

John P. Krasting

NOAA/Geophysical Fluid Dynamics Laboratory
Princeton, New Jersey, United States

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Degrees and Academic Positions

- **NOAA/Geophysical Fluid Dynamics Laboratory (GFDL)** Princeton, NJ
Physical Scientist - Biogeochemistry, Climate, and Ecosystems Group 2011 – present
- **Rutgers, The State University of New Jersey** New Brunswick, NJ
Adjunct Faculty - Department of Environmental Science 2011 – present
- **High Performance Technologies, Inc.** Princeton, NJ
Scientist (at NOAA/GFDL) 2009 – 2011
- **University of Delaware** Newark, DE
Research Computing Scientist 2008 – 2009
- **Rutgers University** New Brunswick, NJ
Ph.D. Atmospheric Science 2003 – 2008
 - Advisor: Anthony J. Broccoli
 - Thesis: Variations in Northern Hemisphere Snowfall: An Analysis of Historical Trends and the Projected Response to Anthropogenic Forcing in the Twenty First Century
 - Research Focus: Atmospheric dynamics, global climate variability, anthropogenic climate change
 - Atmospheric Radiative Transfer and Atmospheric Chemistry taken at Princeton University
- **Rutgers University** New Brunswick, NJ
B.S. Meteorology 1999 – 2003
 - Advisor: Robert P. Harnack
 - George H. Cook Scholar
 - Graduated with high honors

Peer-Reviewed Publications (also available at <http://www.gfdl.noaa.gov/publications>)

- Eyring, V., et al., 2019: Taking climate model evaluation to the next level. *Nature Climate Change*, **9** (2), 102–110, doi:10.1038/s41558-018-0355-y, URL <https://doi.org/10.1038/s41558-018-0355-y>.
- Zhao, M., et al., 2018a: The GFDL Global Atmosphere and Land Model AM4.0/LM4.0: 1. simulation characteristics with prescribed SSTs. *Journal of Advances in Modeling Earth Systems*, **10** (3), 691–734, doi:10.1002/2017MS001208, URL <https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1002/2017MS001208>.
- Zhao, M., et al., 2018b: The GFDL Global Atmosphere and Land Model AM4.0/LM4.0: 2. model description, sensitivity studies, and tuning strategies. *Journal of Advances in Modeling Earth Systems*, **10** (3), 735–769, doi:10.1002/2017MS001209, URL <https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1002/2017MS001209>.

- Griffies, S. M., et al., 2016: OMIP contribution to CMIP6: experimental and diagnostic protocol for the physical component of the ocean model intercomparison project. *Geoscientific Model Development*, **9** (9), 3231–3296, doi:10.5194/gmd-9-3231-2016, URL <https://www.geosci-model-dev.net/9/3231/2016/>.
- Krasting, J. P., R. J. Stouffer, S. M. Griffies, R. W. Hallberg, S. L. Malyshev, B. L. Samuels, and L. T. Sentman, 2018: Role of ocean model formulation in climate response uncertainty. *Journal of Climate*, **31** (22), 9313–9333, doi:10.1175/JCLI-D-18-0035.1, URL <https://doi.org/10.1175/JCLI-D-18-0035.1>.
- 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 a GFDL Earth System Model. Part 1: Impacts on global ocean mean state and circulation. *Paleoceanography and Paleoclimatology*, **33** (7), 840–859, doi:10.1029/2018PA003364, URL <https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1029/2018PA003364>.
- Findell, K. L., A. Berg, P. Gentine, J. P. Krasting, B. R. Lintner, S. Malyshev, J. A. Santanello, and E. Shevliakova, 2017: The impact of anthropogenic land use and land cover change on regional climate extremes. *Nature Communications*, **8** (1), 989, doi:10.1038/s41467-017-01038-w, URL <https://doi.org/10.1038/s41467-017-01038-w>.
- Naiman, Z., P. J. Goodman, J. P. Krasting, S. L. Malyshev, J. L. Russell, R. J. Stouffer, and A. T. Wittenberg, 2017: Impact of mountains on tropical circulation in two Earth System Models. *Journal of Climate*, **30** (11), 4149–4163, doi:10.1175/JCLI-D-16-0512.1, URL <https://doi.org/10.1175/JCLI-D-16-0512.1>.
- Eyring, V., et al., 2016: ESMValTool (v1.0) – a community diagnostic and performance metrics tool for routine evaluation of Earth system models in CMIP. *Geoscientific Model Development*, **9** (5), 1747–1802, doi:10.5194/gmd-9-1747-2016, URL <https://www.geosci-model-dev.net/9/1747/2016/>.
- Krasting, J. P., J. P. Dunne, R. J. Stouffer, and R. W. Hallberg, 2016: Enhanced Atlantic sea-level rise relative to the Pacific under high carbon emission rates. *Nature Geoscience*, **9**, 210 EP –, URL <https://doi.org/10.1038/ngeo2641>.
- Frlicher, T. L., J. L. Sarmiento, D. J. Paynter, J. P. Dunne, J. P. Krasting, and M. Winton, 2015: Dominance of the Southern Ocean in anthropogenic carbon and heat uptake in CMIP5 models. *Journal of Climate*, **28** (2), 862–886, doi:10.1175/JCLI-D-14-00117.1, URL <https://doi.org/10.1175/JCLI-D-14-00117.1>.
- Ding, Y., J. A. Carton, G. A. Chepurin, G. Stenchikov, A. Robock, L. T. Sentman, and J. P. Krasting, 2014: Ocean response to volcanic eruptions in CMIP5 simulations. *Journal of Geophysical Research: Oceans*, **119** (9), 5622–5637, doi:10.1002/2013JC009780, URL <https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1002/2013JC009780>.
- Krasting, J. P., J. P. Dunne, E. Shevliakova, and R. J. Stouffer, 2014: Trajectory sensitivity of the transient climate response to cumulative carbon emissions. *Geophysical Research Letters*, **41** (7), 2520–2527, doi:10.1002/2013GL059141, URL <https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1002/2013GL059141>.
- Shevliakova, E., R. J. Stouffer, S. Malyshev, J. P. Krasting, G. C. Hurtt, and S. W. Pacala, 2013: Historical warming reduced due to enhanced land carbon uptake. *Proceedings of the National Academy of Sciences*, **110** (42), 16 730–16 735, doi:10.1073/pnas.1314047110, URL <https://www.pnas.org/content/110/42/16730>.

Krasting, J. P., A. J. Broccoli, K. W. Dixon, and J. R. Lanzante, 2013: Future changes in northern hemisphere snowfall. *Journal of Climate*, **26** (20), 7813–7828, doi:10.1175/JCLI-D-12-00832.1, URL <https://doi.org/10.1175/JCLI-D-12-00832.1>.

Dunne, J. P., et al., 2013: GFDLs ESM2 global coupled climatecarbon Earth System Models. Part II: Carbon system formulation and baseline simulation characteristics. *Journal of Climate*, **26** (7), 2247–2267, doi:10.1175/JCLI-D-12-00150.1, URL <https://doi.org/10.1175/JCLI-D-12-00150.1>.

Hallberg, R., A. Adcroft, J. P. Dunne, J. P. Krasting, and R. J. Stouffer, 2013: Sensitivity of twenty-first-century global-mean steric sea level rise to ocean model formulation. *Journal of Climate*, **26** (9), 2947–2956, doi:10.1175/JCLI-D-12-00506.1, URL <https://doi.org/10.1175/JCLI-D-12-00506.1>.

Dunne, J. P., et al., 2012: GFDLs ESM2 global coupled climatecarbon Earth System Models. Part I: Physical formulation and baseline simulation characteristics. *Journal of Climate*, **25** (19), 6646–6665, doi:10.1175/JCLI-D-11-00560.1, URL <https://doi.org/10.1175/JCLI-D-11-00560.1>.

Grants

- **Co-investigator**, *An Open Framework for Process-Oriented Diagnostics of Global Models*, NOAA Climate Program Office (MAPP), 2018-2021, \$1,488,078

Teaching Experience

- **Introduction to Meteorology** Rutgers University
Adjunct Lecturer Fall 2015-Present
 - Created assignments, examinations, course notes, and taught the course.
 - Targeted toward first-year majors and students filling general science requirements.
- **Climate Dynamics** Rutgers University
Adjunct Lecturer Fall 2011
 - Course cross-listed in the Atmospheric Science graduate program.
 - Created assignments, examinations, course notes, and taught the course.
- **Intro. Meteorological Analysis** Rutgers University
Teaching Assistant Spring 2007
 - Led in-class weather discussions.
 - Reviewed course materials and responded to student questions.
- **Synoptic Forecasting I & II** Rutgers University
Teaching Assistant Fall 2006 & Spring 2007
 - Led in-class weather discussions.
 - Assisted students with computer-related issues during lab sessions.
- **Large Scale Weather Systems** Rutgers University
Teaching Assistant Fall 2003 & Fall 2006
 - Updated and modernized course materials.
 - Graded course assignments, exams, and in-class presentations.

- **Atmospheric Thermodynamics**

Teaching Assistant

- Graded course assignments, exams, and in-class presentations.
- Responded to student questions.

Rutgers University

Fall 2004

Conference Presentations and Seminars

- **Development of Process-Oriented Diagnostics Through NOAAs Model Development Task Force**
CMIP6 Analysis Workshop (Barcelona) *March 2019*
- **Resolution-Dependent Patterns of Heat and Carbon Uptake in GFDLs OMIP simulations**
OCB Workshop (Washington, D.C.) *December 2018*
- **The growth of Python-based analyses and infrastructure in support of CM4 development and CMIP6 at NOAA-GFDL**
AMS Annual Meeting (Seattle) *January 2017*
- **Enhanced Atlantic sea-level rise relative to the Pacific under high carbon emission rates**
AGU Fall Meeting (San Francisco) *December 2016*
- **Advances in GFDLs Analysis and Model Evaluation Capabilities in Support of CM4 and CMIP6**
Invited - DLR German Aerospace Center (Oberpfaffenhofen, Germany) *November 2016*
- **ESMValTool Activities at NOAA-GFDL**
Invited - 2nd ESMValTool Workshop (Munich, Germany) *November 2016*
- **Progress and Challenges in Integrating ESMValTool and other Outside Analysis Packages into the GFDL Workflow**
Invited - ESMValTool Workshop (Munich, Germany) *March 2015*
- **Why Carbon Emission Rates Matter for TCRE and Oceanic Heat and Carbon Uptake**
AGU Fall Meeting (San Francisco) *December 2014*
- **Trajectory Sensitivity of the Transient Climate Response to Cumulative Carbon Emissions**
AGU Fall Meeting (San Francisco) *December 2013*
- **Scenario Dependence of the Climate Response to Cumulative Carbon Emissions**
Invited - Univ. of Delaware Geography Dept. (Newark, DE) *November 2013*
- **Ensemble Modeling of Climate-Carbon Cycle Interactions**
Invited - PPPL Colloquium (Princeton) *January 2013*
- **How Predictable Were the 20th Century Land Carbon Fluxes?**
AGU Fall Meeting (San Francisco) *December 2012*
- **ENSO-driven Terrestrial Carbon Flux Variability in a Coupled Climate-Carbon Cycle Model**
AGU Fall Meeting (San Francisco) *December 2011*
- **NOAA-GFDL's New Earth System Models: Model Description and Preliminary Results**
AGU Fall Meeting (San Francisco) *December 2010*

- **NOAA-GFDLs Workflow for CMIP5/IPCC AR5 Experiments**
AGU Fall Meeting (San Francisco) *December 2010*
- **Observed and Simulated North American Snowfall Changes for the Late Twentieth Century.**
37th Annual Northeast Storms Conference (Springfield, MA) *March 2008*
- **Influences of Temperature and Precipitation Changes on Model Simulated Monthly Snowfall Trends**
American Geophysical Union Fall Meeting (San Francisco) *December 2006*
- **Global warming and Simulated Snowfall Trends in Eastern North America.**
85th Annual Meeting of the American Meteorological Society (Seattle) *January 2005*
- **A Statistical Analysis of Thermodynamic and Kinematic Variables Prior to Severe Thunderstorm Events in the Northeastern United States.**
11th Symposium for Undergraduate Research (University of São Paolo) *November 2003*

Convened Sessions

- **Identifying and Reducing Biogeochemical and Physical Uncertainty in Ocean Models**
With O. Ogunro (ORNL) and M. Friedrichs (VIMS)
AGU Fall Meeting 2018
- **Towards a 1.5 C world: mechanisms of ocean sensitivity and reversibility**
With I. Frenger (GEOMAR), A. Lenton (CSIRO), and K. Zickfeld (SFU)
Ocean Sciences Meeting 2018
- **Representation of physical processes in global climate models**
With C. Ummenhofer (WHOI), A. Subramanian (CU) and G. Danabasoglu (NCAR)
Ocean Sciences Meeting 2016

Professional Broadcasting Experience

- **WTXF-TV (FOX)** Philadelphia, PA
On-Air Meteorologist *April 2008 – July 2010*
- **WNYW-TV (FOX)** New York, NY
On-Air Meteorologist *November 2007 – April 2008*
- **WWOR-TV (FOX)** Secaucus, NJ
On-Air Meteorologist *March 2006 – April 2008*

Undergraduate Students Supervised

Maria Pulido-Velosa - Princeton Univ. CICS Diversity Internship	Summer 2016
Megan Leigh - Internship (NY1 News)	Spring 2007
Amanda Kamenitz - Internship (News 12 NJ)	Spring 2007
John Cifelli - Internship (WMGM-TV)	Summer 2006
John Carrol - Internship (News 12 NJ)	Summer 2005
Lauren Casey - Internship (WCAU-TV)	Summer 2005

Ariana Shah - Internship (WWOR-TV)	Summer 2005
Greg Whitaker - Internship (News 12 NJ)	Spring 2005
Alan Graziano - Internship (News 12 NJ)	Fall 2004
John Carrol - Internship (Fox)	Summer 2004
James Nichols - Internship (WNYW-TV)	Spring 2004

Public Speaking and Outreach Events

Pascack Valley Regional High School (Hillsdale, NJ)	April 2019
N.J. Audubon Society visit to NOAA-GFDL (Princeton, NJ)	April 2019
Public Outreach Event at AGU Fall Meeting (Washington, DC)	December 2017
Expert consultation for PBS NOVA documentary series	May 2017
Live Interview for The Weather Channel	January 2016
Rider University Visit to NOAA-GFDL (Princeton, NJ)	April 2015
Princeton Univ. Engineering Department (Princeton, NJ)	December 2014
2014 World Science Festival (New York, NY)	June 2014
Princeton Univ. Engineering Department (Princeton, NJ)	December 2013
Princeton Univ. Engineering Department (Princeton, NJ)	April 2013
Rutgers Meteorology Club Career Fair (New Brunswick, NJ)	April 2013
Princeton Environmental Film Festival (Princeton, NJ)	February 2013
Princeton Univ. Engineering Department (Princeton, NJ)	December 2012
Princeton MIRTHE Studies Program (Princeton, NJ)	July 2012
UCAR Undergrad. Leadership Workshop (Boulder CO, via Telecon.)	June 2012
Gateway H.S. Career Fair (Woodbury Heights, NJ)	December 2011
Princeton Univ. Engineering Department (Princeton, NJ)	December 2011
Princeton Univ. Engineering Department (Princeton, NJ)	February 2011
Rider Univ. visit to NOAA/GFDL (Princeton, NJ)	January 2011
American Chemical Society (Princeton, NJ)	October 2010
Princeton QUEST Program (Princeton, NJ)	July 2009
Delaware Lego Builders League (Wilmington, DE)	October 2008
Ecological Change Coalition (New Brunswick, NJ)	October 2007
Millburn Township Public Schools (Millburn, NJ)	October 2007
League of Women Voters (Millburn, NJ)	April 2007
Gateway Academic Decathlon Club (Woodbury Heights, NJ)	March 2006
United States Postal Service (Piscataway, NJ)	October 2005
Mantua Lions Club (Mantua, NJ)	October 2002

Academic and Professional Service

- Refereed papers for the following journals:
 - *Nature Geoscience*
 - *Geophysical Research Letters*
 - *Journal of Climate*
 - *Journal Geophysical Research - Atmospheres*

- *Environmental Research Letters*
- *Climate Dynamics*
- *Current Climate Change Reports*
- *PLOS ONE*
- *Tellus B*

- Co-chair, GFDL Model Diagnostics and Evaluation Team
January 2013 – present
- Member, GFDL Computer Users' Advisory Board
Spring 2012 – 2015 (Chair from 2014-2015)
- Member, NOAA's Agency-wide High Performance Computing User Group
October 2014 – present (Current Chair)
- Member, GFDL Employees Association
2009-2011, 2019-present (President from 2010-2011)

Professional Awards

- United States Department of Commerce Silver Medal Award (2014)
- Nominated - Mid-Atlantic Emmy Award (2009)
- AMS Certified Broadcast Meteorologist Award (2006)

Academic and Professional Memberships

- American Meteorological Society
- American Geophysical Union
- American Federation of Television and Radio Artists
- Kappa Theta Epsilon