26, 9729-9744.
8. Previdi, M., **K. L. Smith** and L. M. Polvani, 2013: The Antarctic atmospheric energy budget. Part I: Climatology and intraseasonal-to-interannual variability. ***Journal of Climate***, Vol. 26, 6406-6418.
7. Polvani, L. M. and **K. L. Smith**, 2013: Can natural variability explain the observed sea ice trends? New modeling evidence from CMIP5. ***Geophysical Research Letters***, Vol. 40, No. 12, 3195–3199.
6. **Smith, K. L.**, L. M. Polvani and D. R. Marsh, 2012: Mitigation of 21st century Antarctic sea ice loss by stratospheric ozone recovery. ***Geophysical Research Letters***, Vol. 39, No. 20, L20701.
5. **Smith, K. L.** and P. J. Kushner, 2012: Linear interference and the initiation of extratropical stratosphere-troposphere interactions. ***Journal of Geophysical Research***, 117, D13107, doi:10.1029/2012JD017587.
4. **Smith, K. L.**, P. J. Kushner, and J. Cohen, 2011: The role of linear interference in Northern Annular Mode variability associated with Eurasian snow cover extent. ***Journal of Climate***, 24, 6185-6202.
3. **Smith, K. L.**, C. G. Fletcher, and P. J. Kushner, 2010: The role of linear interference in the Annular Mode response to extratropical surface forcing. ***Journal of Climate***, 23, 6036-6050.
2. **Smith, K. L.** and C. E. Greenwood, 2008: Nutritional considerations and Alzheimer's disease. ***Journal of Nutrition for the Elderly***, Vol. 27, No. 3, 381-403.
1. Schneider, T., **K. L., Smith**, P. A., O'Gorman, and C. C., Walker, 2006: A climatology of tropospheric zonal-mean water vapor fields and fluxes in isentropic coordinates. ***Journal of Climate***, 19, 5918-5933.

Other Publications:

3. Kushner, P. J., **K. L. Smith**, R. D. Brown, C. Dersken, C. R. Duguay, R. Fernandes, and W. R. Peltier. Workshop report: Simulation of the Canadian cryosphere. CMOS Bulletin, Vol. 38, No.2, 2010, 60-65.
2. **Smith, K. L.**, C. E. Greenwood, H. Payette, and S. M. H. Alibhai, 2007: An approach to the non-pharmacologic and pharmacologic management of unintentional weight loss among older adults. ***Geriatrics and Aging***, Vol. 10, No. 2, 91-98.
1. **Smith, K. L.**, C. E. Greenwood, H. Payette, and S. M. H. Alibhai, 2006: An approach to the diagnosis of unintentional weight loss in older adults: prevalence rates and screening. ***Geriatrics and Aging***, Vol. 9, No. 10, 679-685.

PROPOSALS:

"The Impact of the Stratosphere on Arctic Climate", Principal Investigator: Karen L. Smith (LDEO); Co-Principal Investigators: Lorenzo M. Polvani (LDEO), Bruno Tremblay (McGill), Michael Previdi (LDEO);

Collaborator: Douglas E. Kinnison (NCAR), NSF PLR-1603350, from 07/15/2016 to 06/30/2019; $600,795.

AWARDS:

2016 Insight Data Science Fellowship, New York, NY, USA
2013 Natural Sciences and Engineering Research Council of Canada (NSERC) Postdoctoral Fellowship
2009 Marie Curie Sklodowska Association Award, University of Toronto
2009 Seymour H. Vosko Memorial Prize, University of Toronto
2009 Canadian Meteorological and Oceanographic Society Best Student Poster Prize
2007 NSERC Postgraduate Scholarship (PGS), Doctoral
2006 Max and Ruth Wiseman Graduate Student Fellowship, Baycrest Centre for Geriatric Care
2006 NSERC PGS, Master's
2003 Bill Davidow Graduate Student Fellowship, California Institute of Technology
2002 Vito Vanoni Fellowship, California Institute of Technology
2002 Special Institute Fellowship, California Institute of Technology
2002 Annie Bentley Lillie Prize in Mathematics, Queen's University

INVITED PRESENTATIONS:

2016 University of Toronto, Department of Physics, Toronto, Canada
2016 University of Toronto Scarborough, Dept. of Environ. and Physical Sciences, Toronto, Canada
2016 University of Waterloo, Department of Applied Mathematics, Waterloo, Canada
2015 NASA GISS, New York, NY
2015 Stony Brook University, School of Marine and Atmospheric Sciences, Stony Brook, NY
2015 University of California, Berkeley, Department of Earth and Planetary Science, Berkeley, CA
2015 Lamont-Doherty Earth Observatory, Palisades, NY
2014 University of Toronto, Department of Physics, Toronto, Canada
2014 York University, Department of Earth and Space Science and Engineering, Toronto, Canada
2013 NASA GISS, New York, NY
2013 Dalhousie University, Department of Physics and Atmospheric Science, Halifax, Canada
2013 MIT, Department of Earth, Atmospheric and Planetary Sciences, Boston, MA
2013 McGill University, Department of Atmospheric and Oceanic Sciences, Montreal, Canada
2013 Pennsylvania State University, Department of Meteorology, State College, PA
2012 Johns Hopkins University, Department of Earth and Planetary Sciences, Baltimore, MD
2012 New York University, Courant Institute, New York, NY, USA
2011 Lamont-Doherty Earth Observatory, Palisades, NY, USA
2011 Queen's University, Mathematics and Engineering Fourth Year Seminar
2010 United Kingdom Meteorological Office, Exeter, UK
2010 University of Reading, Department of Meteorology, Reading, UK
2009 A.E.R., Inc., Lexington, MA, USA

SELECTED CONTRIBUTED PRESENTATIONS:

2016 **Smith, K. L.** and L. M. Polvani: Stratospheric Sudden Warmings and North Atlantic Ocean Variability. American Geophysical Union Fall Meeting, San Francisco, CA (*Invited*).

2015 **Smith, K. L.** and L. M. Polvani: Spatial patterns of recent Antarctic surface temperature trends and the importance of natural variability: Lessons from multiple reconstructions and the CMIP5 models, American Geophysical Union Fall Meeting, San Francisco, CA.

2014 **Smith, K. L.**, R. R. Neely, D. R. Marsh, L. M. Polvani: SC-WACCM: a dynamics-only version of the Whole Atmosphere Community Climate Model (WACCM with Specified Chemistry), National Center for Atmospheric Research, Atmosphere Model Working Group Meeting, Boulder, CO.

2013 **Smith, K. L.** and L. M. Polvani: The surface impacts of Arctic stratospheric ozone anomalies, American Geophysical Union Fall Meeting, San Francisco, CA.

2013 **Smith, K. L.**, L. M. Polvani and D. R. Marsh: Mitigation of 21st century Antarctic sea ice loss by stratospheric ozone recovery, American Meteorological Society, Middle Atmosphere Meeting, Newport, RI.

2012 **Smith, K. L.**, L. M. Polvani and D. R. Marsh: Mitigation of 21st century Antarctic sea ice loss by stratospheric ozone recovery, Quadrennial Ozone Symposium, Toronto, Canada.

2012 **Smith, K. L.**, M. Previdi and L. M. Polvani: Estimating the influence of stratospheric processes on the Antarctic atmospheric energy budget, Scientific Committee on Antarctic Research Open Science Conference Portland, OR.

2012 **Smith, K. L.** and P. J. Kushner: Linear interference in extratropical stratosphere-troposphere interactions, European Geosciences Union General Assembly Vienna, Austria.

2010 **Smith, K. L.**, P. J. Kushner, C. G. Fletcher and J. Cohen: Why can't climate models capture the observed connection between seasonal snow cover and the Northern Annular Mode?, American Geophysical Union Fall Meeting, San Francisco, CA.

2010 **Smith, K. L.**, C. G. Fletcher and P. J. Kushner: The role of linear interference in the Annular Mode response to extratropical surface forcing, CMOS 44th Congress, Canada.

TECHNICAL SKILLS:

Scripting: Python, Matlab, Unix and Fortran 90, netCDF Operators (NCO)
Data Analysis: Python, Matlab, MySQL
High Performance Computing: National Center for Atmospheric Research Community Earth System Model, Geophysical Fluid Dynamics Laboratory primitive equation model

TEACHING EXPERIENCE:

2012 – 16	Course Scientist, Seminars on Science American Museum of Natural History, New York, NY
2008 –11	Teaching Assistant, Patterns from Chaos University of Toronto, Toronto, Canada
2006	Teaching Assistant, Advanced Nutritional Sciences University of Toronto, Toronto, Canada
2004	Teaching Assistant, Atmosphere and Ocean Dynamics California Institute of Technology, Pasadena, CA

EDITORIAL AND REVIEWER ACTIVITIES:

Peer-reviewer: Science, Nature Climate Change, Nature Communications, Journal of the Atmospheric Sciences, Journal of Climate, Journal of Geophysical Research (Atmospheres), Geophysical Research

Letters, Climate Dynamics, Environmental Research Letters, National Science Foundation (USA), Marsden Foundation (New Zealand), New Zealand Antarctic Research Institute

SERVICE AND OUTREACH:

2015	Secondary School Field Research Program mentor, LDEO
2012, 2014	American Geophysical Union Fall Meeting Session Convener
2013	Columbia University Girls' Science Day volunteer
2013	Earth2Class workshop presenter, LDEO
2012	Ocean and Climate Physics Seminar Convener, LDEO
2011	Science Rendez-Vous volunteer, University of Toronto
2010	Canadian Meteorological and Oceanographic Society, Toronto Student Chapter
2009 – 10	Engineers Without Borders, Fundraising Lead – Toronto Professional Chapter
2007 – 09	Graduate Student Union Representative, University of Toronto
2003 – 04	Graduate Student Council Representative, Caltech