Paul O'Gorman

Curriculum Vitae

Department of Earth, Atmospheric, and Planetary Sciences
Massachusetts Institute of Technology
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Cambridge MA 02139
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Degrees

2004	PhD Aeronautics (minor Applied Mathematics), Caltech
1999	MSc High Performance Computing, Trinity College Dublin
1998	BA Theoretical Physics, Trinity College Dublin

Employment

2019-present	Professor of Atmospheric Science, MIT
2012-2019	Associate Professor of Atmospheric Science, MIT
2008-2012	Assistant Professor of Atmospheric Science, MIT
2004-2008	Postdoctoral Scholar in Environmental Science and Engineering, Caltech

Professional Societies

American Meteorological Society, American Geophysical Union

Honors

The Bernhard Haurwitz Memorial Lectureship, American Meteorological Society, 2023
MIT School of Science Graduate Teaching Prize, 2018

Postdoctoral Researchers Supervised

Griffin Mooers	2023-present
Matthieu Kohl	2023-present
Justin Finkel	2022-present
Jane Smyth	2021-2023
Janni Yuval	2019-2022
John Dwyer	2014-2017
Dino Bellugi	2012-2016
Caroline Muller	2008-2010

Ph.D. Students Supervised

Robert van der Drift	Atmospheric Science (2021-present)
Grace O'Neil	Atmospheric Science (2020-present, co-advised with Raffaele Ferrari)
Matthieu Kohl	Atmospheric Science (PhD, 2022)
Margaret Duffy	Climate Science (PhD, 2021)
Ziwei Li	Atmospheric Science (PhD, 2021)
Charles Gertler	Climate Science (PhD 2020, co-advised with Ron Prinn)
Michael Byrne	Climate Physics & Chemistry (PhD 2015)
Martin Singh	Atmospheric Science (PhD 2014)

UROP Students Supervised

Phoebe Lin (2021-2022), Jason Li (2021), Sarah Weidman (2019-2021), Shannon Hwang (2018), Co Christopoulos (2017), Benjamin Jordan (2016), Rung Panasawatwong (2016), Katrina Hui (2015), Kaylee Brent (2014), Melih Ucer (2013), Reena Joubert (2012), Todd Mooring (2010)

Undergraduate Senior Theses Supervised

Sarah Weidman	EAPS 2021
Rung Panasawatwong	EAPS 2017
Katrina Hui	EAPS 2016
Todd Mooring	EAPS 2011

Teaching Experience

12.003	Introduction to atmosphere, ocean, and climate dynamics (Undergraduate course) Fall 2012, 2013, 2014, 2016, 2021
12.312	Understand and run your own climate model (Undergraduate course) IAP 2010, 2011
12.802	Wave motions in the atmosphere and ocean (Graduate course; co-taught with Glenn Flierl) Spring 2009, 2010, 2011
12.810	Dynamics of the atmosphere (Graduate course) Spring 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023
12.812	The general circulation of the atmosphere and climate change (Graduate course) Fall 2009, 2010, 2011; Spring 2013, 2014; Fall 2019
12.S593	Proposals and Pathways (Graduate Course) Fall 2018, 2020, 2023

MIT Service

EAPS Graduate Education Officer (2016-present)

EAPS co-chair of Committee on Education Program (2022-present)

EAPS Council (2022-present)

EAPS/SCC Health of Planet Faculty Search (2021-2022)

MIT Killian Award Selection Committee (2020-2021)

MIT Environmental Solutions Initiative Faculty Advisory Council (2018-present)

EAPS 2023 Task Force Working Group Co-Chair (2019-2020)

EAPS Climate Faculty Search (2019-2020, 2023-present)

MIT Committee on Discipline (COD): Associate Chair (2018-2019), member (2015-2019)

Community Giving at MIT steering committee (2014-2017)

EAPS graduate admissions committee (2008, 2009, 2016)

EAPS ad-hoc education committee (2010-2013)

EAPS climate faculty search committee (2009-2014)

Reading of freshman admissions folders (2013)

Organized the PAOC Student Open House (2009, 2010)

Served on PhD thesis committees of Roberto Rondanelli, Brian Rose, Malte Jansen, Alison Wing, Dan Chavas, Daniela Domeison, Martin Singh, Michael Byrne, Yavor Kostov, Aditi Sheshadri, Daniel Rothenberg, Brian Green, Daniel Gilford, Vince Agard, Andy Miller, Erik Lindgren, Alexander Tuel, Tom Beucler, Megan Lickley, Tristan Abbott, PJ Tuckman, Theo Carr (WHOI), Cora Hersh (WHOI)

External Service

Associate Editor, Journal of the Atmospheric Sciences (2020-present)

Co-organizer of two oral sessions on ‘Extreme precipitation in past, present, and future climates’ at Fall AGU 2017, 2019

Co-organizer of Lorenz-center workshop on ‘Water and climate change: Connecting the paleoclimate record to future projections’ 2018

Invited participant in American Society of Civil Engineers (ASCE) workshop on Engineering methods for precipitation under a changing climate, 2017

Invited participant in World Climate Research Programme (WCRP) “Climate Science: Thinking out of the box” workshop, Paris, 2016

Scientific organizing committee member for SPARC Workshop on Storm Tracks 2015

UCAR member representative for MIT 2009-2014

Gave outreach talk on climate science at the National Science Teachers Association (NSTA) National Conference 2014

Chaired oral sessions at AMS Atmospheric and Oceanic Fluid Dynamics conference 2011, 2013, 2019

Co-organizer of three oral sessions on 'Atmospheric circulations and climate change' at Fall AGU 2010

Interactions with media regarding climate-change questions of interest to the public (for example, interviews for NPR and Australian national radio)

Served as PhD thesis reader/evaluator for the University of Chicago, University of New South Wales (Australia), Monash University (Australia) and University of Reading (UK)

Paper reviewer for Journal of Atmospheric Science, Journal of Climate, Geophysical Research Letters, Journal of Geophysical Research, Environmental Research Letters, Surveys in Geophysics, Tellus, Atmospheric Chemistry and Physics, Climatic Change, Nature Geoscience, Nature, Science

Grant proposal reviewer for the NSF, NOAA, NERC (United Kingdom), the Israel Science Foundation (Israel), the Helmholtz Association (Germany), NSERC (Canada)

Book reviewer for Bulletin of the American Meteorological Society and MIT Press

Publications

- Student and postdoctoral advisees underlined
- Available at http://www.mit.edu/~pog/publications.html and http://scholar.google.com/citations?hl=en&user=dmi9J1IAAAAJ

Kohl, M. & **O'Gorman, P. A.**, 2024
Asymmetry of the distribution of vertical velocities of the extratropical atmosphere in theory, models and reanalysis
Journal of the Atmospheric Sciences (In press)

Abbott, T. H. & **O'Gorman, P. A.,** 2024
Impact of precipitation mass sinks on midlatitude storms over a wide range of climates
Weather and Climate Dynamics (In press)

Gertler, C. G., **O'Gorman, P. A.**, & Pfahl, S., 2023
Moist available potential energy of the mean state of the atmosphere and the thermodynamic potential for warm conveyor belts and convection
Weather and Climate Dynamics 4, 361-379

Yuval, J. & **O'Gorman, P. A.**, 2023
Neural-network parameterization of subgrid momentum transport in the atmosphere
Journal of Advances in Modeling Earth Systems 15, e2023MS003606

Duffy, M. L. & **O'Gorman, P. A.**, 2023
Intermodel spread in Walker circulation responses linked to spread in moist stability and radiation responses
Journal of Geophysical Research – Atmospheres 128, e2022JD037382

Kohl, M. & **O'Gorman, P. A.**, 2022
The diabatic Rossby vortex: Growth rate, length scale and the wave-vortex transition
Journal of the Atmospheric Sciences 79, 2739-2755

Wang, P., Yuval, J. & **O'Gorman, P. A.**, 2022
Non-local parameterization of atmospheric subgrid processes with neural networks
Journal of Advances in Modeling Earth Systems 14, e2022MS002984

Lee, S. et al. 2022
On the future zonal contrasts of equatorial Pacific climate: Perspectives from observations, simulations, and theories
npj Climate and Atmospheric Science, 5:82

Williams, A. & **O'Gorman, P. A**., 2022
Summer-winter contrast in the response of precipitation extremes to climate change over Northern Hemisphere land
Geophysical Research Letters 49, e2021GL096531

Li, Z., **O'Gorman, P. A.**, & Rothman, D., 2022
Tropical precipitation clusters as islands on a rough water-vapor topography
Quarterly Journal of the Royal Meteorological Society 148, 403-417

Fowler, H. J. et al 2021
Towards advancing scientific knowledge of climate change impacts on short-duration rainfall extremes
Philosophical Transactions A 379, 20190542

Yuval, J., **O'Gorman, P. A.** & Hill, C. N. 2021
Use of neural networks for stable, accurate and physically consistent parameterization of subgrid atmospheric processes with good performance at reduced precision
Geophysical Research Letters 48, e2020GL091363

O'Gorman, P. A., Li, Z., Boos, W. R. & Yuval, J. 2021
Response of extreme precipitation to uniform surface warming in quasi-global aquaplanet simulations at high resolution
Philosophical Transactions A 379, 20190543

Tuel, A., **O'Gorman, P. A.**, & Eltahir, E. A. B. 2021
Elements of the dynamical response to climate change over the Mediterranean
Journal of Climate 34, 1135-1146

Gertler, C. G., **O'Gorman, P. A.**, Kravitz, B., Moore, J.C., Phipps, S. J. & Watanabe, S. 2020
Weakening of the extratropical storm tracks in solar geoengineering scenarios
Geophysical Research Letters 47, e2020GL087348

Yuval, J. & **O'Gorman, P. A.** 2020
Stable machine-learning parameterization of subgrid processes for climate modeling at a range of resolutions
Nature Communications 11, 3295

Li, Z. & **O'Gorman, P. A.** 2020
Response of vertical velocities in extratropical precipitation extremes to climate change
Journal of Climate 33, 7125-7139

Duffy, M. L., **O'Gorman, P. A.** & Back, L. E. 2020

Importance of Laplacian of low-level warming for the response of precipitation to climate change over tropical oceans
Journal of Climate 33, 4403–4417

Gertler, C. G. & **O'Gorman, P. A.** 2019
Changing available energy for large-scale and convective circulations in northern summer
Proceedings of the National Academy of Sciences 116, 4105-4110

O'Gorman, P. A. & Dwyer, J. G. 2018
Using machine learning to parameterize moist convection: potential for simulations of climate, climate change, and extreme events
Journal of Advances in Modeling Earth Systems 10, 2548-2563

Byrne, M. P. & **O'Gorman, P. A.** 2018
Trends in continental temperature and humidity directly linked to ocean warming
Proceedings of the National Academy of Sciences 115, 4863-4868

O'Gorman, P. A., Merlis, T. M. & Singh, M. S. 2018
Increase in the skewness of extratropical vertical velocities with climate warming: fully nonlinear simulations versus moist baroclinic instability
Quarterly Journal of the Royal Meteorological Society 144, 208-217

Dwyer, J. G. & **O'Gorman, P. A.** 2017
Changing duration and spatial extent of midlatitude precipitation extremes across different climates
Geophysical Research Letters 44, 5863-5871

Pfahl, S., **O'Gorman, P. A.** & Fischer, E. M. 2017
Understanding the regional pattern of projected future changes in extreme precipitation
Nature Climate Change 7, 423-427

Marotzke, J. et al 2017
Climate research must sharpen its view
Nature Climate Change (commentary) 7, 89-91

Dwyer, J. G. & **O'Gorman, P. A.** 2017
Moist formulations of the Eliassen-Palm flux and their connection to the surface westerlies
Journal of the Atmospheric Sciences 74, 513-530

Xiang, G., Schlosser, C.A., **O'Gorman, P. A.**, Monier, E., & Entekhabi, D. 2017
21st century changes in U.S. regional heavy precipitation frequency based on resolved atmospheric patterns
Journal of Climate 30, 2501-2521

Stansifer, E. M., **O'Gorman, P. A.** & Holt, J. I. 2017
Accurate computation of moist available potential energy with the Munkres algorithm
Quarterly Journal of the Royal Meteorological Society 143, 288-292

Byrne, M. P. & **O'Gorman, P. A.** 2016
Understanding decreases in land relative humidity with global warming: conceptual model and GCM simulations
Journal of Climate 29, 9045-9061

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

Nature Geoscience 9, 656-664

Singh, M. S. & **O'Gorman, P. A.** 2016
Scaling of the entropy budget with surface temperature in radiative-convective equilibrium
Journal of Advances in Modeling Earth Systems 8, 1132-1150

Schär, C. et al 2016
Percentile indices for assessing changes in heavy precipitation events
Climatic Change 137, 201-216

Donat, M. G., Lowry, A. L., Alexander, L. V., **O'Gorman, P. A.** & Maher, N. 2016
More extreme precipitation in the world's dry and wet regions
Nature Climate Change 6, 508-513

Byrne, M. P. & **O'Gorman, P. A.** 2015
The response of precipitation minus evapotranspiration to climate warming: Why the "wet-get-wetter, dry-get-drier" scaling does not hold over land
Journal of Climate 28, 8078-8092

Pfahl, S., **O'Gorman, P. A.** & Singh, M. S. 2015
Extratropical cyclones in idealized simulations of changed climates
Journal of Climate 28, 9373-9392

Singh, M. S. & **O'Gorman, P. A.** 2015
Increases in moist-convective updraft velocities with warming in radiative-convective equilibrium
Quarterly Journal of the Royal Meteorological Society 141, 2828-2838

O'Gorman, P. A. 2015
Changes in precipitation extremes under climate change
Current Climate Change Reports 1,49-59

Booth, J. F., Polvani, L. M., **O'Gorman, P. A.**, & Wang, S. 2015
Effective stability in a moist baroclinic wave
Atmospheric Science Letters 16, 56-62

O'Gorman, P. A. 2014
Contrasting responses of mean and extreme snowfall to climate change
Nature 512, 416-418

Ferreira, D., Marshall, J., **O'Gorman, P. A.**, & Seager, S. 2014
Climate at high obliquity
Icarus 243, 236-248

Singh, M. S. & **O'Gorman, P. A.** 2014
Influence of microphysics on the scaling of precipitation extremes with temperature
Geophysical Research Letters 41, 6037-6044

Byrne, M. P. & **O'Gorman, P. A.** 2013
Link between land-ocean warming contrast and surface relative humidities in coupled climate-model simulations
Geophysical Research Letters 40, 5223-5227

Singh, M. S. & **O'Gorman, P. A.** 2013
Influence of entrainment on the thermal stratification in simulations of radiative-convective equilibrium

Geophysical Research Letters 40, 4398-4403

Byrne, M. P. & **O'Gorman, P. A.** 2013
Land-ocean warming contrast over a wide range of climates: convective quasi-equilibrium theory and idealized simulations
Journal of Climate 26, 4000-4016

O'Gorman, P. A. & Singh, M. S. 2013
Vertical structure of warming consistent with an upward shift in the middle and upper troposphere
Geophysical Research Letters 40, 1838-1842

Singh, M. S. & **O'Gorman, P. A.** 2012
Upward shift of the general circulation of the atmosphere in response to global warming *Journal of Climate* 25, 8259-8276

O'Gorman, P. A. 2012
Sensitivity of tropical precipitation extremes to climate change
Nature Geoscience 5, 697-700

O'Gorman, P. A., Allan, R. P., Byrne, M. P. & Previdi, M. 2012
Energetic constraints on precipitation under climate change
Surveys in Geophysics 33, 585-608

O'Gorman, P. A., Lamquin, N., Schneider, T. & Singh, M. S. 2011
The relative humidity in an isentropic advection-condensation model: Limited poleward influence and properties of subtropical minima
Journal of the Atmospheric Sciences, 68, 3079-3093

Muller, C. J. & **O'Gorman, P. A**. 2011
An energetic perspective on the regional response of precipitation to climate change
Nature Climate Change 1, 266-271

Muller, C. J., **O'Gorman, P. A**. & Back, L. E. 2011
Intensification of precipitation extremes with warming in a cloud resolving model
Journal of Climate 24, 2784-2800

O'Gorman, P. A. 2011
The effective static stability experienced by eddies in a moist atmosphere
Journal of the Atmospheric Sciences 68, 75-90

O'Gorman, P. A. 2010
Understanding the varied response of the extratropical storm tracks to climate change
Proceedings of the National Academy of Sciences 107, 19176-19180

Schneider, T., **O'Gorman, P. A.** & Levine, X., 2010
Water vapor and the dynamics of climate changes
Reviews of Geophysics 48, RG3001

Sherwood, S. C., Ingram, W., Tsushima, Y., Satoh, M., Roberts, M., Vidale, P. L. & **O'Gorman, P. A.**, 2010
Relative humidity changes in a warmer climate
Journal of Geophysical Research 115, D09104

O'Gorman, P. A. & Muller, C. J. 2010

How closely do changes in surface and column water vapor follow Clausius-Clapeyron scaling in climate-change simulations?
Environmental Research Letters 5, 025207

Muller, C. J., Back, L. E., **O'Gorman, P. A.** & Emanuel, K. A., 2009
A model for the relationship between tropical precipitation and column water vapor
Geophysical Research Letters 36, L16804

O'Gorman, P.A. & Schneider, T., 2009
Scaling of precipitation extremes over a wide range of climates simulated with an idealized GCM
Journal of Climate 22, 5676-5685

O'Gorman, P.A. & Schneider, T., 2009
The physical basis for increases in precipitation extremes in simulations of 21st-century climate change
Proceedings of the National Academy of Sciences 106, 14773-14777

Schneider, T. & **O'Gorman, P.A.**, 2008
Moist convection and the thermal stratification of the extratropical troposphere
Journal of the Atmospheric Sciences 65, 3571-3583

O'Gorman, P.A. & Schneider, T., 2008
Energy of midlatitude transient eddies in idealized simulations of changed climates
Journal of Climate 21, 5797-5806

O'Gorman, P.A. & Schneider, T., 2008
The hydrological cycle over a wide range of climates simulated with an idealized GCM
Journal of Climate 21, 3815-3832

O'Gorman, P.A. & Schneider, T., 2008
Weather layer dynamics of baroclinic eddies and multiple jets in an idealized general circulation model
Journal of the Atmospheric Sciences 65, 524-535

O'Gorman, P.A. & Schneider, T., 2007
Recovery of atmospheric flow statistics in a general circulation model without nonlinear eddy-eddy interactions
Geophysical Research Letters 34, L22801

Schneider, T., Smith, K.L., **O'Gorman, P.A.**, Walker, C.C. 2006
A climatology of zonal-mean moisture fields and fluxes in isentropic coordinates.
Journal of Climate 19, 5918-5933

O'Gorman, P.A. & Schneider, T., 2006
Stochastic models for the kinematics of moisture transport and condensation in homogeneous turbulent flows
Journal of the Atmospheric Sciences 63, 2992-3005

O'Gorman, P.A. & Pullin, D.I., 2005
Effect of Schmidt number on the velocity-scalar cospectrum in isotropic turbulence with a mean scalar gradient
Journal of Fluid Mechanics 532, 111 - 140

O'Gorman, P.A. & Pullin, D.I., 2004
On modal time correlations of turbulent velocity and scalar fields

Journal of Turbulence 5: Art. No. 35

O'Gorman, P.A. & Pullin, D.I., 2003
The velocity-scalar cross spectrum of stretched spiral vortices
Physics of Fluids 15, 280-291

Proceedings:

Schneider, T. & **O'Gorman, P.A.** 2007
Precipitation and its extremes in changed climates
in Extreme events Proceedings of the 15th 'Aha Huliko'a Hawaiian Winter Workshop, P. Muller, C. Garrett, and D. Henderson, Eds., 6166.

Invited Presentations

Princeton University, Departmental Seminar, *'Response of extreme precipitation to climate change: dynamical understanding and machine learning',* 2023

MIT Generative AI Week, *'Improving climate models using machine learning',* 2023

One World Mathematics of Climate seminar, *'A new theory for extratropical storms in the limit of purely moist dynamics',* 2023

Weizmann Institute, M. Magaritz Memorial Lecture, postponed

Harvard University, Workshop on Continental Climate, *'Seasonal contrast in the intensification of precipitation extremes over land and its link to changes in surface relative humidity',* 2023

Stanford University, ESS Seminar *'Understanding the global pattern of changes in precipitation extremes',* 2022

Institute for Mathematical and Statistical Innovation, University of Chicago '*The dynamics of changes in extreme precipitation in different regions and seasons', 2022*

AGU Fall Meeting '*Dynamic and thermodynamic contributions to changes in precipitation extremes in quasi-global simulations at high resolution*', 2021

UN AI for Good: Accelerating Climate Science with AI, '*Improving rainfall and water-cycle projections through machine learning*', 2021

University of Maryland, ESSIC Seminar, '*Changing precipitation and the potential for machine learning to improve climate predictions*', 2021

CLIVAR Regional Climate Projections Workshop '*How should we use observations to constrain projections of regional climate?*', 2021

Penn State University, Departmental Colloquium *'Regional responses of extreme precipitation to climate change: a role for both dynamical understanding and machine learning'* 2021

UCLA, Departmental Colloquium *'Regional responses of extreme precipitation to climate change: a role for both dynamical understanding and machine learning'* 2020

Royal Society, London *'The physical basis for changes in precipitation extremes at different durations'* 2020

AGU Fall Meeting *'Machine learning for parameterization of subgrid processes in the atmosphere'* 2019

Harvard University, Departmental Colloquium *'Regional predictions of extreme precipitation under climate change: dynamical understanding and machine learning'* 2019

Princeton University, Symposium in honor of Isaac Held *'Using Machine Learning to Parameterize Moist Convection: Potential for Simulations of Climate, Climate Change, and Extreme Events'* 2018

MIT Environment-Sustainability Lunch Seminar *'Use of machine learning in climate models: potential for simulations of climate, climate change, and extreme events*' 2018

Caltech Heising-Simons workshop on The Future of Earth System Modeling *'Exploring the potential of machine learning for parameterization of moist convection in simulations of climate'* 2018

Caltech Environmental Science and Engineering seminar *'Changes in the duration of extreme precipitation events with climate warming and links to atmospheric dynamics'* 2017

AGU Fall Meeting *'Duration and spatial extent of midlatitude precipitation extremes across different climates'* 2017

American Society of Civil Engineers (ASCE) workshop on Engineering Methods for Precipitation Under a Changing Climate *'Precipitation extremes under climate change: intensity, duration and phase'* 2017

University of Reading (U.K.) Department of Meteorology *'Moist convection under climate change: An idealized modeling perspective'* 2016

Columbia University, Extreme Weather and Climate Initiative Seminar *'Precipitation extremes, snowfall, and convective storms in a warming climate'* 2016

Lamont Doherty Earth Observatory Colloquium, *'Changing relative humidity over land in simulations and observations'* 2016

University of Chicago, Department of the Geophysical Sciences *'The response of the hydrological cycle over land to global warming: why the "wet-get-wetter, dry-get-drier" scaling does not apply'* 2016

Monash University (Melbourne, Australia) School of Earth, Atmosphere and Environment *'Why the wet-get-wetter, dry-get-drier scaling of moisture convergence doesn't apply over land'* 2015

University of New South Wales (Sydney, Australia) Climate Change Research Centre *'Why the wet-get-wetter, dry-get-drier scaling of moisture convergence doesn't apply over land'* 2015

University at Albany, Department of Atmospheric and Environmental Sciences *'Response of snowfall extremes to climate change: Theory and simulations'* 2014

McGill University, Department of Atmospheric and Oceanic Sciences *'Response of snowfall extremes to climate change: Theory and simulations'* 2014

MIT PAOC retreat, *'Perplexing symmetries and asymmetries in atmospheres, oceans, and climate'* 2014

Max Planck Institute for Meteorology (Hamburg), *'Response of snowfall extremes to climate change: Theory and simulations'* 2014

Stonybrook University School of Marine and Atmospheric Sciences, *'Contrasting changes in mean and extreme snowfall in a warming climate'* 2014

Geophysical Fluid Dynamics Laboratory (NOAA), *'Response of snowfall extremes to climate change: Theory and simulations'* 2014

MIT Lorenz Center Workshop on Water in the Climate System *'Contrasting responses of mean and extreme snowfall to climate change: Theory and simulations'* 2014

MIT EAPS IAP Lecture Series '*An introduction to monsoons*' 2014

U.C. Berkeley, Atmospheric Science Seminar, *'Contrasting responses of mean and extreme snowfall to climate change'* 2013

WCRP-GEWEX Strategy Workshop, CIRA, Fort Collins *'Uncertainties in the intensity distribution of precipitation: dependence on space and time scales'* 2013

University of Wisconsin Madison, AOS Colloquium *'Intensification of precipitation extremes with global warming: Theory, simulations, and observations'* 2013

University of Wisconsin Milwaukee, Department of Physics *'Understanding the response of the hydrological cycle to climate change'* 2013

Northeastern University, CEE Distinguished Seminar Series *'Intensification of precipitation extremes with global warming: Theory, simulations, and observations'* 2013

Two invited talks at AGU Fall Meeting 2012:

1) *'Observational constraint on the response of tropical precipitation extremes to climate change'*
2) *'Vertical profile of warming in the middle and upper troposphere under climate change'*

WHOI Water-Cycle Workshop *'Land-ocean contrasts in the near-surface response to climate change'* 2012

Yale University, Global Change Seminar *'Response of mean and extreme precipitation to climate change: theory, simulations, and observations'* 2012

Oxford University (U.K.) Department of Physics *'Response of mean and extreme precipitation to climate change: theory, simulations, and observations'* 2012

University of Reading (U.K.) Department of Meteorology *'Response of mean and extreme precipitation to climate change: theory, simulations, and observations'* 2012

Harvard University Workshop on Water Vapor, Convection, and Climate *'Upward shift of the general circulation with global warming'* 2012

Bureau of Meteorology (Melbourne, Australia) *'Understanding the varied response of the extratropical storm tracks to climate change'* 2012

Monash University (Melbourne, Australia) School of Mathematical Sciences *'Understanding the varied response of the extratropical storm tracks to climate change'* 2012

Keynote address Australian Meteorology and Oceanography Society (AMOS) conference *'Changing atmospheric circulations, precipitation patterns, and connections to the broader climate system'* 2012

Two invited talks at AGU Fall Meeting 2011:

1) *'Limited poleward influence of relative humidity and controls on the positions of the subtropical relative humidity minima'*

2) 'Understanding the varied response of the extratropical storm tracks to climate change'

Lamont-Doherty Earth Observatory *'Response of precipitation to climate change: theory, simulations, and observations'* 2011

Columbia University SEAS Colloquium *'Does latent heating matter for the response of the extratropical storm tracks to climate change?'* 2011

Colorado State University, Departmental Seminar *'Response of precipitation to climate change: theory, simulations, and observations'* 2011

ETH (Zurich, Switzerland) Departmental Seminar *'Does the energy available to extratropical storms increase in a warmer climate?'* 2011

International Space Science Institute (Berne, Switzerland) *'Sensitivity of the hydrological cycle to climate change'* 2011

WHOI Departmental Seminar *'The dynamical basis for the response of precipitation and surface winds to climate change'* 2010

MIT Industrial Liaison Program *'What we know and don't know about the effect of climate change on rainfall patterns and extremes'* 2010

Harvard ClimaTea *'A new theory for the role of water vapor in atmospheric circulations'* 2010

Brown Departmental Seminar '*What controls the intensity of the midlatitude storm tracks in different climates?'* 2010

Joint Program Global Change MIT *'What changes in precipitation and its extremes occur with global warming?'* 2009

Columbia University SEAS Colloquium *'Intensities of precipitation and extratropical storms under climate change'* 2009

American Mathematical Society (Special Session on Mathematics of Climate Change) *'Understanding the relative humidity distribution of the atmosphere'* 2009

Kavli Institute for Theoretical Physics UCSB (Workshop on the Physics of Climate Change) *'Effect of climate change on the hydrological cycle'* 2008

Harvard ClimaTea *'Precipitation and its extremes under climate change'* 2008

John Hopkins University Departmental Seminar *'The curious case of large-scale turbulence in the atmosphere'* 2007

University of Chicago Departmental Seminar *'Towards a theory for how much it rains: the hydrological cycle over a wide range of climates'* 2007

Courant Institute NYU Departmental Seminar *'Towards a theory for how much it rains: understanding the effect of climate change on the hydrological cycle'* 2007

MIT EAPS Departmental Seminar *'Towards a theory for how much it rains: the hydrological cycle over a wide range of climates'* 2007

UCLA Departmental Seminar *'Interactions of moisture and large-scale turbulent eddies'* 2007

University of Washington Departmental Seminar *'Interactions of moisture and large-scale turbulent eddies'* 2006

CSIRO (Melbourne, Australia) Departmental Seminar *'Moisture flux and condensation in turbulent flows'* 2005