Neil F. Tandon
Assistant Professor
Department of Earth and Space Science and Engineering
York University
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Education

Ph.D., Applied Physics & Applied Mathematics, Columbia University, 2013 (Advisor: L. M. Polvani)
M.S., Applied Physics & Applied Mathematics, Columbia University, 2009
B.S., Electrical Engineering, The Cooper Union, 2004

Areas of Expertise

climate modelling, climate dynamics, climate extremes, extreme precipitation, atmospheric dynamics, ocean dynamics, sea ice dynamics

Employment

Assistant Professor — 2018-present
Department of Earth and Space Science and Engineering
York University
Toronto, Ontario, Canada

Visiting Postdoctoral Fellow — 2016-2018
Supervisor: X. Zhang
Environment and Climate Change Canada
Toronto, Ontario, Canada

Postdoctoral Fellow — 2013-2016
Supervisor: P. J. Kushner
University of Toronto
Toronto, Ontario, Canada

Systems Engineer — 2004-2006
Boeing Satellite Systems
El Segundo, California, U.S.A.

Additional Training & Workshops

Visiting Student — Summer 2009
Supervisor: W. J. Randel
National Center for Atmospheric Research
Boulder, Colorado, U.S.A.

Workshop on Water Vapour in the Climate System, Venice, Italy — February 2011

Tutorial on the NCAR Community Atmosphere Model, Boulder, U.S.A. — July 2009

Teaching Experience

Course Instructor — Fall 2019
The Dynamic Earth and Space Geodesy (ESSE 1010)
York University

Course Instructor — Winter 2019
Climate and Climate Change (ESSE 4160)
York University

Course Instructor — Winter 2019
Continuum Mechanics (ESSE 2470)
York University

Teaching Assistant — Spring 2010
Numerical Methods (APMA E4300)
Columbia University

Mentorship Experience

Research supervisor to York University M.Sc. student Devanarayana Rao — 2019-present
Research supervisor to York University M.Sc. student Msawenkosi Mpanza — 2019-present
Member of supervisory committee for York University M.Sc. student Anuj Thapa — 2019-present
Member of supervisory committee for York University Ph.D. student Giang Nguyen — 2018-present
Non-supervisory mentor to University of Toronto graduate student Nishant Bhatt — 2014-2015

Honours

Bjerknes Visiting Fellowship, Bjerknes Centre for Climate Research — 2015
Boris A. Bakhmeteff Fellowship, Columbia University — 2012-2013
MATLAB Pick of the Week, for "hatchfill" package — 2011
IGERT Fellowship, Columbia University — 2008-2009
Tau Beta Pi Honor Society — 2004
Eta Kappa Nu Honor Society — 2004
Full tuition merit scholarship, The Cooper Union — 1999-2004

Professional & Outreach Activities

Co-convener of "Beyond the Interannual: Multidecadal and Centennial Modes of Climate Variability," 2016 AGU Fall Meeting
Judge in the Outstanding Student Paper Award competition, 2015 EGU General Assembly
Participant in the 2014 WxChallenge weather forecasting competition, University of Toronto
Convener of "The Zonal-Mean Atmospheric Circulation and Climate Change," 2012 AGU Fall Meeting
Member of the Canadian Meteorological and Oceanographic Society, American Geophysical Union, American Meteorological Society
Reviewer for *Journal of Climate*, *Geophysical Research Letters, Nature Geoscience, Climatic Change*, *International Journal of Climatology*, *Nonlinear Processes in Geophysics, Annales Geophysicae*, *Scientific Reports*

Department & University Service

Member of Lassonde committee on Planning, Academic Resources & Research (PARR), September 2019-present
Chair of working group to develop an undergraduate program in Climate, Atmospheric & Planetary Science (CAPS) at York University, July 2019-present
Chair and judge for ESSE Research Evaluation Course Conference, May 2019
Faculty volunteer for York University Spring Open House, March 2019
Science representative on the Lassonde Learning, Curriculum and Students (LCS) Committee, March 2019
Lead author of plan to improve the sustainability of York's Earth & Atmospheric Science Program, 2019
Member and Affirmative Action chair of search committee for Space Engineering faculty position at York University, 2019
Chair of Ph.D. defense committee for Anne Irvin, November 2018
Member of Ph.D. defense committee for Casey Moore, December 2018
Faculty volunteer for York University Fall Campus Day, November 2018
Representative of York University at the UCAR Members Meeting, October 2018
Representative of York University at the Ontario Universities' Fair, September 2018

Publications

N. F. Tandon, O. A. Saenko, M. A. Cane, and P. J. Kushner, 2019: Interannual variability of the global meridional overturning circulation dominated by Pacific variability. *J. Phys. Oceanogr.*, submitted.

N. F. Tandon, J. Nie, and X. Zhang, 2018c: Strong influence of eddy length on boreal summertime extreme precipitation projections. *Geophys. Res. Lett.*, 45, 10665-10672, doi:10.1029/2018GL079327.

N. F. Tandon, P. J. Kushner, D. Docquier, J. J. Wettstein, and C. Li, 2018b: Reassessing sea ice drift and its relationship to long-term Arctic sea ice loss in coupled climate models. *J. Geophys. Res.*, 123, 4338-4359, doi:10.1029/2017JC013697.

N. F. Tandon, X. Zhang, and A. H. Sobel, 2018a: Understanding the dynamics of future changes in extreme precipitation intensity. *Geophys. Res. Lett.*, 45, 2870-2878, doi:10.1002/2017GL076361.

P. J. Kushner, et al., 2018: Canadian snow and sea ice: assessment of snow, sea ice, and related climate processes in Canada's earth-system model and climate prediction system. *Cryosphere*, 12, 1137-1156, doi:10.5194/tc-12-1137-2018.

D. Docquier, F. Massonnet, A. Barthélemy, **N. F. Tandon**, O. Lecomte, and T. Fichefet, 2017: Relationships between Arctic sea ice drift and strength modelled by NEMO-LIM3.6. *Cryosphere*, 11, 2829-2846, doi: 10.5194/tc-11-2829-2017.

N. F. Tandon and M. A. Cane, 2017: Which way will the circulation shift in a changing climate? Possible nonlinearity of extratropical cloud feedbacks. *Climate Dyn.*, 48, 3759-3777, doi:10.1007/s00382-016-3301-6.

N. F. Tandon and P. J. Kushner, 2015: Does external forcing interfere with the AMOC's influence on North Atlantic sea surface temperature? *J. Climate*, 28, 6309-6323, doi:10.1175/JCLI-D-14-00664.1.

N. F. Tandon, E. P. Gerber, A. H. Sobel, and L. M. Polvani, 2013: Understanding Hadley Cell expansion versus contraction: insights from simplified models and implications for recent observations. *J. Climate*, 26, 4304-4321, doi:10.1175/JCLI-D-12-00598.1.

N. F. Tandon, L. M. Polvani, and S. M. Davis, 2011: The response of the tropospheric circulation to water vapor-like forcings in the stratosphere. *J. Climate*, 24, 5713-5720, doi:10.1175/JCLI-D-11-00069.1.

S.-W. Son, **N. F. Tandon**, and L. M. Polvani, 2011: The fine-scale structure of the global tropopause derived from COSMIC GPS radio occultation measurements. *J. Geophys. Res.*, 116, D20113, doi:10.1029/2011JD016030.

S.-W. Son, **N. F. Tandon**, L. M. Polvani, and D. W. Waugh, 2009: Ozone hole and Southern Hemisphere climate change. *Geophys. Res. Lett.*, 36, L15705, doi:10.1029/2009GL038671.

Presentations (oral unless otherwise noted)

N. F. Tandon, J. Nie, X. Zhang, and A. Sobel, 2018: "Strong Influence of Eddy Length on Extreme Precipitation Projections." AGU Fall Meeting, 10-14 December 2018, Washington, U.S.A.
Similar material presented at: 2019 IUGG General Assembly.

N. F. Tandon, X. Zhang, and A. Sobel, 2018: "Understanding the Dynamics of Future Changes in Extreme Precipitation Intensity." GEWEX Open Science Conference, 6-11 May 2018, Canmore, Canada.

N. F. Tandon, 2018: "Using Dynamical Theory to Understand Future Changes in Regional Climate." Invited seminar, 9 May 2018, York University, Toronto, Canada.

N. F. Tandon and X. Zhang, 2017: "Understanding Regional Projections of Extreme Precipitation." CMOS Congress, 5-8 June 2017, Toronto, Canada.

N. F. Tandon, P. J. Kushner, D. Docquier, J. J. Wettstein, and C. Li, 2017: "Reassessing the Role of Sea Ice Drift in Arctic Sea Ice Loss." CMOS Congress, 5-8 June 2017, Toronto, Canada.

N. F. Tandon, O. A. Saenko, M. A. Cane, and P. J. Kushner 2017: "Interannual Variability of Global Meridional Overturning Circulation Dominated by Pacific Variability." CMOS Congress, 5-8 June 2017, Toronto, Canada.
Similar material presented at: 2016 AGU Ocean Sciences Meeting (poster).

N. F. Tandon and M. A. Cane, 2016: "Which Way Will the Circulation Shift in a Changing Climate? Possible Nonlinearity of Extratropical Cloud Feedbacks." AGU Fall Meeting, 12-16 December 2016, San Francisco, U.S.A. (poster).

N. F. Tandon and P. J. Kushner, 2015: "Interference Between Forced and Unforced Climate Variability in the North Atlantic and the Arctic." GFI seminar (invited), 4 May 2015, University of Bergen, Bergen, Norway.

N. F. Tandon and P. J. Kushner. 2015: "Does External Forcing Interfere with the AMOC's Influence on North Atlantic Sea Surface Temperature?" EGU General Assembly, 12-17 April 2015, Vienna, Austria.
Similar material presented at: 2015 AMS Conference on Atmospheric and Oceanic Fluid Dynamics (poster), 2015 AMS Annual Meeting, 2014 AGU Fall Meeting (poster).

S. Mello, P. Joe, **N. F. Tandon**, P. J. Kushner, H. Barker, N. Donaldson, L. Garand, W. Hocking, D. Hudak, A. Korolev, and S. Laroche, 2015: "Canadian Participation in Cal/Val ADM-Aeolus." ESA Workshop on Cal/Val ADM-Aeolus, 10-13 February 2015, Frascati, Italy (poster).

N. F. Tandon, L. M. Polvani, and M. A. Cane, 2013: "The Climate Response to Small Solar Perturbations: The Importance of the Background State." AMS Conference on Atmospheric and Oceanic Fluid Dynamics, 17-21 June 2013, Newport, U.S.A.
Similar material presented at: 2013 AGU Fall Meeting.

N. F. Tandon, E. P. Gerber, A. H. Sobel, L. M. Polvani, and M. A. Cane, 2013: "Divergent Responses to External Forcing in Simplified GCMs." AOCD seminar (invited), 28 March 2013, Yale University, New Haven, U.S.A.
Similar material presented at: invited seminar at University of Toronto, invited seminar at ETH Zurich.

N. F. Tandon, E. P. Gerber, A. H. Sobel, and L. M. Polvani, 2013: "Understanding Hadley Cell Expansion vs. Contraction: Insights from Simplified Models." MASS seminar, 11 February 2013, MIT, Cambridge, U.S.A.
Similar material presented at: 2012 AGU Fall Meeting, 2013 AMS Conference on Atmospheric and Oceanic Fluid Dynamics (poster), colloquium at the University of Washington.

N. F. Tandon, L. M. Polvani, and S. M. Davis, 2012: "The Response of the Tropospheric Circulation to Water Vapor-Like Forcings in the Stratosphere." AGU Fall Meeting, 3-7 December 2012, San Francisco, U.S.A.
Similar material presented at: 2011 WCRP Open Science Conference (poster).

N. F. Tandon, 2011: "Water Vapor and Climate Change." Invited talk, 23 June 2011, Geophysical Fluid Dynamics Laboratory, Princeton, U.S.A.

N. F. Tandon, 2010: "Water Vapor's Sneaky Role in Climate Change." Invited lecture, 9 December 2010, The Cooper Union, New York, U.S.A.

N. F. Tandon, S.-W. Son, L. M. Polvani, W. J. Randel, L. L. Pan, 2009: "The Tropopause Inversion Layer: New Observations, New Theories." AGU Fall Meeting, 14-18 December 2009, San Francisco, U.S.A. (poster).
Similar material presented at: 2009 UTLS Workshop (poster).

S.-W. Son, L. M. Polvani, **N. F. Tandon**, D. W. Waugh, J. Perlwitz, S. Pawson, 2008: "The Impact of Stratospheric Ozone on Southern Hemisphere Climate Change." SPARC General Assembly, 31 August-5 September 2008, Bologna, Italy (poster).