

# Anthony J. Broccoli

## Title and Address:

Professor  
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School of Environmental and Biological Sciences  
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## Research Interests

### Description of Research and Scholarly or Creative Objectives

My primary research interest is climate dynamics. I use numerical models of the climate system to study changes in climate, both past and future, with a goal of better understanding the mechanisms responsible for such changes.

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## Education

### Highest Earned Degree

Ph.D., Rutgers University, Environmental Sciences, 1998.

### Dissertation

"Tropical Temperatures at the Last Glacial Maximum: An Atmosphere-Mixed Layer Model Simulation and Comparison with Paleotemperature Reconstructions" (Advisor: Dr. James R. Miller)

### Other Earned Degrees

M.S., Rutgers University, Meteorology, 1979. Thesis: "Predictability of monthly North Pacific sea level pressure from monthly sea surface temperature for the period 1933-1976" (Advisor: Dr. Robert Harnack)

B.S., Rutgers University, Meteorology, 1977.

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## Employment History

### Positions Held

- 2009-ongoing | Professor, Dept. of Environmental Sciences, Rutgers University
- 2017-ongoing | Adjunct Scientist, Dept. of Geology and Geophysics, Woods Hole Oceanographic Institution
- 2003-2009 | Associate Professor, Dept. of Environmental Sciences, Rutgers University.
- 1982-2003 | Research Meteorologist, National Oceanic and Atmospheric Administration/Geophysical Fluid Dynamics Laboratory, Princeton, NJ
- 1982-1988 | Part-Time Lecturer, Dept. of Meteorology and Physical Oceanography, Rutgers University
- 1979-1982 | Instructor, Dept. of Meteorology and Physical Oceanography, Rutgers University

## **Rutgers University**

- 2014-ongoing | Chair, Dept. of Environmental Sciences
- 2006-ongoing | Co-Director, Rutgers Climate Institute (formerly Rutgers Climate and Environmental Change Initiative)
- 2005-ongoing | Director, Center for Environmental Prediction, Rutgers University
- 2008-2014 | Associate Chair, Dept. of Environmental Sciences
- 2011-2012 | Acting Director, Undergraduate Program in Meteorology
- 2005-2008 | Director, Graduate Program in Atmospheric Science, Rutgers University
- 2004-2005 | Acting Director, Center for Environmental Prediction, Rutgers University

## **Geophysical Fluid Dynamics Laboratory**

- 1995-2003 | Research Meteorologist
- 1988-1995 | Senior Research Associate
- 1982-1988 | Research Associate

## **Graduate Program Affiliations**

- Full Member, NB Graduate Program in Atmospheric Science
- Full Member, NB Graduate Program in Oceanography
- Full Member, NB Graduate Program in Environmental Sciences
- Associate Member, NB Graduate Program in Geological Sciences

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## **Honors and Awards**

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### **Professional Awards and Honors**

- Faculty Scholar-Teacher Award, Rutgers University, 2016-17
- Fellow, American Association for the Advancement of Science
- Fellow, American Meteorological Society
- George Hammell Cook Distinguished Alumni Award, Rutgers University
- Research Excellence Award, Cook College, Rutgers University
- American Meteorological Society, Special Award, 2002. Editorial Board, Glossary of Meteorology, Second Edition. (“for marshaling the energies and talents of hundreds of contributors to produce a reference work of immeasurable benefit to the community.”)
- NOAA Environmental Research Laboratories - Distinguished Authorship Award, 1987. Title of Paper: "The Influence of Continental Ice Sheets on the Climate of an Ice Age" (with S. Manabe)
- Graduated with Highest Honors, Cook College, Rutgers University
- George H. Cook Scholar, Cook College, Rutgers University

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## **Editorial Activities**

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### **Editorship of Scholarly or Professional Journals**

2015-2016 | Co-Chief Editor, *Journal of Climate*  
2010-2014 | Chief Editor, *Journal of Climate*  
2009-2009 | Editor, *Journal of Climate*  
2003-2009 | Associate Editor, *Journal of Climate*  
1996-1999 | Associate Editor, *Paleoceanography*

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### Membership on Editorial Boards of Scholarly or Professional Journals

1999-2002 | Editorial Advisory Board, *Quaternary Science Reviews*  
1995-1999 | Editorial Board, American Meteorological Society Glossary of Meteorology, Second Edition

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## Memberships

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### Membership/Offices Held in Scholarly and Professional Societies

1975-ongoing | Member, American Meteorological Society  
1983-ongoing | Member, American Geophysical Union  
1979-ongoing | Member, American Association for the Advancement of Science  
2007-ongoing | Member, Sigma Xi  
2019-ongoing | Publications Commissioner, American Meteorological Society  
2019-ongoing | Member, Planning Commission, American Meteorological Society  
2019-ongoing | Member, Awards Oversight Committee, American Meteorological Society  
2014-2017 | Electorate Nominating Committee, Section on Atmospheric and Hydrospheric Sciences, American Association for the Advancement of Science  
2010-2016 | Member, Publications Strategic Planning Committee, American Meteorological Society  
2002-2014 | Member, International Commission on Climate  
1994-2000 | Committee on Paleoceanography and Paleoclimatology, American Geophysical Union  
1993-1996 | Committee on Mountain Meteorology, American Meteorological Society  
1983-1984 | Secretary, New Jersey Chapter, American Meteorological Society  
1981-1983 | President, New Jersey Chapter, American Meteorological Society  
1979-1981 | Secretary, New Jersey Chapter, American Meteorological Society

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## Publications

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### Books

Manabe, S., and A. J. Broccoli, 2019: *Beyond Global Warming: How Numerical Models Revealed the Secrets of Climate Change*. Princeton University Press, in production.

### Articles in Refereed Journals

Rutberg, R., and A. J. Broccoli, 2019: Response of high latitude Southern Hemisphere to orbital forcing:

implications for enhanced oceanic CO<sub>2</sub> sequestration during glacial periods, DOI:10.1029/2019PA003598, in press.

Clem, K. R., B. R. Lintner, A. J. Broccoli, and J. R. Miller, 2019: Role of the South Pacific Convergence Zone in West Antarctic decadal climate variability, *Geophys. Res. Lett.*, in press.

Catalano, A. J., A. J. Broccoli, S. B. Kapnick, and T. L. Janoski, 2019: High-impact extratropical cyclones along the northeast coast of the United States in a long coupled climate model simulation, *J. Climate*, **32**, 2131-2143, doi:10.1175/JCLI-D-18-0376.1.

Janoski, T., S. Kapnick, N. Johnson, and A. J. Broccoli, 2018: Assessing wind-driven extreme snowfall events under climate change, *J. Climate*, **31**, 9037-9054, DOI:10.1175/JCLI-D-17-0756.1.

Sentman, L. T., J. P. Dunne, R. J. Stouffer, J. P. Krasting, J. R. Toggweiler, and A. J. Broccoli, 2018: The mechanistic role of the Central American Seaway in the GFDL Earth System Model. Part 1: Impacts on global ocean mean state and circulation, *Paleoceanog. and Paleoclim.*, **33**, 840-859, doi:10.1029/2018PA003364.

Erb, M. P., C. S. Jackson, A. J. Broccoli, D. W. Lea, P. J. Valdes, and P. N. DiNezio, 2018: Model evidence for a seasonal bias in Antarctic ice core. *Nature Comm.*, **9**, 1361, doi:10.1038/s41467-018-03800-0.

Catalano, A. J., and A. J. Broccoli, 2018: Synoptic characteristics of surge-producing extratropical cyclones along the northeast coast of the United States. *J. Appl. Meteor. Climatol.*, **57**, 171-184, DOI:10.1175/JAMC-D-17-0123.1.

Danco, J. F., A. J. Broccoli, A. M. DeAngelis, and B. Raney, 2016: Effects of a warming climate on daily snowfall events in the Northern Hemisphere, *J. Climate*, **29**, 6295-6318, DOI:10.1175/JCLI-D-15-0687.1.

Erb, M. P., C. S. Jackson, and A. J. Broccoli, 2015: Using single-forcing GCM simulations to reconstruct and interpret Quaternary climate change, *J. Climate*, **28**, 9746-9767, doi:10.1175/JCLI-D-15-0329.1.

Erb, M. P., A. J. Broccoli, N. Graham, A. C. Clement, A. T. Wittenberg, and G. A. Vecchi, 2015: Response of the equatorial Pacific seasonal cycle to orbital forcing. *J. Climate*, **28**, 9258-9276, DOI:10.1175/JCLI-D-15-0242.1.

Loikith, P. C., and A. J. Broccoli, 2015: Comparison between observed and model simulated atmospheric circulation patterns associated with extreme temperature days over North America using CMIP5 historical simulations, *J. Climate*, **28**, 2063-2079, doi:10.1175/JCLI-D-13-00544.1.

Greenberg, M. R., M. D. Weiner, R. Noland, J. Herb, M. Kaplan, and A. J. Broccoli, 2014: Public support for policies to reduce risk after Hurricane Sandy. *Risk Analysis*, **34**, 997-1012, DOI:10.1111/risa.12203..

Mantsis, D. F., B. R. Lintner, A. J. Broccoli, M. P. Erb, A. C. Clement, and H.-S. Park, 2014: The response of large-scale circulation to obliquity-induced changes in meridional heating gradients. *J. Climate*, **27**, 5504-5516, DOI:10.1175/JCLI-D-13-00526.1.

Loikith, P. C., and A. J. Broccoli, 2014: The role of recurrent modes of climate variability in the occurrence of extreme temperatures over North America. *J. Climate*, **27**, 1600-1618, doi: 10.1175/JCLI-D-13-00068.1.

Krasting, J., A. J. Broccoli, K. W. Dixon, and J. R. Lanzante, 2013: Future changes in Northern Hemisphere snowfall. *J. Climate*, **26**, 7813-7828, doi:10.1175/JCLI-D-12-00832.1.

Previdi, M., B. G. Liepert, D. Peteet, J. Hansen, D. J. Beerling, A. J. Broccoli, S. Frohking, J. N. Galloway, M. Heimann, C. Le Quéré, S. Levitus, and V. Ramaswamy, 2013: Climate sensitivity in the Anthropocene. *Quart. J. Roy. Meteor. Soc.*, **139A**, 1121-1131, doi: 10.1002/qj.2165.

Erb, M. P., A. J. Broccoli, and A. C. Clement, 2013: The contribution of radiative feedbacks to orbitally-driven climate change. *J. Climate*, **26**, 5897-5914, doi:10.1175/JCLI-D-12-00419.1.

- Mantsis, D. F., B. R. Lintner, A. J. Broccoli, and M. Khodri, 2013: Mechanisms of Mid-Holocene precipitation change in the South Pacific Convergence Zone. *J. Climate*, **26**, 6937-6953, doi:10.1175/JCLI-D-12-00674.1.
- Mantsis, D. F., A. C. Clement, B. Kirtman, A. J. Broccoli, and M. P. Erb, 2013: Precessional cycles and their remote influence on the North Pacific and North Atlantic summer anticyclones. *J. Climate*, **26**, 4596-4611, doi:10.1175/JCLI-D-12-00343.1.
- DeAngelis, A. M., A. J. Broccoli, and S. G. Decker, 2013: A comparison of CMIP3 simulations of precipitation over North America with observations: Daily statistics and circulation features accompanying extreme events. *J. Climate*, **26**, 3209-3230, doi:10.1175/JCLI-D-12-00374.1.
- Loikith, P. C., and A. J. Broccoli, 2012: Characteristics of observed atmospheric circulation patterns associated with temperature extremes over North America. *J. Climate*, **25**, 7266-7281, doi:10.1175/JCLI-D-11-00709.1.
- DiNezio, P. N., A. C. Clement, G. A. Vecchi, B. Soden, A. J. Broccoli, B. Otto-Bliesner, and P. Braconnot, 2011: The response of the Walker circulation to LGM forcing: Implications for detection in proxies. *Paleoceanography*, **26**, PA3217, doi:10.1029/2010PA002083.
- Mantsis, D. F., A. C. Clement, A. J. Broccoli, and M. P. Erb, 2011: Climate feedbacks in response to changes in obliquity. *J. Climate*, **24**, 2830-2845, doi: 10.1175/2010JCLI3986.1.
- Li, F., P. Ginoux, V. Ramaswamy, A. Broccoli, T. Delworth, and F. Zeng, 2010: Toward understanding the dust deposition in Antarctica during the Last Glacial Maximum: Sensitivity studies on plausible causes. *J. Geophys. Res.*, **115**, D24120, doi: 10.1029/2010JD014791.
- Broccoli, A. J., and S. A. Klein, 2010: Comment on "Observational and model evidence for positive low-level cloud feedback." *Science*, **329**, 277, doi: 10.1126/science.1186796.
- Yoshimori, M., and A. J. Broccoli, 2009: On the link between Hadley circulation changes and radiative feedback processes. *Geophys. Res. Lett.*, **36**, L20703, doi: 10.1029/2009GL040488.
- Yoshimori, M., and A. J. Broccoli, 2008: Equilibrium response of an atmosphere-mixed layer ocean model to different radiative forcing agents: Global and zonal mean response. *J. Climate*, **21**, 4399-4423.
- Taylor, K.E., M. Crucifix, P. Braconnot, C.D. Hewitt, C. Doutriaux, A.J. Broccoli, J.F.B. Mitchell, and M.J. Webb, 2007: Estimating shortwave radiative forcing and response in climate models, *J. Climate*, **20**, 2530-2543.
- Hewitt, C. D., A. J. Broccoli, M. Crucifix, J. M. Gregory, J. F. B. Mitchell, R. J. Stouffer, 2006: The effect of a large freshwater perturbation on the glacial North Atlantic Ocean using a coupled general circulation model. *J. Climate*, **19**, 4436-4447.
- Stouffer, R. J., A. J. Broccoli, T. L. Delworth, K. W. Dixon, R. Gudgel, I. Held, R. Hemler, T. R. Knutson, H.-C. Lee, M. D. Schwarzkopf, B. Soden, M. J. Spelman, M. Winton, and F. Zeng, 2006: GFDL's CM2 Global Coupled Climate Models. Part IV: Idealized Climate Response. *J. Climate*, **19**, 723-740.
- Delworth, T. L., A. J. Broccoli, A. Rosati, R. J. Stouffer, V. Balaji, J. T. Beesley, W. F. Cooke, K. W. Dixon, J. Dunne, K. A. Dunne, J. W. Durachta, K. L. Findell, P. Ginoux, A. Gnanadesikan, C. T. Gordon, S. M. Griffies, R. Gudgel, M. J. Harrison, I. M. Held, R. S. Hemler, L. W. Horowitz, S. A. Klein, T. R. Knutson, P. J. Kushner, A. L. Langenhorst, H.-C. Lee, S. J. Lin, J. Lu, S. L. Malyshev, P.C. Milly, V. Ramaswamy, J. Russell, M. D. Schwarzkopf, E. Shevliakova, J. Sirutis, M. Spelman, W. F. Stern, M. Winton, A. T. Wittenberg, B. Wyman, F. Zeng, and R. Zhang, 2005: GFDL's CM2 global coupled climate models – Part 1: Formulation and simulation characteristics. *J. Climate*, **19**, 643-674.
- Broccoli, A. J., K. A. Dahl, and R. J. Stouffer, 2006: The Response of the ITCZ to Northern Hemisphere cooling. *Geophys. Res. Lett.*, **33**, L01702, doi:10.1029/2005GL024546.
- Hall A., A. C. Clement, A. J. Broccoli, C. S. Jackson, 2005: The importance of atmospheric dynamics in the northern hemisphere wintertime climate response to changes in earth's orbit, *J. Climate*, **18**, 1315-1325,

DOI 10.1175/JCLI3327.1.

Dahl, K. A., A. J. Broccoli, and R. J. Stouffer, 2005: Assessing the role of North Atlantic freshwater forcing in millennial scale climate variability: A tropical Atlantic perspective, *Climate Dynamics*, **24**, 325-346.

The GFDL Global Atmospheric Model Development Team, 2004: The new GFDL global atmosphere and land model AM2/LM2: Evaluation with prescribed SST simulations, *J. Climate*, **17**, 4641-4673.

Soden, B. J., A. J. Broccoli, and R. S. Hemler, 2004: On the use of cloud forcing to estimate cloud feedback, *J. Climate*, **17**, 3661-3665.

Rosenthal, Y., and A. J. Broccoli, 2004: In search of paleo-ENSO, *Science*, **304**, 219-221.

Clement, A. C., A. Hall, and A. J. Broccoli, 2004: The importance of precessional signals in the tropical climate, *Climate Dynamics*, **22**, 327-341, DOI: 10.1007/s00382-003-0375-8.

Broccoli, A. J., K. W. Dixon, T. L. Delworth, T. R. Knutson and R. J. Stouffer, 2003: Twentieth-century temperature and precipitation trends in ensemble climate simulations including natural and anthropogenic forcing, *J. Geophys. Res.*, **108**, 4798, doi: 10.1029/2003JD003812.

Jackson, C. S., and A. J. Broccoli, 2003: Orbital forcing of Arctic climate: Mechanisms of climate response and implications for continental glaciation, *Climate Dynamics*, **21**, 539-557, DOI 10.1007/s00382-003-0351-3.

Karoly, D. J., K. Braganza, P. A. Stott, J. M. Arblaster, G. A. Meehl, A. J. Broccoli, and K. W. Dixon, 2003: Detection of a human influence on North American climate, *Science*, **302**, 1200-1203.

Hewitt, C. D., R. J. Stouffer, A. J. Broccoli, J. F. B. Mitchell, and P. J. Valdes, 2003: The effect of ocean dynamics in a coupled GCM simulation of the Last Glacial Maximum. *Climate Dynamics*, **20**, 203-218.

Delworth, T. L., R. J. Stouffer, K. W. Dixon, M. J. Spelman, T. R. Knutson, A. J. Broccoli, P. J. Kushner, and R. T. Wetherald, 2002: Review of simulations of climate variability and change with the GFDL R30 coupled climate model. *Climate Dynamics*, **19**, 555-574.

Andreasen, D. H., A. C. Ravelo, and A. J. Broccoli, 2001: Remote forcing at the Last Glacial Maximum in the tropical Pacific Ocean. *J. Geophys. Res.*, **106**, 879-897.

Broccoli, A. J., T. L. Delworth, and N.-C. Lau, 2001: The effect of changes in observational coverage on the association between surface temperature and the Arctic oscillation. *J. Climate*, **14**, 2481-2485

Hewitt, C. D., A. J. Broccoli, J. F. B. Mitchell, and R. J. Stouffer, 2001: A coupled model study of the last glacial maximum: Was part of the North Atlantic relatively warm? *Geophys. Res. Lett.*, **28**, 1571-1574.

Levitus, S., J. I. Antonov, J. Wang, T. L. Delworth, K. W. Dixon, and A. J. Broccoli, 2001. Anthropogenic warming of Earth's climate system. *Science*, **292**, 267-270.

Broccoli, A. J., 2000: Tropical cooling at the Last Glacial Maximum: An atmosphere-mixed layer ocean model simulation. *J. Climate*, **13**, 951-976.

Joussaume, S., K. E. Taylor, P. Braconnot, J. F. B. Mitchell, J. E. Kutzbach, S. P. Harrison, I. C. Prentice, A. J. Broccoli, A. Abe-Ouchi, P. J. Bartlein, C. Bonfils, B. Dong, J. Guiot, K. Herterich, C. D. Hewitt, D. Jolly, J. W. Kim, A. Kislov, A. Kitoh, M. F. Loutre, V. Masson, B. McAvaney, N. McFarlane, N. de Noblet, W. R. Peltier, J. Y. Peterschmitt, D. Pollard, D. Rind, J. F. Royer, M. E. Schlesinger, J. Syktus, S. Thompson, P. Valdes, G. Vettoretti, R. S. Webb, U. Wyputta, 1999: Monsoon changes for 6000 years ago: Results of 18 simulations from the Paleoclimate Modeling Intercomparison Project (PMIP). *Geophys. Res. Lett.*, **26**, 859-862.

Broccoli, A. J., N-C. Lau, and M. J. Nath, 1998: The cold ocean-warm land pattern: Model simulation and relevance to climate change detection. *J. Climate*, **11**, 2743-2763.

Broccoli, A. J., and E. P. Marciniak, 1996: Comparing simulated glacial climate and paleodata: A

reexamination. *Paleoceanography*, **11**, 3-14.

Lindberg, C., and A. J. Broccoli, 1996: Representation of topography in spectral climate models and its effect on simulated precipitation. *J. Climate*, **9**, 2641-2659.

Broccoli, A. J., S. Manabe, J. F. B. Mitchell, and L. Bengtsson, 1995: Comments on "Global climate change and tropical cyclones": Part II. *Bull. Amer. Meteor. Soc.*, **76**, 2243-2245.

Broccoli, A. J., 1994: News and Views: Learning from past climates. *Nature*, **371**, 282.

Broccoli, A. J., and S. Manabe, 1992: The effects of orography on midlatitude Northern Hemisphere dry climates. *J. Climate*, **5**, 1181-1201.

Broccoli, A. J., and S. Manabe, 1992: Reply to Evans. *Geophys. Res. Lett.*, **19**, 1525-1526.

Broccoli, A. J., and S. Manabe, 1990: Can existing climate models be used to study anthropogenic changes in tropical cyclone climate? *Geophys. Res. Lett.*, **17**, 1917- 1920.

Manabe, S., and A. J. Broccoli, 1990: Mountains and arid climates of middle latitudes. *Science*, **247**, 192-195.

Broccoli, A. J., and S. Manabe, 1987. The effects of the Laurentide ice sheet on North American climate during the last glacial maximum. *Géographie Physique et Quaternaire*, **41**, 291- 299.

Broccoli, A. J., and S. Manabe, 1987: The influence of continental ice, atmospheric CO<sub>2</sub>, and land albedo on the climate of the last glacial maximum. *Climate Dynamics*, **1**, 87-99.

Manabe, S., and A. J. Broccoli, 1985: The influence of continental ice sheets on the climate of an ice age. *J. Geophys. Res.*, **90**, 2167-2190.

Manabe, S., and A. J. Broccoli, 1985: A comparison of climate model sensitivity with data from the last glacial maximum. *J. Atmos. Sci.*, **42**, 2643-2651.

Manabe, S., and A. J. Broccoli, 1984: Ice-age climate and continental ice sheets: some experiments with a general circulation model. *Ann. Glaciology*, **5**, 100-105.

Broccoli, A. J., and R. P. Harnack, 1981: Predictability of monthly North Pacific sea level pressure from monthly sea surface temperature for the period 1933-1976, *Mon. Weather Rev.*, **109**, 2107-2117.

Cardone, V. J., A. J. Broccoli, C. V. Greenwood, and J. A. Greenwood, 1980: Error characteristics of extratropical-storm wind fields specified from historical data, *J. Petroleum Tech.*, 872-880.

Harnack, R. P., and A. J. Broccoli, 1979: Associations between sea surface temperature gradient and overlying mid-troposphere circulation in the North Pacific region, *J. Phys. Oceanog.*, **9**, 1232-1242.

### Chapters in Books or Monographs

Came, R. E., W. B. Curry, D. W. Oppo, A. J. Broccoli, R. J. Stouffer, and J. Lynch-Stieglitz, 2007: North Atlantic intermediate depth variability during the Younger Dryas: Evidence from benthic foraminiferal Mg/Ca and the GFDL R30 coupled climate model. In *Ocean Circulation: Mechanisms and Impacts*, Monograph Series Volume 173, Washington, American Geophysical Union, 247-263.

Broccoli, A. J., 2007: General Circulation Models: The Last Glacial Maximum, *Encyclopedia of Quaternary Science*, S. A. Elias, Ed., Elsevier, 1927-1934.

Broccoli, A. J., and S. Manabe, 1997: Mountains and midlatitude aridity. In *Tectonic Uplift and Climate Change*, New York: Plenum Press, 89-121.

Broccoli, A. J., 1994: Climate model sensitivity, paleoclimate and future climate change. In *Long-Term Climatic Variations*. NATO ASI Series I, Vol. 22, Berlin; Heidelberg: Springer-Verlag, 551-567.

Broccoli, A. J., and S. Manabe, 1993: Climate model studies of interactions between ice sheets and the atmosphere-ocean system. In *Ice in the Climate System*, NATO ASI Series I, Vol. 12, Berlin; Heidelberg: Springer-Verlag, 271-290.

Manabe, S., and A. J. Broccoli, 1984: Influence of the CLIMAP ice sheet on the climate of a general circulation model: implications for the Milankovitch theory. In *Milankovitch and Climate*, Part 2, Reidel Publishing Co., 789-799.

### **Articles in Non-refereed or General Journals**

Delworth, T. L., A. J. Broccoli, K. Dixon, I. Held, T. R. Knutson, P. J. Kushner, M. J. Spelman, R. J. Stouffer, K. Y. Vinnikov, and R. E. Wetherald, 1999: Coupled climate modelling at GFDL: Recent accomplishments and future plans. *CLIVAR Exchanges*, **4**, 15-20.

Reiss, N. M., and A. J. Broccoli, 1981: A microcomputer-based teletype control system. *Natl. Wea. Digest*, **6**, 58-62,.

### **Reviews**

Broccoli, A. J., 2006: Review of *Climate Change: A Natural Hazard*. *Bull. Amer. Meteor. Soc.*, **87**, 95-97.

### **Other Publications**

Broccoli, A. J., 2008: Science to media: Catch up to, but don't get ahead of, the science. In Ward, B., and S. Menezes, *Communicating on Climate Change: An Essential Resource for Journalists, Scientists, and Educators*, Narragansett, RI, University of Rhode Island, 11.

Broccoli, A. J., 1986: Characteristics of seasonal snow cover as simulated by GFDL climate models. In SNOW WATCH '85, Boulder, CO: World Data Center A for Glaciology (Snow and Ice), 241-248.

### **Works in Progress**

Sentman, L.T., J. P. Dunne, J. P. Krasting, A. Wittenberg, R. J. Stouffer, J. R. Toggweiler, and A. J. Broccoli, 2019: The mechanistic role of the Central American Seaway in a GFDL earth system model. Part II: Global mean climate and ENSO variability response, submitted to *Paleoceanography*

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## **Conference Presentations, Lectures, Demonstrations**

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### **Keynote or Plenary Addresses**

"Climate Change and Transportation: Impacts and Solutions" Keynote presentation at 50th Anniversary Celebration, United States Department of Transportation, Washington, DC, August 2016

### **Invited Addresses**

"Looking Back: What Can Paleoclimate Modeling Tell Us About the Climate System?" Invited presentation in Dept. of Geosciences, Princeton University, Princeton, NJ, April 2018

"Storm Surge-Producing Extratropical Cyclones in the Northeastern United States in Observations and Models" Invited presentation at Department of Applied Physics and Applied Mathematics, Columbia University, New York, NY, November 2017 (with A. J. Catalano, S. B. Kapnick, and T. P. Janoski).

"Using Single-Forcing Coupled Model Experiments to Understand the Response of Climate to Greenhouse Gas, Ice Sheet, and Astronomical Forcings" Invited presentation at the Dept. of Geology and Geophysics, Yale University, July 2016.

"Using Single-Forcing Coupled Model Experiments to Understand the Response of Climate to Greenhouse Gas, Ice Sheet, and Astronomical Forcings" Invited presentation at the Geography, Earth Science and Oceanography Colloquium Series, The City University of New York, March 2016.

"Using Single-Forcing Coupled Climate Model Experiments to Understand the Response to Orbital Forcing" Invited presentation at Dept. Of Atmospheric and Oceanic Sciences, University of Maryland, October 2015.

"The Response of Tropical Climate to Orbital, Ice Sheet, and Greenhouse Gas Forcing" Invited presentation at Workshop on Monsoons and ITCZs, Columbia University, September 2015.



"Using Single-Forcing Coupled Climate Model Experiments to Understand the Response to Orbital Forcing" Invited presentation at Woods Hole Oceanographic Institution, July 2015.

"What do glacial-interglacial transitions tell us about climate feedbacks and climate sensitivity?" Invited presentation at Department of Geological Sciences, Brown University, April 2014.

"Heavy Precipitation Events in a Warming Climate: An Analysis of Regional Variability and Synoptic Characteristics in CMIP Simulations" Invited presentation at Department of Earth and Environmental Sciences, Lehigh University, Bethlehem, PA, March 2014

"Observed and Simulated Atmospheric Circulation Patterns Associated with Extreme Temperature Days over North America" Invited presentation at CLIVAR workshop entitled "Analyses, Dynamics, and Modeling of Large-Scale Meteorological Patterns Associated With Extreme Temperature and Precipitation Events," Berkeley, CA, August 2013, with P. Loikith.

"Revisiting The Mid-Holocene Climate Of The Tropical Pacific Ocean" Invited presentation at Lamont-Doherty Earth Observatory, Columbia University, Palisades, NY, May 2012, with M. Erb, M. Khodri, D. Oppo, G. Vecchi, and A. Wittenberg.

"Revisiting The Mid-Holocene Climate Of The Tropical Pacific Ocean" Invited presentation at Institute for Geophysics, University of Texas, Austin, TX, April 2012, with M. Erb, M. Khodri, D. Oppo, G. Vecchi, and A. Wittenberg.

"Climate Change: An Update On The Science," Invited presentation at Climate Change Economics and Energy Finance Symposium, Fordham University, New York, NY, March 2012.

"Mid-Holocene ENSO Variability Revisited" Invited presentation at Department of Applied Physics and Applied Mathematics, Columbia University, New York, NY, November 2011.

"Climate Change: An Overview of the Science" Invited presentation at Conference on Carbon Politics and Finance, Fordham University, New York, NY, October 2010.

"Mid-Holocene ENSO Variability Revisited" Invited presentation at Rosenstiel School of Marine and Atmospheric Sciences, University of Miami, Miami, FL, May 2010, with M. Erb, M. Khodri, D. Oppo, and A. Wittenberg.

"Mid-Holocene ENSO Variability Revisited" Invited presentation at Brown University, Providence, RI, May 2010, with M. Erb, M. Khodri, D. Oppo, and A. Wittenberg.

"Climate Sensitivity and Orbital Forcing" Invited presentation at Lamont-Doherty Earth Observatory/NASA Goddard Institute for Space Studies mini-conference *Climate Sensitivity Extremes—Assessing the Risk*, New York, NY, April 2010, with M. Erb, A. Clement, and D. Mantsis.

"Simulating the Climate Response to Orbital Forcing: The Role Of Climate Feedbacks In The Response To Obliquity And Revisiting Mid-Holocene ENSO Changes," Invited presentation at Woods Hole Oceanographic Institution, Woods Hole, MA, November 2009, with M. Erb, A. Wittenberg, D. Oppo, A. Clement, D. Mantsis, and M. Khodri.

"A New Look at Orbital Forcing of Climate: How Does Reduced Obliquity Cool the Earth?" Invited presentation at Lamont-Doherty Earth Observatory, Columbia University, Palisades, NY, September 2009, with M. Erb, A. Clement, and D. Mantsis.

"Regional Perspectives on Past and Future Climate Change," Invited presentation at University of Pennsylvania, Philadelphia, PA, May 2009.

"What Can We Learn from the Meridional Overturning Circulation During the Last Glacial Maximum?" Invited presentation in Centre for Global Change Science Distinguished Lecturer Series, University of Toronto, March 2009.

"Effects of Global Warming on Hydrologic Extremes," Invited presentation at Department of Geography, University of Delaware, Newark, DE, May 2008, with A. DeAngelis.

"Patterns of Response to Anthropogenic and Natural Forcing," Invited presentation at Department of Meteorology, The Pennsylvania State University, State College, PA, November 2007, with M. Yoshimori.

"Effects of Global Warming on Hydrologic Extremes," Invited presentation at Earth System Science Center, The Pennsylvania State University, State College, PA, October 2007, with A. DeAngelis.

"Climate Change and Extreme Weather: Is There a Connection?" Invited presentation at Department of Geology and Meteorology, Kean University, Union, NJ, November 2005

"The Response of the ITCZ to Northern Hemisphere Cooling" Invited presentation at Geology and Geophysics Department Seminar, Woods Hole Oceanographic Institution, Woods Hole, MA, April 2005.

"Simulation and Detection of Climate Change on Global, Continental and Regional Scales," Invited presentation at Institute for Terrestrial and Planetary Atmospheres, Stony Brook University, Stony Brook, NY, September 2004.

"Feedbacks and Sensitivity in GFDL's AM2 Model," Invited presentation at Intergovernmental Panel on Climate Change Workshop on Climate Sensitivity, Paris, France, July 2004.

"Evaluating Climate Models Using Records of Past Climates" Invited presentation at NOAA Ad Hoc Paleoclimatology Group Meeting, Amherst, MA, October 2003.

"What Every Broadcast Meteorologist Should Know About Global Warming" Invited presentation at 31st Conference on Broadcast Meteorology, American Meteorological Society, Williamsburg, VA, June 2002.

"Twentieth Century Trends in Ensemble Climate Simulations with Anthropogenic and Natural Forcings" Department of Environmental Sciences, Rutgers University, New Brunswick, NJ, April 2002.

"Testing Climate Prediction Models" Invited presentation at U.S. CLIVAR Scientific Steering Committee Meeting, Princeton, NJ, December 2001.

"Simulating the Response of Climate to Orbital Forcing" Invited presentation at Department of Environmental Sciences, Rutgers University, New Brunswick, NJ, November 2001.

"Ice Age Climate Sensitivity: The Relative Importance of Atmospheric and Oceanic Processes" Invited presentation at Lamont-Doherty Earth Observatory, Palisades, NY, December 2000.

"Future Climate Projections: What Will the 21st Century Bring?" Invited presentation in NASA/USRA Public Lecture Series, Greenbelt, MD, June 2000.

"Response of Arctic Climate to Changes in Earth's Orbit" Invited presentation at Hadley Centre for Climate Prediction and Research, Bracknell, United Kingdom, May 2000.

"Tropical Temperatures at the Last Glacial Maximum: Results from Climate Simulations" Woods Hole Oceanographic Institution Seminar Series, Woods Hole, MA, April 2000.

"Tropical Climate Anomalies Forced From the Extratropics" Invited presentation in Woods Hole Oceanographic Institution Seminar Series, Woods Hole, MA, April 2000.

"Recent Climate Trends: The COWL Pattern and the Arctic Oscillation" Invited presentation in Physical Oceanography Seminar Series, Woods Hole Oceanographic Institution, Woods Hole, MA, April 1999.

"Recent Climate Trends: The COWL Pattern and the Arctic Oscillation" Invited presentation at Centre for Climate and Global Change Research, McGill University, Montreal, QB, Canada, October 1998.

"Spatial Patterns in Low-Latitude Temperature Change During the Last Glacial" Invited presentation at European Science Foundation Research Conference on Paleoclimate Modeling and Analysis, Tuscany, Italy, May 1997.

"The Cold Ocean-Warm Land Pattern in Long Integrations of a Coupled Ocean-Atmosphere Model" Invited presentation in Columbia University Graduate Seminar Series, NASA/Goddard Institute for Space Studies, New York, NY, April 1997.

“A Re-examination of Glacial Climate in the Tropics as Simulated by an Atmosphere-Mixed Layer Ocean Climate Model” Invited presentation at Symposium on the Role of Tropical Sea Surface Temperature Variations in Past Global Climate Change, Lamont-Doherty Earth Observatory, Palisades, NY, March 1995.

“Climate Sensitivity to CO<sub>2</sub> and Ice Sheet Forcings” Invited presentation at NATO Advanced Study Institute on Long-Term Climatic Variations: Data and Modeling, Siena, Italy, October 1992.

“Climate Model Studies of Interactions Between Ice Sheets and the Atmosphere-Ocean System” Invited presentation at NATO Advanced Research Workshop on Ice in the Climate System, Aussois, France, September 1992.

“Effects of Topography on Northern Hemisphere Midlatitude Dry Climates” Invited presentation at the Department of Soil, Crop and Atmospheric Sciences, Cornell University, Ithaca, NY, February 1992.

“The Effects of the Laurentide Ice Sheet on North American Climate During the Last Glacial Maximum” Invited presentation at the XII International Congress of the International Union for Quaternary Research, Ottawa, ON, Canada, July 1987.

“Climate Model Sensitivity to Ice Age Boundary Conditions” Invited presentation at the Department of Meteorology and Physical Oceanography, Rutgers University, New Brunswick, NJ, February 1986.

### **Papers, Abstracts, and Lectures**

"The Interplay between Polar and Tropical Radiative Forcing Resulting from Changes in Earth's Obliquity" Poster presentation at 2018 American Geophysical Union Fall Meeting, Washington, DC, December 2018 (with G. R. O'Neill)

"Climate Change: Global and Local Perspectives" Presentation at Annual Workshop of the Mid-Atlantic States Section, Air and Waste Management Association, New Brunswick, NJ, October 2018.

"Characteristics of Extreme Extratropical Cyclones in a Long Climate-Model Simulation" Presentation at 30th Conference on Climate Variability and Change, 98th American Meteorological Society Annual Meeting, Austin, TX, January 2018 (with A. J. Catalano, S. B. Kapnick, and T. P. Janoski)

“Characteristics of Extreme Extratropical Cyclones in a High-Resolution Global Climate Model” 2017 American Geophysical Union Fall Meeting, New Orleans, LA, December 2017 (poster presentation by A. J. Catalano with S. B. Kapnick and T. P. Janoski).

"The Climatology of Extreme Surge-Producing Extratropical Cyclones in Observations and Models" 29th Conference on Climate Variability and Change, 97th American Meteorological Society Annual Meeting, Seattle, WA, January 2017 (with A. J. Catalano)

“The Influence of Cloud Feedbacks on Glacial-Interglacial Variations in Climate” American Geophysical Union Fall Meeting, San Francisco, CA, December 2016 (with M. P. Erb and N. Graham).

"The Climatology of Extreme Surge-Producing Extratropical Cyclones in Observations and Models" American Geophysical Union Fall Meeting, San Francisco, CA, December 2016, presented by A. Catalano.

"The Response of Tropical Climate to Orbital, Ice Sheet, and Greenhouse Gas Forcing" 28th Conference on Climate Variability and Change, 96th American Meteorological Society Annual Meeting, New Orleans, LA, January 2016.

"Using a High-Resolution Global Climate Model to Simulate Extreme Extratropical Cyclones" 28th Conference on Climate Variability and Change, 96th American Meteorological Society Annual Meeting, New Orleans, LA, January 2016, poster presented by A. Catalano with S. Kapnick.

"Effects of a Warming Climate on Daily Snowfall Events in the Northern Hemisphere" 15th Annual Student Conference, 96th American Meteorological Society Annual Meeting, New Orleans, LA, January 2016, poster presented by J. Danco with A. DeAngelis and B. Raney.

"Using a High-Resolution Global Climate Model to Simulate Extreme Extratropical Cyclones" American Geophysical Union Fall Meeting, San Francisco, CA, December 2015, poster presented by A. Catalano with S. Kapnick.

"Simulating the Response to Astronomical Forcing with a Coupled Atmosphere-Ocean Model" American Geophysical Union Fall Meeting, San Francisco, CA, December 2015, poster presented by M. Erb with B. Raney

"Regional Sensitivity to CO<sub>2</sub> forcing: Detection and Attribution Approach to Analyzing the CO<sub>2</sub> Component of Late Quaternary Climate Variability" American Geophysical Union Fall Meeting, San Francisco, CA, December 2015, presented by C. Jackson, with M. Erb and D. Lea

"Obliquity and Precession in the Quaternary: Analyzing Climate Responses Using Single-Forcing GCM Simulations and Bayesian Model-Proxy Comparison" American Geophysical Union Fall Meeting, San Francisco, CA, December 2015, poster presented by M. Erb with C. Jackson and D. Lea.

"Large-Scale Atmospheric Circulation Patterns Associated with Temperature Extremes as a Basis for Model Evaluation: Methodological Overview and Results" American Geophysical Union Fall Meeting, San Francisco, CA, December 2015, presented by P. Loikith with D. Waliser, B. Lintner, and J. D. Neelin.

"The Response of Tropical Climate to Orbital, Ice Sheet, and Greenhouse Gas Forcing," Northeast Tropical Workshop, Dedham, MA, June 2015

"Using Idealized GCM Simulations to Reconstruct and Interpret Past Precipitation Change" American Geophysical Union Fall Meeting, San Francisco, CA, December 2014, poster presented by M. Erb with C. Jackson and D. Lea

"Using a High-Resolution Global Climate Model to Simulate Extratropical Cyclones with Large Storm Surge Potential" American Geophysical Union Fall Meeting, San Francisco, CA, December 2014, poster presented by A. Alpert with S. Kapnick

"Simulated and Observed Atmospheric Circulation Patterns Associated with Extreme Temperature Days over North America" U.S. Dept. of Energy Climate Modeling PI Meeting, Potomac, MD, May 2014

"Understanding Projected Changes in Heavy Precipitation in CMIP5 Climate Model Simulations" AGU Fall Meeting, San Francisco, CA, December 2013, poster presented by A. DeAngelis with S. Decker and B. Lintner.

"The Contribution of Radiative Feedbacks to Orbitally-Driven Climate Change" Davos Atmosphere and Cryosphere Assembly DACA-13, Davos, Switzerland, July 2013, with M. P. Erb and A. C. Clement.

"The Influence of Recurrent Modes of Climate Variability on the Occurrence of Extreme Temperatures over North America" 93rd American Meteorological Society Annual Meeting, Austin, TX, January, 2013, with P. Loikith.

"Projected Changes in Heavy Precipitation over North America in CMIP5 Climate Model Simulations" 93rd American Meteorological Society Annual Meeting, Austin, TX, January, 2013, poster presented by A. DeAngelis with S. Decker.

"The Influence of Recurrent Modes of Climate Variability on the Occurrence of Extreme Temperatures over North America" AGU Fall Meeting, San Francisco, CA, December 2012, poster presented by P. Loikith.

"Changes in Equatorial Pacific Seasonality Due to Orbital Forcing" AGU Fall Meeting, San Francisco, CA, December 2012, presented by M. Erb with A. T. Wittenberg and G. A. Vecchi.

"Atmospheric Circulation Patterns and Physical Processes Associated with Temperature Extremes Over North America" American Meteorological Society Annual Meeting, New Orleans, LA, January 2012, with P. Loikith.

"Evaluation of 20th Century Climate Model Simulations of Heavy Precipitation Over North America"

American Meteorological Society Annual Meeting, New Orleans, LA, January 2012, poster presented by A. DeAngelis with S. Decker.

“The Response of the Walker Circulation to LGM Forcing: Implications for Detection in Proxies” AGU Fall Meeting, San Francisco, CA, December 2011, presented by P. Di Nezio with A. Clement, G. Vecchi, B. Soden, B. Otto-Bliesner and P. Braconnot.

“Key Atmospheric Circulation Patterns and Physical Processes Associated with Temperature Extremes over North America” AGU Fall Meeting, San Francisco, CA, December 2011, poster presented by P. Loikith.

“Forcing and feedbacks: the role of obliquity and precession in past climate change” AGU Fall Meeting, San Francisco, CA, December 2011, poster presented by M. Erb with A. Clement.

“Atmospheric Circulation Patterns Associated With Temperature Extremes Over North America in Observations and Climate Models” WCRP Open Science Conference, Denver, CO, October 2011, poster presented by P. Loikith.

“Evaluation of 20th century climate model simulations of heavy precipitation over North America” WCRP Open Science Conference, Denver, CO, October 2011, poster presented by A. DeAngelis with S. Decker.

“Atmospheric Circulation Patterns and Physical Processes Associated with North American Temperature Extremes” Dept. of Energy Climate Modeling PI Meeting, Washington, DC, September 2011, with P. Loikith.

“The Latest Facts About Our Changing Climate” American Meteorological Society Conference on Broadcast Meteorology, Oklahoma City, OK, June 2011.

“Mid-Holocene ENSO Variability Revisited” AGU Fall Meeting, San Francisco, CA, December 2010, poster with M. Erb, M. Khodri D. Oppo, and A. Wittenberg.

“Identification of Large Scale Circulation Patterns Associated With Temperature Extremes Over North America in Observations and Climate Model Simulations of the 20th Century” AGU Fall Meeting, San Francisco, CA, December 2010, poster presented by P. Loikith.

“The Astronomical Forcing of Climate Change: Forcings and Feedbacks” AGU Fall Meeting, San Francisco, CA, December 2010, poster presented by M. Erb with A. Clement.

“Precessional-Induced Changes of the Subtropical Highs as well as the Tropical Hydrological Cycle” AGU Fall Meeting, San Francisco, CA, December 2010, poster presented by D. Mantsis with A. Clement.

“Response of the Walker Circulation to LGM Forcing: Implications for Detection in Proxies” AGU Fall Meeting, San Francisco, CA, December 2010, poster presented by P. Di Nezio with A. Clement, G. Vecchi, and B. Otto-Bliesner.

“The Astronomical Forcing of Climate Change: Forcings and Feedbacks” Paleoclimate Modeling Intercomparison Project, Phase 3 Workshop, Kyoto, Japan, December 2010, poster presented by M. Erb.

“Revisiting Mid-Holocene ENSO” NOAA/Geophysical Fluid Dynamics Laboratory, Princeton, NJ, February 2010, with M. Erb, M. Khodri, D. Oppo, and A. Wittenberg.

“Key Synoptic and Physical Processes Associated With Temperature Extremes Over North America,” American Geophysical Union Fall Meeting, San Francisco, CA, December 2009, oral presentation by P. Loikith and A. J. Broccoli.

“Orbital Forcing of Climate: The Role of Obliquity in Driving Natural Climate Change,” American Geophysical Union Fall Meeting, San Francisco, CA, December 2009, poster presentation by M. P. Erb, A. J. Broccoli, and A. C. Clement.

“Modulation of Orbital Induced Climate Change by Ice, Cloud and Water Vapor Feedbacks,” American Geophysical Union Fall Meeting, San Francisco, CA, December 2009, poster presentation by D. F. Mantsis, A. C. Clement, and A. J. Broccoli.

"The Role of Radiative Feedbacks in the Response of Climate to Orbital Forcing," IAMAS-IAPSO-IACS Joint Assembly, Montreal, Canada, July 2009, with M. Erb.

"Climate Change: Causes, Impacts and Solutions," 236<sup>th</sup> American Chemical Society National Meeting and Exposition, Philadelphia, PA, August 2008.

"Response of Climate to Glacial Forcing in the GFDL CM2.1 Coupled Atmosphere-Ocean Model" (poster), American Quaternary Association, 2008 Biennial Meeting, State College, PA, June 2008, with A. Wittenberg and M. Erb.

"The Co-Evolution of Energy and Climate," Rutgers Energy Institute 3rd Annual Symposium, Piscataway, NJ, April 2008.

"Understanding Climate Feedbacks" Department of Earth And Planetary Sciences, Rutgers University, New Brunswick, NJ, September 2007.

"Influence of Temperature and Precipitation Changes on Model-Simulated Monthly Snowfall Trends," AGU Fall Meeting, San Francisco, CA, December 2006, with J. Krasting.

"Some Aspects of Climate Model Response to Black Carbon in Quasi-Equilibrium Experiments with the GFDL GCM," AGU Fall Meeting, San Francisco, CA, December 2006, with M. Yoshimori.

"Mechanisms of Tropical Response to Idealized Extratropical Cooling Simulated with the GFDL Model," AGU Fall Meeting, San Francisco, CA, December 2006, with M. Yoshimori.

"On the Control of Zonal-Mean Position of the ITCZ in Quasi-Equilibrium GCM Experiments," AGU 2006 Joint Assembly, Baltimore, MD, May 2006, with M. Yoshimori.

"Some Perspectives on the Reconstruction of Past ITCZ Variations from Paleoclimate Data," AGU 2006 Joint Assembly, Baltimore, MD, May 2006, with M. Yoshimori.

"The Response of the Intertropical Convergence Zone to Northern Hemisphere Cooling" at the Institute for Marine and Coastal Sciences, Rutgers University, New Brunswick, NJ, February 2006.

"Extreme Responses in Global Warming Simulations," Workshop on North American Climate Extremes, Aspen Global Change Institute, Aspen, CO, July 2005

"Global Warming and Climate Feedbacks," Department of Physics and Astronomy Colloquium, Rutgers University, New Brunswick, NJ, March, 2005.

"Paleoclimate Modeling and Climate Sensitivity," The Suki Manabe Symposium at the 2005 Annual Meeting of the American Meteorological Society, San Diego, CA, January 2005.

"Global Warming and Simulated Snowfall Trends in Eastern North America," The Suki Manabe Symposium, American Meteorological Society 2005 Annual Meeting, San Diego, CA, January 2005, with John P. Krasting.

"Diagnosis of Radiative Feedbacks in the Latest Version of the GFDL AM2 Climate Model," The Suki Manabe Symposium, American Meteorological Society 2005 Annual Meeting, San Diego, CA, January 2005, with Stephanie A. Weber.

"Simulating the Response of Climate to Orbital Forcing," The Pliocene Paradox, Princeton University, Princeton, NJ, October 2004.

"Climate Feedbacks in the GFDL AM2 Model," 15th Symposium on Global Change and Climate Variations at the 2004 Annual Meeting of the American Meteorological Society, Seattle WA, January 2004.

"Evaluating Climate Models Using Records of Past Climates" Department of Geological Sciences, Rutgers University, New Brunswick, NJ, October 2003.

"Sensitivity and Feedbacks in Cess and Mixed Layer Runs" NCAR/GFDL Collaboration Meeting, Princeton, NJ, September 2003.

“Contributions of High-Latitude Feedbacks to Climate Sensitivity” 7th Conference on Polar Meteorology and Oceanography, Hyannis, MA, May 2003.

“Twentieth Century Trends in Ensemble Climate Simulations with Anthropogenic and Natural Forcings” 2002 Spring Meeting, American Geophysical Union, Washington, DC, May 2002.

“Ensemble Climate Simulations Including Natural and Anthropogenic Forcing” Thirteenth Symposium on Global Change Studies, American Meteorological Society, Orlando, FL, January 2002.

“Twentieth Century Surface Temperature Trends in Ensemble Climate Simulations Using Natural and Anthropogenic Forcing” First International Conference on Global Warming and the Next Ice Age, Halifax, NS, Canada, August 2001.

“Ensemble Climate Simulations Using Natural and Anthropogenic Forcing: 1865-1998” IAMAS 2001 General Assembly, Innsbruck, Austria, July 2001.

“Simulation of the Climatic Effects of Ice Sheet Elevation” EPILOG (Environmental Processes of the Ice Ages: Land, Ocean and Glaciers) Workshop, Mt. Hood, Oregon, October 2000.

“Response of Arctic Climate to Changes in Earth’s Orbit” Sea Ice in the Climate System: The Record of the North Atlantic Arctic, Kirkjubaejarklaustur, Iceland, June 2000.

“Simulating the Response of the Holocene Climate to Orbital Forcing” 35th Annual Meeting of the Northeastern Section of the Geological Society of America, New Brunswick, NJ, March 2000.

“An Assessment of the Association Between the Arctic Oscillation and Northern Hemisphere Temperature” Eleventh Symposium on Global Change Studies, American Meteorological Society, Long Beach, CA, January 2000.

“An Assessment of the Association Between the Arctic Oscillation and Northern Hemisphere Temperature” 1999 Fall Meeting, American Geophysical Union, San Francisco, CA, December 1999.

“Extratropical Influences on Interhemispheric Asymmetry of LGM Tropical Climate” Third Workshop of the Paleoclimate Modelling Intercomparison Project, Saint-Michel-Des-Saints, QB, Canada, October 1999.

“An Assessment of the Relationship Between the Arctic Oscillation and Northern Hemisphere Extratropical Mean Temperature” Workshop on Extratropical SST Anomalies, Boulder, CO, June 1999.

“Extratropical Influences on Tropical Paleoclimates” American Geophysical Union Chapman Conference: Mechanisms of Millennial-Scale Global Climate Change, Snowbird, UT, June 1998.

“Extratropical Influences on Tropical Paleoclimates” 1998 Spring Meeting, American Geophysical Union, Boston, MA, May 1998.

“The Cold Ocean-Warm Land Pattern: Model Simulation and Relevance to Climate Change Detection” Ninth Conference on Global Change Studies, American Meteorological Society, Phoenix, AZ, January 1998.

“Simulated Spatial Variability of Glacial Cooling: Implications for the Reconstruction of Past Climates” 1997 Fall Meeting, American Geophysical Union, San Francisco, CA, December 1997.

“Spatial Variations in Low-Latitude Glacial Cooling Simulated by an Atmosphere-Mixed Layer Ocean Model” 1997 Spring Meeting, American Geophysical Union, Baltimore, MD, May 1997.

“The Cold Ocean-Warm Land Pattern in Long Integrations of a Coupled Ocean-Atmosphere Model” CLIVAR Workshop on Atmosphere-Ocean Interactions and Their Influence on Decadal-Scale Climate Variability, Vancouver, BC, Canada, September 1996.

“Simulation of Tropical Temperatures at the Last Glacial Maximum” 1995 Fall Meeting, American Geophysical Union, San Francisco, CA, December 1995.

“Simulation of Tropical Temperatures at the Last Glacial Maximum” First Workshop of the Paleoclimate Modelling Intercomparison Project, Colognes La Rouge, France, October 1995.

“Climate Model Simulation of Atmospheric Forcing Over the Glacial North Atlantic” XIV International Congress of the International Union for Quaternary Research, Berlin, Germany, August 1995.

“Representation of Topography in Spectral Climate Models and Its Effect on Simulated Precipitation” Conference on Mountain Meteorology, American Meteorological Society, Breckenridge, CO, July 1995.

“Greenhouse Warming” 1995 NOAA Colloquium on Operational Environmental Prediction, Camp Springs, MD, June 1995.

“Climate Model Simulation of Tropical Temperatures at the Last Glacial Maximum” 1995 Spring Meeting, American Geophysical Union, Baltimore, MD, May 1995.

“Comparing Simulated Glacial Climate and Paleodata: A Re-examination” 1994 Fall Meeting, American Geophysical Union, San Francisco, CA, December 1994.

“The Greenhouse Effect: The Science Base” Metropolitan New York in the Greenhouse: Infrastructure Planning for an Uncertain Future, New York, NY, November 1994.

“Comparing Simulated Glacial Climate and Paleodata: A Re-examination” United States-Russia Workshop on Paleocalibration of Climate Sensitivity, Silver Spring, MD, August 1994.

“Climate Models and Outlook for Future Climates” Forum on Human-Induced Climate Change, Annual Meeting of the American Association of Petroleum Geology, Denver, CO, June 1994.

“Greenhouse Warming” 1994 NOAA Colloquium on Operational Environmental Prediction, Camp Springs, MD, June 1994.

“Greenhouse Warming” 1993 NOAA Colloquium on Operational Environmental Prediction, Camp Springs, MD, June 1993.

“Precipitation Simulation in GFDL Climate Models” GEWEX/WGNE Workshop on Global Observations, Analyses and Simulations of Precipitation, Camp Springs, MD, October 1992.

“The Use of Climate Models in Forecasting Future Climate Change” Global Climate Change Symposium sponsored by American Chemical Society, Washington, DC, August 1992.

“Forecasting Possible Climate Change” 1992 NOAA Colloquium on Operational Environmental Prediction, Camp Springs, MD, June 1992.

“Simulation of Midlatitude Arid Climates: The Effect of Mountains and the Role of Land Surface Interaction” 1992 Spring Meeting, American Geophysical Union, Montreal, QB, Canada, May 1992.

“Mountains and Midlatitude Arid Climates” National Center for Atmospheric Research, Boulder, CO, July 1991.

“Sensitivity Experiments at the Last Glacial Maximum” NATO Advanced Research Workshop on Paleoclimate Modeling, Saclay, France, May 1991.

“Simulation of Midlatitude Arid Climates: The Effect of Mountains and the Role of Land Surface Interaction” Eighth Conference on Hydrometeorology of the American Meteorological Society, Kananaskis, AB, Canada, October 1990.

“Global Climate Change Prediction” 83rd Annual Meeting of the Air and Waste Management Association, Pittsburgh, PA, June 1990.

“Mid-Continental Dryness Due to Increasing Greenhouse Gases: How Does It Compare to the 1988 Drought?” American Association for the Advancement of Science 1990 Annual Meeting, New Orleans, LA, February 1990.

“Simulation of Cyclonic Tropical Disturbances in Climate Models” 1989 Spring Meeting, American Geophysical Union, Baltimore, MD, May 1989.

“Effect of Increasing Greenhouse Gases on Hydrology” AAAS Workshop on Climatic Variability,



Climatic Change and Water Resource Planning, NASA/Goddard Institute for Space Studies, New York, NY, January 1987.

"Characteristics of Seasonal Snow Cover as Simulated by GFDL Climate Models" SNOWWATCH 1985: Workshop on CO<sub>2</sub>/Snow Interaction, College Park, MD, October 1985.

### **Other Presentations, Lectures, Demonstrations**

Interviewed about hurricanes and climate change, News 12 New Jersey (Edison, NJ), June 2019

"The Raritan Region's Climate Future" Presentation at Sustainable Raritan River Conference, Rutgers University, Piscataway, NJ, June 2019

"Earth's Changing Climate: Causes and Impacts" Presentation at Greenbriar at Whittingham, Monroe, NJ, May 2019

"Climate Change" Presentation to Rutgers Environmental Stewards Program, Egg Harbor Township, NJ, May 2019

"Climate Change: Past, Present, and Future" Presentation at Somerset County Library, Bridgewater, NJ, May 2019

"Climate Change" Presentation to Rutgers Environmental Stewards Program, West Orange, NJ, April 2019.

Quoted in article entitled "The Everything Guide to Rain," *New York* (New York, NY), April 2019.

"What Does Climate Change Mean for My Garden?" Presentation at Rutgers Home Gardeners School, Rutgers University, New Brunswick, NJ, March 2019.

"Climate Change: Past, Present, and Future" Presentation at Mary Jacobs Library, Rocky Hill, NJ, March 2019.

"Climate Change: Past, Present, and Future" Presentation at Bergen County Technical High School, Teterboro, NJ, March 2019.

"Climate Change: Past, Present, and Future" Presentation at Bowman's Hill Wildflower Preserve, New Hope, PA, January 2019.

Quoted in article entitled "When will humanity ever hit the peak of its ever-growing carbon emissions?" *mashable.com*, December 2018

"The Climate Ahead: Is There A New Normal" Science Cafe, School of Environmental and Biological Sciences, Rutgers University, November 2018.

Quoted in article entitled "Florence hits Carolinas as NJ remembers Great Atlantic Hurricane of 1944," *Press of Atlantic City* (Atlantic City, NJ), September 2018.

"Climate Change: Past, Present, and Future" Presentation at Somerset Run (active adult community), Somerset, NJ, August 2018.

Quoted in article entitled "Next four new moons to bring heightened risk of coastal flooding," *Press of Atlantic City* (Atlantic City, NJ), June 2018.

"Climate Change" Presentation to Rutgers Environmental Stewards Program, Egg Harbor Township, NJ, May 2018.

Quoted in article entitled "Despite this week's chattering cold, North Jersey winters are warming," *NorthJersey.com*, January 2018.

Quoted in op-ed entitled "It is not fear-mongering to appreciate the existential impact of climate change," *The Inquirer* (Philadelphia, PA), January 2018

"Climate Change" Presentation to Rutgers Environmental Stewards Program, Westampton, NJ, November

2017.

“Ice Age Weather: Synoptic-Scale Variability over North America in a Climate Model Simulation of the Last Glacial Maximum,” Department of Geography, Rutgers University, November 2017.

“Climate Change” Presentation to Teacher Connection Workshop, Liberty Science Center, Jersey City, NJ, October 2017.

"State of New Jersey's Climate" Presentation to New Jersey Climate Adaptation Alliance workshop  
"Climate Change Policy in New Jersey," Duke Farms, Hillsborough, NJ, September 2017.

Interviewed about hurricanes and climate change, *Knowledge@Wharton*, SiriusXM radio, September 2017.

Interviewed about hurricanes and climate change, *Radio Times*, WHYY radio (Philadelphia, PA), September 2017.

Quoted in article entitled "State needs to step up attempts to curb greenhouse-gas emissions," *NJ Spotlight* (Montclair, NJ), August 2017.

Quoted in "Climate scientist: Sea level will intensify storms along Jersey's coast," WHYY radio (Philadelphia, PA), August 2017.

Quoted in "State Lawmakers get a wake-up call on climate change," NJTV (Newark, NJ), August 2017.

Quoted in article entitled "Climate change: 5 signs it's already begun in NJ," *Asbury Park Press* (Asbury Park, NJ), August 2017.

"Climate Change" Presentation to Rutgers Environmental Stewards Program, Egg Harbor Township, NJ, May 2017.

"Climate Change: Past, Present, and Future" Presentation to New Jersey chapter of American Institute of Chemical Engineers, Scotch Plains, NJ, May 2017.

Featured in Yale Climate Connections podcasts ("Earth's temperature has risen by a degree. It matters." and "Earth Day: Report card for the planet") airing on National Public Radio stations, April 2017.

"Rutgers Climate institute" Presentation to Dept. of Earth and Environmental Sciences, Rutgers-Newark, April 2017.

"Climate Change" Presentation to Rutgers Environmental Stewards Program, Wayne, NJ, March 2017.

Interviewed by radio station WKXW (NJ101.5, Trenton, NJ) and featured in a news story entitled "A new report finds much of New Jersey is drought-free," March 2017.

Quoted in article entitled "NBC partnership brings new weather technology to Rutgers students," *MyCentralJersey.com*, February 2017.

Interviewed and quoted in article entitled "Rutgers is now home to cutting-edge NBC weather radar," *The Daily Targum* (New Brunswick, NJ), February 2017.

"Climate Change" Presentations to middle and high school teachers from central New Jersey, Princeton, NJ, January-February 2017.

"Climate Change and Sustainability" Presentation to course entitled "Introduction to Sustainability Management" offered by the New Jersey Agricultural Experiment Station Office of Continuing Professional Education, New Brunswick, NJ, December 2016

“Climate Change: Past, Present, and Future” Presentation at Wyckoff Public Library, Wyckoff, NJ, November 2016.

Interviewed and quoted in article entitled "Google Earth's time-lapse update won't convince deniers that climate change is real," *mic.com*, December 2016.

Interviewed and quoted in article entitled "Five reasons enviros fear new president," *The Record* (Woodland Park, NJ), November 2016.

"Climate Change and Extreme Weather: Asking the Right Question" Presentation at Citizens' Climate Education Conference, Washington, DC, June 2016.

"Ron Stouffer at GFDL" Presentation at the Ron Stouffer Symposium, NOAA Geophysical Fluid Dynamics Laboratory, Princeton, NJ, June 2016.

"New Jersey's Changing Climate" Presentation at workshop entitled "Preparing for the Impacts of Climate Change on Public Health in New Jersey," New Brunswick, NJ, June 2016

"Climate Change" Presentation to Rutgers Environmental Stewards Program, Egg Harbor Township, NJ, May 2016.

"Climate Change" Presentation to Rutgers Environmental Stewards Program, Wayne, NJ, March 2016.

Interviewed and quoted by *The Daily Targum* (New Brunswick, NJ) in a news article entitled "Rutgers community discusses wind levels on Livingston Campus," February 2016

Featured in Yale Climate Connections podcast ("Is Global Warming Caused by Natural Cycles?") airing on National Public Radio stations, February 2016

Interviewed and quoted by *The Daily Targum* (New Brunswick, NJ) in a news article entitled "Record-breaking temperatures seen in December," January 2016.

Participant in panel discussion on climate change, D&R Greenway Land Trust, Princeton, NJ, January 2016

Interviewed and quoted by *The Daily Targum* (New Brunswick, NJ) in a news article entitled "New Jersey experiences topsy-turvy weather during September," October 2015.

"Climate Change: A New Jersey Perspective" Presentation to Natural Resources Conservation Service, New Jersey Training on Customer Service, Hamilton, NJ, August 2015

"Climate Change and the Role of the Oceans" Presentation to Maitland Summer Institute, Jacques Cousteau Coastal Education Center, Tuckerton, NJ, July 2015

"Climate Change and Sustainability" Presentation to course entitled "Introduction to Sustainability Management" offered by the New Jersey Agricultural Experiment Station Office of Continuing Professional Education, New Brunswick, NJ, June 2015

Interviewed and quoted by ThinkProgress ([www.thinkprogress.com](http://www.thinkprogress.com)) in an article entitled "What Did Actual Scientists Think of the Pope's Climate Encyclical?" June 2015.

Interviewed and quoted by *The Guardian US* (New York, NY) in a news article entitled "Deadly Texas floods could herald wet winter in parched California," May 2015

"Climate Change: Update on Recycling's Impact on Greenhouse Gas Reduction" Presentation to New Jersey WasteWise Business Network, Hamilton, NJ, May 2015.

"The Climate Ahead: Global Changes, Local Impacts" Invited presentation at Centenary College, Hackettstown, NJ, April 2015.

"The State of The Climate" Keynote presentation at George Street Playhouse Spotlight on Environmental Education, New Brunswick, NJ, April 2015.

"Climate Change 101: A New Jersey Perspective" Presentation at workshop entitled "Climate Change and Agriculture in New Jersey" at Rutgers EcoComplex, Bordentown, NJ, March 2015.

Interviewed and quoted by the *Daily Targum* (New Brunswick, NJ) in a news article entitled "'Megadroughts' expected to impact United States," February 2015

Interviewed and quoted by the *Daily Targum* (New Brunswick, NJ) in a news article entitled

"Meteorologists talk weather, temperature trends," February 2015

Interviewed and quoted by the *Daily Targum* (New Brunswick, NJ) in a news article entitled "Rutgers professors address climate change, geoengineering, CIA interests," February 2015

Interviewed by PBS/Frontline and quoted in a news story on their website entitled "How Climate Change May Lead to Bigger Blizzards," January 2015

Interviewed by WNBC-TV (New York, NY) and featured in a news story entitled "Warmest Temperature on Record Sparks Concerns for Ocean Life," January 2015

Speaker at Climate Change Teen Summit, Rutgers University, New Brunswick, NJ, December 2014

"Climate Change and Extreme Weather: A New Normal?" Presentation to course entitled "Introduction to Sustainability Management" offered by the New Jersey Agricultural Experiment Station Office of Continuing Professional Education, November 2014

"New Jersey's Changing Climate" Invited presentation at Trailside Nature and Science Center, Mountainside, NJ, October 2014

"Behind the Scenes at the Weather Station" Invited presentation at Rutgers Gardens, New Brunswick, NJ, September 2014

"New Jersey's Changing Climate" Invited presentation at Lead New Jersey Environment and Climate Change Seminar, Hillsborough, NJ, September 2014

Interviewed and featured in a "Yale Climate Connections" podcast on climate variability, September 2014

Quoted by USA Today in a news story entitled "Snow foolin': Blizzards still likely despite global warming," August 2014

"New Jersey's Changing Climate" Invited presentation in Duke Farms Dialogue series, Duke Farms, Hillsborough, NJ, June 2014

Answered audience questions following screening of "Chasing Ice" at the First Presbyterian Church, Rumson, NJ, June 2014

"New Jersey's Climate: Past and Future" Invited presentation at New Jersey Water Supply Advisory Council, Somerset, NJ, May 2014

"New Jersey's Climate: Past and Future" Invited presentation to Atlantic County Master Gardeners, Mays Landing, NJ, May 2014

"Climate Change" Invited presentations to Rutgers Environmental Stewards (2 classes), Rutgers Cooperative Extension, April 2014

"A Geological Perspective on Climate Change: Past, Present, and Future" Invited presentation to Friends of Rutgers Geology Museum, Rutgers University, April 2014.

"The Unsettling Implications of Hurricane Sandy" Invited presentation at conference entitled "Unsettling Weather" sponsored by the Center for Cultural Analysis, Rutgers University, February 2014.

Interviewed and quoted by *The Daily Targum* (New Brunswick, NJ) in article entitled "Snow cover, temperature fluctuations pose climate threat," February 2014.

Interviewed by radio station WKXW (NJ101.5, Trenton, NJ) and featured in a news story entitled "Benefits of Colder Weather?" January 2014.

"New Jersey's Climate: Past and Future" Invited presentation at Sustainable Raritan River mini-conference, Duke Farms, Hillsborough, NJ, December 2013.

"Climate Change and Extreme Weather: A New Normal?" Presentation to course entitled "Introduction to Sustainability Management" offered by the New Jersey Agricultural Experiment Station Office of Continuing Professional Education, November 2013

Interviewed by radio station WKXW (NJ101.5, Trenton, NJ) and featured in a news story entitled "Is New Jersey Prepared for Rising Sea Levels," November 2013.

"Monitoring Weather and Climate at Rutgers: 117 Years and Counting" Invited presentation to Rutgers Gardens volunteers, November 2013.

Interviewed and featured in a news story on WNYC-FM (New York, NY) and quoted in an accompanying story in NJ Spotlight entitled "NJ Sandy Recovery Fails to Consider Long-Term Climate Predictions," November 2013.

Participated in panel discussion at symposium entitled "Bridging the Climate Divide: Informing the Response to Hurricane Sandy and Implications for Future Vulnerability," Rutgers University, New Brunswick, NJ, October 2013. This symposium was organized by the Rutgers Climate Institute.

Quoted in article entitled "Clean energy advocates argue state officials not heeding Sandy's warning," *NJ Spotlight*, October 2013.

Presented invited testimony to New Jersey Assembly Telecommunications and Utilities Committee, Trenton, NJ, October 2013.

"Essential Background Information for Meteorologists on Climate Science," Invited presentation at workshop entitled "Climate Change Science for Southwestern Broadcast Meteorologists and Weathercasters," Tucson, AZ, September 2013.

Interviewed and quoted in article entitled "N.J.'s risk of another Sandy is low for this year, but rising seas increase odds by next century, report says," *The Record* (Hackensack, NJ), September 2013.

"Coastal Storms in New Jersey: What Lies Ahead," Invited presentation at Island Heights Yacht Club, Island Heights, NJ, September 2013.

"Climate Change: Implications for Extreme Events in New Jersey," Invited presentation at workshop for New Jersey Recovery Fund Grantees, New Brunswick, NJ, September 2013.

"Essential Background Information for Meteorologists on Climate Science," Invited presentation at short course entitled "Weird(er) Weather and a Changing Climate: Piecing Together the Puzzle" at American Meteorological Society 41st Conference on Broadcast Meteorology, Nashville, TN, June 2013.

"Fundamentals Of Climate Change," Invited testimony at New Jersey Clean Air Council, Trenton, NJ, May 2013.

"The State of New Jersey's Climate," Invited presentation at workshop entitled "Climate Change Preparedness in New Jersey: Leading Practices and Policy Priorities," New Brunswick, NJ, May 2013.

"Climate Change And Extreme Weather: A New Normal?" Friends of Princeton Open Space, Princeton, NJ, April 2013.

"An Earth Day Look At Climate Change," South Brunswick Senior Center, South Brunswick, NJ, April 2013.

Presentation entitled "Climate Science In The Northeast: Implications For Water Management," EPA training session, Edison, NJ, April 2013.

Interviewed and quoted in article entitled "Open space group to host talk on climate change," *Princeton Packet* (Princeton, NJ), April 2013.

Interviewed and quoted in article entitled "Shore towns must prepare for even higher seas," *Press of Atlantic City* (Atlantic City, NJ), April 2013.

"Planning For Future Weather Extremes In New Jersey," Invited presentation at New Jersey Future Redevelopment Conference, New Brunswick, NJ, March 2013.

"Climate History: What The Past Can Tell Us About The Future," Stonebridge Retirement Community, Montgomery, NJ, February 2013.

Presented invited testimony to New Jersey Senate Budget and Appropriations Committee, Toms River, NJ, February 2013.

Interviewed and quoted in article entitled "Officials urge some parts of LBI, Toms River to vacate instead of rebuild," *Star-Ledger* (Newark, NJ), December 2012.

Quoted in article entitled "Weather extremes impact rebuilding," *Asbury Park Press* (Asbury Park, NJ), December 2012.

"Climate Change and Extreme Weather: A New Normal?" Invited presentation at workshop entitled "Rebuilding a Resilient New Jersey Shore," Monmouth University, December 2012.

"Is New Jersey's Weather Changing?" Invited presentation at Great Horizons, Morris School District Community Schools, Morris Plains, NJ, November 2012.

Guest blogger ("Sandy Is a Truly Unusual Event, Worthy of Our Attention") for Climate Central website, October 2012.

"Climate Change," Invited webinar for GreenFaith, October 2012.

"Essential Background Information for Meteorologists on Climate Science," Invited presentation at workshop entitled "Climate Change Science for Minnesota Broadcast Meteorologists," St. Paul, MN, October 2012.

"Storms of the New Jersey Shore," Invited presentation at Avalon History Center, Avalon, NJ, August 2012.

Interviewed and quoted in article entitled "High pollen counts aggravate allergies, wreak havoc on N.J. health," *Star-Ledger* (Newark, NJ), April 2012.

"Weather Gone Wild: Is Climate Change To Blame?" Great Swamp Watershed Association, Morristown, NJ, April 2012.

"An Introduction To Climate Change Science," Invited presentation at workshop entitled "Climate Change Science for Broadcast Meteorologists," Oxford, MD, March 2012.

"Weather Gone Wild: Is Climate Change To Blame?" Closter Green Team, Closter, NJ, March 2012.

"The Climate Ahead: Global Changes and Local Impacts," Rutgers Environmental Stewards Program, Warren County Cooperative Extension, Belvidere, NJ, February 2012.

"The Science of Climate Change" Liberty Insurance Underwriters, Plainsboro, NJ, January 2012.

"Climate Change and Its Impacts: An Overview of the Science," workshop entitled "Preparing New Jersey for Climate Change: A Workshop for Decision Makers," Rutgers University, New Brunswick, NJ, November 2011.

"The Climate Ahead: An Overview of the Science," conference entitled "Greening New Jersey Communities from the Ground Up," Rutgers University, New Brunswick, NJ, October 2011

"The Climate Ahead: An Overview of the Science" Brick Kiwanis Club, Brick, NJ, October 2011.

Interviewed and quoted in article entitled "July was NJ's 2<sup>nd</sup>-hottest month ever," *The Record* (Hackensack, NJ), August 2011.

Interviewed and quoted in article entitled "Heat wave, record temperatures are harbingers of a warmer world," *Star-Ledger* (Newark, NJ), July 2011.

Interviewed and quoted in article entitled "Rutgers panel examines impact of rising sea levels," *The Record* (Hackensack, NJ), May 2011.

"Climate Change 101: An Overview of the Science," symposium entitled "Climate Change and Coastal Hazards", Ocean County Library, Toms River, NJ, May 2011.

On-camera interview by New Jersey Network (Trenton, NJ) for television news broadcast following briefing of New Jersey Governor Christopher Christie, May 2011.

Interviewed and quoted in article entitled "Tsunami in Japan certainly no indication of climate change," NxtGenNews.com, April 2011.

"The Climate Ahead: What Does A Snowy Winter Tell Us About Global Warming?" Teaneck Creek Conservancy, Teaneck, NJ, February 2011.

On-camera interview about relationship between climate change and extreme precipitation events by New Jersey Network (Trenton, NJ) for television news broadcast, February 2011.

"The Climate Ahead: Global Changes and Local Impacts," Rutgers Environmental Stewards Program, Atlantic County Utilities Authority, Egg Harbor Township, NJ, February 2011.

"Climate Change 101" at "Changing Climate Listening Session," Long Beach Island Foundation for the Arts and Sciences, Loveladies, NJ, co-sponsored by the Barnegat Bay Partnership and the Jacques Cousteau National Estuarine Research Reserve, August, 2010.

"Climate Change: What Do Educators Need To Know?" Workshop on weather and climate change for educators, Jacques Cousteau National Estuarine Research Reserve, Tuckerton, NJ, June, 2010.

"What Every Broadcast Meteorologist Needs To Know About Climate Change Science," Invited presentation at Yale Forum workshop for broadcast meteorologists, Miami, FL, May 2010.

Keynote speaker at Spring Seminar on Climate Change sponsored by Unitarian Universalist United Nations Office, New York, NY, April 2010

Speaker at Climate Change Teen Summit organized by 4-H Science, Engineering and Technology Program, Rutgers University, New Brunswick, NJ, March 2010

"The Climate Ahead: Global Changes and Local Impacts," Rutgers Environmental Stewards Program, Essex County Environmental Center, Roseland, NJ, February 2010.

"The Climate Ahead: Global Changes and Local Impacts," Rutgers Environmental Stewards Program, Duke Farms, Hillsborough, NJ, February 2010.

Interviewed by WFMZ-TV (Allentown, PA) and featured in two news stories ("Global Warming As A Political Topic" and "Leaders Tackle Global Climate Change In Copenhagen"), December 2009.

"Climate Change and New Jersey Agriculture," New Jersey Agribusiness Association Annual Conference, Mt. Holly, NJ, December 2009.

Interviewed and quoted in article entitled "Wilder weather ahead" and editorial entitled "Test-driving the future," *The Record* (Hackensack, NJ), June 2009.

"What Every Broadcast Meteorologist Needs To Know About Climate Change Science," Invited presentation at American Meteorological Society Short Course on Climate Change Science, Portland, OR, June 2009.

"Climate Change: Causes and Consequences," Rutgers University Graduate School-New Brunswick Advisory Board, May 2009.

"What Everyone Should Know About Climate Change," Great Swamp Watershed Association, Harding, NJ, May 2009.

"Impact of Climate Change on New Jersey Infrastructure," North Jersey Transportation Planning Authority Climate Change Working Group, Newark, NJ, April 2009.

Invited panelist in NJPIRG Global Warming Solutions Panel, Rutgers University, New Brunswick, NJ, April 2009.

Participant in Climate Change Teen Summit organized by 4-H Science, Engineering and Technology

Program, Rutgers University, New Brunswick, NJ, April 2009

Moderator of panel discussion on climate change and hurricanes at symposium entitled "The Climate Ahead: Climate Change and Extreme Weather Events," Rutgers University, New Brunswick, NJ, April 2009.

Invited presentation entitled "Climate Change and Its Impact on Water Suppliers and Purveyors" at New Jersey Section, American Water Works Association, seminar on climate change and sustainability ("Changing Climate: Adapting a Sustainable Approach for Your Utility"), Rutgers EcoComplex, Bordentown, NJ, February 2009.

Interviewed and quoted in article entitled "State faces effects of global warming," *The Daily Targum* (New Brunswick, NJ), February 2009.

"The Climate Ahead: Global Changes and Local Impacts," Rutgers Environmental Stewards Program, Essex County Environmental Center, Roseland, NJ, February 2009.

"The Climate Ahead: Global Changes and Local Impacts," Rutgers Environmental Stewards Program, Rutgers EcoComplex, Bordentown, NJ, February 2009.

"Impact of Climate Change on New Jersey Infrastructure," New Jersey Department of Transportation Workshop on Sustainable Transportation In A Changing Environment, Ewing, NJ, January 2009.

Quoted by *The Record* (Hackensack, NJ) in news article entitled "Synagogues Preach the Value of Going Green," December 2008.

"Climate Change: Causes, Impacts and Solutions," Temple Sinai, Tenafly, NJ, December 2008.

Invited Participant, NASA Goddard Institute for Space Studies AR5 Science Workshop, Columbia University, New York, NY, November, 2008

"Climate Change and Transportation," Rutgers Transportation Coordinating Council, New Brunswick, NJ, November 2008.

"Climate Change: Causes, Impacts and Solutions," Rutgers Environmental Fest, New Brunswick, NJ, October 2008.

Interviewed and quoted by *The New York Times* in news article entitled "Tropical Warming Tied to Flooding Rains," August 2008.

Interviewed by NJ101.5 WKXW radio (Trenton, NJ) about seasonal hurricane forecast and effects of climate on hurricanes, August 2008.

"Climate Change: What We Know and Don't Know," Fourth National Integrity in Science Conference, Center for Science in the Public Interest, Washington, DC, July 2008.

"Energy Use and the Challenge of Global Climate Change," M&M Mars Sustainability Program, Rutgers EcoComplex, Columbus, NJ, June 2008.

"The Climate Ahead: Global Changes and Local Impacts," Industrial Advisory Board, Center for Advanced Food Technology, Rutgers University, East Brunswick, NJ, April 2008.

"The Climate Ahead: Global Changes and Local Impacts," New Jersey Natural Gas Company, Earth Day Luncheon, Wall, NJ, April 2008.

Speaker at reception sponsored by Centers for Ocean Science Education Excellence at National Science Teachers Association 2008 National Conference, Boston, MA, March 2008.

"The Climate Ahead: Global Changes and Local Impacts," Somerset Naturalists, Somerset County Library, Bridgewater, NJ, March 2008.

"The Climate Ahead: Global Changes and Local Impacts," Rutgers Environmental Stewards Program, Essex County Environmental Center, Roseland, NJ, February 2008.



“The Climate Ahead: Global Changes and Local Impacts,” Rutgers Environmental Stewards Program, Atlantic County Utilities Authority, Egg Harbor Township, NJ, February 2008.

“Global Warming... It Is Later Than We Think... But Not Too Late,” Pulse of the Planet lecture series, Liberty Science Center, Jersey City, NJ, January 2008.

Interviewed and quoted by *The Record* (Hackensack, NJ) in news article about relationship between current weather and climate change, January 2008.

Interviewed and quoted by *The Star-Ledger* (Newark, NJ) in news article about geoengineering, December 2007.

Interviewed and quoted by *The Whit* (Rowan University, Glassboro, NJ), in news article about expected weather during upcoming winter season, November 2007.

“Will Global Warming Turn the River Dorms into the Ocean Dorms?” Rutgers Gameday Seminar, Piscataway, NJ, October 2007.

Invited testimony on climate change to New Jersey Assembly Statewide Flooding Legislative Panel, Lodi, NJ, October 2007.

“The Climate Ahead: Global Changes and Local Impacts,” Association of New Jersey Environmental Commissions, Mercer County Community College, West Windsor, NJ, October 2007.

“The Climate Ahead: Global Changes and Local Impacts,” GreenFaith Advisory Council Reception, Drew University, Madison, NJ, September 2007.

Participant in panel discussion on New Jersey Network (Trenton, NJ) television program "On The Record," July 2007.

“Climate Change: Causes and Consequences,” Rutgers University Safety Management Meeting, Piscataway, NJ, June 2007.

“The Rutgers Initiative on Climate Change and Environmental Impacts,” Rutgers University Energy Institute Symposium, Piscataway, NJ, May 2007.

“The Challenge of Global Warming and Recycling’s Impact on Greenhouse Gas Reduction,” New Jersey WasteWise Business Network, South Plainfield, NJ, May 2007.

“The Climate Ahead: Changes in Hurricanes and Winter Storms?” Rutgers Coastal Climate Change Mini-Symposium, Piscataway, NJ, May 2007.

Interviewed and quoted by the *Home News Tribune* (New Brunswick, NJ) in news article about effects of climate change on the New Jersey coast, May 2007.

Interviewed by radio station NJ101.5 WKXW-FM (Trenton, NJ) about effects of climate change on the New Jersey coast, May 2007.

Invited testimony on climate change to New Jersey Senate Environment Committee, Trenton, NJ, April 2007. This testimony was the subject of newspaper articles in the *Home News Tribune* (New Brunswick, NJ) and the *Gloucester County Times* (Woodbury, NJ).

“Greenhouse Gases and Climate Change: Global Changes and Local Impacts,” New Jersey Clean Air Council, Trenton, NJ, April 2007.

“The Climate Ahead: Global Changes and Local Consequences,” Rutgers Trenton Public Policy Seminar Series, New Jersey State House, Trenton, NJ, March 2007.

“Climate Change: Causes and Consequences,” Preconference workshop of the New Jersey Chapter of the American Water Works Association, Atlantic City, NJ, March 2007.

"Climate Change: How Will It Affect Us?" Information session about IPCC Report ("Global Warming: It's Later Than We Think, But It's Not Too Late") at Nicholas Music Center, Rutgers University, February

2007.

Interviewed and quoted by *The Star-Ledger* (Newark, NJ) in news article about pioneering climate modeler Syukuro Manabe, February 2007.

"From Ice Age to Greenhouse: What Past Climates Can Tell Us About Future Climate Change," Geology Open House, Rutgers University, January 2007.

"Global Warming: Causes and Consequences," Delaware Estuary Science Conference, Cape May, NJ, January 2007.

Participant in panel discussion in New Jersey Network (Trenton, NJ) television documentary entitled "Drought and Deluge--The New Weather," January 2007.

Interviewed about relationship between recent weather and climate change by WNBC-TV (New York, NY) during "Live at Five" broadcast, and on tape during 11 PM news, January 2007.

Interviewed and quoted by *The Star-Ledger* (Newark, NJ) in news article about the NOAA Geophysical Fluid Dynamics Laboratory, December 2006.

"Global Warming: Causes and Consequences," Annual Recycling Symposium and Awards Luncheon, Association of New Jersey Recyclers, Eatontown, NJ, October 2006.

"Global Warming: Causes and Consequences," Nassau Presbyterian Church, Princeton, NJ, October 2006.

Interviewed and quoted by *The Star-Ledger* (Newark, NJ) in news article about Rutgers University climate change symposium, September 2006.

Interviewed by New Jersey Network for news story about Rutgers University climate change symposium, September 2006.

Interviewed by the Voice of America for news story on climate change entitled "Earth Heats Up As Global Warming Debate Rages," August 2006.

"Future Climate Change: Sea Level Rise, Storm Surge and the New Jersey Shore" at Academy of Natural Sciences, Philadelphia, PA., August 2006.

Invited Participant, Science Communications and the Media Workshop, Washington, DC, July 2006

"Future Changes in Climate, Sea Level and Hydrology" to a meeting of the Delaware River Basin Commission, West Trenton, NJ, June 2006.

"Understanding Climate Change" at meeting of Monroe Township League of Women Voters, Monroe Township, NJ, May 2006.

"Understanding Climate Change," New Jersey Sustainable State Institute Energy Sustainability Project kickoff conference "Envisioning New Jersey's Energy Future," Bloustein School of Public Policy, New Brunswick, NJ, May 2006.

"Water Resources in a Changing Climate," 2006 New Jersey Envirothon Training Workshop, Jackson, NJ, April 2006.

"Understanding Climate Change," Unitarian Universalist Congregation of Monmouth County, Lincroft, NJ, April 2006.

"Global Warming: Evidence and Controversy," Moorestown Friends School, Moorestown, NJ, November 2005.

Participant, Science Communications and Media Workshop, Columbia University, Palisades, NY, June 2005

"Global Warming: Evidence and Controversy" Philadelphia Yearly Meeting of the Religious Society of Friends, Philadelphia, PA, June 2005.

"Global Warming: Science Update," New Jersey Work Environment Council and Blue/Green Working Group, New Brunswick, NJ, 2002.

"What Every Meteorologist Should Know About Global Warming," Philadelphia-Delaware Area Chapter of the American Meteorological Society, Mount Holly, NJ, May 2002.

"Global Warming: Science Update," New Jersey Work Environment Council, Lawrenceville, NJ, March 2002.

"Our Changing Climate: Something Old, Something New, What Will Happen? and What To Do?" Delaware Valley Chapter, Air and Waste Management Association, Fort Washington, PA, January 2001.

"Detection and Monitoring of Climate Change and Trends," Commercial Refrigerator Manufacturers Meeting, Washington, DC, 1998.

"The Greenhouse Effect" New Jersey Energy and Facilities Management Exposition 1989, Secaucus, NJ, March 1989.

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## Funding

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### Externally-Funded Research and/or Training Grants

- 2011-2016 | (Grant Amount: \$2,314,487) National Science Foundation, "Climate-to-Humans: A Study of Urbanized Coastal Environments, their Economics and Vulnerability to Climate Change", Enrique Curchitser and others
- 2011-2015 | (Grant Amount: \$400,814) National Science Foundation, "Mechanistic Interpretation of the Spatial Signatures of Mid-Holocene Precipitation over South America and the Atlantic", Benjamin R. Lintner and Anthony J. Broccoli
- 2010-2014 | (Grant Amount: \$389,823) United States Department of Energy, "Investigating the Relationship Between Daily Temperature Extremes and Patterns of Climate Variability in Observations and Future Climate Simulations", Anthony J. Broccoli
- 2009-2014 | (Grant Amount: \$309,000) National Oceanic and Atmospheric Administration, "Towards an Improved Understanding of Simulated and Observed Changes in Extreme Precipitation", Anthony J. Broccoli (PI)
- 2009-2013 | (Grant Amount: \$382,880) National Science Foundation, "Orbital Timescale Climate Variability: Simulation of Mechanisms and Comparison with Paleoclimate Observations", Anthony J. Broccoli
- 2004-2007 | (Grant Amount: \$268,560) National Oceanic and Atmospheric Administration, "Evaluation of Fingerprints of Natural and Anthropogenic Climate Change", Anthony J. Broccoli (PI)

### Internally-Funded Research and/or Training Grants

- 2008-2010 | (Grant Amount: \$110,000) Rutgers University, Academic Excellence Fund, "Building the Climate and Environmental Change Initiative", Anthony J. Broccoli and others

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## Students Supervised

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### Students Supervised for Independent Studies

Tyler Janoski, George H. Cook Scholars Program, Rutgers University, 2016-2017 ("Assessing East Coast Blizzards Under Climate Change")

Ross Alter, George H. Cook Scholars Program, Rutgers University, 2009-2010 (“Changes in Extreme Precipitation in a Warmer Climate”)

David Porter, George H. Cook Scholars Program, Rutgers University, 2005-2006 (“Snow-Ice Albedo Feedback: A Comparison of Long-Term Climate Change and Interannual Variability”)

Stephanie Zick, George H. Cook Scholars Program, Rutgers University, 2004-2005 (“Analysis of CO<sub>2</sub>-Induced Changes in Ice Sheet Mass Balance in a Global Climate Model”)

Ross Alter, Honors Tutorial, Rutgers University, 2008-2009 (“IPCC Extreme Precipitation Synthesis”)

Dan Baur, Honors Tutorial, Rutgers University, 2006-2007 (“The Effects of Incoming Solar Radiation on Average Temperature in North America”)

Hunter Tubbs, independent study, Rutgers University, 2016 (“Verifying Forecast Model Simulations of Incoming Solar Radiation”)

Alessandra Burgos, independent study, Rutgers University, 2016 (“Analyzing Polar Amplification in Models and Observations”)

Alessandra Burgos, independent study, Rutgers University, 2014 (“Analyzing Storm Surge Events in Models and Observations”)

James Danco, independent study, Rutgers University, 2013-2014 (“Future Changes in Daily Snowfall Statistics in the CMIP5 Model Archive”)

Kelsey Johnson, independent study, Rutgers University, 2013-2014 (“Identifying Storm Surge Events in the Mid-Atlantic Bight”)

Neal Graham, independent study, Rutgers University, 2012-2013 (“Changes in Tropical Pacific Thermocline Characteristics in Response to Orbital Forcing”)

James Danco, independent study, Rutgers University, 2012-2013 (“Documenting Changes in Climate on Global and Regional Scales”)

Anthony DeAngelis, independent study, Rutgers University, 2007-2008 (“Changes in Hydrologic Extremes in a Warmer Climate”)

Paul Loikith, independent study, Rutgers University, 2006-2007 (“Investigating the Causes of Glacial Melt on Mount Kilimanjaro Using the GFDL CM2.1 Coupled Climate Model”)

Jennifer DuBarry, independent study, Rutgers University, 2005-2006 (“Schools Declaring Snow Days: When Do We Really Declare One?”)

Jared Klein, independent study, Rutgers University, 2004-2005 (“Monitoring the Effects of Modes of Atmospheric Variability on Medium-Range Weather”)

Mark Papier, independent study, Rutgers University, 2003-2004 (“Probability of occurrence of 5-day extreme maximum and minimum temperatures at New Brunswick”)

Mark Sannutti, independent study, Rutgers University, 2003-2004, (“Effects of modes of climate variability on New Jersey snowfall”)

Erica Loechl, summer intern, Princeton University, 1997, Topic: Comparison of simulated snow cover with observations

Emily Marciniak, summer intern, Princeton University, 1993, Topic: Evaluation of ice age climate simulation

Paul Wichansky, summer intern, Princeton University, 1992, Topic: Graphics software development

Jennifer Eden, undergraduate summer intern, Princeton University, 1991, Topic: Comparison of simulated precipitation with observations

Gerard Dismukes, summer intern, Princeton University, 1990, Topic: Graphics software development

Adam Finnefrock, summer intern, Princeton University, 1989, Topic: Comparison of simulated precipitation with observations

### **Master's or Doctoral Students by Type of Supervision**

Grainne O'Neill, Ph.D. in progress, Rutgers University (primary advisor)

Arielle Catalano, Ph.D, Rutgers University, 2018 (primary advisor)

Robert Pawlak, M.S., Rutgers University, 2018 (primary advisor)

Lori Sentman, Ph.D., Rutgers University, 2017 (primary advisor)

Anthony DeAngelis, Ph.D., Rutgers University, 2014 (primary advisor)

Michael Erb, Ph.D., Rutgers University, 2013 (primary advisor)

Paul Loikith, Ph.D., Rutgers University, 2012 (primary advisor)

John Krasting, Ph.D., Rutgers University, 2008 (primary advisor)

Stephanie Weber, M.S., Rutgers University, 2005 (primary advisor)

Alexandra Ramos Valle, Ph.D. in progress, Rutgers University (member of thesis committee)

Kristen Joyse, Ph.D. in progress, Rutgers University (member of thesis committee)

Maxwell Pike, Ph.D. in progress, Rutgers University (member of thesis committee)

Ting Cai, Ph.D., Rutgers University, 2019 (member of thesis committee)

Brian Zambri, Ph.D., Rutgers University, 2018 (member of thesis committee)

Corey Gabriel, Ph.D., Rutgers University, 2017 (member of thesis committee)

Lynne Trabachino, Ph.D., Rutgers University, 2016 (member of thesis committee)

Matthew Niznik, Ph.D., Rutgers University, 2015 (member of thesis committee)

Julie Kalansky, Ph.D., Rutgers University, 2014 (member of thesis committee)

Lili Xia, Ph.D., Rutgers University, 2014 (member of thesis committee)

Juan Perez Arango, Ph.D. in progress, Rutgers University (oral comprehensive committee)

Matthew Niznik, Ph.D., Rutgers University, 2015 (oral comprehensive committee)

Damianos Mantsis, Ph.D., University of Miami, 2011 (member of thesis committee)

Katherine Esswein, M.S., Rutgers University, 2012 (member of thesis committee)

Tom Collow, Ph.D., Rutgers University, 2014 (oral comprehensive committee)

Benjamin Kravitz, Ph.D., Rutgers University, 2011 (member of thesis committee)

Stephen Nicholls, Ph.D., Rutgers University, 2012 (oral comprehensive committee)

Nicole Davi, Ph.D., Rutgers University, 2010 (member of thesis committee)

Brian Cerruti, M.S., Rutgers University, 2010 (member of thesis committee)

Craig Anderson, M.S., Rutgers University, 2009 (member of thesis committee)

Natasa Skific, Ph.D., Rutgers University, 2009 (member of thesis committee)

Imtiaz Rangwala, Ph.D., Rutgers University, 2008 (member of thesis committee)

Michael Foster, Ph.D., Rutgers University, 2008 (member of thesis committee)

Sindia Sosdian, Ph.D., Rutgers University, 2008 (member of thesis committee)  
Matei Georgescu, Ph.D., Rutgers University, 2008 (member of thesis committee)  
Paul Wichansky, Ph.D., Rutgers University, 2008 (member of thesis committee)  
Chaochao Gao, Ph.D., Rutgers University, 2008 (member of thesis committee)  
Haibin Li, Ph.D., Rutgers University, 2006 (member of thesis committee)  
Michael Previdi, Ph.D., Rutgers University, 2006 (member of thesis committee)  
Luke Oman, Ph.D., Rutgers University, 2006 (member of thesis committee)  
Michael Foster, M.S., Rutgers University, 2006 (oral comprehensive committee)  
Natasa Skific, M.S., Rutgers University, 2006 (member of thesis committee)  
Rose Marie Came, MIT-Woods Hole Joint Program, 2005 (oral comprehensive committee)  
Kristina Dahl, MIT-Woods Hole Joint Program, 2005 (oral comprehensive committee)  
Thomas Atkins, M.S., Rutgers University (oral comprehensive committee)  
Duane Thresher, Columbia University, 2004 (member of thesis committee)  
Masakazu Yoshimori, University of Victoria, 2001 (member of thesis committee)  
Guido Vettoretti, University of Toronto, 2001 (member of thesis committee)  
Sukeshi Sheth, Columbia University, 1999 (member of thesis committee)  
Zhaomin Wang, McGill University, 1999 (member of thesis committee)

### **Postdoctoral Trainees**

Kyle Clem, Rutgers University, 2017-2019  
Masakazu Yoshimori, Rutgers University, 2005-2007  
Charles Jackson, Princeton University, 1998-2000

### **Academic Advisement**

Academic Advisor, Undergraduate Program in Meteorology, 2018-2019 (~10 students)  
Academic Advisor, Undergraduate Program in Meteorology, 2017-2018 (~10 students)  
Academic Advisor, Undergraduate Program in Meteorology, 2016-2017 (10-15 students)  
Academic Advisor, Undergraduate Program in Meteorology, 2015-2016 (15-20 students)  
Academic Advisor, Undergraduate Program in Meteorology, 2014-2015 (15-20 students)  
Academic Advisor, Undergraduate Program in Meteorology, 2013-2014 (15-20 students)  
Academic Advisor, Undergraduate Program in Meteorology, 2012-2013 (15-20 students)  
Academic Advisor, Undergraduate Program in Meteorology, 2011-2012 (15-20 students)  
Academic Advisor, Undergraduate Program in Meteorology, 2010-2011 (15-20 students)  
Academic Advisor, Undergraduate Program in Meteorology, 2009-2010 (15-20 students)  
Academic Advisor, Undergraduate Program in Meteorology, 2008-2009 (15-20 students)  
Academic Advisor, Undergraduate Program in Meteorology, 2007-2008 (15-20 students)  
Academic Advisor, Undergraduate Program in Meteorology, 2006-2007 (15-20 students)  
Academic Advisor, Undergraduate Program in Meteorology, 2005-2006 (~20 students)

## Teaching Activities

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### Teaching Other

Internship supervised, Joseph Szpila (Spot-On Weather), Summer 2018

Internship supervised, Joseph DeLizio (RNN-TV), Rutgers University, Fall 2017

Internship supervised, Alex Calamia (News 12 New Jersey), Rutgers University, Summer 2015

Internship supervised, Nicholas Quaglieri (Time Warner Cable, Austin, TX), Rutgers University, Summer 2015

Internship supervised, Shawnie Caslin (WNBC-TV), Rutgers University, Spring 2014

Internship supervised, Ross Giarratana (National Weather Service), Rutgers University, Summer 2012

Internship supervised, Jennifer Pagliei (NBC News Channel 40), Rutgers University, Summer 2012

Internship supervised, Anthony McCullough (NBC News Channel 40), Rutgers University, Summer 2012

Internship supervised, Adam Rainear (NBC News Channel 40), Rutgers University, Summer 2012

Internship supervised, Alyssa Caroprese (News 12 New Jersey), Rutgers University, Summer 2012

Internship supervised, Giana Pietrafesa (National Weather Service), Rutgers University, Spring 2012

Internship supervised, Christopher Sheridan (WCBS-TV), Rutgers University, Spring 2012

Internship supervised, Jessica Webster (National Weather Service), Rutgers University, Spring 2012

Internship supervised, Christopher Sheridan (News 12 New Jersey), Rutgers University, Summer 2011

Internship supervised, Jessica Webster (NBC News Channel 40), Rutgers University, Summer 2010

Internship supervised, Christopher Sheridan (WABC-TV), Rutgers University, Summer 2010

Internship supervised, Justin Godynick (News 12 New Jersey), Rutgers University, Summer 2008

Internship supervised, Nicole Mentel (CNBC), Rutgers University, Summer 2008

Internship supervised, Allison Marquardt (NBC News Channel 40), Rutgers University, Summer 2008

Internship supervised, Natalie Martin (The Conservancy of Southwest Florida), Rutgers University, Summer 2005

Internship supervised, Sarah Levine (National Weather Service), Rutgers University, Fall 2004

Internship supervised, Timothy Roche (News 12 New Jersey), Rutgers University, Fall 2004

### Courses Taught

Spring 2019, Atmospheric Dynamics (co-instructor), Rutgers University (undergraduate)

Spring 2019, Introduction to Climate Science, Rutgers University (undergraduate)

Fall 2018, Physical Climatology, Rutgers University (graduate)

Fall 2018, Climate Dynamics, Rutgers University (undergraduate)

Spring 2018, Atmospheric Dynamics, Rutgers University (undergraduate)

Spring 2018, Introduction to Climate Science, Rutgers University (undergraduate)

Fall 2017, Mechanisms of Past Climate Change, Rutgers University (graduate)

Spring 2017, Atmospheric Dynamics (co-instructor), Rutgers University (undergraduate)

Spring 2017, Introduction to Climate Science, Rutgers University (undergraduate)

Fall 2016, Physical Climatology, Rutgers University (graduate)

Spring 2016, Dynamics of the Atmosphere (co-instructor), Rutgers University (undergraduate)

Spring 2016, Introduction to Climate Science, Rutgers University (undergraduate)

Fall 2015, Mechanisms of Past Climate Change, Rutgers University (graduate)

Spring 2015, Dynamics of the Atmosphere (co-instructor), Rutgers University (undergraduate)

Fall 2014, Energy and Climate Change (15% responsibility), Rutgers University (undergraduate)

Fall 2014, Byrne Seminar ("Weather Gone Wild: Will Climate Change Cause More Extreme Weather?"), Rutgers University (undergraduate)

Spring 2014, Dynamics of the Atmosphere (co-instructor), Rutgers University (undergraduate)

Fall 2013, Energy and Climate Change (15% responsibility), Rutgers University (undergraduate)

Fall 2013, Byrne Seminar ("Weather Gone Wild: Will Climate Change Cause More Extreme Weather?"), Rutgers University (undergraduate)

Spring 2013, Mechanisms of Past Climate Change, Rutgers University (graduate)

Spring 2013, Meteorological Analysis II, Rutgers University (undergraduate)

Spring 2013, Dynamics of the Atmosphere (co-instructor), Rutgers University (undergraduate)

Fall 2012, Energy and Climate Change (15% responsibility), Rutgers University (undergraduate)

Fall 2012, Byrne Seminar ("Weather Gone Wild: Will Climate Change Cause More Extreme Weather?"), Rutgers University (undergraduate)

Spring 2012, Meteorological Analysis II, Rutgers University (undergraduate)

Spring 2012, Dynamics of the Atmosphere (co-instructor), Rutgers University (undergraduate)

Fall 2011, Energy and Climate Change (15% responsibility), Rutgers University (undergraduate)

Fall 2011, Byrne Seminar ("Weather Gone Wild: Will Climate Change Cause More Extreme Weather?"), Rutgers University (undergraduate)

Spring 2011, Meteorological Analysis II, Rutgers University (undergraduate)

Spring 2011, Dynamics of the Atmosphere (co-instructor), Rutgers University (undergraduate)

Spring 2010, Byrne Seminar ("Weather Gone Wild: Will Climate Change Cause More Extreme Weather?"), Rutgers University (undergraduate)



Spring 2010, Meteorological Analysis II, Rutgers University (undergraduate)

Spring 2010, Dynamics of the Atmosphere, Rutgers University (undergraduate)

Spring 2009, Byrne Seminar ("Weather Gone Wild: Will Climate Change Cause More Extreme Weather?"), Rutgers University (undergraduate)

Spring 2009, Meteorological Analysis II, Rutgers University (undergraduate)

Spring 2009, Dynamics of the Atmosphere, Rutgers University (undergraduate)

Fall 2008, Fundamentals of Atmospheric Science I (10% responsibility), Rutgers University (graduate)

Spring 2008, Meteorological Analysis II (co-instructor), Rutgers University (undergraduate)

Spring 2008, Fundamentals of Atmospheric Science II (30% responsibility), Rutgers University (graduate)

Spring 2008, Dynamics of the Atmosphere, Rutgers University (undergraduate)

Fall 2007, Fundamentals of Atmospheric Science I (10% responsibility), Rutgers University (graduate)

Fall 2007, Mechanisms of Past Climate Change, Rutgers University (graduate)

Spring 2007, Dynamics of the Atmosphere, Rutgers University (undergraduate)

Fall 2006, Weather Systems, Rutgers University (undergraduate)

Fall 2006, Synoptic Analysis and Forecasting I, Rutgers University (undergraduate)

Spring 2006, Dynamics of the Oceans and Atmosphere, Rutgers University (undergraduate)

Fall 2005, Mechanisms of Past Climate Change, Rutgers University (graduate)

Spring 2005, Dynamics of the Oceans and Atmosphere, Rutgers University (undergraduate)

Spring 2004, Dynamics of the Oceans and Atmosphere, Rutgers University (undergraduate)

Fall 2003, Weather Systems, Rutgers University (undergraduate)

Fall 2003, Special Problems in Environmental Sciences (Mechanisms of Past Climate Change), Rutgers University (graduate)

Spring 2002, Weather and Climate Dynamics (co-instructor), Princeton University (graduate)

Spring 2000, Weather and Climate Dynamics (co-instructor), Princeton University (graduate)

Spring 1988, Weather, Climate and Environmental Design, Rutgers University (undergraduate)

Spring 1987, Weather, Climate and Environmental Design, Rutgers University (undergraduate)

Spring 1986, Weather, Climate and Environmental Design, Rutgers University (undergraduate)

Spring 1985, Weather, Climate and Environmental Design, Rutgers University (undergraduate)

Spring 1984, Weather, Climate and Environmental Design, Rutgers University (undergraduate)

Summer 1983, Elements of Meteorology, Rutgers University (undergraduate)

Spring 1983, Weather, Climate and Environmental Design, Rutgers University (undergraduate)

Spring 1982, Weather, Climate and Environmental Design, Rutgers University (undergraduate)

Spring 1981, Weather, Climate and Environmental Design, Rutgers University (undergraduate)

Spring 1980, Weather, Climate and Environmental Design, Rutgers University (undergraduate)

### **Curricular Development - Courses and Programs Developed**

- 2006-2007 | Proposed and developed a new, team-taught graduate course entitled “Fundamentals of Atmospheric Science” (two-semester sequence). This course is required for students in the Graduate Program in Atmospheric Science. Its purpose is to provide a foundation in atmospheric science for students entering the program without an undergraduate degree in atmospheric science or meteorology, and to ensure that all students in the program are prepared for more advanced courses. This course was first offered in the 2007-08 academic year.
- 2004-2005 | Led the development of the Graduate Program in Atmospheric Science and served as its first graduate program director. This program originated as an option in the Graduate Program in Environmental Sciences and was promoted to full graduate program status in an effort to improve the academic experience for atmospheric science students and increase the attractiveness of Rutgers to prospective students at other domestic universities.
- 2003-2004 | Developed a new graduate course at Rutgers University entitled “Mechanisms of Past Climate Change.” This course combines lectures and readings to address cutting-edge problems in the study of past climates. A primary goal of this course is to provide students with experience in critically evaluating hypotheses and the evidence offered to support them.

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### **Organizing and Chairing Activities**

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#### **Participation in Organizing or Chairing Conferences, Workshops, and Organizations**

- 2006 | Co-organizer of symposium, "The Climate Ahead: Global Changes, Local Impacts," Rutgers University, New Brunswick, NJ, September 2006.
- 2006 | Co-convener of special session, "Controls of the ITCZ Position in Past Climates: Observations and Models," 2006 Joint Assembly of the American Geophysical Union, Baltimore, MD, May 2006
- 2005 | Co-organizer of The Suki Manabe Symposium, American Meteorological Society Annual Meeting, San Diego, California, January 2005.
- 1998 | Program Committee, American Geophysical Union Chapman Conference, “Mechanisms of Millennial-Scale Global Climate Change”
- 1995 | Co-convener of special session, "Climate System Processes at the Last Glacial Maximum," American Geophysical Union Fall Meeting, San Francisco, CA, December 1995.

## Service to New Jersey State Government

- 2019 | Invited testimony on climate change to Joint Environmental Legislative Committee hearing, Trenton, NJ, April 2019
- 2017 | Invited testimony on climate change to Joint Environmental Legislative Committee hearing, Lavallette, NJ, August 2017.
- 2013 | Provided a briefing on climate change to Commissioner Robert Martin at the New Jersey Department of Environmental Protection, Trenton, NJ, July 2013.
- 2013 | Invited testimony on climate change to Senate Budget and Appropriations Committee hearing on Hurricane Sandy, Toms River, NJ, February 2013.
- 2011 | Provided a briefing on climate change to New Jersey Governor Christopher Christie at the State House, Trenton, NJ, May, 2011.
- 2010 | Provided a briefing on climate change to Commissioner Robert Martin at the New Jersey Department of Environmental Protection, Trenton, NJ, December 2010.
- 2010-ongoing | Member, New Jersey Department of Environmental Protection Science Advisory Board, and Chair, Standing Committee on Climate and Atmospheric Science, 2010-present
- 2007 | Invited testimony on effects of climate change on flooding, Assembly Statewide Flooding Legislative Panel, Lodi, NJ, October 2007
- 2007 | Invited testimony on climate change to Senate Environment Committee hearing on Global Warming Response Act, Trenton, NJ, April 2007

## Contributions to the Advancement of the Academic Profession

- 2015-ongoing | Board on Oceans, Atmosphere, and Climate, Association of Public and Land-grant Universities.
- 2006 | Served on *ad hoc* tenure evaluation committee for Woods Hole Oceanographic Institution, Woods Hole, MA.
- 1999-2005 | Fellow, Cooperative Institute for Climate and Ocean Research, 1999-2005

## Service to Rutgers University

- 2017-ongoing | Vice Chancellor's Advisory Committee on Undergraduate Teaching
- 2016-ongoing | Chancellor's Committee on Academic Program Coordination
- 2014-ongoing | Faculty Advisory Committee, Rutgers Institute of Earth, Ocean, and Atmospheric Sciences
- 2014-ongoing | Sustainability Committee, Rutgers University
- 2013-ongoing | Member/Chair, Curriculum Committee, Graduate Program in Atmospheric Science
- 2017 | Search committee for Rutgers-New Brunswick Provost
- 2015-2016 | Chair, Chairs Council, School of Environmental and Biological Sciences
- 2014-2016 | Member/Chair, Search Committee, Henry Rutgers Professor in Earth, Ocean, and Atmospheric Sciences
- 2014-2015 | Vice-Chair, Chairs Council, School of Environmental and Biological Sciences
- 2014 | Faculty speaker at School of Environmental and Biological Sciences Baccalaureate, May 2014

- 2009-2012 | Planning Committee, School of Environmental and Biological Sciences, Rutgers University (Chair 2011-2012)
- 2013-2016 | Nominating Committee, The Graduate School-New Brunswick, Rutgers University
- 2009-2009 | Interviewer for Honors Interview Day, SEBS General Honors Program, Rutgers University, March 2009.
- 2006-2006 | Rutgers-AAUP Grievance Committee
- 2008-2009 | Member, Faculty Search Committee (two positions), Department of Environmental Sciences, Rutgers University, 2008-2009
- 2006-2006 | Ad-hoc Advisory Committee on Instructional Computing, School of Environmental and Biological Sciences
- 2005-2009 | George H. Cook Honors Committee, Cook College
- 2005-2006 | Chair, Academic Excellence Fellowship Committee, Cook College
- 2005-2007 | Chair, Faculty Search Committee (two positions), Department of Environmental Sciences
- 2005-2007 | Physical and Mathematical Sciences and Engineering Area Committee, The Graduate School-New Brunswick
- 2004-2007 | Recruitment and Outreach Committee, Department of Environmental Sciences

#### **Service to Other Public Bodies**

- 2016 | Proposal Review Panel, National Science Foundation, June 2016
- 2016 | Proposal Review Panel, National Science Foundation, January 2016
- 2014 | Ad hoc committee on climate science for City of Philadelphia
- 2014 | Proposal Review Panel, Climate Monitoring Program, National Oceanic and Atmospheric Administration
- 2013 | Participant in Climate Science Day in Washington, DC. Climate Science Day was sponsored by a number of scientific organizations and participating scientists visited the offices of Members of Congress to provide them with the best possible access to scientific information on climate science when making policy decisions.
- 2009-2011 | Member, Scientific Review Group, United Kingdom Meteorological Office Hadley Centre
- 2010 | Proposal Review Panel, Climate Observations and Monitoring Program, National Oceanic and Atmospheric Administration
- 2010 | Proposal Review Panel, NSF/DOE/USDA program "Decadal and Regional Climate Prediction Using Earth System Models"
- 2007 | Contributor and Reviewer, Working Group I, Fourth Assessment Report, Intergovernmental Panel on Climate Change
- 2007 | Proposal Review Panel, Climate Change Data and Detection Program, National Oceanic and Atmospheric Administration
- 2006 | Proposal Review Panel, Climate Change Data and Detection Program, National Oceanic and Atmospheric Administration
- 2004 | Proposal Review Panel, Climate Change Data and Detection Program, National Oceanic and Atmospheric Administration

- 2003 | Proposal Review Panel, CLIVAR Program, National Oceanic and Atmospheric Administration
- 2003 | Proposal Review Panel, Climate Change Data and Detection Program, National Oceanic and Atmospheric Administration
- 2002 | Proposal Review Panel, Climate Change Data and Detection Program, National Oceanic and Atmospheric Administration
- 2001 | Contributor and Reviewer, Working Group I, Third Assessment Report, Intergovernmental Panel on Climate Change
- 2001 | Proposal Review Panel, Earth System History Program, National Science Foundation
- 2000 | Proposal Review Panel, Earth System History Program, National Science Foundation
- 1998 | Site Visit Committee, Natural Sciences and Engineering Research Council of Canada Collaborative Special Project, "Climate System History and Dynamics 2"
- 1997 | Outstanding Paper Evaluation Committee, Environmental Research Laboratories, National Oceanic and Atmospheric Administration
- 1996-1997 | International Advisory Board, Natural Sciences and Engineering Research Council of Canada Collaborative Special Project, "Climate System History and Dynamics"
- 1994-1995 | Advisory Panel, NOAA Paleoclimatology Program
- 1992-1994 | Technical Advisory Committee, Environmental Health Center Reporter's Guide to Climate and Global Change