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EMPLOYMENT

Geophysical Fluid Dynamics Laboratory/National Oceanic and Atmospheric Administration (NOAA) Princeton, NJ

2017-present	**Senior Scientist and Division Leader** for Seasonal to Decadal Variability and Predictability
2012-present	**GFDL Science Board**, advisory body on long-term strategic vision
2012-2017	**Supervisory Physical Scientist**, GFDL Science Board & Supervisor for two GFDL Research Groups on Predictability and Detection
2001-2012	**Supervisory Physical Scientist and Group Leader**, Climate Dynamics Group; member of GFDL Research Council, advising Director on Lab priorities and vision
1984-2001	**Research Meteorologist**, Climate Dynamics Group

EDUCATION

1994 **Ph.D. Atmospheric Science, University of Wisconsin Madison, WI**

RESEARCH INTERESTS

- Role of the ocean in the climate system, with emphasis on climate variability, change and predictability on seasonal to decadal to centennial time scales.
- Interactions between forced climate change and internal variability
- The Atlantic Meridional Overturning Circulation and climate
- Climate extremes, including drought and storms
- Use of hierarchies of models to study climate variability and change

TEACHING

2008-present Princeton University, Atmospheric and Oceanic Sciences
AOS 577 *"Climate of the Earth: Present, Past and Future"*
GEO 427 *"Fundamentals of the Earth's Climate System"*

WEB OF SCIENCE

h-index: 67 (http://www.researcherid.com/rid/C-5191-2014)

HONORS & AWARDS

2018	**Fellow of the American Geophysical Union**
2014-present	**Thomson Reuters Highly Cited Researcher (highlycited.com)**
2015	**Gold Medal, Department of Commerce**
2014	**Fellow of the American Meteorological Society**

2008	**NOAA Administrator's Award**
2005	**Silver Medal, Department of Commerce**
1996, 2003	**Outstanding Scientific Paper Award, NOAA**

MENTORING

Postdoctoral advisor for:
Dr. Myriam Khodri, Dr. Jian Lu, Dr. Rym Msadek, Dr. Salil Mahajan, Dr. Sarah Kapnick, Dr. Liping Zhang, Dr. Honghai Zhang, Dr. Yohan Ruprich-Robert, Dr. Feiyu Lu, Dr. Youngji Joh

Graduate student committee member for:
Ying Li, Andrew Ballinger, He Wang, Jeffrey Strong, Jane Baldwin, Geeta Persad, Justin Ng, Allison Hogikyan, Lingwei Meng, Ben Johnson

ADDITIONAL ACTIVITIES

2019	**Review panel for US/UK RAPID and OSNAP Programs**
2018-present	**US CLIVAR Large Ensemble Working Group**
2017-present	**Science Advisory Board, IBS Center for Climate Physics, Pusan, Korea**
2016-present	**Chair, Science Advisory Board, UK ACSIS Program**
2014-present	**Science Advisory Board, DOE Energy Exascale Earth System Model**
2012	**Member, International Review Team for UK RAPID Program**
2011-2012	**NRC committee "A National Strategy for Advancing Climate Modeling"**
2009-2011	**U.S. CLIVAR Working Group on Decadal Prediction**
2007-2009	**U.S. AMOC Science Planning Team**
2007	**Program Manager, NOAA Climate Predictions and Projections**
2006-2009	**U.S. CLIVAR Working Group on Drought**
2005-2008	**U.S. CLIVAR Prediction, Predictability, and Application Interface Panel**
2004-2005	**U.S. CLIVAR Scientific Steering Committee**
2003-2004	**Co-Leader, GFDL Coupled Model Development Team**
2001-2004	**NSF Arctic System Science Program - OAII, Scientific Steering Committee**
2000-2006	**Joint Scientific Council/CLIVAR Working Group on Coupled Modeling**
2000-2003	**SEARCH Science Steering Committee (Interagency Arctic Program)**
1999-2003	**International CLIVAR Atlantic Implementation Panel**
1995-2005	**NSF Climate System Laboratory Computing Allocation Panel**
1995, 2001,2007	**Intergovernmental Panel on Climate Change,** Contributing Author
1995-1997	**NOAA's Atlantic Climate Change Program,** Scientific Working Group
1995-1996	**Atlantic Climate and Circulation Experiment,** Scientific Planning Committee

AFFILIATIONS

American Meteorological Society
American Geophysical Union

PUBLICATIONS

Complete list (163 in total):
http://www.gfdl.noaa.gov/bibliography/results.php?author=1019

Recent publications (2015-2020):

Delworth, T. L., W.F. Cooke. A. Adcroft, M. Bushuk, J.-H. Chen, et al., 2020: **SPEAR – the next generation GFDL modeling system for seasonal to multidecadal prediction and projection**. *Journal of Advances in Modeling Earth Systems*, **12(3)**, DOI:10.1029/2019MS001895.

Moreno-Chamarro, E, J Marshall, and T. L. Delworth, February 2020: **Linking ITCZ migrations to AMOC and North Atlantic/Pacific SST decadal variability**. *Journal of Climate*, **33(3)**, DOI:10.1175/JCLI-D-19-0258.1.

Castruccio, F, et al.,2019: **Modulation of Arctic Sea Ice Loss by Atmospheric Teleconnections from Atlantic Multi-Decadal Variability**. *Journal of Climate*, **32(5)**, DOI:10.1175/JCLI-D-18-0307.1.

Qian, Y., H. Murakami, H. Nakano, P-C Hsu, T.L. Delworth, et al., 2019: **On the Mechanisms of the Active 2018 Tropical Cyclone Season in the North Pacific**. *Geophysical Research Letters*, **46(21)**, DOI:10.1029/2019GL084566.

Smith, D M., et al., 2019: **Robust skill of decadal climate predictions**. *npj Climate and Atmospheric Science*, **2**, 13, DOI:10.1038/s41612-019-0071-y.

Zhang, L., T.L. Delworth, W. Cooke, and X. Yang, 2019: **Natural variability of Southern Ocean convection as a driver of observed climate trends**. *Nature Climate Change*, **9(1)**, DOI:10.1038/s41558-018-0350-3.

Kapnick, S., et al., 2018: **Potential for western US seasonal snowpack prediction**. *Proceedings of the National Academy of Sciences*, **115(6)**, DOI:10.1073/pnas.1716760115.

Murakami, H., E Levin, T.L. Delworth, R.G. Gudgel, and P-C Hsu, 2018: **Dominant effect of relative tropical Atlantic warming on major hurricane occurrence**. *Science*. DOI:10.1126/science.aat6711.

Kapnick, S. B., et al., 2018: **Potential for western US seasonal snowpack prediction**. *Proceedings of the National Academy of Sciences*, **115(6)**, DOI:10.1073/pnas.1716760115.

Smith, D .M., A. A. Scaife, E. Hawkins, R. Bilbao, G. J. Boer, M .Caian, L-P Caron, G. Danabasoglu, and T. L. Delworth, et al., 2018, *in press*: **Predicted chance that global warming will temporarily exceed 1.5°C**. *Geophysical Research Letters*. DOI:10.1029/2018GL079362.

Pascale, S, et al, 2018: **The influence of CO_2 forcing on North American monsoon moisture surges**. *Journal of Climate*. DOI:10.1175/JCLI-D-18-0007.1.

Ruprich-Robert, Yohan, Thomas L Delworth, et al., 2018: **Impacts of the Atlantic Multidecadal Variability on North American Summer Climate and Heat Waves**. *Journal of Climate*, **31(9)**, DOI:10.1175/JCLI-D-17-0270.1 .

Yang, Xiaosong, et al, 2018: **On the seasonal prediction of the western United States El Niño precipitation pattern during the 2015/16 winter**. *Climate Dynamics*. DOI:10.1007/s00382-018-4109-3.

Zhang, Wei, et al., 2018: **Dominant Role of Atlantic Multi-decadal Oscillation in the Recent Decadal Changes in Western North Pacific Tropical Cyclone Activity**. *Geophysical Research Letters*, **45(1)**, DOI:10.1002/2017GL076397 .

Zhang, Honghai, and Thomas L Delworth: **Detectability of Decadal Anthropogenic Hydroclimate Changes over North America**. *Journal of Climate*. DOI:10.1175/JCLI-D-17-0366.1. January 2018.

Delworth, Thomas L., et al., 2017: **The central role of ocean dynamics in connecting the North Atlantic Oscillation to the extratropical component of the Atlantic Multidecadal Oscillation**. *Journal of Climate*, **30(10)**, DOI:10.1175/JCLI-D-16-0358.1 .

Jia, Liwei, et al., 2017: **Seasonal Prediction Skill of Northern Extratropical Surface Temperature Driven by the Stratosphere**. *Journal of Climate*, **30(12)**, DOI:10.1175/JCLI-D-16-0475.1 .

Murakami, Hiroyuki, et al., 2017: **Dominant Role of Subtropical Pacific Warming in Extreme Eastern Pacific Hurricane Seasons: 2015 and the Future**. *Journal of Climate*, **30(1)**, DOI:10.1175/JCLI-D-16-0424.1 .

Ruprich-Robert, Yohan, et al., 2017: **Assessing the Climate impacts of the observed Atlantic Mulitdecadal Variability using the GFDL CM2.1 and NCAR CESM1 Global Coupled Models**. *Journal of Climate*, **30(8)**, DOI:10.1175/JCLI-D-16-0127.1 .

Pascale, S, et al., 2017: **Weakening of the North American monsoon with global warming**. *Nature Climate Change*, **7(11)**, DOI:10.1038/nclimate3412 .

Tommasi, Desiree, et al., 2017: **Managing living marine resources in a dynamic environment: The role of seasonal to decadal climate forecasts**. *Progress in Oceanography*, **152**, DOI:10.1016/j.pocean.2016.12.011 .

Zhang, Liping, Thomas L Delworth, and Fanrong Zeng, March 2017: **The impact of multidecadal Atlantic meridional overturning circulation variations on the Southern Ocean**. *Climate Dynamics*, **48(5-6)**, DOI:10.1007/s00382-016-3190-8 .

Zhang, Liping, Thomas L Delworth, et al., 2017: **Estimating decadal predictability for the Southern Ocean using the GFDL CM2.1 model**. *Journal of Climate*, **30(14)**, DOI:10.1175/JCLI-D-16-0840.1 .

Zhang, Liping, Thomas L Delworth, and Liwei Jia, August 2017: **Diagnosis of decadal predictability of Southern Ocean sea surface temperature in the GFDL CM2.1 model**. *Journal of Climate*, **30(16)**, DOI:10.1175/JCLI-D-16-0537.1 .

Zhang, Honghai, Thomas L Delworth, et al., 2016: **Detection, Attribution and Projection of Regional Rainfall Changes on (Multi-) Decadal Time Scales: A Focus on Southeastern South America**. *Journal of Climate*. DOI:10.1175/JCLI-D-16-0287.1.

Delworth, Thomas L., and Fanrong Zeng, 2016: **The impact of the North Atlantic Oscillation on climate through its influence on the Atlantic Meridional Overturning Circulation**. *Journal of Climate*, **29(3)**, DOI:10.1175/JCLI-D-15-0396.1

Delworth, Thomas L., et al., 2016: **The North Atlantic Oscillation as a driver of rapid climate change in the Northern Hemisphere**. *Nature Geoscience*, **9(7)**, DOI:10.1038/ngeo2738

Jia, Liwei, et al., 2016: **The Roles of Radiative Forcing, Sea Surface Temperatures, and Atmospheric and Land Initial Conditions in U.S. Summer Warming Episodes**. *Journal of Climate*, **29(11)**, DOI:10.1175/JCLI-D-15-0471.1

Murakami, Hiroyuki, et al., 2016: **Seasonal Forecasts of Major Hurricanes and Landfalling Tropical Cyclones using a High-Resolution GFDL Coupled Climate Model**. *Journal of Climate*. DOI:10.1175/JCLI-D-16-0233.1. August 2016.

Pascale, S, et al., 2016: **The impact of horizontal resolution on North American monsoon Gulf of California moisture surges in a suite of coupled global climate models**. *Journal of Climate*. DOI:10.1175/JCLI-D-16-0199.1. August 2016

Saba, Vincent S., et al., 2016: **Enhanced warming of the northwest Atlantic Ocean under climate change**. *Journal of Geophysical Research*, **121(1)**, DOI:10.1002/2015JC011346

van der Wiel, et al, 2016: **The resolution dependence of contiguous US precipitation extremes in response to CO forcing**. *Journal of Climate*. DOI:10.1175/JCLI-D-16-0307.1. August 2016

Zhang, Wei, et al., 2016: **Improved Simulation of Tropical Cyclone Responses to ENSO in the Western North Pacific in the High-Resolution GFDL HiFLOR Coupled Climate Model**. *Journal of Climate*, **29(4)**, DOI:10.1175/JCLI-D-15-0475.1

Zhang, Liping, and Thomas L Delworth, August 2016: **Simulated response of the Pacific decadal oscillation to climate change**. *Journal of Climate*, **29(16)**, DOI:10.1175/JCLI-D-15-0690.1

Zhang, Liping, Thomas L Delworth, and Fanrong Zeng, 2016: **The impact of multidecadal Atlantic meridional overturning circulation variations on the Southern Ocean**. *Climate Dynamics*. DOI:10.1007/s00382-016-3190-8.

Zhang, Rong, R Sutton, G Danabasoglu, and Thomas L Delworth, et al., June 2016: **Comment on "The Atlantic Multidecadal Oscillation without a role for ocean circulation"**. *Science*, **352(6293)**, DOI:10.1126/science.aaf1660

Zhang, Liping, and Thomas L Delworth, August 2016: **Impact of the Antarctic bottom water formation on the Weddell Gyre and its northward propagation characteristics in GFDL model**. *Journal of Geophysical Research*, **121(8)**, DOI:10.1002/2016JC011790

Zhang, Wei, et al., 2015: **Simulated Connections between ENSO and Tropical Cyclones near Guam in a High-Resolution GFDL Coupled Climate Model: Implications for Seasonal Forecasting**. *Journal of Climate*. DOI:10.1175/JCLI-D-16-0126.1.

Zhang, Liping, and Thomas L Delworth, 2015: **Analysis of the characteristics and mechanisms of the Pacific Decadal Oscillation in a suite of coupled models from the Geophysical Fluid Dynamics Laboratory**. *Journal of Climate*. DOI:10.1175/JCLI-D-14-00647.1.

Murakami, Hiroyuki, et al., 2015: **Simulation and Prediction of Category 4 and 5 Hurricanes in the High-Resolution GFDL HiFLOR Coupled Climate Model**. *Journal of Climate*. DOI:10.1175/JCLI-D-15-0216.1.

Delworth, T.L., et al., 2015: **A link between the hiatus in global warming and North American drought**. *Journal of Climate*, **28(9)**, DOI:10.1175/JCLI-D-14-00616.1.

Jia, Liwei, et al., 2015: **Improved Seasonal Prediction of Temperature and Precipitation over Land in a High-resolution GFDL Climate Model**. *Journal of Climate*, **28(5)**, DOI:10.1175/JCLI-D-14-00112.1.

Krishnamurthy, Lakshmi, et al., 2015: **The Seasonality of the Great Plains Low-Level Jet and ENSO Relationship**. *Journal of Climate*, **28(11)**, DOI:10.1175/JCLI-D-14-00590.1.

Yang, Xiaosong, et al., 2015: **Seasonal predictability of extratropical storm tracks in GFDL's high-resolution climate prediction model**. *Journal of Climate*, **28(9)**, DOI:10.1175/JCLI-D-14-00517.1.