

Liping Zhang

Curriculum Vitae

April, 2024

Project Scientist III, University Corporation for Atmospheric Research (UCAR)/Geophysical Fluid Dynamics Laboratory (GFDL)

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RESEARCH OBJECTIVES

- Decadal to centennial climate variability and predictability
- Interactions between forced climate change and internal variability
- Climate Model biases and their linkages with the Atlantic meridional overturning circulation
- Hydrological cycle

EDUCATION

2012 Ph. D. Physical oceanography, Ocean University of China, China

2008 B.S., Marine Sciences, Ocean University of China, China

Ph. D. Dissertation: Hydrological cycle changes and its associated salinity and water vapor variability under global warming scenario. (Advisor: Lixin Wu)

PROFESSIONAL APPOINTMENTS

- Project Scientist III, University Corporation for Atmospheric Research (UCAR)/ Geophysical Fluid Dynamics Laboratory (GFDL), Princeton, NJ, USA, 2024–Present
- Project Scientist II, University Corporation for Atmospheric Research (UCAR)/ Geophysical Fluid Dynamics Laboratory (GFDL), Princeton, NJ, USA, 2021–2024
- Project Scientist I, University Corporation for Atmospheric Research (UCAR)/ Geophysical Fluid Dynamics Laboratory (GFDL), Princeton, NJ, USA, 2019–2020
- Associate Research Scholar, Princeton University, Atmospheric and Oceanic Sciences (AOS)/Geophysical Fluid Dynamics Laboratory (GFDL), Princeton, NJ, USA, 2016 –2019
- Postdoctoral Research Scientist, Princeton University, 2014–2015
- Research Associate and Postdoctoral Scientist, CIMAS, University of Miami. 2011-2013
- Graduate Research Associate, Ocean University of China. 2008-2011

COMMUNITY SERVICE

- Panel Member, World Climate Research Program (WCRP) DCPD-Decadal Climate Prediction Project, 2023-present
- Panel Member, American Meteorological Society (AMS) Committee on Polar Meteorology and Oceanography, 2023-present
- Associate Editor in Journal of Climate, 2023-present
- Associate Editor in Frontiers in Climate, 2022-present

- Panel Member, Climate Variability and Predictability (CLIVAR), Process Study and Model Improvement Panel, 2019-2023
- Convener for the AMS polar ocean and atmosphere session during the AMS annual meeting, 2024
- Co-chair and presenter, 2019-2022 US Climate Variability and Predictability (CLIVAR) Summit
- NOAA/GFDL formal seminar coordinator, 2023,2024
- Convener for the (Japan Geophysical Union) JpGU annual meeting, 2021-2023
- American Geophysical Union member, 2014-Present
- European Geophysical Union member, 2014-Present
- American Meteorological Society member, 2015-Present
- Japan Geophysical Union member, 2018-Present

MENTORING AND ADVISING

Host Zhe Li (UCAR, Postdoctoral Research Scientist, Sep 2024-)

Host Shouwei Li (Princeton University, Postdoctoral Research Scientist, Oct 2023-)

Co-Host Qinxue Gu (Princeton University, Postdoctoral Research Scientist, Aug 2023-)

Co-Host Yushi Morioka (JAMSTEC, Japan, Visitor, Feb 2021-Present)

Host Ana Bolivar (Florida International University, Inter student, July 2019-Aug 2019)

Co-Host Lingya Hong (Ocean University of China, graduate student, June 2011-June 2013)

Co-Host Shujun Li (Ocean University of China, graduate student, June 2012-June 2014)

Co-Host Dalin L. Yi (Ocean University of China, graduate student, June 2010-June 2013)

LEADERSHIP

Co-Leading decadal variability and predictability over the Southern Ocean at GFDL

Leading multiyear to decadal sea level prediction project funded by NOAA CPO (Leading PI)

Co-Leading the NOAA-JAMSTEC Research Collaboration for Southern Ocean variability and predictions

SELECTED MEDIA COVERAGE

[1] 2024: NOAA CPO MAPP new, [“Detection of AMOC changes and their potential impact on sea level and storm surges over the U.S. East Coast”](#)

[2] 2023: NOAA OAR’s Women’s History Month campaign, [“Celebrating Women’s History Month 2023 with Liping Zhang”](#)

[3] 2023: New York times, [“A Look at how much less Antarctic sea ice there is this year”](#)

[4] 2023: E&E new, [“Antarctic Sea Ice hits a record low, but role of warming is unclear”](#)

[5] 2023: Washington Post, [“Floating ice around Antarctica just hit a record low”](#)

[6] 2023: Wired, [“Antarctic Sea Ice Is at Record Lows. Is It an Alarming Shift?”](#)

[7] 2018: Carbon Brief, [“Natural Ocean fluctuations could help explain Antarctic Sea ice changes”](#)

- [8] 2012: Science Daily, [“Warming in the Tasman Sea, near Australia, a warming hot spot”](#)
- [9] 2012: Climate Science, [New Paper “Enhanced warming over the global subtropical western boundary currents”](#)
- [10]2012: SPIEGEL ONLINR, [“Enhanced warming over the global subtropical western boundary currents”](#)

AWARDS

2020: Highlighted on Science

2014: Cover Article on the Nature Climate Change

2012: Highlighted on Nature

2012: Outstanding PHD graduation thesis at Ocean University of China (top 1%)

2010: Hou Chongben Scholarship at Ocean University of China (top 1%)

2009-2011: Outstanding Academic Scholarship for graduate student at Ocean University of China (top 1%)

2008: Privilege to enter the Graduate Program at Ocean University of China, waived of the admission test

2008: Graduate student in National Science basic scientific research and personnel training base (Oceanography), (fellowship)

2006: Song Qingling scholarship (top 1%)

2005-2007: Outstanding undergraduate Student at Ocean University of China (top 1%), (consecutive for 3 years)

2005-2007: Outstanding Academic Performance Scholarship for undergraduate student at Ocean University of China (top 1%), 2005-2007 (consecutive for 3 years)

PUBLICATIONS

Total number of publications: **60+**

First author papers: **28**; High impact papers: **9**

Total citation number: **~3600** (h-index: **~25**)

Refereed Journal Articles (* indicates advised student, visitor papers)

2024

- [1] **L. Zhang** et al 2024: Skillful multiyear prediction of flood frequency along the U.S. Northeast Coast using a high-resolution modeling system. (Submitted to *Science Advances*)
- [2] S. Li*, **L. Zhang**, T. Delworth, W. Cooke, S. Song and Q. Gu, 2024: Mitigation-driven global heat balance in the late 21st century. (*Communication earth & environment*, in revision)
- [3] Q. Gu*, **L. Zhang**, L. Jia, T. Delwoth, X. Yang, F. Zeng, W. Cooke and S. Li, 2024: Exploring multiyear-to-decadal North Atlantic sea level predictability and prediction using machine learning. (*npj Climate and Atmospheric Science*, in revision)
- [4] R. Sospedra-Alfonso et al. 2024: Decadal prediction centers prepare for a major volcanic eruption. (*BAMS*. In revision)

- [5] Y. Morioka*, S. Manabe, **L. Zhang**, T. L. Delworth, W. Cooke, M. Nonaka and S. K. Behera 2023: Antarctic Sea ice multidecadal variability revealed by ice core records and model simulations. (*Communication earth & environment*, in revision).
- [6] K.-C. Tseng, N. C. Johnson, A. T. Wittenberg, T. L. Delworth, S.-K. Lee, H. Lopez, D. Kim, A. Kumar, H. Wang, F. Lu, W. Cooke, A. Rosati, **L. Zhang**, C. McHugh, X. Yang, M. Harrison, F. Zeng, H. Murakami, **M. Bushuk** and L. Jia, 2023: Skillful forecasts of springtime CONUS tornado activity up to a year in advance. (Submitted to *Science Advance*).
- [7] D. Durate, W. Liu and **L. Zhang**, 2024: The AMOC weakening as an attenuating factor on the severity of future heat waves. (Submitted to *Environmental Research: Climate*)
- [8] **L. Zhang**, Thomas L. Delworth, Xiaosong Yang, Fanrong Zeng et al. 2024: Causes and multiyear predictability of the rapid acceleration of U.S. Southeast Sea level rise after 2010. *npj Climate and Atmospheric Science*. **7**, 113.
- [9] V. Koul, A. Ross, C. Stock, **L. Zhang**, T. Delworth and A. Wittenberg, 2024: A predicted pause in the rapid warming of the Northwest Atlantic shelf in the coming decade. *Geophysical Research Letter*, **51**, e2024GL110946.
- [10] L. Jia, T. Delworth, X. Yang, W. Cooke, **L. Zhang** et al. 2024: Seasonal predictions of summer compound humid heat extremes in the southeastern United States driven by sea surface temperatures. *npj Climate and Atmospheric Science*, **7**, 180.

2023

- [11] **L. Zhang**, Thomas L. Delworth, Xiaosong Yang and Fanrong Zeng et al. 2023: Skillful multiyear to decadal predictions of sea level in the North Atlantic Ocean and U.S. East Coast. *Communication earth & environment*, **4**, 420.
- [12] Polkova, Iuliia, Didier Swingedouw, Leon Hermanson, Armin Köhl, Detlef Stammer, Doug Smith, Jürgen Kröger, Ingo Bethke, Xiaosong Yang, and **L. Zhang**, et al., December 2023: Initialization shock in the ocean circulation reduces skill in decadal predictions of the North Atlantic subpolar gyre. *Frontiers in Climate*, **5**, DOI:10.3389/fclim.2023.1273770.
- [13] Y. Morioka*, **L. Zhang**, T. L. Delworth, X. Yang, F. Zeng, M. Nonaka, and S. K. Behera 2023: Multidecadal variability and predictability of Antarctic Sea Ice in GFDL SPEAR_LO model. *The Cryosphere*, **17**,12.
- [14] **L. Zhang**, T. L. Delworth, X. Yang, Y. Morioka, F. Zeng and F. Lu, 2023: Skillful decadal prediction skill over the Southern Ocean based on SPEAR Model-Analogs. *Environmental Research Communications*. **5**(2), 2023.

2022

- [15] **L. Zhang**, T. L. Delworth, X. Yang, F. Zeng, F. Lu, Y. Morioka and M. Bushuk, 2022: The role of the subsurface ocean in the 2016-2021 Antarctic Sea ice retreat and associated multiyear predictability. *Nature communication earth & environment*. **3**, 302.
- [16] Y. Joh, T. L. Delworth, A. T. Wittenberg, W. F. Cooke, A. Rosati and **L. Zhang**, 2022: Stronger decadal variability of the Kuroshio Extension under simulated future climate change. *npj Climate and Atmospheric Science*, **5** (1), 1-9.
- [17] T. L. Delworth, W. Cooke, V. Naik, D. Paynter and **L. Zhang**, 2022: A weakened AMOC may prolong greenhouse gas induced Mediterranean drying even with significant and rapid climate change mitigation. *Proceedings of the National Academy of Sciences*, **119** (35), e2116655119, 2022.

- [18] L. Jia, T. L. Delworth, S. B. Kapnick, X. Yang, N. C. Johnson, W. F. Cooke, F. Lu, M. J. Harrison, A. Rosati, F. Zeng, C. McHugh, A. T. Wittenberg, **L. Zhang**, H. Murakami and K. Tseng, 2022: Skillful seasonal prediction of North American summertime heat extremes. *Journal of climate*, **35**, 4331-4345, <https://doi.org/10.1175/JCLI-D-21-0364.1>.
- [19] K. Tseng, N. C. Johnson, S. B. Kapnick, W. Cooke, T. L. Delworth, L. Jia, F. Lu, C. McHugh, H. Murakami, A. J. Rosati, A. T. Wittenberg, X. Yang, F. Zeng, and **L. Zhang**, 2022: When will humanity notice its influence on atmospheric rivers? *J. Geophys. Res.*, **127**, e2021JD036044.
- [20] M. Bushuk, Y. Zhang, M. Winton, B. Hurlin, T. Delworth, F. Lu, L. Jia, **L. Zhang**, W. Cooke, M. Harrison, N. C. Johnson, S. Kapnick, C. McHugh, H. Murakami, A. Rosati, K. Tseng, A. T. Wittenberg, X. Yang, and F. Zeng, 2022: Mechanisms of regional Arctic Sea ice predictability in two dynamical seasonal forecast systems. *J. Climate*, **35**, 4207-4231.
- [21] H. Leon, D. Smith, M. Seabrook, R. Bilbao, F. J. Doblas-Reyes, E. Tourigny, V. Lapin, V. Kharin, W. J. Merryfield, R. Sospedra-Alfonso, P. Athanasiadis, D. Nicolí, S. Gualdi, N. Dunstone, R. Eade, A. A. Scaife, M. A. Collier, T. O'Kane, V. Kitsios, P. Sandery, K. Pankatz, B. Früh, H. Pohlmann, W. A. Müller, T. Kataoka, H. Tatebe, M. Ishii, Y. Imada, T. Kruschke, T. Koenigk, M. P. Karami, S. Yang, T. Tian, **L. Zhang**, T. L. Delworth, X. Yang, and F. Zeng et al, 2022: WMO Global Annual to Decadal Climate Update: A prediction for 2021-2025. *Bulletin of the American Meteorological Society* **103**(4), DOI: 10.1175/BAMS-D-20-0311.1.
- [22] Y. Joh, T. L. Delworth, A. T. Wittenberg, W. F. Cooke, X. Yang, F. Zeng, L. Jia, F. Lu, N. C. Johnson, S. B. Kapnick, A. Rosati, **L. Zhang**, and C. McHugh, 2022: Seasonal-to-decadal variability and prediction of the Kuroshio Extension in the GFDL Coupled Ensemble Reanalysis and Forecasting system. *Journal of Climate*. DOI:10.1175/JCLI-D-21-0471.1.
- [23] **L. Zhang**, T. L. Delworth, S. Kapnick, J. He, W. Cooke, A. T. Wittenberg, N. C. Johnson, A. Rosati, X. Yang, F. Lu, M. Bushuk, C. McHugh, H. Murakami, F. Zeng, L. Jia, K. Tseng, and Y. Morioka, 2022: Roles of Meridional Overturning in Subpolar Southern Ocean SST Trends: Insights from Ensemble Simulations. *J. Climate*, **35**, 1577-1596.

2021

- [24] H. Goosse, Q. Dalaiden, M. G. P. Cavitte and **L. Zhang**, 2021: Can we reconstruct the formation of large open-ocean polynyas in the Southern Ocean using ice core records? *Climate of the Past*, **17**(1), DOI:10.5194/cp-17-111-2021111-131.
- [25] **L. Zhang**, T. L. Delworth, W. Cooke, H. Goosse, B. Mitchell, Y. Morioka and X. Yang, 2021: The dependence of internal multidecadal variability in the Southern Ocean on the ocean background mean state. *Journal of climate*, **34**, 1061-1080.
- [26] R. Mao, S.-J. Kim, D.-Y. Gong, X. Liu, X. Wen, and **L. Zhang**, et al., 2021: August 2021: Increasing difference in interannual summertime surface air temperature between interior East Antarctica and the Antarctic Peninsula under future climate scenarios. *Geophysical Research Letters*, **48**(16), DOI:10.1029/2020GL092031.
- [27] K. Tseng, N. C. Johnson, S. B. Kapnick, T. L. Delworth, F. Lu, W. Cooke, A. T. Wittenberg, A. J. Rosati, **L. Zhang**, C. McHugh, X. Yang, M. Harrison, F. Zeng, G. Zhang, H. Murakami, M. Bushuk, and L. Jia, 2021: Are multiseasonal forecasts of atmospheric rivers possible? *Geophys. Res. Lett.*, **48**, e2021GL094000.
- [28] X. Yang, T. L. Delworth, F. Zeng, **L. Zhang**, W. F. Cooke, M. J. Harrison, A. Rosati, S. D. Underwood, G. P. Compo, and C. McColl, 2021: On the development of GFDL's decadal

prediction system: Initialization approaches and retrospective forecast assessment. *Journal of Advances in Modeling Earth Systems*, **13**(11), DOI:10.1029/2021MS002529.

[29] Zhang, G., H. Murakami, W. F. Cooke, Z. Wang, L. Jia, F. Lu, X. Yang, T. L. Delworth, A. T. Wittenberg, M. J. Harrison, M. Bushuk, C. McHugh, N. C. Johnson, S. B. Kapnick, K. Tseng, and **L. Zhang**, 2021: Seasonal predictability of baroclinic wave activity. *npj Clim. Atmos.*, **4**, 50.

[30] Bushuk, M., M. Winton, A. F. Haumann, T. Delworth, F. Lu, Y. Zhang, L. Jia, **L. Zhang**, W. Cooke, M. Harrison, B. Hurlin, N. C. Johnson, S. Kapnick, C. McHugh, H. Murakami, A. Rosati, K. Tseng, A. T. Wittenberg, X. Yang, and F. Zeng, 2021: Seasonal prediction and predictability of regional Antarctic Sea ice. *J. Climate*, **34**. 6207-6233

2020

[31] **L. Zhang** and William Cooke, 2020: Simulated changes of Southern Ocean air-sea heat flux feedback in a warmer climate. *Climate dynamics*, DOI:10.1007/s00382-020-05460-7.

[32] T. L. Delworth, W. F. Cooke, A. Adcroft, M. Bushuk, J.-H. Chen, K. A. Dunne, P. Ginoux, R. G. Gudgel, R. Hallberg, L. Harris, M. J. Harrison, N. C. Johnson, S. B. Kapnick, S.-J. Lin, F. Lu, S. Malyshev, P. C. D. Milly, H. Murakami, V. Naik, S. Pascale, D. J. Paynter, A. Rosati, M. D. Schwarzkopf, E. Shevliakova, S. D. Underwood, A. T. Wittenberg, B. Xiang, X. Yang, F. Zeng, H. Zhang, **L. Zhang**, and M. Zhao, 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.

[33] D. M. Smith, A. A. Scaife, R. Eade, P. Athanasiadis, A. Bellucci, I. Bethke, R. Bilbao, L. F. Borchert, L.-P. Caron, F. Counillon, G. Danabasoglu, T. L. Delworth, F. J. Doblas-Reyes, N. Dunstone, V. Estella-Perez, S. Flavoni, L. Hermanson, N. Keenlyside, V. Kharin, M. Kimoto, W. J. Merryfield, J. Mignot, T. Mochizuki, K. Modali, P.-A. Moneri, W. A. Müller, D. Nicolí, P. Ortega, K. Pankatz, H. Pohlmann, J. Robson, P. Ruggieri, R. Sospedra-Alfonso, D. Swingedouw, Y. Wang, S. Wild, S. G. Yeager., X. Yang and **L. Zhang** et al, 2020: North Atlantic climate far more predictable than models imply. *Nature*, **583**, DOI:10.1038/s41586-020-2525-0796-800.

2019

[34] **L. Zhang**, 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**, 59-65. <https://doi.org/10.1038/s41558-018-0350-3>.

2017

[35] **L. Zhang**, T. L. Delworth, X. Yang, R. G. Gudgel, L. Jia, G. A. Vecchi and F. Zeng, 2017: Estimating decadal predictability for the Southern Ocean using the GFDL CM2.1 model. *Journal of Climate*, **30**, 5187-5203, DOI: <http://dx.doi.org/10.1175/JCLI-D-16-0840.1>

[36] **L. Zhang**, T. L. Delworth and L. Jia, 2017: Diagnosis of decadal predictability of Southern Ocean Sea surface temperature in the GFDL CM2.1 model. *Journal of Climate*, **30**, 6309-6328, DOI: <http://dx.doi.org/10.1175/JCLI-D-16-0537.1>

[37] S. Li*, **L. Zhang** and L. Wu, 2017, Decadal potential predictability of upper ocean heat content over the twentieth century, *Climate Dynamics*, **49** (9-10), doi 10.1007/s00382-016-3513-9.

[38] T. L. Delworth, F. Zeng, **L. Zhang**, R. Zhang, G. Vecchi, X. Yang, 2017: The central role of ocean dynamics in connecting the North Atlantic Oscillation to the extratropical component of the Atlantic Multidecadal Oscillation, *J. Climate.*, <https://doi.org/10.1175/JCLI-D-16-0358.1>

- [39] **L. Zhang**, T. L. Delworth and F. Zeng, 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.

2016

- [40] T. L. Delworth, F. Zeng, G. A. Vecchi, X. Yang, **L. Zhang** and R. Zhang, 2016: The North Atlantic Oscillation as a driver of rapid climate change in the Northern Hemisphere. *Nature Geoscience*, **9**, 509-512.
- [41] **L. Zhang** and T. L. Delworth, 2016: Impact of the Antarctic bottom water formation on the Weddell Gyre and its northward propagation characteristics in GFDL model, *Journal of Geophysical Research: Oceans*, **121**, 5825-5846.
- [42] **L. Zhang** and T. L. Delworth, 2016: Simulated response of the Pacific decadal oscillation to climate change, *Journal of climate*, **24**, 3971-3988.

2015

- [43] **L. Zhang** and T. 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*, **28** (19), 7678-7701.
- [44] **L. Zhang** and C. Zhao, 2015: Processes and mechanisms for the model SST biases in the North Atlantic and North Pacific: A link with the Atlantic meridional overturning circulation, *J. Adv. Model. Earth Syst.*, **7**(2), 739-758.
- [45] **L. Zhang**, C. Wang, Z. Song, and S.-K. Lee, 2015: Remote effect of the model cold bias in the tropical North Atlantic on the warm bias in the tropical southeastern Pacific, *J. Adv. Model. Earth Syst.*, **6**(4), 1016-1026.
- [46] X. Wang, C. Wang, **L. Zhang** and X Wang, 2015: Multidecadal variability of Tropical Cyclone Rapid Intensification in the Western North Pacific. *J. Climate*, **28**, 3806-3820.
- [47] L. D. Yi*, **L. Zhang**, L Wu, 2015: On the mechanisms of decadal variability of the North Pacific Gyre Oscillation over the 20th century, *Journal of geophysical Research Oceans*, **120**(9), 6114-6129.

2014

- [48] Z. Y. Song, H. L. Liu, C. Z. Wang, **L. Zhang**, F. L. Qiao, 2014: Evaluation of the eastern equatorial Pacific SST seasonal cycle in CMIP5 models, *Ocean Science*, **10**(5), 837-843.
- [49] C. Wang*, **L. Zhang**, S.-K. Lee, L. Wu and C. R. Mechoso, 2014: A global perspective on climate model biases. *Nature climate Change*, **4**, 201-205.
- [50] Hong, L.* , **L. Zhang**, Z. Chen, and L. Wu, 2014: Linkage between the Pacific Decadal Oscillation and the low frequency variability of the Pacific Subtropical Cell. *J. Geophys. Res. Oceans*, **119**, 3464–3477.
- [51] **L. Zhang**, C. Wang and S.-K. Lee, 2014: Potential role of Atlantic warm pool-induced freshwater forcing in the Atlantic meridional overturning circulation: Ocean-sea ice coupled model simulations. *Climate dynamics*, **43**, 553-574.

2013

- [52] C. Wang*, **L. Zhang**, Sang-Ki Lee, 2013: Response of Freshwater Flux and Sea Surface Salinity to Variability of the Atlantic Warm Pool. *J. Climate*, **26**, 1249–1267.
- [53] C. Wang*, **L. Zhang**, 2013: Multidecadal Ocean Temperature and Salinity Variability in the Tropical North Atlantic: Linking with the AMO, AMOC, and Subtropical Cell. *J. Climate*, **26**, 6137–6162.
- [54] **L. Zhang** and C. Wang, 2013, Multidecadal North Atlantic Sea surface temperature and Atlantic Meridional overturning circulation variability in CMIP5 historical simulations. *Journal of Geophysical Research: oceans*, **118**, 5772-5791.

[55] **L. Zhang**, Lixin Wu, Bolan Gan, 2013: Modes and Mechanisms of Global Water Vapor Variability over the Twentieth Century. *J. Climate*, **26**, 5578–5593.

2012

[56] **L. Zhang**, and C. Wang, 2012: Remote influences on freshwater flux variability in the Atlantic warm pool region. *Geophysical Research Letters*, **39**, L19714, doi:10.1029/2012GL053530

[57] L. Wu, W. Cai, **L. Zhang**, H. Nakamura, A. Timmermann, T. Joyce, M. McPhaden, M. Alexander, B. Qiu, M. Visbeck, P. Chang, and B. Giese, 2012: Enhanced warming over the global subtropical western boundary currents. *Nature Climate Change*, DOI: 10.1038/NCLIMATE1353.

[58] **L. Zhang** and Lixin Wu, 2012: Can Oceanic Freshwater Flux Amplify Global Warming? *Journal of Climate*, **25**, 3417–3430.

2011

[59] **L. Zhang**, L. Wu, and J. Zhang, 2011: Coupled Ocean-Atmosphere Responses to Recent Freshwater Flux Changes over the Kuroshio-Oyashio Extension Region. *Journal of Climate*, **24**, 1507-1524.

[60] **L. Zhang**, L. Wu, and J. Zhang, 2011: Simulated Response to Recent Freshwater Flux Change over the Gulf Stream and Its Extension: Coupled Ocean-Atmosphere Adjustment and Atlantic-Pacifi c Teleconnection. *Journal of Climate*, **24**, 3971-3988.

[61] **L. Zhang**, C. Wang and L. Wu, 2011: Low-Frequency Modulation of the Atlantic Warm Pool by the Atlantic Multidecadal Oscillation. *Climate Dynamics*, **39**, 1661-1671.

[62] **L. Zhang**, L. Wu, and L. Yu, 2011: Oceanic Origin of Recent La-Nina Like Warming Trend in the Tropical Pacific, *Advance in Atmospheric Science*, **28**, 1-9, AAS20100129.

2009-2010

[63] **L. Zhang**, L. Wu, X. Lin, and D. Wu, 2010: Modes and Mechanisms of Sea Surface Temperature Low-Frequency Variations over the Coastal China Seas. *Journal of Geophysical Research*, **115**, doi:10.1029/2009JC006025

[64] L. Wu, Y. Sun, J. Zhang, **L. Zhang** and S. Minobe, 2010: Coupled Ocean-Atmosphere Response to Idealized Freshwater Forcing over the Western Tropical Pacific, *Journal of Climate*, **23**, 1945-1954.

[65] C. Li, L. Wu, Q Wang, L. Qu and **L. Zhang**, 2009: An intimate coupling of ocean-atmospheric interaction over the extratropical North Atlantic and Pacific. *Climate dynamics*, **32**, 753-765.

CONFERENCE PRESENTATION and CAMPUS TALKS

- “Research achievements and future plans” in UCAR/CAPESS Project scientist III promotion review. 2024, March. (Oral talk)
- “Multiyear to decadal predictions of sea level in the North Atlantic Ocean and U.S. East Coast” in NOAA CPO map project task meeting. 2024, April. (**Invited Oral talk**)
- “Skillful multiyear to decadal predictions of sea level in the North Atlantic Ocean and U.S. East Coast” in in *104th American Meteorological Society (AMS) Annual Meeting, Baltimore, MD, U.S.*, 2024 Feb. (Oral talk)
- “The relative role of the subsurface Southern Ocean in driving negative Antarctic Sea ice extent anomalies in 2016-2021” in WCRP Open science Conference, *Kigali, Rwanda*, 2023 Oct. (Oral talk)

- “The relative role of the subsurface Southern Ocean in driving negative Antarctic Sea ice extent anomalies in 2016-2021” in the *IUGG, the 28th general assembly, Berlin, Germany*, 2023 July. (Oral talk)
- “The relative role of the subsurface Southern Ocean in driving negative Antarctic Sea ice extent anomalies in 2016-2021” in the *Monthly Polar Climate Group meeting at Princeton University, Sayre Hall, Princeton*, 2023 June. (**Invited oral talk**)
- “The relative role of the subsurface Southern Ocean in driving negative Antarctic Sea ice extent anomalies in 2016-2021” in the *second international symposium on polar ocean and global change, Qingdao, China*, 2023 May. (**Invited virtual oral talk**)
- “The relative role of the subsurface Southern Ocean in driving negative Antarctic Sea ice extent anomalies in 2016-2021” in *Japanese Geosciences Union (JpGU) annual meeting, Makuhari Messe, Chiba, Japan*, 2023 May. (**Invited virtual oral talk**)
- “Decadal variability and predictability, North Atlantic and Southern Ocean” in *OAR Assistant Administrator visit, GFDL, Princeton, NJ, U.S.*, 2023 April. (**Invited oral talk**)
- “The relative role of the subsurface Southern Ocean in driving negative Antarctic Sea ice extent anomalies in 2016-2021” in *European Geosciences Union (EGU) annual meeting, Vienna, Austria*, 2023 April. (**Invited oral talk**)
- “The development of decadal prediction system at GFDL” in *World Climate Research Program (WCRP) DCPD-Decadal Climate Prediction Project, UK Met office, UK*, 2023 March. (**Invited virtual oral talk**)
- “The relative role of the subsurface Southern Ocean in driving negative Antarctic Sea ice extent anomalies in 2016-2021”, in *American Meteorological Society (AMS) annual meeting, Denver, Colorado, U.S.*, 2023 Jan. (Oral talk)
- “Roles of meridional overturning in subpolar Southern Ocean SST trends: Insights from ensemble simulations” in *virtual workshop on Societally Relevant Multi-Year Climate predictions, Canyon Boulevard, Boulder, CO, U.S.*, 2022 Mar. (Poster)
- “Roles of meridional overturning in subpolar Southern Ocean SST trends: Insights from ensemble simulations” in *virtual WCRP workshop on attribution of multi-annual to decadal changes in the climate system, U.S.*, 2021 Sep. (**Invited virtual Oral talk**)
- “Roles of meridional overturning in subpolar Southern Ocean SST trends: Insights from ensemble simulations” in *American Geoscience Union (AGU) Fall Meeting, New Orleans, LA, U.S.*, 2021 Dec. (Oral talk)
- “The dependence of Southern Ocean low frequency variability on the ocean mean state” in *virtual American Geoscience Union (AGU) Fall Meeting, U.S.*, 2020 Dec. (Oral talk)
- “The decadal prediction system developed at GFDL” in *Climate Variability and Predictability (CLIVAR), Process Study and Model Improvement Panel virtual summer summit, U.S.*, 2020 Aug. (**Invited oral talk**)
- “The dependence of Southern Ocean low frequency variability on the ocean mean state” in *2020 Ocean science meeting, San Diego, California, U.S.*, 2020 Feb. (Oral talk)
- “Decadal variability and predictability in the Pacific, Atlantic and Southern Oceans” in *NOAA/GFDL external review, GFDL, Princeton, NJ, U.S.*, 2019 Oct. (**Invited oral talk**)
- “Decadal variability and predictability in the Southern Ocean and Atlantic Ocean” in *Climate Variability and Predictability (CLIVAR) summer summit, Long Beach, CA, U.S.*, 2019 Aug. (**Invited oral talk**)
- “Natural variability of Southern Ocean convection as a driver of observed climate trends”, *NOAA/GFDL Poster Expo, GFDL, Princeton, NJ*, 2019 May. (Poster)
- “Decadal variability and predictability in the Southern Ocean” *formal seminar at NOAA/GFDL, GFDL, Princeton, NJ*, 2019 Feb. (oral talk)

- “Decadal variability and predictability in the Southern Ocean” in *European Geosciences Union (EGU) annual meeting, Vienna, Austria, 2019 April*. (Oral talk)
- “Decadal variability and predictability in the Southern Ocean – implications for interpreting recent observed trends” in *Japanese Geosciences Union (JpGU) annual meeting, Makuhari Messe, Chiba, Japan, 2019 May*. (**Invited oral talk**)
- “Decadal variability and predictability in the Southern Ocean – implications for interpreting recent observed trends” in *American Geoscience Union (AGU) Fall Meeting meeting, Washington, D.C., U.S., 2018 Dec*. (Oral talk)
- “Estimating decadal predictability for the Southern Ocean using the GFDL CM2.1 model” in *2018 ocean science meeting, Portland, Oregon, U.S., 2018 Feb*. (Poster)
- “Estimating decadal predictability for the Southern Ocean using the GFDL CM2.1 model” in *2017 GFDL annual science meeting, GFDL, Princeton, NJ, U.S., 2017 Nov*. (**Invited oral talk**)
- “Simulated response of the Pacific decadal oscillation to climate change” in *97th American Meteorological Society (AMS) Annual Meeting, Seattle, WA, U.S., 2017 Jan*. (Oral talk)
- “Simulated response of the Pacific decadal oscillation to climate change” in *NOAA/GFDL Poster Expo, GFDL, Princeton, NJ, U.S., 2017 April*. (Poster)
- “Impact of the Antarctic bottom water on the Weddell Gyre and its northward propagation characteristics in GFDL model” in *2017 American Geoscience Union (AGU) Fall Meeting, New Orleans, Louisiana, U.S., 2017 Dec*. (Poster)
- “Simulated response of the Pacific decadal oscillation to climate change” in *97th American Meteorological Society (AMS) Annual Meeting, Seattle, WA, U.S., 2017 Jan*. (Oral talk)
- “Simulated response of the Pacific decadal oscillation to climate change” in *2016 American Geoscience Union (AGU) Fall Meeting, San Francisco, CA., U.S., 2016 Dec*. (Poster)
- “The impact of multidecadal Atlantic meridional overturning circulation variations on the Southern Ocean” in *2015 American Geoscience Union (AGU) Fall Meeting, San Francisco, CA., U.S., 2015 Dec*. (Poster)
- “Diagnosis of decadal predictability of Southern Ocean Sea surface temperature in the GFDL CM2.1 model” in *European Geosciences Union (EGU) annual meeting, Vienna, Austria, 2016 April* (Oral talk)
- “Analysis of the characteristics, mechanism and predictability of the Pacific Decadal Oscillation in a suite of GFDL climate models” in *European Geosciences Union (EGU) annual meeting, Vienna, Austria, 2015 April* (Oral talk)
- “Analysis of the characteristics, mechanism and predictability of the Pacific Decadal Oscillation in a suite of GFDL climate models” in *NOAA/GFDL lunchtime seminar, GFDL, Princeton, NJ, U.S., 2015 May*. (Oral talk)
- “Impact of multidecadal Atlantic meridional overturning circulation variations on the Southern Ocean” in *American Geoscience Union (AGU) JOINT ASSEMBLY, Montreal, Canada. 2015 April*. (Oral talk)
- “Analysis of the characteristics, mechanism and predictability of the Pacific Decadal Oscillation in a suite of GFDL climate models” at *Ocean University of China formal seminar, Qingdao, China, 2015 July*. (**Invited oral talk**)
- “Pacific decadal oscillation and North American hydroclimate” in *NOAA/GFDL Poster Expo, GFDL, Princeton, NJ, 2014 July*. (Poster)
- “The Pacific Decadal Oscillation and North American Hydroclimate” in *NOAA/GFDL Science Review, GFDL, Princeton, NJ, 2014 April*. (Poster)

- “A global perspective on climate model biases” in *NOAA/GFDL and Princeton University visiting scientist program interview, GFDL, Princeton, NJ*, 2013 Nov. (**Invited oral talk**)
- “Role of Atlantic Warm Pool-induced freshwater forcing in the *AMOC*” *U.S. AMOC/U.K. RAPID International Science Meeting ‘AMOC Variability: Dynamics and Impacts’ Hilton Baltimore - Baltimore, MD. U.S.*, 2013 Aug. (Poster)
- “Role of the Atlantic Warm Pool in the Atlantic Meridional Overturning Circulation: Ocean-Sea Ice Coupled Model Simulations” in *NOAA/AOML formal seminar series, AOML, Miami, FL, U.S.*, 2012 Feb. (**Invited oral talk**)

RESEARCH EXPERIENCE

- Deep learning method for decadal prediction.
- Data exchange for [World Meteorological Organization \(WMO\) Lead Centre for Annual to Decadal Predictions](#).
- Participating in developing GFDL decadal prediction model
- Installing NCAR CESM model in NOAA/AOML Gaea machine and conducting model sensitivity experiments
- Developing numerical dynamical model (Fast Ocean and Atmosphere Model (FOAM)).
- Field experience in the East China Sea and Northwestern Pacific Ocean, 2009.
- CTD and Lowered ADCP deployment and data analysis

REVIEWS

Manuscript Reviews

- Nature, Science, Nature Climate Change, Proceedings of the National Academy of Sciences, Science Advances, Bulletin of the American Meteorological Society, Journal of Climate, Monthly Weather Review, Climate Dynamics, Journal of Geophysical Research-Atmosphere, Journal of Geophysical Research-Oceans, Journal of Advances in Modeling Earth Systems, Geophysical Research Letters, Journal of Meteorological Society of Japan, Npj Climate and Atmospheric Science, International Journal of Climatology, Asian Pacific Journal of Atmospheric Science, Tellus, Climatic Change, Dynamics of Atmospheres and Oceans, Meteorology and Atmospheric Physics, Scientific Online Letters on the Atmosphere, Journal of Meteorological Research, and GFDL internal reviews

Grant Review

- [U.S. National Science Foundation \(NSF\)](#): 8(2017-2023); [British National Science Foundation](#): 3(2019, 2020, 2022)