

Ming Zhao

Senior Physical Scientist

Geophysical Fluid Dynamics Laboratory / NOAA

Princeton University Forrestal Campus, Princeton, NJ 08540

Phone: 609-4525328, Email: ming.zhao@noaa.gov

Education

- Ph.D., Atmospheric Science, University of British Columbia, 2003
- M.S., Meteorology, Nanjing Institute of Meteorology, 1993
- B.S., Meteorology, Nanjing Institute of Meteorology, 1990

Employment

- Senior Physical Scientist, GFDL/NOAA, Princeton, New Jersey, USA, 03/2022-present
- Physical Scientist, GFDL/NOAA, Princeton, New Jersey, USA, 11/2016-03/2022
- Project Scientist III, UCAR, GFDL/NOAA, Princeton, NJ, USA, 2013-2016
- Project Scientist II, UCAR, GFDL/NOAA, Princeton, NJ, USA, 2007-2013
- Associate Research Scholar, Princeton University, GFDL/NOAA, Princeton, NJ, USA, 2006-2007
- Research Associate, Princeton University, GFDL/NOAA, Princeton, NJ, USA, 2004-2006
- Post-doctoral Fellow, Canadian Centre for Climate Modelling and Analysis (CCCma), Victoria, University of Victoria, Canada, 2003-2004
- Meteorologist, Shanghai Meteorological Center, Shanghai, China, 1993-1998

Professional Experience and Responsibilities

- Member of US CLIVAR Process Study and Model Improvement Panel (2022-present)
- Member of AMS Committee on Tropical Meteorology and Tropical Cyclones (2018-present)
- Co-lead of NOAA CPO MAPP Climate Sensitivity Task Force (2020-present)
- Member of NOAA CPO MAPP Model Diagnostics Task Force (2015-present)
- Member of writing team for NOAA's Precipitation Grand Challenge Strategic Plan (2020)
- Member of NCEP Unified Modeling Strategic Implementation Plan Working Group on Physics (2017)
- Member of NOAA CPO MAPP Climate Model Development Task Force (2014-2017)
- Member of NOAA CPO MAPP Climate Prediction Task Force (2012-2015)
- Member of NOAA CPO MAPP CMIP5 Task Force (2011-2014)
- Core member of the U.S. CLIVAR Hurricane Working Group (2011-2014)
- Member of GFDL Research Council (2018-Present)
- Member of GFDL Outstanding Paper nomination committee (2020-Present)
- Co-lead (2013-2015) and lead (2015-2018) of GFDL Model Development Team (MDT) Atmospheric Working Group (AWG) for developing GFDL new generation global atmospheric model AM4 (2013-2018)
- Co-lead of GFDL Model Development Team (MDT) Coupled Working Group (CWG) for developing GFDL new generation coupled physical climate model CM4 (2013-2019)
- Co-lead of GFDL Cloud and Climate Initiative (2013-present)
- Lead developer for GFDL Global High Resolution Atmospheric Model (HiRAM) (2007-2011)
- Core developer for GFDL Global Atmospheric Model version 3 (AM3) (2007-2011)
- Advisor and co-advisor of six postdocs
- Member of two PhD committees at AOS Princeton University
- Session organizer and co-chair, 35th AMS Conference on Hurricanes and Tropical Meteorology, New Orleans, USA, May 9 - 13, 2022
- Session co-convenor and co-chair, CMIP6 Climate Model Evaluation, 2021 AGU Fall meeting
- Session co-convenor and co-chair, CMIP6 Climate Model Evaluation, 2020 AGU Fall meeting
- Session co-convenor and co-chair, CMIP6 Climate Model Evaluation, 2019 AGU Fall meeting

- Session chair, Climate Change I & II, 33rd AMS Conference on Hurricanes and Tropical Meteorology, April 16 - 20, 2018 Ponte Vedra, Florida, 2018
- Session chair, Climate III, 31st American Meteorological Society (AMS) Conference on Hurricanes and Tropical Meteorology, San Diego, USA, March 30 - April 04, 2014
- Session chair, Precipitation in a Changing Climate, Joint CFMIP (Cloud Feedback Model Intercomparison Project) / EUCLIPSE (European Union CLOUD Inter-comparison, Process Study & Evaluation project) Meeting on Cloud Processes and Climate Feedbacks, Hamburg, Germany, June 10-14, 2013
- Review panelist for NASA and DOE Grant Proposal
- Reviewer for National Science Foundation Grant Proposal, NOAA Climate Program Office Funding Proposal
- Reviewer for *Nature Climate Change*, *Nature Communications*, *Bulletin of the American Meteorological Society*, *Journal of Climate*, *Journal of Atmospheric Sciences*, *Journal of Geophysical Research*, *Geophysical Research Letters*, *Journal of Advances in Modeling Earth Systems*, *Climate Dynamics*, *Climate Change*, *Quarterly Journal of the Royal Meteorological Society*, *Journal of the Meteorological Society of Japan*, *Dynamics of Atmospheres and Oceans*, *International Journal of Climatology*, *Advances in Atmospheric Sciences*
- Member of American Geophysical Union
- Member of American Meteorological Society

Awards and Recognition

- Recipient of 2018 NOAA OAR Outstanding Scientific Paper Award (Climate category) (This award recognizes the preeminent science that OAR employees and affiliates publish through rigorous peer review processes. Awards are under three categories corresponding to NOAA's mission goals in Climate, Oceans and Great Lakes, and Weather. There was one paper awarded under each category in December 2018)
- Ranked #618 among the Reuters hot 1000 list of the world's top climate scientists in 2020. <https://www.reuters.com/investigates/special-report/climate-change-scientists-list/>

A brief description of my major accomplishments at GFDL

1) Development of GFDL's global high resolution atmospheric model HiRAM and studies of hurricane-climate connections

I was the lead developer of GFDL's HiRAM, which has led to a major advancement in GFDL's capability in simulating tropical cyclones (TCs), their historical variability, and future change in a changing climate (Zhao et al. 2009). HiRAM is one of the GFDL models participating in CMIP5. HiRAM helped motivate the formation of the US CLIVAR Hurricane Working Group for a multi-institutional investigation of hurricane-climate connections using high-resolution GCMs. HiRAM also helped motivate the development of GFDL's subseasonal to seasonal prediction system for tropical cyclones, MJO, and other extreme weather. I have published 5 lead-author papers using HiRAM and many co-authored papers, which are well-cited in the literature. In particular, the HiRAM documentation paper (Zhao et al. 2009) has been cited 435 (613) times based on Web of Science (Google Scholar). HiRAM has been used worldwide and has impacted many later works on TC-climate connections, TC seasonal predictions, global modeling of TC activities, TC intraseasonal variability. HiRAM simulation work contributed significantly to the GFDL Group Gold Medal awarded by the Department of Commerce in 2011 "for sustained high-quality research, scientific assessment and leadership resulting in an improved understanding of the impact of anthropogenic climate change on past and future hurricane activity".

2) Development of GFDL's latest generation global atmospheric model AM4, and coupled physical climate model CM4

I have co-led (2013-2015) and led (2015-2018) the GFDL Model Development Team (MDT) Atmospheric Working Group (AWG) for developing AM4 and co-led (2013-2019) the MDT Coupled Working Group (CWG) for developing CM4. This includes developing strategic plans, organizing meetings, analyzing and discussing model results, suggesting and creating new configurations and versions of AM4, developing and integrating new moist physics parameterizations, and diagnosing and addressing critical issues that surfaced during the AM4 development. My efforts on CM4 focused on reducing CM4's biases in SSTs, ENSO, double ITCZ, as well as the global SST response to historical and present-day radiative forcing. One of the central goals was to reduce AM4/CM4 biases in simulations of climate through improved atmospheric moist physics. AM4 has been documented in Zhao et al. (2018a,b) and CM4 has been documented in Held et al. (2019). AM4 is a foundation for all new generation GFDL models including CM4, the Earth System Model (ESM4), and the latest GFDL subseasonal-seasonal to decadal prediction system (SPEAR). AM4, CM4, and ESM4 have participated in CMIP6. SPEAR has been running real-time for short-time climate prediction, and it has replaced the earlier GFDL prediction systems and contributed to the North American Multi-Model Ensemble.

3) Development of convection parameterization scheme and improvement for TC and MJO predictions

As a core developer of GFDL AM3, I implemented, further developed, and optimized the University of Washington Shallow Cumulus Scheme (UWShCu) and unified the plume model between UWShCu and Donner's deep scheme to improve the model's consistency and efficiency. My efforts led to a substantial improvement in AM3 simulation of climate. AM3 was awarded a Group Gold Medal by the DOC in 2012. During my development of HiRAM, I have further adapted UWShCu for representing both shallow and deep convection [See Zhao et al. (2009) Appendix for my modifications to UWShCu scheme as well as a simple statistical cloud scheme]. During my development of AM4/CM4, I have further developed the convection scheme by including an additional deep plume to represent deep convection (Zhao et al. 2016, Zhao et al. 2018b). The new double plume convection (DPC) scheme emphasizes the importance of a non-intrusive convection parameterization, which allows a smoother transition between parameterized convection and explicit (large-scale) clouds and is responsible for many of the recent GFDL models' improvements in simulating tropical transients such as MJO, tropical cyclones, and mesoscale convective systems. It also improves model simulations of mean precipitation, clouds, and cloud radiative effects. The DPC scheme has been used in not only the latest GFDL climate and earth system models (CM4, ESM4) but also GFDL's latest prediction systems (SPEAR). When running in forecast mode, the DPC scheme has also been shown to substantially improve the models' retrospective forecasts of MJO and TC genesis (e.g., Xiang et al. 2021, Xiang et al. 2015a, Xiang et al. 2015b) at intra-seasonal scale. The DPC scheme has recently been adopted in a version of NCAR's CAM5 model (Chu et al. 2021).

4) Studies of clouds, cloud feedbacks, and climate sensitivities and co-leading GFDL Cloud Climate Initiative (CCI)

Since 2013, I have been co-leading the GFDL CCI. During this period, I have led three lead-author papers and many co-authored papers. Zhao (2014) identified key physical processes (cumulus mixing and precipitation microphysics) and provided key diagnostic quantities (precipitation efficiency or cloud detrainment efficiency) in GCMs to understand the effects of convection on clouds and cloud feedbacks. This paper has motivated many later studies, including a chapter entitled "Precipitation efficiency and climate sensitivity" in the AGU Clouds and Climate Monograph Series (Lutsko et al. 2021). Zhao et al. (2016) further used a version of AM4 with

changes only in the treatment of convective microphysics to demonstrate that convective precipitation microphysics (one of the most uncertain processes in GCM parameterizations) alone can profoundly affect cloud feedbacks and climate sensitivity, and its impact can be understood through precipitation efficiency. This paper received the 2018 NOAA OAR Outstanding Scientific Paper Award, and it helped motivate the NOAA CPO MAPP Climate Sensitivity Task Force, for which I am one of the co-leads. Most recently, Zhao (2021a) has led an investigation of the equilibrium climate sensitivity (ECS) in GFDL's latest climate models, CM4 and SPEAR. Using a series of coupled and uncoupled simulations, Zhao identified and quantified three major processes that have led to an increase in CM4's ECS compared to earlier-generation GFDL models. These processes include changes in vegetation, sea-ice concentrations, and SST warming patterns. This paper demonstrated the limitations of the traditional Cess approach (i.e., uniform SST warming) in studies of cloud feedbacks and climate sensitivity and provided a modified framework in understanding cloud feedbacks and climate sensitivity using atmosphere-only models.

5) Studies of other high-impact weather [e.g., atmospheric rivers (AR), mesoscale convective systems (MCS); extreme cold weather; and storm-related extreme sea level] and their response to global warming

For the past few years, I have expanded my TC-climate studies to include other high-impact weather. For example, Zhao (2020) focused on atmospheric rivers (ARs), their variability, and change in warmer climates. It demonstrated the superior quality of the GFDL high-resolution AM4 simulations of present-day AR statistics and variability. Most previous studies of AR responses to global warming used a fixed threshold of integrated vapor transport (IVT) for detecting ARs and thus produced a large increase in the frequency of AR conditions in warmer climates. However, Zhao (2020) argued it is necessary to use an IVT threshold that accounts for the impact of global warming-induced moisture increases on the IVT threshold, and as a result, Zhao (2020) produced much less increase in AR frequency, but a much larger increase in AR intensity with warming. This paper was highlighted in the January 2021 issue of BAMS in the Papers of Note section. Zhao (2021b) used satellite observations, reanalysis data, and high-resolution AM4 to quantify for the first time the collective role of AR, TS, and MCS in producing global and regional mean and extreme precipitation. The study not only demonstrates the model's capability in simulating storm-associated precipitation and extreme precipitation but also reveals the changing character of storm-associated extreme precipitation in a warmer climate. This work has important implications for future flash flood-driven disasters and water resource management. In addition to the above two single-author papers, I have co-authored several other papers on weather-climate connections including an investigation of high-resolution AM4-simulated MCS climatology, variability, and response to global warming (Dong et al. 2020), a study of the effects of ocean circulation on US extreme cold weather (Yin and Zhao 2021), and a study of storm-related extreme sea level along the US Atlantic Coast (Yin et al. 2020).

6) Studies of tropical convection, clouds, and climate by developing and/or utilizing a model hierarchy

I have developed/utilized many idealized models to study convection, clouds, and climate. They include large-eddy-simulation (LES) models (e.g., Zhao and Austin 2005a,b), single-column models (SCMs, e.g., Zhao and Austin 2003), doubly periodic dynamical radiative-convective equilibrium (DRCE) models using GCM physics with (Held and Zhao 2008) and without ambient rotation (Held et al. 2007), aquaplanet models (APM, e.g. Kang et al. 2008, Medeiros et al. 2008, Merlis et al. 2013, 2016), uncoupled global atmospheric models (AGCMs, e.g., Zhao 2014, Zhao

et al. 2016), and fully coupled global climate models (CGCMs, e.g., Zhao 2021) to explore convection, clouds and their relationship to the large-scale environment. My work and the idealized models I developed have motivated and helped many graduate students and postdocs at GFDL and Princeton University to use the idealized modeling frameworks for their research and development.

Total Refereed Publications:

127 papers, H-index: 46, total citation: 7328; based on Web of Science as of 5/15/2022

- ResearchID: <https://publons.com/researcher/2554069/ming-zhao/>
- Google Scholar: <https://scholar.google.com/citations?user=Fs21qjcAAAAJ&hl=en>
- GFDL bibliography: <https://www.gfdl.noaa.gov/bibliography/results.php?author=1158>

Selected publications based on areas of research (including the citations as of 10/15/2021)

Selected publications on global climate model development

1. **Zhao, Ming**, I. M. Held, S-J Lin, and G. A. Vecchi, 2009: Simulations of global hurricane climatology, inter-annual variability, and response to global warming using a 50km resolution GCM. *Journal of Climate*, 22(24), DOI: 10.1175/2009JCLI3049.1. **(Citation: 435 times Web of Science; 613 times Google Scholar; This is the GFDL HiRAM model documentation paper)**
2. **Zhao, Ming**, J-C Golaz, I. M. Held, and 42 co-authors, 2018a: The GFDL Global Atmosphere and Land Model AM4.0/LM4.0 - Part I: Simulation Characteristics with Prescribed SSTs. *Journal of Advances in Modeling Earth Systems*. DOI:10.1002/2017MS001208. **(Citation: 82 times Web of Science; 102 times Google Scholar)**
3. **Zhao, Ming**, J-C Golaz, I. M. Held, and 42 co-authors, 2018b: The GFDL Global Atmosphere and Land Model AM4.0/LM4.0 - Part II: Model Description, Sensitivity Studies, and Tuning Strategies. *Journal of Advances in Modeling Earth Systems*. DOI:10.1002/2017MS001209. **(Citation: 101 times Web of Science; 122 times Google Scholar)**
4. Held, I. M., and co-authors including **Ming Zhao**, 2019: Structure and Performance of GFDL's CM4.0 Climate Model. *Journal of Advances in Modeling Earth Systems*, 11(11), DOI:10.1029/2019MS001829 **(Citation: 81 times Web of Science; 107 times Google Scholar)**
5. Dunne, J. P., and co-authors including **Ming Zhao** 2020: The GFDL Earth System Model version 4.1 (GFDL-ESM 4.1): Overall coupled model description and simulation characteristics. *Journal of Advances in Modeling Earth Systems*, 12(11), DOI:10.1029/2019MS002015. **(Citation: 48 times Web of Science; 66 times Google Scholar)**
6. Delworth, T. L., and co-authors including **Ming Zhao**, 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. **(Citation: 20 times Web of Science; 25 times Google Scholar)**
7. Horowitz, L. W., and co-authors including **Ming Zhao**, 2020: The GFDL Global Atmospheric Chemistry-Climate Model AM4.1: Model Description and Simulation Characteristics. *Journal of Advances in Modeling Earth Systems*, 12(10), DOI:10.1029/2019MS002032. **(Citation: 16 times Web of Science; 24 times Google Scholar)**
8. Guo, H, Y Ming, S Fan, L Zhou, L Harris, and **Ming Zhao**, 2021: Two-moment bulk cloud microphysics with prognostic precipitation in GFDL's Atmosphere Model AM4.0: configuration

and performance. *Journal of Advances in Modeling Earth Systems*, 13(6), DOI:10.1029/2020MS002453.

9. Chu, W, Y. Lin, and **Ming Zhao**, 2021: Implementation and evaluation of a double-plume convective parameterization in NCAR CAM5, DOI: <https://doi.org/10.1175/JCLI-D-21-0267.1>
10. Donner, Leo J., and co-authors including **Ming Zhao**, 2011: The dynamical core, physical parameterizations, and basic simulation characteristics of the atmospheric component AM3 of the GFDL Global Coupled Model CM3. *Journal of Climate*, 24(13), DOI:10.1175/2011JCLI3955.1. **(Citation: 684 times Web of Science; 901 times Google Scholar)**

Selected publications on tropical cyclones and climate connections

- 1) **Zhao, Ming**, and I. M. Held, 2012: TC-permitting GCM simulations of hurricane frequency response to sea surface temperature anomalies projected for the late 21st century. *Journal of Climate*, 25(8), DOI: 10.1175/JCLI-D-11-00313.1. **(Citation: 87 times Web of Science; 113 times Google Scholar)**
- 2) **Zhao, Ming**, I. M. Held, and S-J Lin, 2012: Some counter-intuitive dependencies of tropical cyclone frequency on parameters in a GCM. *Journal of the Atmospheric Sciences*, 69(7), DOI: 10.1175/JAS-D-11-0238.1. **(Citation: 76 times Web of Science; 95 times Google Scholar)**
- 3) **Zhao, Ming**, I. M. Held, and G. A. Vecchi, 2010: Retrospective forecasts of the hurricane season using a global atmospheric model assuming persistence of SST anomalies. *Monthly Weather Review*, 138(10), DOI:10.1175/2010MWR3366.1. **(Citation: 70 times Web of Science; 110 times Google Scholar)**
- 4) **Zhao, Ming**, and I. M. Held, 2010: An analysis of the effect of global warming on the intensity of Atlantic hurricanes using a GCM with statistical refinement. *Journal of Climate*, 23(23), DOI: 10.1175/2010JCLI3837.1. **(Citation: 62 times Web of Science; 82 times Google Scholar)**
- 5) **Zhao, Ming**, I. M. Held, S-J Lin, and G. A. Vecchi, 2009: Simulations of global hurricane climatology, inter-annual variability, and response to global warming using a 50km resolution GCM. *Journal of Climate*, 22(24), DOI: 10.1175/2009JCLI3049.1. **(Citation: 435 times Web of Science; 613 times Google Scholar)**
- 6) Held, I. M. and **Ming Zhao**, 2011: The response of tropical cyclone statistics to an increase in CO₂ with fixed sea surface temperatures. *Journal of Climate*, 24(20), DOI:10.1175/JCLI-D-11-00050.1. **(Citation: 83 times Web of Science; 127 times Google Scholar)**
- 7) Lin, Y., **Ming Zhao**, and M. Zhang, 2015: Tropical cyclone rainfall area controlled by relative sea surface temperature. *Nature Communications*, 6, 6591, DOI:10.1038/ncomms7591. **(Citation: 76 times Web of Science; 99 times Google Scholar)**
- 8) Murakami, H., T. L. Delworth, W. F. Cooke, **Ming Zhao**, B. Xiang, and P-C Hsu, 2020: Detected climatic change in global distribution of tropical cyclones. *Proceedings of the National Academy of Sciences*, 117(20), DOI:10.1073/pnas.1922500117. **(Citation: 24 times Web of Science, 38 times Google Scholar)**
- 9) Walsh, Kevin J., and co-authors including **Ming Zhao**, 2015: Hurricanes and climate: the U.S. CLIVAR working group on hurricanes. *Bulletin of the American Meteorological Society*, 96(6), DOI:10.1175/BAMS-D-13-00242.1. **(Citation: 107 times Web of Science; 145 times Google Scholar)**
- 10) Vecchi, G. A., **Ming Zhao**, H. Wang, G. Villarini, A. Rosati, A. Kumar, I. M. Held, and R. G. Gudgel, 2011: Statistical-dynamical predictions of seasonal North Atlantic hurricane activity. *Monthly*

Weather Review, 139(4), DOI:10.1175/2010MWR3499.1. **(Citation: 106 times Web of Science; 143 times Google Scholar)**

- 11) Knutson, T. R., J. J. Sirutis, **Ming Zhao**, R. E. Tuleya, M. A. Bender, G. A. Vecchi, G. Villarini, and D. Chavas, 2015: Global Projections of Intense Tropical Cyclone Activity for the Late Twenty-First Century from Dynamical Downscaling of CMIP5/RCP4.5 Scenarios. *Journal of Climate*, 28(18), DOI:10.1175/JCLI-D-15-0129.1. **(Citation: 197 times Web of Science; 323 times Google Scholar)**
- 12) Knutson, T. R., J. J. Sirutis, G. A. Vecchi, S. T. Garner, **Ming Zhao**, H-S Kim, M. A. Bender, R. E. Tuleya, I. M. Held, and G. Villarini, 2013: Dynamical downscaling projections of 21st century Atlantic hurricane activity: CMIP3 and CMIP5 model-based scenario. *Journal of Climate*, 26(17), DOI:10.1175/JCLI-D-12-00539.1. **(Citation: 202 times Web of Science; 301 times Google Scholar)**
- 13) Li, T., M. Kwon, and **Ming Zhao**, 2010: Global warming shifts Pacific tropical cyclone location. *Geophysical Research Letters*, 37, L21804, DOI:10.1029/2010GL045124. **(Citation: 72 times Web of Science; 105 times Google Scholar)**
- 14) Camargo, S. J., M. K. Tippett, A. Sobel, G. A. Vecchi, and **Ming Zhao**, 2014: Testing the performance of tropical cyclone genesis indices in future climates using the HIRAM model. *Journal of Climate*, 27(24), DOI:10.1175/JCLI-D-13-00505.1. **(Citation: 78 times Web of Science; 100 times Google Scholar)**
- 15) Villarini, G., D. A. Lavers, E. Scoccimarro, **Ming Zhao**, M. F. Wehner, G. A. Vecchi, T. R. Knutson, and K. A. Reed, 2014: Sensitivity of Tropical Cyclone Rainfall to Idealized Global Scale Forcings. *Journal of Climate*, 27(12), DOI:10.1175/JCLI-D-13-00780.1. **(Citation: 69 times Web of Science; 90 times Google Scholar)**
- 16) Shaevitz, D. and co-authors including **Ming Zhao**, 2014: Characteristics of tropical cyclones in high-resolution models in the present climate. *Journal of Advances in Modeling Earth Systems*, 6(4), DOI:10.1002/2014MS000372. **(Citation: 79 times Web of Science; 98 times Google Scholar)**
- 17) Kim, H.-S., G. A. Vecchi, T. R. Knutson, W. G. Anderson, T. L. Delworth, A. Rosati, F. Zeng, and **Ming Zhao**, 2014: Tropical Cyclone Simulation and Response to CO₂ Doubling in the GFDL CM2.5 High-Resolution Coupled Climate Model. *Journal of Climate*, 27(21), DOI:10.1175/JCLI-D-13-00475.1. **(Citation: 81 times Web of Science; 101 times Google Scholar)**
- 18) Vecchi, G. A., S. Fueglistaler, I. M. Held, T. R. Knutson, and **Ming Zhao**, 2013: Impacts of atmospheric temperature trends on tropical cyclone activity. *Journal of Climate*, 26(11), DOI:10.1175/JCLI-D-12-00503.1. **(Citation: 67 times Web of Science; 103 times Google Scholar)**
- 19) Scoccimarro, E., S. Gualdi, G. Villarini, G. A. Vecchi, **Ming Zhao**, K. Walsh, and A. Navarra 2014: Intense Precipitation Events Associated with Landfalling Tropical Cyclones in response to a Warmer Climate and increased CO₂. *Journal of Climate*, 27(12), DOI:10.1175/JCLI-D-14-00065.1. **(Citation: 55 times Web of Science; 79 times Google Scholar)**
- 20) Horn, M, K. Walsh, **Ming Zhao**, S. J. Camargo, E. Scoccimarro, H. Murakami, H. Wang, and A. Ballinger, A. Kumar, D. A. Shaevitz, J. A. Jonas, K. Oouchi 2014: Tracking Scheme Dependence of Simulated Tropical Cyclone Response to Idealized Climate Simulations. *Journal of Climate*, 27(24), DOI:10.1175/JCLI-D-14-00200.1. **(Citation: 55 times Web of Science; 70 times Google Scholar)**

Selected publications on clouds, cloud feedbacks, and climate sensitivity

1. **Zhao, Ming**, 2022: An investigation of the effective climate sensitivity in GFDL's new climate models CM4.0 and SPEAR. *J. Climate*. DOI: <https://doi.org/10.1175/JCLI-D-21-0327.1>
2. **Zhao, Ming**, J-C Golaz, I. M. Held, V. Ramaswamy, S-J Lin, Y. Ming, P. Ginoux, B. Wyman, L. J. Donner, D. Paynter and H. Guo, 2016: Uncertainty in model climate sensitivity traced to representations of cumulus precipitation microphysics. *Journal of Climate*, 29, 543-560. DOI: 10.1175/JCLI-D-15-0191.1 **(Citation: 82 times Web of Science; 100 times Google Scholar, NOAA OAR Outstanding Paper Award)**
3. **Zhao, Ming**, 2014: An investigation of the connections among convection, clouds, and climate sensitivity in a global climate model. *Journal of Climate*, 27(5), DOI: 10.1175/JCLI-D-13-00145.1. **(Citation: 65 times Web of Science; 83 times Google Scholar)**
4. N. J. Lutsko, S. C. Sherwood, and **Ming Zhao**, 2021: Precipitation Efficiency and Climate Sensitivity, a chapter in *Clouds and Climate Monograph*, Geophysical Monograph Series. **(In press)**.
5. Winton, M., A. Adcroft, J. P. Dunne, I. M. Held, E. Shevliakova, **Ming Zhao**, H. Guo, W. J. Hurlin, J. P. Krasting, T. R. Knutson, D. J. Paynter, L. G. Silvers, and R. Zhang, 2020: Climate Sensitivity of GFDL's CM4.0. *Journal of Advances in Modeling Earth Systems*, 12(1), DOI:10.1029/2019MS001838. **(Citation: 10 times Web of Science; 13 times Google Scholar)**
6. Paulot, F., D. J. Paynter, M. Winton, P. Ginoux, **Ming Zhao**, and L. W. Horowitz, 2020: Revisiting the impact of sea salt on climate sensitivity. *Geophysical Research Letters*, 47(3), DOI:10.1029/2019GL085601. **(Citation: 6 times Web of Science; 6 times Google Scholar)**
7. Naud, C M, J Jeyaratnam, J F Booth, **Ming Zhao**, and A Gettelman, 2020: Evaluation of modeled precipitation in oceanic extratropical cyclones using IMERG. *Journal of Climate*, 33(1), DOI:10.1175/JCLI-D-19-0369.1. **Citation: 3 times Web of Science; 3 times Google Scholar)**
8. Naud, C. M., J. F. Booth, J. Jeyaratnam, L. J. Donner, C. J. Seman, **Ming Zhao**, H. Guo, and Y. Ming, 2019: Extratropical Cyclone Clouds in the GFDL climate model: diagnosing biases and the associated causes. *Journal of Climate*, 32(20), DOI:10.1175/JCLI-D-19-0421.1. **(Citation: 4 times Web of Science; 4 times Google Scholar)**
9. Silvers, L. G., D. J. Paynter, and **Ming Zhao**, 2018: The Diversity of Cloud Responses to Twentieth Century Sea Surface Temperatures. *Geophysical Research Letters*, 45(1), DOI:10.1002/2017GL075583. **(Citation: 15 times Web of Science; 15 times Google Scholar)**
10. Xiang, B., **Ming Zhao**, I. M. Held, and J.-C. Golaz, 2017: Predicting the severity of spurious "double ITCZ" problem in CMIP5 coupled models from AMIP simulations. *Geophysical Research Letters*, 44(3), DOI:10.1002/2016GL071992. **(Citation: 43 times Web of Science; 57 times Google Scholar)**
11. Webb, M J., and co-authors including **Ming Zhao**, 2015: The impact of parametrized convection on cloud feedback. *Philosophical Transactions of the Royal Society of London, A*, 373, DOI:10.1098/rsta.2014.0414. **(Citation: 51 times Web of Science; 57 times Google Scholar)**
12. Zhang, M, and co-authors including **Ming Zhao**, 2013: CGILS: Results from the first phase of an international project to understand the physical mechanisms of low cloud feedbacks in single column models. *Journal of Advances in Modeling Earth Systems*, 5(4), DOI:10.1002/2013MS000246. **(Citation: 88 times Web of Science; 103 times Google Scholar)**
13. Teixeira, J. and co-authors including **Ming Zhao**, 2011: Tropical and sub-tropical cloud transitions in weather and climate prediction models: the GCSS/WGNE Pacific Crosssection Intercomparison (GPCI). *Journal of Climate*, 24(20), DOI:10.1175/2011JCLI3672.1. **(Citation: 88 times Web of Science; 115 times Google Scholar)**

14. Golaz, J.-C., M. Salzmann, L. J. Donner, L. W. Horowitz, Y. Ming, and **Ming Zhao**, 2011: Sensitivity of the aerosol indirect effect to subgrid variability in the cloud parameterization of the GFDL Atmosphere General Circulation Model AM3. *Journal of Climate*, 24(13), DOI:10.1175/2010JCLI3945.1. **(Citation: 78 times Web of Science; 109 times Google Scholar)**
15. Wyant, M C., C S Bretherton, J T Bacmeister, J T Kiehl, I M Held, **Ming Zhao**, S A Klein, and B J Soden, 2006: A comparison of low-latitude cloud properties and their response to climate change in three AGCMs sorted into regimes using mid-tropospheric vertical velocity. *Climate Dynamics*, 27(2-3), DOI:10.1007/s00382-006-0138-4. **(Citation: 93 times Web of Science; 99 times Google Scholar)**

Selected publications on other extreme weather, MJO, intraseasonal variability and predictions

1. **Zhao, Ming**, 2021: A study of AR-, TS-, and MCS-associated precipitation and extreme precipitation in present and warmer climates. *J. Climate*. DOI:10.1175/JCLI-D-21-0145.1.
2. **Zhao, Ming**, 2020: Simulations of atmospheric rivers, their variability and response to global warming using GFDL's new high resolution general circulation model. *Journal of Climate*, 33(23), DOI:10.1175/JCLI-D-20-0241.1. **(Citation: 4 times Web of Science; 8 times Google Scholar)**
3. Dong, W., **Ming Zhao**, Y. Ming, and V. Ramaswamy, 2021: Representation of tropical mesoscale convective systems in a general circulation model: Climatology and response to global warming. *Journal of Climate*, 34(14), DOI:10.1175/JCLI-D-20-0535.1.
4. Yin, J. and **Ming Zhao**, 2021: Influence of the Atlantic meridional overturning circulation on the U.S. extreme cold weather. *Communications Earth and Environment*, 2, 218, DOI:10.1038/s43247-021-00290-9.
5. Xiang, B., and co-authors including **Ming Zhao**, 2021: S2S Prediction in GFDL SPEAR: MJO diversity and teleconnections, *Bulletin of the American Meteorological Society*. **(In press)**
6. Yin, J., S. M. Griffies, M. Winton, **Ming Zhao**, and L. Zanna, 2020: Response of storm-related extreme sea level along the US Atlantic coast to combined weather and climate forcing. *Journal of Climate*, 33(9), DOI:10.1175/JCLI-D-19-0551.1. **(Citation: 5 times Web of Science; 7 times Google Scholar)**
7. Zhu, Y, T. Li, **Ming Zhao**, and T. Nasuno, 2019: Interaction between MJO and High Frequency Waves over Maritime Continent in Boreal Winter. *Journal of Climate*, 32(13), DOI:10.1175/JCLI-D-18-0511.1. **(Citation: 4 times Web of Science; 9 times Google Scholar)**
8. Jiang, X., A. F. Adames, **Ming Zhao**, D. E. Waliser, and E. Maloney, 2018a: A unified moisture mode framework for seasonality of the Madden-Julian Oscillation. *Journal of Climate*, 31(11), DOI:10.1175/JCLI-D-17-0671.1. **(34 citations Web of Science, 43 times Google Scholar)**
9. Jiang, X., B. Xiang, **Ming Zhao**, T. Li, S-J Lin, Z. Wang, and J-H Chen, 2018b: Intraseasonal tropical cyclogenesis prediction in a global coupled model system. *Journal of Climate*, 31(15), DOI:10.1175/JCLI-D-17-0454.1. **(13 citations Web of Science, 17 times Google Scholar)**
10. Jiang, X., **Ming Zhao**, E. D. Maloney, and D. E. Waliser, 2016: Convective moisture adjustment time-scale as a key factor in regulating model amplitude of the Madden-Julian Oscillation. *Geophysical Research Letters*, 43(19), DOI:10.1002/2016GL070898. **(46 citations Web of Science, 35 times Google Scholar)**
11. Xiang, B., **Ming Zhao**, X. Jiang, S-J Lin, T. Li, X. Fu, and G. A. Vecchi, 2015a: The 3-4 week MJO prediction skill in a GFDL coupled model. *Journal of Climate*, 28(13), DOI:10.1175/JCLI-D-15-0102.1. **(58 citations Web of Science; 76 times Google Scholar)**

12. Xiang, B., S-J Lin, **Ming Zhao**, G. A. Vecchi, T. Li, X. Jiang, L. Harris, and J-H Chen, 2015b: Beyond weather time scale prediction for hurricane Sandy and super typhoon Haiyan in a global climate model. *Monthly Weather Review*, 143(2), DOI:10.1175/MWR-D-14-00227.1. **(38 citations Web of Science; 52 times Google Scholar)**
13. Jiang, X., **Ming Zhao**, and D. E. Waliser, 2012: Modulation of tropical cyclones over the eastern Pacific by the intra-seasonal variability simulated in an AGCM. *Journal of Climate*, 25(19), DOI:10.1175/JCLI-D-11-00531.1. **(Citation: 68 times Web of Science; 68 times Google Scholar)**

Selected publications on studies of convection, clouds, and climate using idealized model hierarchy

1. **Zhao, Ming**, and P. H. Austin, 2005: Life cycle of numerically simulated shallow cumulus clouds. Part I: Transport. *Journal of the Atmospheric Sciences*, 62(5), 1269-1290. **(Citation: 56 times Web of Science; 75 times Google Scholar)**
2. **Zhao, Ming**, and P. H. Austin, 2005: Life cycle of numerically simulated shallow cumulus clouds. Part II: Mixing dynamics. *Journal of the Atmospheric Sciences*, 62(5), 1291-1310. **(Citation: 61 times Web of Science; 87 times Google Scholar)**
3. Held, I. M., **Ming Zhao**, and B. Wyman, 2007: Dynamic radiative-convective equilibria using GCM column physics. *Journal of the Atmospheric Sciences*, 64(1), 228-238. **(Citation: 58 times Web of Science; 77 times Google Scholar)**
4. Held, I. M. and **Ming Zhao**, 2008: Horizontally homogeneous rotating radiative-convective Equilibria at GCM resolution. *Journal of the Atmospheric Sciences*, 65(6), DOI:10.1175/2007JAS2604.1. **(Citation: 36 times Web of Science; 45 times Google Scholar)**
5. Kang, S. M., I. M. Held, D. M. W. Frierson, and **Ming Zhao**, 2008: The response of the ITCZ to extratropical thermal forcing: Idealized slab-ocean experiments with a GCM. *Journal of Climate*, 21(14), DOI:10.1175/2007JCLI2146.1. **(Citation: 401 times Web of Science; 530 times Google Scholar)**
6. Merlis, T. M., **Ming Zhao**, and I. M. Held, 2013: The sensitivity of hurricane frequency to ITCZ changes and radiatively forced warming in aquaplanet simulations. *Geophysical Research Letters*, 40(15), DOI:10.1002/grl.50680. **(Citation: 54 times Web of Science; 79 times Google Scholar)**
7. Merlis, T. M., W. Zhou, I. M. Held, and **Ming Zhao**, 2016: Surface temperature dependence of tropical cyclone-permitting simulations in a spherical model with uniform thermal forcing. *Geophysical Research Letters*, 43(6), DOI:10.1002/2016GL067730. **(Citation: 26 times Web of Science; 37 times Google Scholar)**
8. Ballinger, A., T. M. Merlis, I. M. Held, and **Ming Zhao**, 2015: The sensitivity of tropical cyclone activity to off-equatorial thermal forcing in aquaplanet simulations. *Journal of the Atmospheric Sciences*, 72(6), DOI:10.1175/JAS-D-14-0284.1. **(Citation: 21 times Web of Science; 31 times Google Scholar)**
9. Medeiros, B., B. Stevens, I. M. Held, **Ming Zhao**, D. L. Williamson, J. Olson, and C. S. Bretherton, 2008: Aquaplanets, climate sensitivity, and low clouds. *Journal of Climate*, 21(19), DOI:10.1175/2008JCLI1995.1. **(Citation: 128 times Web of Science; 173 times Google Scholar)**
10. Wyant, M. C. and co-authors including **Ming Zhao**, 2007: A single-column model intercomparison of a heavily drizzling stratocumulus-topped boundary layer. *Journal of Geophysical Research*, D24204, DOI:10.1029/2007JD008536. **(Citation: 32 times Web of Science; 44 times Google Scholar)**
11. Wing, Allison A., and co-authors including **Ming Zhao**, 2020: Clouds and Convective Self-Aggregation in a Multi-Model Ensemble of Radiative-Convective Equilibrium Simulations.

Journal of Advances in Modeling Earth Systems, 12(9), DOI:10.1029/2020MS002138. **(Citation: 12 times Web of Science; 17 times Google Scholar)**

Selected publications on other general topics of significance

1. Ginoux, P., J. M. Prospero, T. E. Gill, C. Hsu, and **Ming Zhao**, 2012: Global scale attribution of anthropogenic and natural dust sources and their emission rates based on MODIS Deep Blue aerosol products. *Reviews of Geophysics*, 50, RG3005, DOI:10.1029/2012RG000388. **(Citation: 678 times Web of Science; 984 times Google Scholar)**
2. Sheffield, J, and co-authors including **Ming Zhao**, 2013: North American Climate in CMIP5 Experiments. Part II: Evaluation of Historical Simulations of Intra-Seasonal to Decadal Variability. *Journal of Climate*, 26(23), DOI:10.1175/JCLI-D-12-00593.1. **(Citation: 94 times Web of Science; 125 times Google Scholar)**
3. Maloney, E. and co-authors including **Ming Zhao** 2014: North American Climate in CMIP5 Experiments: Part III: Assessment of 21st Century Projections. *Journal of Climate*, 27(6), DOI:10.1175/JCLI-D-13-00273.1. **(Citation: 180 times Web of Science; 272 times Google Scholar)**
4. Hsu, P, T. Li, J.-J. Luo, H. Murakami, A. Kitoh, and **Ming Zhao**, 2012: Increase of global monsoon area and precipitation under global warming: A robust signal? *Geophysical Research Letters*, 39, L06701, DOI:10.1029/2012GL051037. **(Citation: 82 times Web of Science; 122 times Google Scholar)**
5. Orbe, C, L. V. Roedel, A. F. Adames, A. Dezfuli, J. Fasullo, P. J. Gleckler, J. Lee, W. Li, L. Nazarenko, G. A. Schmidt, K. R. Sperber, and **Ming Zhao**, 2020: Representation of Modes of Variability in 6 U.S. Climate Models. *Journal of Climate*, 33(17), DOI:10.1175/JCLI-D-19-0956.1. **(Citation: 7 times Web of Science; 14 times Google Scholar)**

Full refereed publication list:

1. **Zhao, Ming**, 2022: An investigation of the effective climate sensitivity in GFDL's new climate models CM4.0 and SPEAR. *J. Climate*. DOI: <https://doi.org/10.1175/JCLI-D-21-0327.1>
2. **Zhao, Ming**, 2021: A study of AR, TS, and MCS associated precipitation and extreme precipitation in present and warmer climates. *Journal of Climate*. DOI:10.1175/JCLI-D-21-0145.1.
3. Chu, W, Y. Lin, and **Ming Zhao**, 2021: Implementation and evaluation of a double-plume convective parameterization in NCAR CAM5, DOI: <https://doi.org/10.1175/JCLI-D-21-0267.1>
4. Xiang, B., L. Harris, T. L. Delworth, B. Wang, G. Chen, J-H Chen, S. K. Clark, W. F. Cooke, K. Gao, J. J. Huff, L. Jia, N. C. Johnson, S. B. Kapnick, F. Lu, C. McHugh, Y. Sun, M. Tong, X. Yang, F. Zeng, **Ming Zhao**, L. Zhou, and X. Zhou, 2021: S2S prediction in GFDL SPEAR: MJO diversity and teleconnections. *Bulletin of the American Meteorological Society*. DOI:10.1175/BAMS-D-21-0124.1.
5. Yin, Jianjun, and **Ming Zhao**, October 2021: Influence of the Atlantic meridional overturning circulation on the U.S. extreme cold weather. *Communications Earth and Environment*, 2, 218, DOI:10.1038/s43247-021-00290-9.
6. Dong, Wenhao, **Ming Zhao**, Yi Ming, and V Ramaswamy, July 2021: Representation of tropical mesoscale convective systems in a general circulation model: Climatology and response to global warming. *Journal of Climate*, 34(14), DOI:10.1175/JCLI-D-20-0535.1.
7. Guo, Huan, Yi Ming, Songmiao Fan, Linjiong Zhou, Lucas Harris, and **Ming Zhao**, June 2021: Two-moment bulk cloud microphysics with prognostic precipitation in GFDL's Atmosphere Model

- AM4.0: configuration and performance. *Journal of Advances in Modeling Earth Systems*, 13(6), DOI:10.1029/2020MS002453.
8. Zhang, Gan, Levi G Silvers, **Ming Zhao**, and Thomas R Knutson, March 2021: Idealized aquaplanet simulations of tropical cyclone activity: Significance of temperature gradients, Hadley circulation, and zonal asymmetry. *Journal of the Atmospheric Sciences*, 78(3), DOI:10.1175/JAS-D-20-0079.1877-902.
 9. **Zhao, Ming**, December 2020: Simulations of Atmospheric Rivers, Their Variability and Response to Global Warming Using GFDL's New High Resolution General Circulation Model. *Journal of Climate*, 33(23), DOI:10.1175/JCLI-D-20-0241.1.
 10. Camargo, Suzana J., C F Giulivi, A Sobel, Allison A Wing, D Kim, Yumin Moon, Jeffrey D Strong, A Del Genio, M Kelley, Hiroyuki Murakami, Kevin A Reed, E Scoccimarro, Gabriel A Vecchi, Michael F Wehner, C M Zarzycki, and **Ming Zhao**, June 2020: Characteristics of model tropical cyclone climatology and the large-scale environment. *Journal of Climate*, 33(11), DOI:10.1175/JCLI-D-19-0500.1.
 11. Delworth, Thomas L., William F Cooke, Alistair Adcroft, Mitchell Bushuk, Jan-Huey Chen, Krista A Dunne, Paul Ginoux, Richard G Gudgel, Robert Hallberg, Lucas Harris, Matthew J Harrison, Nathaniel C Johnson, Sarah B Kapnick, Shian-Jiann Lin, Feiyu Lu, Sergey Malyshev, P C D Milly, Hiroyuki Murakami, Vaishali Naik, Salvatore Pascale, David J Paynter, Anthony Rosati, M Daniel Schwarzkopf, Elena Shevliakova, Seth D Underwood, Andrew T Wittenberg, Baoqiang Xiang, Xiaosong Yang, Fanrong Zeng, Honghai Zhang, Liping Zhang, and **Ming Zhao**, March 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.
 12. Dunne, John P., Larry W Horowitz, Alistair Adcroft, Paul Ginoux, Isaac M Held, Jasmin G John, John P Krasting, Sergey Malyshev, Vaishali Naik, Fabien Paulot, Elena Shevliakova, Charles A Stock, Niki Zadeh, V Balaji, Chris Blanton, Krista A Dunne, Christopher Dupuis, Jeffrey W Durachta, Raphael Dussin, Paul P G Gauthier, Stephen M Griffies, Huan Guo, Robert Hallberg, Matthew J Harrison, Jian He, William J Hurlin, Colleen McHugh, Raymond Menzel, P C D Milly, Sergei Nikonov, David J Paynter, Jeff J Ploshay, Aparna Radhakrishnan, Kristopher Rand, Brandon G Reichl, Thomas E Robinson, M Daniel Schwarzkopf, Lori T Sentman, Seth D Underwood, Hans Vahlenkamp, Michael Winton, Andrew T Wittenberg, Bruce Wyman, Yujin Zeng, and **Ming Zhao**, November 2020: The GFDL Earth System Model version 4.1 (GFDL-ESM 4.1): Overall coupled model description and simulation characteristics. *Journal of Advances in Modeling Earth Systems*, 12(11), DOI:10.1029/2019MS002015.
 13. Horowitz, Larry W., Vaishali Naik, Fabien Paulot, Paul Ginoux, John P Dunne, Jingqiu Mao, Jordan L Schnell, Xi Chen, Jian He, Jasmin G John, Meiyun Lin, Pu Lin, Sergey Malyshev, David J Paynter, Elena Shevliakova, and **Ming Zhao**, October 2020: The GFDL Global Atmospheric Chemistry-Climate Model AM4.1: Model Description and Simulation Characteristics. *Journal of Advances in Modeling Earth Systems*, 12(10), DOI:10.1029/2019MS002032.
 14. Kuo, Y-H, J D Neelin, C-C Chen, W-T Chen, Leo J Donner, Andrew Gettelman, Xianan Jiang, K-T Kuo, Eric Maloney, C R Mechoso, Yi Ming, K A Schiro, Charles J Seman, C-M Wu, and **Ming Zhao**, January 2020: Convective transition statistics over tropical oceans for climate model diagnostics: GCM evaluation. *Journal of the Atmospheric Sciences*, 77(1), DOI:10.1175/JAS-D-19-0132.1.

15. Moon, Yumin, D Kim, Suzana J Camargo, Allison A Wing, A Sobel, Hiroyuki Murakami, Kevin A Reed, E Scoccimarro, Gabriel A Vecchi, Michael F Wehner, C M Zarzycki, and **Ming Zhao**, February 2020: Azimuthally averaged wind and thermodynamic structures of tropical cyclones in global climate models and their sensitivity to horizontal resolution. *Journal of Climate*, 33(4), DOI:10.1175/JCLI-D-19-0172.1.
16. Moon, Yumin, D Kim, Suzana J Camargo, Allison A Wing, Kevin A Reed, Michael F Wehner, and **Ming Zhao**, June 2020: A new method to construct a horizontal resolution-dependent wind speed adjustment factor for tropical cyclones in global climate model simulations. *Geophysical Research Letters*, 47(11), DOI:10.1029/2020GL087528.
17. Murakami, Hiroyuki, Thomas L Delworth, William F Cooke, **Ming Zhao**, Baoqiang Xiang, and Pang-Chi Hsu, May 2020: Detected climatic change in global distribution of tropical cyclones. *Proceedings of the National Academy of Sciences*, 117(20), DOI:10.1073/pnas.1922500117.
18. Naud, C M., J Jeyaratnam, James F Booth, **Ming Zhao**, and Andrew Gettelman, January 2020: Evaluation of modeled precipitation in oceanic extratropical cyclones using IMERG. *Journal of Climate*, 33(1), DOI:10.1175/JCLI-D-19-0369.1.
19. Orbe, C, L Van Roekel, A F Adames, A Dezfuli, John Fasullo, P J Gleckler, Jiwoo Lee, Wei Li, Larissa Nazarenko, Gavin A Schmidt, K R Sperber, and **Ming Zhao**, September 2020: Representation of Modes of Variability in 6 U.S. Climate Models. *Journal of Climate*, 33(17), DOI:10.1175/JCLI-D-19-0956.1.
20. Paulot, Fabien, David J Paynter, Michael Winton, Paul Ginoux, **Ming Zhao**, and Larry W Horowitz, February 2020: Revisiting the impact of sea salt on climate sensitivity. *Geophysical Research Letters*, 47(3), DOI:10.1029/2019GL085601.
21. Pu, Bing, Paul Ginoux, Huan Guo, N C Hsu, J Kimball, B Marticorena, Sergey Malyshev, Vaishali Naik, N T O'Neill, Carlos Pérez Garcia-Pando, J Paireau, J M Prospero, Elena Shevliakova, and **Ming Zhao**, January 2020: Retrieving the global distribution of threshold of wind erosion from satellite data and implementing it into the GFDL AM4.0/LM4.0 model. *Atmospheric Chemistry and Physics*, 20(1), DOI:10.5194/acp-20-55-2020.
22. Schnell, Jordan L., Vaishali Naik, Larry W Horowitz, Fabien Paulot, Paul Ginoux, **Ming Zhao**, and Daniel E Horton, May 2020: Corrigendum to “Air quality impacts from the electrification of light-duty passenger vehicles in the United States” [Atmos. Environ. 208 (2019) 95–102]. *Atmospheric Environment*, 229, DOI:10.1016/j.atmosenv.2020.117487.
23. Wing, Allison A., Catherine L Stauffer, Tobias Becker, Kevin A Reed, Min-Seop Ahn, Nathan P Arnold, Sandrine Bony, Mark Branson, George H Bryan, Jean-Pierre Chaboureau, Stephan R de Roode, Kulkarni Gayatri, Cathy Hohenegger, I-Kuan Hu, Fredrik Jansson, Todd R Jones, Marat Khairoutdinov, Daehyun Kim, Zane K Martin, Shuhei Matsugishi, Brian Medeiros, Hiroaki Miura, Yumin Moon, Sebastian K Muller, Tomoki Ohno, Max Popp, Thara Prabhakaran, David A Randall, Rosimar Rios-Berrios, Nicolas Rochetin, Romain Roehrig, David M Romps, James H Ruppert Jr, Masaki Satoh, Levi G Silvers, Martin S Singh, Bjorn Stevens, Lorenzo Tomassini, Chiel C van Heerwaarden, Shuguang Wang, and **Ming Zhao**, September 2020: Clouds and Convective Self-Aggregation in a Multi-Model Ensemble of Radiative-Convective Equilibrium Simulations. *Journal of Advances in Modeling Earth Systems*, 12(9), DOI:10.1029/2020MS002138.
24. Winton, Michael, Alistair Adcroft, John P Dunne, Isaac M Held, Elena Shevliakova, **Ming Zhao**, Huan Guo, William J Hurlin, John P Krasting, Thomas R Knutson, David J Paynter, Levi G Silvers,

- and Rong Zhang, January 2020: Climate Sensitivity of GFDL's CM4.0. *Journal of Advances in Modeling Earth Systems*, 12(1), DOI:10.1029/2019MS001838.
25. Yin, Jianjun, Stephen M Griffies, Michael Winton, **Ming Zhao**, and L Zanna, May 2020: Response of Storm-related Extreme Sea Level along the US Atlantic Coast to Combined Weather and Climate Forcing. *Journal of Climate*, 33(9), DOI:10.1175/JCLI-D-19-0551.1.
 26. Fan, Songmiao, Paul Ginoux, Charles J Seman, Levi G Silvers, and **Ming Zhao**, November 2019: Toward Improved Cloud-Phase Simulation with a Mineral Dust and Temperature-Dependent Parameterization for Ice Nucleation in Mixed-Phase Clouds. *Journal of the Atmospheric Sciences*, 76(11), DOI:10.1175/JAS-D-18-0287.1.
 27. Held, Isaac M., Huan Guo, Alistair Adcroft, John P Dunne, Larry W Horowitz, John P Krasting, Elena Shevliakova, Michael Winton, **Ming Zhao**, Mitchell Bushuk, Andrew T Wittenberg, Bruce Wyman, Baoqiang Xiang, Rong Zhang, Whit G Anderson, V Balaji, Leo J Donner, Krista A Dunne, Jeffrey W Durachta, Paul P G Gauthier, Paul Ginoux, Jean-Christophe Golaz, Stephen M Griffies, Robert Hallberg, Lucas Harris, Matthew J Harrison, William J Hurlin, Jasmin G John, Pu Lin, Shian-Jiann Lin, Sergey Malyshev, Raymond Menzel, P C D Milly, Yi Ming, Vaishali Naik, David J Paynter, Fabien Paulot, V Ramaswamy, Brandon G Reichl, Thomas E Robinson, Anthony Rosati, Charles J Seman, Levi G Silvers, Seth D Underwood, and Niki Zadeh, November 2019: Structure and Performance of GFDL's CM4.0 Climate Model. *Journal of Advances in Modeling Earth Systems*, 11(11), DOI:10.1029/2019MS001829.
 28. Maloney, Eric, Andrew Gettelman, Yi Ming, J D Neelin, D Barrie, A Mariotti, C-C Chen, D B Coleman, Y-H Kuo, B Singh, H Annamalai, Alexis Berg, James F Booth, Suzana J Camargo, A Dai, A Gonzalez, J Hafner, Xianan Jiang, X Jing, D Kim, Arun Kumar, Yumin Moon, C M Naud, A Sobel, K Suzuki, F Wang, J Wang, Allison A Wing, X Xu, and **Ming Zhao**, September 2019: Process-Oriented Evaluation of Climate and Weather Forecasting Models. *Bulletin of the American Meteorological Society*, 100(9), DOI:10.1175/BAMS-D-18-0042.1.
 29. Naud, C M., James F Booth, J Jeyaratnam, Leo J Donner, Charles J Seman, **Ming Zhao**, Huan Guo, and Yi Ming, October 2019: Extratropical Cyclone Clouds in the GFDL climate model: diagnosing biases and the associated causes. *Journal of Climate*, 32(20), DOI:10.1175/JCLI-D-19-0421.1.
 30. Schnell, Jordan L., Vaishali Naik, Larry W Horowitz, Fabien Paulot, Paul Ginoux, **Ming Zhao**, and Daniel E Horton, July 2019: Air quality impacts from the electrification of light-duty passenger vehicles in the United States. *Atmospheric Environment*, 208, DOI:10.1016/j.atmosenv.2019.04.003.
 31. Shin, Hyeyum H., Yi Ming, **Ming Zhao**, Xi Chen, and Shian-Jiann Lin, April 2019: Improved Surface Layer Simulation Using Refined Vertical Resolution in the GFDL Atmospheric General Circulation Model. *Journal of Advances in Modeling Earth Systems*, 11(4), DOI:10.1029/2018MS001437.
 32. Wing, Allison A., Suzana J Camargo, A Sobel, D Kim, Yumin Moon, Hiroyuki Murakami, Kevin A Reed, Gabriel A Vecchi, Michael F Wehner, C M Zarzycki, and **Ming Zhao**, September 2019: Moist static energy budget analysis of tropical cyclone intensification in high-resolution climate models. *Journal of Climate*, 32(18), DOI:10.1175/JCLI-D-18-0599.1.
 33. Xiang, Baoqiang, Shian-Jiann Lin, **Ming Zhao**, Nathaniel C Johnson, Xiaosong Yang, and Xianan Jiang, January 2019: Subseasonal Week 3-5 Surface Air Temperature Prediction during Boreal Wintertime in a GFDL model. *Geophysical Research Letters*, 46(1), DOI:10.1029/2018GL081314.

34. Zhou, W, **Ming Zhao**, and Da Yang, June 2019: Understand the direct effect of CO2 increase on tropical circulation and TC activity: land surface warming versus direct radiative forcing. *Geophysical Research Letters*, 46(12), DOI:10.1029/2019GL082865.
35. Zhu, Y, Tim Li, **Ming Zhao**, and T Nasuno, July 2019: Interaction between MJO and High Frequency Waves over Maritime Continent in Boreal Winter. *Journal of Climate*, 32(13), DOI:10.1175/JCLI-D-18-0511.1.
36. Hill, S A., Yi Ming, and **Ming Zhao**, December 2018: Robust responses of the Sahelian hydrological cycle to global warming. *Journal of Climate*, 31(24), DOI:10.1175/JCLI-D-18-0238.1.
37. Jiang, Xianan, A F Adames, **Ming Zhao**, D E Waliser, and Eric Maloney, June 2018: A Unified Moisture Mode Framework for Seasonality of the Madden-Julian Oscillation. *Journal of Climate*, 31(11), DOI:10.1175/JCLI-D-17-0671.1.
38. Jiang, Xianan, Baoqiang Xiang, **Ming Zhao**, Tim Li, Shian-Jiann Lin, Z Wang, and Jan-Huey Chen, August 2018: Intraseasonal Tropical Cyclogenesis Prediction in a Global Coupled Model System. *Journal of Climate*, 31(15), DOI:10.1175/JCLI-D-17-0454.1.
39. Kim, D, Yumin Moon, Suzana J Camargo, Allison A Wing, A Sobel, Hiroyuki Murakami, Gabriel A Vecchi, **Ming Zhao**, and E Page, March 2018: Process-oriented diagnosis of tropical cyclones in high-resolution GCMs. *Journal of Climate*, 31(5), DOI:10.1175/JCLI-D-17-0269.1.
40. Li, Shan, Shaoqing Zhang, Zhengyu Liu, Lv Lu, J Zhu, X-F Zhang, Xinrong Wu, **Ming Zhao**, and Gabriel A Vecchi, et al., April 2018: Estimating Convection Parameters in the GFDL CM2.1 Model Using Ensemble Data Assimilation. *Journal of Advances in Modeling Earth Systems*, 10(4), DOI:10.1002/2017MS001222.
41. Li, Weiwei, Z Wang, Gan Zhang, M S Peng, S G Benjamin, and **Ming Zhao**, December 2018: Subseasonal Variability of Rossby Wave Breaking and Impacts on Tropical Cyclones during the North Atlantic Warm Season. *Journal of Climate*, 31(23), DOI:10.1175/JCLI-D-17-0880.1.
42. Schnell, Jordan L., Vaishali Naik, Larry W Horowitz, Fabien Paulot, Jingqiu Mao, Paul Ginoux, **Ming Zhao**, and K Ram, July 2018: Exploring the relationship between surface PM2.5 and meteorology in Northern India. *Atmospheric Chemistry and Physics*, 18(14), DOI:10.5194/acp-18-10157-2018.
43. Shin, Hyeyum H., Yi Ming, **Ming Zhao**, Jean-Christophe Golaz, Baoqiang Xiang, and Huan Guo, July 2018: Evaluation of Planetary Boundary Layer Simulation in GFDL Atmospheric General Circulation Models. *Journal of Climate*, 31(13), DOI:10.1175/JCLI-D-17-0543.1.
44. Silvers, Levi G., David J Paynter, and **Ming Zhao**, January 2018: The Diversity of Cloud Responses to Twentieth Century Sea Surface Temperatures. *Geophysical Research Letters*, 45(1), DOI:10.1002/2017GL075583.
45. Xiang, Baoqiang, **Ming Zhao**, and Yi Ming, et al., July 2018: Contrasting Impacts of radiative forcing in the Southern Ocean versus Southern Tropics on ITCZ position and energy transport in one GFDL climate model. *Journal of Climate*, 31(14), DOI:10.1175/JCLI-D-17-0566.1.
46. **Zhao, Ming**, Jean-Christophe Golaz, Isaac M Held, Huan Guo, V Balaji, Rusty Benson, Jan-Huey Chen, Xi Chen, Leo J Donner, John P Dunne, Krista A Dunne, Jeffrey W Durachta, Songmiao Fan, Stuart Freidenreich, Stephen T Garner, Paul Ginoux, Lucas Harris, Larry W Horowitz, John P Krasting, Amy R Langenhorst, Zhi Liang, Pu Lin, Shian-Jiann Lin, Sergey Malyshev, E Mason, P C D Milly, Yi Ming, Vaishali Naik, Fabien Paulot, David J Paynter, Peter Phillipps, Aparna Radhakrishnan, V Ramaswamy, Thomas E Robinson, M Daniel Schwarzkopf, Charles J Seman,

Elena Shevliakova, Zhaoyi Shen, Hyeyum Hailey Shin, Levi G Silvers, R John Wilson, Michael Winton, Andrew T Wittenberg, Bruce Wyman, and Baoqiang Xiang, March 2018: The GFDL Global Atmosphere and Land Model AM4.0/LM4.0 - Part I: Simulation Characteristics with Prescribed SSTs. *Journal of Advances in Modeling Earth Systems*, 10(3), DOI:10.1002/2017MS001208.

47. **Zhao, Ming**, Jean-Christophe Golaz, Isaac M Held, Huan Guo, V Balaji, Rusty Benson, Jan-Huey Chen, Xi Chen, Leo J Donner, John P Dunne, Krista A Dunne, Jeffrey W Durachta, Songmiao Fan, Stuart Freidenreich, Stephen T Garner, Paul Ginoux, Lucas Harris, Larry W Horowitz, John P Krasting, Amy R Langenhorst, Zhi Liang, Pu Lin, Shian-Jiann Lin, Sergey Malyshev, E Mason, P C D Milly, Yi Ming, Vaishali Naik, Fabien Paulot, David J Paynter, Peter Phillipps, Aparna Radhakrishnan, V Ramaswamy, Thomas E Robinson, M Daniel Schwarzkopf, Charles J Seman, Elena Shevliakova, Zhaoyi Shen, Hyeyum Hailey Shin, Levi G Silvers, R John Wilson, Michael Winton, Andrew T Wittenberg, Bruce Wyman, and Baoqiang Xiang, March 2018: The GFDL Global Atmosphere and Land Model AM4.0/LM4.0 - Part II: Model Description, Sensitivity Studies, and Tuning Strategies. *Journal of Advances in Modeling Earth Systems*, 10(3), DOI:10.1002/2017MS001209.
48. Dogar, M, Georgiy Stenchikov, Sergey Osipov, Bruce Wyman, and **Ming Zhao**, August 2017: Sensitivity of the Regional Climate in the Middle East and North Africa to Volcanic perturbations. *Journal of Geophysical Research: Atmospheres*, 122(15), DOI:10.1002/2017JD026783.
49. Gao, Kun, Jan-Huey Chen, Lucas Harris, Shian-Jiann Lin, Baoqiang Xiang, and **Ming Zhao**, December 2017: Impact of Intraseasonal Oscillations on the Tropical Cyclone Activity over the Gulf of Mexico and Western Caribbean Sea in GFDL HiRAM. *Journal of Geophysical Research: Atmospheres*, 122(24), DOI:10.1002/2017JD027756.
50. Hill, S A., Yi Ming, Isaac M Held, and **Ming Zhao**, August 2017: A moist static energy budget-based analysis of the Sahel rainfall response to uniform oceanic warming. *Journal of Climate*, 30(15), DOI:10.1175/JCLI-D-16-0785.1.
51. Nakamura, J, Suzana J Camargo, A Sobel, N Henderson, Kerry A Emanuel, Arun Kumar, T LaRow, Hiroyuki Murakami, Malcolm J Roberts, E Scoccimarro, Pier Luigi Vidale, H Wang, Michael F Wehner, and **Ming Zhao**, September 2017: Western North Pacific tropical cyclone model tracks in present and future climates. *Journal of Geophysical Research: Atmospheres*, 122(18), DOI:10.1002/2017JD027007.
52. Xiang, Baoqiang, **Ming Zhao**, Isaac M Held, and Jean-Christophe Golaz, February 2017: Predicting the severity of spurious “double ITCZ” problem in CMIP5 coupled models from AMIP simulations. *Geophysical Research Letters*, 44(3), DOI:10.1002/2016GL071992.
53. Han, R, H Wang, Z-Z Hu, Arun Kumar, W Li, L Long, J-K E Schemm, P Peng, W Wang, D Si, X Jia, **Ming Zhao**, and Gabriel A Vecchi, et al., September 2016: An assessment of multi-model simulations for the variability of western North Pacific tropical cyclones and its association with ENSO. *Journal of Climate*, 29(18), DOI:10.1175/JCLI-D-15-0720.1.
54. Jiang, Xianan, and **Ming Zhao**, et al., October 2016: Convective Moisture Adjustment Time-scale as a Key Factor in Regulating Model Amplitude of the Madden-Julian Oscillation. *Geophysical Research Letters*, 43(19), DOI:10.1002/2016GL070898.

55. Li, Shan, Shaoqing Zhang, Zhengyu Liu, Xiaosong Yang, Anthony Rosati, Jean-Christophe Golaz, and **Ming Zhao**, June 2016: The Role of Large-scale Feedbacks in Cumulus Convection Parameter Estimation. *Journal of Climate*, 29(11), DOI:10.1175/JCLI-D-15-0117.1.
56. Merlis, Timothy M., W Zhou, Isaac M Held, and **Ming Zhao**, March 2016: Surface temperature dependence of tropical cyclone-permitting simulations in a spherical model with uniform thermal forcing. *Geophysical Research Letters*, 43(6), DOI:10.1002/2016GL067730.
57. Strazzo, S E., J B Elsner, T LaRow, Hiroyuki Murakami, Michael F Wehner, and **Ming Zhao**, September 2016: The influence of model resolution on the simulated sensitivity of North Atlantic tropical cyclone maximum intensity to sea surface temperature. *Journal of Advances in Modeling Earth Systems*, 8(3), DOI:10.1002/2016MS000635.
58. **Zhao, Ming**, Jean-Christophe Golaz, Isaac M Held, V Ramaswamy, Shian-Jiann Lin, Yi Ming, Paul Ginoux, Bruce Wyman, Leo J Donner, David J Paynter, and Huan Guo, January 2016: Uncertainty in model climate sensitivity traced to representations of cumulus precipitation microphysics. *Journal of Climate*, DOI:10.1175/JCLI-D-15-0191.1.
59. Ballinger, Andrew, Timothy M Merlis, Isaac M Held, and **Ming Zhao**, June 2015: The sensitivity of tropical cyclone activity to off-equatorial thermal forcing in aquaplanet simulations. *Journal of the Atmospheric Sciences*, 72(6), DOI:10.1175/JAS-D-14-0284.1.
60. Daloz, A S., Suzana J Camargo, James Kossin, Kerry A Emanuel, M Horn, J A Jonas, D Kim, T LaRow, Y-K Kim, Christina M Patricola, Malcolm J Roberts, E Scoccimarro, D Shaevitz, Pier Luigi Vidale, H Wang, Michael F Wehner, and **Ming Zhao**, February 2015: Cluster analysis of downscaled and explicitly simulated North Atlantic tropical cyclone tracks. *Journal of Climate*, 28(4), DOI:10.1175/JCLI-D-13-00646.1.
61. Dwyer, John, Suzana J Camargo, A Sobel, M Biasutti, Kerry A Emanuel, Gabriel A Vecchi, **Ming Zhao**, and M K Tippett, August 2015: Projected Twenty-First-Century Changes in the Length of the Tropical Cyclone Season. *Journal of Climate*, 28(15), DOI:10.1175/JCLI-D-14-00686.1.
62. Guo, Huan, Jean-Christophe Golaz, Leo J Donner, Bruce Wyman, **Ming Zhao**, and Paul Ginoux, June 2015: CLUBB as a unified cloud parameterization: opportunities and challenges. *Geophysical Research Letters*, 42(11), DOI:10.1002/2015GL063672.
63. Knutson, Thomas R., Joseph J Sirutis, **Ming Zhao**, Robert E Tuleya, Morris A Bender, Gabriel A Vecchi, Gabriele Villarini, and D Chavas, September 2015: Global Projections of Intense Tropical Cyclone Activity for the Late Twenty-First Century from Dynamical Downscaling of CMIP5/RCP4.5 Scenarios. *Journal of Climate*, 28(18), DOI:10.1175/JCLI-D-15-0129.1.
64. Lin, Yanluan, **Ming Zhao**, and M Zhang, March 2015: Tropical cyclone rainfall area controlled by relative sea surface temperature. *Nature Communications*, 6, 6591, DOI:10.1038/ncomms7591.
65. Mei, W, Shang-Ping Xie, **Ming Zhao**, and Y Wang, January 2015: Forced and internal variability of tropical cyclone track density in the western North Pacific. *Journal of Climate*, 28(1), DOI:10.1175/JCLI-D-14-00164.1.
66. Walsh, Kevin J., Suzana J Camargo, Gabriel A Vecchi, A S Daloz, J B Elsner, Kerry A Emanuel, M Horn, Y-K Lim, Malcolm J Roberts, Christina M Patricola, E Scoccimarro, A Sobel, S E Strazzo, Gabriele Villarini, Michael F Wehner, **Ming Zhao**, James Kossin, T LaRow, K Oouchi, S D Schubert, H Wang, Julio T Bacmeister, P Chang, F Chauvin, C Jablonowski, Arun Kumar, and Hiroyuki Murakami, et al., July 2015: Hurricanes and climate: the U.S. CLIVAR working group on

- hurricanes. *Bulletin of the American Meteorological Society*, 96(6), DOI:10.1175/BAMS-D-13-00242.1.
67. Webb, M J., A P Lock, Christopher S Bretherton, Sandrine Bony, Jason N S Cole, A Idelkadi, Sarah M Kang, T Koshiro, H Kawai, T Ogura, Romain Roehrig, Yechul Shin, T Mauritsen, S C Sherwood, J Vial, M Watanabe, M D Woelfle, and **Ming Zhao**, October 2015: The impact of parametrized convection on cloud feedback. *Philosophical Transactions of the Royal Society of London, A*, 373, DOI:10.1098/rsta.2014.0414.
 68. Xiang, Baoqiang, Shian-Jiann Lin, **Ming Zhao**, Gabriel A Vecchi, Tim Li, Xianan Jiang, Lucas Harris, and Jan-Huey Chen, February 2015: Beyond weather time scale prediction for Hurricane Sandy and Super Typhoon Haiyan in a global climate model. *Monthly Weather Review*, 143(2), DOI:10.1175/MWR-D-14-00227.1.
 69. Xiang, Baoqiang, **Ming Zhao**, Xianan Jiang, Shian-Jiann Lin, Tim Li, X Fu, and Gabriel A Vecchi, July 2015: The 3-4 Week MJO Prediction Skill in a GFDL Coupled Model. *Journal of Climate*, 28(13), DOI:10.1175/JCLI-D-15-0102.1.
 70. Zhang, Shaoqing, **Ming Zhao**, Shian-Jiann Lin, Xiaosong Yang, Whit G Anderson, Anthony Rosati, Seth D Underwood, and Fanrong Zeng, July 2015: Impact of Having Realistic Tropical Cyclone Frequency on Ocean Heat Content and Transport Forecasts in a High-Resolution Coupled Model. *Geophysical Research Letters*, 42(14), DOI:10.1002/2015GL064745.
 71. Camargo, Suzana J., M K Tippett, A Sobel, Gabriel A Vecchi, and **Ming Zhao**, December 2014: Testing the performance of tropical cyclone genesis indices in future climates using the HIRAM model. *Journal of Climate*, 27(24), DOI:10.1175/JCLI-D-13-00505.1.
 72. Flannaghan, Thomas J., Stephan Fueglistaler, Isaac M Held, S Po-Chedley, Bruce Wyman, and **Ming Zhao**, December 2014: Tropical temperature trends in Atmospheric General Circulation Model simulations and the impact of uncertainties in observed SSTs. *Journal of Geophysical Research: Atmospheres*, 119(23), DOI:10.1002/2014JD022365.
 73. Horn, M, Kevin J E Walsh, **Ming Zhao**, Suzana J Camargo, E Scoccimarro, Hiroyuki Murakami, H Wang, and Andrew Ballinger, et al., December 2014: Tracking Scheme Dependence of Simulated Tropical Cyclone Response to Idealized Climate Simulations. *Journal of Climate*, 27(24), DOI:10.1175/JCLI-D-14-00200.1.
 74. Kim, Hyeong-Seog, Gabriel A Vecchi, Thomas R Knutson, Whit G Anderson, Thomas L Delworth, Anthony Rosati, Fanrong Zeng, and **Ming Zhao**, November 2014: Tropical Cyclone Simulation and Response to CO2 Doubling in the GFDL CM2.5 High-Resolution Coupled Climate Model. *Journal of Climate*, 27(21), DOI:10.1175/JCLI-D-13-00475.1.
 75. Knutson, Thomas R., Fanrong Zeng, Andrew T Wittenberg, Hyeong-Seog Kim, Joseph J Sirutis, Morris A Bender, **Ming Zhao**, and Robert E Tuleya, January 2014: Recent Research at GFDL on Surface Temperature Trends and Simulations of Tropical Cyclone Activity in the Indian Ocean Region In *Monitoring and Prediction of Tropical Cyclones in the Indian Ocean and Climate Change*, New Delhi, India, Springer, DOI:10.1007/978-94-007-7720-0_5.
 76. Maloney, Eric, Suzana J Camargo, E K M Chang, B A Colle, R Fu, K L Geil, Qi Hu, Xianan Jiang, Nathaniel C Johnson, K B Karnauskas, J L Kinter, Ben P Kirtman, Sanjiv Kumar, B Langenbrunner, K Lombardo, L Long, A Mariotti, J E Meyerson, K Mo, J D Neelin, Zaitao Pan, R Seager, Yolande L Serra, A Seth, J Sheffield, J Stroeve, J Thibeault, Shang-Ping Xie, Chunzai Wang, Bruce Wyman, and **Ming Zhao**, March 2014: North American Climate in CMIP5 Experiments: Part III:

- Assessment of 21st Century Projections. *Journal of Climate*, 27(6), DOI:10.1175/JCLI-D-13-00273.1.
77. Mei, W, Shang-Ping Xie, and **Ming Zhao**, July 2014: Variability of Tropical Cyclone Track Density in the North Atlantic: Observations and High-Resolution Simulations. *Journal of Climate*, 27(13), DOI:10.1175/JCLI-D-13-00587.1.
78. Scoccimarro, E, Silvio Gualdi, Gabriele Villarini, Gabriel A Vecchi, and **Ming Zhao**, et al., June 2014: Intense Precipitation Events Associated with Landfalling Tropical Cyclones in response to a Warmer Climate and increased CO₂. *Journal of Climate*, 27(12), DOI:10.1175/JCLI-D-14-00065.1.
79. Shaevitz, D, Suzana J Camargo, A Sobel, J A Jonas, D Kim, Arun Kumar, T LaRow, Y-K Lim, Hiroyuki Murakami, Kevin A Reed, Malcolm J Roberts, E Scoccimarro, Pier Luigi Vidale, H Wang, Michael F Wehner, **Ming Zhao**, and N Henderson, December 2014: Characteristics of tropical cyclones in high-resolution models in the present climate. *Journal of Advances in Modeling Earth Systems*, 6(4), DOI:10.1002/2014MS000372.
80. Villarini, Gabriele, D A Lavers, E Scoccimarro, **Ming Zhao**, Michael F Wehner, Gabriel A Vecchi, Thomas R Knutson, and Kevin A Reed, June 2014: Sensitivity of Tropical Cyclone Rainfall to Idealized Global Scale Forcings. *Journal of Climate*, 27(12), DOI:10.1175/JCLI-D-13-00780.1.
81. Wang, H, L Long, Arun Kumar, W Wang, J-K E Shemm, **Ming Zhao**, and Gabriel A Vecchi, et al., August 2014: How well do global climate models simulate the variability of Atlantic tropical cyclones associated with ENSO? *Journal of Climate*, 27(15), DOI:10.1175/JCLI-D-13-00625.1.
82. Xiang, Baoqiang, Bin Wang, J Li, **Ming Zhao**, and June-Yi Lee, November 2014: Understanding the anthropogenically forced change of equatorial Pacific trade winds in coupled climate models. *Journal of Climate*, 27(22), DOI:10.1175/JCLI-D-14-00115.1.
83. Zhang, Shaoqing, **Ming Zhao**, Shian-Jiann Lin, Xiaosong Yang, and Whit G Anderson, January 2014: Retrieval of Tropical Cyclone Statistics with a High-Resolution Coupled Model and Data. *Geophysical Research Letters*, 41(2), DOI:10.1002/2013GL058879.
84. **Zhao, Ming**, March 2014: An Investigation of the Connections among Convection, Clouds, and Climate Sensitivity in a Global Climate Model. *Journal of Climate*, 27(5), DOI:10.1175/JCLI-D-13-00145.1.
85. Blackburn, M, **Ming Zhao**, and Isaac M Held, et al., October 2013: The Aqua Planet Experiment (APE): CONTROL SST Simulation. *Journal of the Meteorological Society of Japan*, 91A, DOI:10.2151/jmsj.2013-A02.
86. Elsner, J B., S E Strazzo, T H Jagger, T LaRow, and **Ming Zhao**, August 2013: Sensitivity of limiting hurricane intensity to SST in the Atlantic from observations and GCMs. *Journal of Climate*, 26(16), DOI:10.1175/JCLI-D-12-00433.1.
87. Knutson, Thomas R., Joseph J Sirutis, Gabriel A Vecchi, Stephen T Garner, **Ming Zhao**, Hyeong-Seog Kim, Morris A Bender, Robert E Tuleya, Isaac M Held, and Gabriele Villarini, September 2013: Dynamical downscaling projections of 21st century Atlantic hurricane activity: CMIP3 and CMIP5 model-based scenario. *Journal of Climate*, 26(17), DOI:10.1175/JCLI-D-12-00539.1.
88. Lin, Yanluan, **Ming Zhao**, Yi Ming, Jean-Christophe Golaz, Leo J Donner, Stephen A Klein, V Ramaswamy, and Shang-Ping Xie, August 2013: Precipitation partitioning, tropical clouds and intraseasonal variability in GFDL AM2. *Journal of Climate*, 26(15), DOI:10.1175/JCLI-D-12-00442.1.

89. Merlis, Timothy M., **Ming Zhao**, and Isaac M Held, August 2013: The sensitivity of hurricane frequency to ITCZ changes and radiatively forced warming in aquaplanet simulations. *Geophysical Research Letters*, 40(15), DOI:10.1002/grl.50680.
90. Sheffield, J, Suzana J Camargo, R Fu, Qi Hu, Xianan Jiang, Nathaniel C Johnson, K B Karnauskas, Seon Tae Kim, J L Kinter, Sanjiv Kumar, B Langenbrunner, Eric Maloney, A Mariotti, J E Meyerson, J D Neelin, S Nigam, Zaitao Pan, A Ruiz-Barradas, R Seager, Yolande L Serra, D-Z Sun, Chunzai Wang, Shang-Ping Xie, J-Y Yu, Tao Zhang, and **Ming Zhao**, December 2013: North American Climate in CMIP5 Experiments. Part II: Evaluation of Historical Simulations of Intra-Seasonal to Decadal Variability. *Journal of Climate*, 26(23), DOI:10.1175/JCLI-D-12-00593.1.
91. Strazzo, S E., J B Elsner, T LaRow, D J Halperin, and **Ming Zhao**, November 2013: Observed versus GCM-generated local tropical cyclone frequency: Comparisons using a spatial lattice. *Journal of Climate*, 26(21), DOI:10.1175/JCLI-D-12-00808.1.
92. Vecchi, Gabriel A., Stephan Fueglistaler, Isaac M Held, Thomas R Knutson, and **Ming Zhao**, June 2013: Impacts of atmospheric temperature trends on tropical cyclone activity. *Journal of Climate*, 26(11), DOI:10.1175/JCLI-D-12-00503.1.
93. Williamson, D L., **Ming Zhao**, and Isaac M Held, et al., October 2013: The Aqua Planet Experiment (APE): Response to Changed Meridional SST Profile. *Journal of the Meteorological Society of Japan*, 91A, DOI:10.2151/jmsj.2013-A03.
94. Zhang, M, Jean-Christophe Golaz, and **Ming Zhao**, et al., December 2013: CGILS: Results from the first phase of an international project to understand the physical mechanisms of low cloud feedbacks in single column models. *Journal of Advances in Modeling Earth Systems*, 5(4), DOI:10.1002/2013MS000246.
95. Ginoux, Paul, J M Prospero, T E Gill, C Hsu, and **Ming Zhao**, August 2012: Global scale attribution of anthropogenic and natural dust sources and their emission rates based on MODIS Deep Blue aerosol products. *Reviews of Geophysics*, 50, RG3005, DOI:10.1029/2012RG000388.
96. Hsu, P, Tim Li, J-J Luo, Hiroyuki Murakami, A Kitoh, and **Ming Zhao**, March 2012: Increase of global monsoon area and precipitation under global warming: A robust signal? *Geophysical Research Letters*, 39, L06701, DOI:10.1029/2012GL051037.
97. Jiang, Xianan, **Ming Zhao**, and D E Waliser, October 2012: Modulation of tropical cyclones over the Eastern Pacific by the intra-seasonal variability simulated in an AGCM. *Journal of Climate*, 25(19), DOI:10.1175/JCLI-D-11-00531.1.
98. Jiang, Xianan, D E Waliser, D Kim, **Ming Zhao**, K R Sperber, and William F Stern, et al., August 2012: Simulation of the intraseasonal variability over the Eastern Pacific ITCZ in climate models. *Climate Dynamics*, 39(3-4), DOI:10.1007/s00382-011-1098-x.
99. Lin, Yanluan, Leo J Donner, Stephen A Klein, and **Ming Zhao**, et al., May 2012: TWP-ICE global atmospheric model intercomparison: convection responsiveness and resolution impact. *Journal of Geophysical Research: Atmospheres*, 117, D09111, DOI:10.1029/2011JD017018.
100. Williamson, D L., M Blackburn, B J Hoskins, **Ming Zhao**, and Isaac M Held, et al., 2012: In *The APE Atlas*, NCAR Technical Note NCAR/TN-484+STR, Boulder, Colorado, National Center for Atmospheric Research, DOI:10.5065/D6FF3QBR.
101. **Zhao, Ming**, and Isaac M Held, April 2012: TC-permitting GCM simulations of hurricane frequency response to sea surface temperature anomalies projected for the late 21st century. *Journal of Climate*, 25(8), DOI:10.1175/JCLI-D-11-00313.1.

102. **Zhao, Ming**, Isaac M Held, and Shian-Jiann Lin, July 2012: Some counter-intuitive dependencies of tropical cyclone frequency on parameters in a GCM. *Journal of the Atmospheric Sciences*, 69(7), DOI:10.1175/JAS-D-11-0238.1.
103. Donner, Leo J., Bruce Wyman, Richard S Hemler, Larry W Horowitz, Yi Ming, **Ming Zhao**, Jean-Christophe Golaz, Paul Ginoux, Shian-Jiann Lin, M Daniel Schwarzkopf, John Austin, Ghassan Alaka, William F Cooke, Thomas L Delworth, Stuart Freidenreich, C Tony Gordon, Stephen M Griffies, Isaac M Held, William J Hurlin, Stephen A Klein, Thomas R Knutson, Amy R Langenhorst, Hyun-Chul Lee, Yanluan Lin, B I Magi, Sergey Malyshev, P C D Milly, Vaishali Naik, Mary Jo Nath, Robert Pincus, Jeff J Ploshay, V Ramaswamy, Charles J Seman, Elena Shevliakova, Joseph J Sirutis, William F Stern, Ronald J Stouffer, R John Wilson, Michael Winton, Andrew T Wittenberg, and Fanrong Zeng, July 2011: The dynamical core, physical parameterizations, and basic simulation characteristics of the atmospheric component AM3 of the GFDL Global Coupled Model CM3. *Journal of Climate*, 24(13), DOI:10.1175/2011JCLI3955.1.
104. Golaz, Jean-Christophe, M Salzmann, Leo J Donner, Larry W Horowitz, Yi Ming, and **Ming Zhao**, July 2011: Sensitivity of the aerosol indirect effect to subgrid variability in the cloud parameterization of the GFDL Atmosphere General Circulation Model AM3. *Journal of Climate*, 24(13), DOI:10.1175/2010JCLI3945.1.
105. Held, Isaac M., and **Ming Zhao**, October 2011: The response of tropical cyclone statistics to an increase in CO₂ with fixed sea surface temperatures. *Journal of Climate*, 24(20), DOI:10.1175/JCLI-D-11-00050.1.
106. Kahn, B H., João Teixeira, E J Fetzer, Andrew Gettelman, S M Hristova-Veleva, X Huang, A K Kochanski, M Köhler, S K Krueger, R Wood, and **Ming Zhao**, September 2011: Temperature and water vapor variance scaling in global models: Comparisons to satellite and aircraft data. *Journal of the Atmospheric Sciences*, 68(9), DOI:10.1175/2011JAS3737.1.
107. Teixeira, João, and **Ming Zhao**, et al., October 2011: Tropical and sub-tropical cloud transitions in weather and climate prediction models: the GCSS/WGNE Pacific Crosssection Intercomparison (GPCI). *Journal of Climate*, 24(20), DOI:10.1175/2011JCLI3672.1.
108. Vecchi, Gabriel A., **Ming Zhao**, H Wang, Gabriele Villarini, Anthony Rosati, Arun Kumar, Isaac M Held, and Richard G Gudgel, April 2011: Statistical-dynamical predictions of seasonal North Atlantic hurricane activity. *Monthly Weather Review*, 139(4), DOI:10.1175/2010MWR3499.1.
109. Villarini, Gabriele, Gabriel A Vecchi, Thomas R Knutson, **Ming Zhao**, and J A Smith, July 2011: North Atlantic tropical storm frequency response to anthropogenic forcing: Projections and sources of uncertainty. *Journal of Climate*, 24(13), DOI:10.1175/2011JCLI3853.1.
110. Li, Tim, M Kwon, and **Ming Zhao**, et al., November 2010: Global warming shifts Pacific tropical cyclone location. *Geophysical Research Letters*, 37, L21804, DOI:10.1029/2010GL045124.
111. **Zhao, Ming**, Isaac M Held, and Gabriel A Vecchi, October 2010: Retrospective forecasts of the hurricane season using a global atmospheric model assuming persistence of SST anomalies. *Monthly Weather Review*, 138(10), DOI:10.1175/2010MWR3366.1.
112. **Zhao, Ming**, and Isaac M Held, December 2010: An analysis of the effect of global warming on the intensity of Atlantic hurricanes using a GCM with statistical refinement. *Journal of Climate*, 23(23), DOI:10.1175/2010JCLI3837.1.

113. Mapes, B E., Julio T Bacmeister, Marat Khairoutdinov, Cecile Hannay, and **Ming Zhao**, January 2009: Virtual field campaigns on deep tropical convection in climate models. *Journal of Climate*, 22(2), DOI:10.1175/2008JCLI2203.1.
114. **Zhao, Ming**, Isaac M Held, Shian-Jiann Lin, and Gabriel A Vecchi, December 2009: Simulations of global hurricane climatology, interannual variability, and response to global warming using a 50km resolution GCM. *Journal of Climate*, 22(24), DOI:10.1175/2009JCLI3049.1.
115. Held, Isaac M., and **Ming Zhao**, June 2008: Horizontally homogeneous rotating radiative–convective Equilibria at GCM resolution. *Journal of the Atmospheric Sciences*, 65(6), DOI:10.1175/2007JAS2604.1.
116. Kang, Sarah M., Isaac M Held, D M W Frierson, and **Ming Zhao**, 2008: The response of the ITCZ to extratropical thermal forcing: Idealized slab-ocean experiments with a GCM. *Journal of Climate*, 21(14), DOI:10.1175/2007JCLI2146.1.
117. Medeiros, Brian, Bjorn Stevens, Isaac M Held, **Ming Zhao**, D L Williamson, J Olson, and Christopher S Bretherton, October 2008: Aquaplanets, climate sensitivity, and low clouds. *Journal of Climate*, 21(19), DOI:10.1175/2008JCLI1995.1.
118. Held, Isaac M., **Ming Zhao**, and Bruce Wyman, January 2007: Dynamic radiative-convective equilibria using GCM column physics. *Journal of the Atmospheric Sciences*, 64(1), 228-238.
119. Wyant, M C., and **Ming Zhao**, et al., December 2007: A single-column model intercomparison of a heavily drizzling stratocumulus-topped boundary layer. *Journal of Geophysical Research*, D24204, DOI:10.1029/2007JD008536.
120. Wyant, M C., Christopher S Bretherton, Julio T Bacmeister, J T Kiehl, Isaac M Held, **Ming Zhao**, Stephen A Klein, and Brian J Soden, 2006: A comparison of low-latitude cloud properties and their response to climate change in three AGCMs sorted into regimes using mid-tropospheric vertical velocity. *Climate Dynamics*, 27(2-3), DOI:10.1007/s00382-006-0138-4.
121. **Zhao, Ming**, and P H Austin, 2005: Life cycle of numerically simulated shallow cumulus clouds. Part I: Transport. *Journal of the Atmospheric Sciences*, 62(5), 1269-1290.
122. **Zhao, Ming**, and P H Austin, 2005: Life cycle of numerically simulated shallow cumulus clouds. Part II: Mixing dynamics. *Journal of the Atmospheric Sciences*, 62(5), 1291-1310.
123. **Zhao, Ming**, and P H Austin, 2003: Episodic mixing and buoyancy-sorting representations of shallow convection: A Diagnostic Study. *Journal of the Atmospheric Sciences*, 60(7), DOI:10.1175/1520-0469(2003)060<0892:EMABSR>2.0.CO;2.

Book Chapter:

Lutsko, N. J., S. C. Sherwood, and **Ming Zhao**, 2021: Precipitation Efficiency and Climate Sensitivity, a chapter in *Clouds and Climate Monograph*, Geophysical Monograph Series, (In press).

Non-refereed Publication:

Zhao, Ming, Isaac M Held, and Gabriel A Vecchi, et al., September 2013: Robust direct effect of increasing atmospheric CO₂ concentration on global tropical cyclone frequency: a multi-model inter-comparison. *U.S. CLIVAR Variations*, 11(3), 17-23.

Presentations:

- **Zhao, Ming (invited)** 2022: A study of AR-, TS-, and MCS-associated precipitation and extreme precipitation in present and warmer climates, EarthCARE Modeling Workshop 2022, *February 16-18, 2022*

- **Zhao, Ming** 2021: A study of AR-, TS-, and MCS-associated precipitation and extreme precipitation in present and warmer climates, *AGU Fall Meeting 2021, Virtual Conference, December 13-17, 2021*
- **Zhao, Ming** 2021: Simulations of atmospheric rivers, their variability, and response to global warming using GFDL's new high-resolution general circulation model, *The 2021 US Climate Modeling Summit, Virtual Conference, June 28-30, 2021*
- **Zhao, Ming** 2020: A study of precipitation extremes and their climate connections using a phenomena-based method, *AGU Fall Meeting 2020, Virtual Conference, December 1-17, 2020*
- **Zhao, Ming (invited)** 2020: A model study of precipitation and its extremes using a weather phenomena based method, *NOAA-DOE Precipitation Processes and Predictability Virtual Workshop, November 30-December 2, 2020*
- **Zhao, Ming** 2019: Simulations of atmospheric rivers using GFDL's new generation high-resolution global climate model. *AGU Fall Meeting 2019, San Francisco, December 9-13, 2019*
- **Zhao, Ming** 2019: New generation atmospheric model AM4 and Cloud-Climate Initiative. *2019 GFDL External Science Review, Princeton, New Jersey, Oct. 29-31, 2019*
- **Zhao, Ming (invited)** 2019: GFDL New Generation Atmospheric Model AM4 Simulation Characteristics with Prescribed SSTs, *2019 Joint US-Japan Workshop on Climate Change and Variability, Honolulu, Hawaii, March 5-6, 2019*
- **Zhao, Ming** 2019: Simulations of the MJO in GFDL's new generation GCMs and a mechanism study using fully closed moist static energy budget, *The 2019 US Climate Modeling Summit, NASA Goddard Space Flight Center, Greenbelt, MD 20771, April 3-4, 2019*
- **Zhao, Ming** and S-J Lin 2018: A study of convective clouds and their feedbacks in an idealized radiative convective equilibrium using GFDL non-hydrostatic atmospheric model with horizontal resolutions of 1-24km, *AGU Fall Meeting 2018, Washington DC, December 10-14, 2018*
- **Zhao, Ming (invited)** 2018: A Study of Convective Clouds in Radiative Convective Equilibrium Simulated by GFDL FV3 Based Cloud Resolving Model, *Understanding and Modeling the Earth's Climate - a symposium in honor of Isaac Held, Princeton, New Jersey, October 29-31, 2018*
- **Zhao, Ming** 2018: A Study of Convective Clouds in Radiative Convective Equilibrium Simulated by GFDL FV3 Based Cloud Resolving Model, *The 2018 CFMIP meeting on Clouds, Precipitation, Circulation, and Climate Sensitivity, Boulder, Colorado, Oct 16-19, 2018*
- **Zhao, Ming (invited)** 2017: GFDL New Generation Atmospheric Model AM4 Simulation Characteristics and Key Processes, *The US-China Coupled Model Inter-comparison Workshop, Beijing, China, August 23-25, 2017*
- **Zhao, Ming (invited)** 2016: Bias Reduction as Guidance for Developing Convection and Cloud Parameterization in GFDL AM4/CM4, *AGU Fall Meeting 2016, San Francisco, Dec. 12-16, 2016*
- **Zhao, Ming (invited)** 2016: Simulations of the MJO in GFDL's New Generation GCMs and a Mechanism Study Using Fully Closed Moist Static Energy Budget, *AGU Fall Meeting 2016, San Francisco, December 12-16, 2016*
- **Zhao, Ming** 2015: Uncertainty in model climate sensitivity traced to representations of cumulus precipitation microphysics. *Cloud Feedback Model Inter-comparison Project (CFMIP) meeting on cloud processes and climate feedbacks. 8-11 June, 2015, Monterey, California, USA.*
- **Zhao, Ming (invited)** 2015: Development of the atmospheric component of the next generation GFDL climate model. *30th annual meeting of the World Meteorological Organization's Working Group for Numerical Experimentation (WGNE), co-sponsored by the World Climate Research Program (WCRP) and the World Meteorological Organization (WMO) Commission for Atmospheric Sciences (CAS), 23-26 March 2015, College Park, Maryland, USA.*
- **Zhao, Ming (invited)** 2015: Global modeling of tropical cyclone activities and response to global warming using a 50km resolution GFDL HIRAM. *Workshop on High resolution Climate Simulation,*

Projection, and Application, 19-21 January, Taipei, Taiwan

- **Zhao, Ming** 2014: Bias reduction as guidance for developing cumulus parameterization in AM4. *GFDL External Science Review, Princeton, New Jersey, USA, 20-22 May, 2014*
- **Zhao, Ming (invited)** 2014: Convection parameterization in GFDL GCMs and new development towards next generation CM4. *1st International Symposium on Climate and Earth System Modeling, 26-27 April, 2014, Nanjing, China.*
- **Zhao, Ming (invited)** 2014: Global modeling of tropical cyclones and their connections to climate. *International Workshop on Climate System Modeling, Hawaii, USA, 10-11 March 2014*
- **Zhao, Ming** 2014: An investigation of the connections between convection, clouds and climate sensitivity in a global climate model. *31st Conference on Hurricanes and tropical Meteorology, San Diego, California, USA, 31 March – 4 April, 2014*
- **Zhao, Ming** 2014: Robust direct effect of increasing atmospheric CO2 concentration on global tropical cyclone frequency – a multi-model inter-comparison. *31st Conference on Hurricanes and tropical Meteorology, 31 March – 4 April, 2014, San Diego, California, USA.*
- **Zhao, Ming** 2014: An investigation of the connections between convection, clouds and climate sensitivity in a global climate model. *94st American Meteorology Society Annual Meeting, 2-6 February, 2014, Atlanta, Georgia, USA.*
- **Zhao, Ming** 2013: An investigation of the connections between convection, clouds and climate sensitivity in a global climate model. *The joint meeting for Cloud Feedback Model Inter-comparison Project (CFMIP) and European Union Cloud Inter-comparison, Process Study and Evaluation Project (EUCLIPSE), 10-14 June 2013, Hamburg, Germany.*
- **Zhao, Ming** 2013: Response of global tropical cyclone frequency to a doubling of CO2 and uniform SST warming – a multi-model inter-comparison. *U.S. CLIVAR Hurricane Workshop, 5-7 June 2013, Princeton, New Jersey, USA.*
- **Zhao, Ming** 2013: An investigation of the connections between convection, clouds and climate sensitivity in a global climate model. *6th Northeast Tropical Workshop, 29-31 May, 2013, Rensselaerville, New York, USA.*
- **Zhao, Ming**, I.M. Held, S-J Lin 2012: Some counter-intuitive dependencies of tropical cyclone frequency on parameters in a GCM. *1st Pan-Global Atmosphere System Studies (GASS) Conference, 10-14 September 2012, Boulder, Colorado, USA.*
- **Zhao, Ming** and I.M. Held, 2012: TC-permitting GCM simulations of hurricane frequency response to sea surface temperature anomalies projected for the late 21st century. *AMS 30th Conference on Hurricanes and Tropical Meteorology. 15-20 April 2012, Ponte Vedra Beach, Florida, USA.*
- **Zhao, Ming**, 2012: Shallow cumulus convection and its parameterizations in AM3. *GFDL Summer School Lectures. 18 July 2012, Princeton, New Jersey, USA.*
- **Zhao, Ming (invited)** 2012, TC-permitting GCM simulations of global hurricane climatology, variability and response to warming projected for the late 21st century, *Department Seminar, Atmospheric, Ocean and Space Sciences, University of Michigan, 15 March, 2012.*
- **Zhao, Ming**, 2012: Results from GFDL HiRAM simulations. *US-CLIVAR Hurricane Working Group Workshop, 27-28 January 2012, New Orleans, LA, USA.*
- **Zhao, Ming** and I.M. Held, 2012: TC-permitting GCM simulations of hurricane frequency response to sea surface temperature anomalies projected for the late 21st century. *24th Conference on Climate Variability and Change. 92nd AMS Annual Meeting, 22-26 January 2012, New Orleans, LA, USA.*
- **Zhao, Ming**, 2011: High resolution AGCM simulations of hurricane frequency response to sea surface temperature anomalies projected for the late 21st century. *GFDL's Climate Modeling and Research Symposium. 17 October, GFDL, Princeton, USA.*

- **Zhao, Ming** and I.M. Held, 2011: TC-permitting GCM simulations of hurricane frequency response to sea surface temperature anomalies projected for the late 21st century. *5th Northeast Tropical Workshop. 17-19 May 2011, MIT, Massachusetts, USA.*
- **Zhao, Ming (invited)** 2011, Simulations of global hurricane climatology, variability and response to global warming using a high resolution AGCM, *School of Engineering and Applied Science (SEAS) Colloquium in Climate Science, Columbia University, 7 April, 2011, New York City, USA.*
- **Zhao, Ming (invited)** 2010: An Analysis of GCM simulated storm intensity variability and change using a statistical refinement. *American Geophysical Union 2010 Fall Meeting, 13-17 December, 2010, San Francisco, USA.*
- **Zhao, Ming (invited)** 2010: Simulations of global hurricane climatology, variability and response to global warming using a 50km resolution GCM. *American Geophysical Union 2010 Fall Meeting, 13-17 December, 2010, San Francisco, USA.*
- **Zhao, Ming**, I.M. Held, S-J Lin, G. Vecchi 2010: Simulation of global hurricane climatology, variability, and response to global warming using a new global high resolution atmospheric model. *AMS 29th Conference on Hurricanes and Tropical Meteorology, 10-14 May 2010, Tucson, USA.*
- **Zhao, Ming**, I.M. Held, S-J Lin, G. Vecchi 2009: Simulation of Global Hurricane Climatology, Variability, and Response to Global Warming using a Global High Resolution Atmospheric Model. *MOCA 2009: the IAMAS, IAPSO and IACS Joint Assembly, 19-29 July 2009, Montreal, Canada.*
- **Zhao, Ming**, 2009: Hurricane Climate Connection in a high resolution GCM. NCAR ECSA Junior Faculty Forum on Future Scientific Directions: *Connecting Weather and Climate in Theory, Models and Observations, 14-16 July 2009, NCAR, Boulder, Colorado, USA.*
- **Zhao, Ming**, I.M. Held, S-J Lin, G. Vecchi 2009: Modeling global hurricane climatology, variability, and response to global warming. *2009 GFDL External Science Review, 30 June - 2 July 2009, Princeton, New Jersey, USA.*
- **Zhao, Ming (invited)** 2008: Sensitivity of GCM simulated clouds to cumulus mixing, convective cloud microphysics and its implications for cloud feedback to climate sensitivity. *The 4th Pan-GEWEX Cloud System Study (GCSS) Meeting on: Advances in Modeling and Observing Clouds and Convection, 2-6 June 2008, Meteo-France, Toulouse, France.*
- **Zhao, Ming** 2006: GFDL AM2 cloud sensitivity to details in convection and cloud parameterizations, a GPCI case study. *Joint GCSS-GPCI/BLCI-RICO Workshop, 18-21 September 2006, Goddard Institute for Space Science, NASA, New York City, USA.*
- **Zhao, Ming** 2005: University of Washington Shallow Cumulus Convection (UWShCu) Scheme in GFDL AM2 - preliminary results. Atmospheric Climate Process Team Annual Meeting, 29-30 November 2005, GFDL, Princeton, New Jersey, USA.
- **Zhao, Ming**, I.M. Held and B. Wyman 2005: The role of cloud radiative forcing in an idealized Walker circulation. The International Association of Meteorology and Atmospheric Sciences (IAMAS) Conference, 2-11 August 2005, Beijing, China.
- **Zhao, Ming**, 2004: Current status on column diagnostics and modeling work at GFDL. Atmospheric Climate Process Team Annual Meeting, 21-23 October 2004, Seattle, Washington, USA.
- **Zhao, Ming** and P.H. Austin, 2003: Trade-wind cumulus transport and the cloud size distribution. Gordon Research Conference 2003: Solar Radiation and Climate, 13-18 July 2003, Colby-Sawyer College, New London, USA.
- **Zhao, Ming** and P.H. Austin, 2003: Trade-wind cumulus cloud parameterization in large scale models: results from large eddy simulations. 37th CMOS Conference, 2-5 June 2003, Ottawa, Canada.
- **Zhao, Ming** and P.H. Austin, 2002: Life cycle of numerically simulated shallow cumulus clouds,

Modeling Clouds and Climate Workshop. December 2002, Toronto, Canada.

- **Zhao, Ming** and P.H. Austin, 2002: A diagnostic study of episodic mixing models of shallow cumulus clouds. AMS 15th Symposium on Boundary Layers and Turbulence, 15-19 July 2002, Wageningen, Netherlands.
- **Zhao, Ming** and P.H. Austin, 2002: A diagnostic study of buoyancy-sorting parameterizations of shallow cumulus convection, GCSS-ARM Workshop on the Representation of Cloud Systems in Large-Scale Models, 20-24 May 2002, Kananaskis, Alberta, Canada.
- **Zhao, Ming** and P.H. Austin, 2001: Sensitivity studies of boundary-sorting representation of shallow cumulus parameterizations. 2001 Climate Conference, 20-24 August, 2001, Utrecht, Netherlands.
- **Zhao, Ming** and P. H. Austin, 2000: Sensitivity studies of buoyancy-sorting parameterizations in Canadian GCM Single Column Model. 34th CMOS Conference, 29 May-1 June, 2000, Victoria, BC, Canada.