

CURRICULUM VITA

Minghua Zhang

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Employment:

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| 2019-present | Interim Provost and Senior Vice President for Academic Affairs
Stony Brook University, State University of New York |
| 1990-present | Assistant Professor (1990-1996), Associate Professor (1997-2001),
Full Professor (2001-present), Distinguished Professor (2019-)
School of Marine and Atmospheric Sciences
Stony Brook University, State University of New York |
| 2010-2016 | Dean and Director
School of Marine and Atmospheric Sciences
Stony Brook University, State University of New York |
| 2010-present | Affiliated Professor, Institute of Atmospheric Physics /CAS (2010);
Institute of Advanced Computational Sciences (IACS) (2015) and Department of
Applied Mathematics and Statistics (2018) of Stony Brook University |
| 2003-2010 | Associate Dean
School of Marine and Atmospheric Sciences
Stony Brook University, State University of New York |
| 2001-2010 | Director
Institute for Terrestrial and Planetary Atmospheres
Stony Brook University, State University of New York |
| 1998-1999 | Visiting Fellow
Laboratory for Atmospheres
NASA Goddard Space Flight Center |
| 1984-1988 | Research Assistant
Institute of Atmospheric Physics
Chinese Academy of Sciences |

Education:

1988-1990	Post-doc Visiting Scholar Institute for Terrestrial and Planetary Atmospheres Stony Brook University, State University of New York
Ph.D., 1987	Institute of Atmospheric Physics Chinese Academy of Sciences
B. S., 1982	Nanjing University of Information Science and Technology

Research Interests:

- Climate modeling and climate feedback processes
- Climate change and analysis
- Development of physical parameterizations of clouds and convection in General Circulation Models (GCMs)
- Data assimilation, variational integration and synthesis of field experimental data
- Atmospheric Dynamics

Honors

- Fellow, American Association for the Advancement of Science, 2019
- Distinguished Professor of the State University of New York, 2019
- Fellow, American Meteorological Society (2015)
- Elected Member, International Eurasian Academy of Sciences (2013)
- Nobel Peace Prize, shared with the Intergovernmental Panel on Climate Change (IPCC) and Al Gore (2007)
- National Science Foundation Career Award (1996)
- Young Scientist Achievement Award of the Year, Beijing Association of Science and Technology (1989)
- Outstanding Ph.D Award, Chinese Ministry of Education (1988)

Professional Activities

- Editor-in-Chief, *Journal of Geophysical Research-Atmospheres* (2016 - present)
- Co-Chairman, Atmospheric Model Working Group (AMWG) of the NCAR Community Climate System Model (CCSM) (2006-2016)
- Advisory Committee of the DOE Energy Exascale Earth System Model (E3SM) (2014-present)
- DOE Biological and Environmental Research Advisory Committee (BERAC) (2010-2017)
- Director, New State Resilience Institute for Storms and Emergencies (NYS-RISE)
- Executive Board of Governors of the New York Sea Grant (NYSG) (2013-2016)
- Steering Committee Member, International Global Water and Energy Experiment (GEWEX) (2011-2015)

- Chairman, Committee of Visitors to Review the Climate and Environmental Sciences Program for the DOE Office of Science (2010)
- Associate Editor and Editor, *Journal of Advances in Modeling Earth Systems (JAMES)* (2008-2015)
- Associate Editor, *Journal of Climate* (2008-2017)
- Member, NSF Climate Simulation Laboratory (CSL) Advisory Committee (2007-2014)
- Co-Chairman, Atmospheric Radiation Measurement (ARM) Working Group on Cloud Modeling and Parameterization (CPM), U. S. Department of Energy (1999-2005)
- Lead Author, US Climate Change Science Program (CCSP) Assessment and Synthesis Product (SAP3.1) (2006-2008)
- Contribution Author, Second Report of the Climate Assessment Report of the Intergovernmental Panel for Climate Change (IPCC): The Scientific Basis (1996).
- Member, DOE ARM Science Team Executive Committee (2002-2004)

Teaching Activities

- Taught Atmospheric Dynamics, Atmospheric Physics, Atmospheric Radiation, and Numerical Modeling courses at graduate and undergraduate levels.
- Supervised 18 Ph.D students, 2 MS students. Served on 40+ Ph.D thesis committees.

Publications of Minghua Zhang (as of Dec 2019)

[\(Google scholar profile\)](#)

- Xie, Jingbo, **Minghua Zhang**, and Hailong Liu (2019): Role of Arctic Sea Ice in the 2014–2015 Eurasian Warm Winter, *JGR-Atmospheres*, <https://doi.org/10.1029/2018GL080793>
- Zhu, J, **Zhang, M**, Zeng, X. (2019) : Linkage between tropical terrestrial carbon cycle and precipitation: The two anomalous years of 1979 and 1996. *Atmos Sci Lett*. 2019; 20:e876. <https://doi.org/10.1002/asl.876>
- Xie, S., Wang, Y.-C., Lin, W., Ma, H.-Y., Tang, Q., Tang, S., et al. **Zhang, M** (2019). Improved diurnal cycle of precipitation in E3SM with a revised convective triggering function. *Journal of Advances in Modeling Earth Systems*, 11, 2290– 2310. <https://doi.org/10.1029/2019MS001702>
- Zheng, C., E. Kar-Man Chang, H. Kim, **M. Zhang**, and W. Wang, 2018: Impacts of the Madden–Julian Oscillation on Storm-Track Activity, Surface Air Temperature, and Precipitation over North America. *J. Climate*, 31, 6113–6134, <https://doi.org/10.1175/JCLI-D-17-0534.1>
- Zheng, X., Golaz, J.-C., Xie, S., Tang, Q., Lin, W., **Zhang, M.**, et al. (2019). The summertime precipitation bias in E3SM Atmosphere Model version 1 over the Central United States. *Journal of Geophysical Research: Atmospheres*, 124, 8935– 8952. <https://doi.org/10.1029/2019JD030662>
- Tao, C., Zhang, Y., Tang, S., Tang, Q., Ma, H.-Y., Xie, S., & **Zhang, M.** (2019). Regional moisture budget and land-atmosphere coupling over the U.S. Southern Great Plains inferred from the ARM long-term observations. *Journal of Geophysical Research: Atmospheres*, 124, 10091– 10108. <https://doi.org/10.1029/2019JD030585>

- Tang, S., Xie, S., **Zhang, M.**, Tang, Q., Zhang, Y., Klein, S. A., et al. (2019). Differences in eddy-correlation and energy-balance surface turbulent heat flux measurements and their impacts on the large-scale forcing fields at the ARM SGP site. *Journal of Geophysical Research: Atmospheres*, 124, 3301–3318. <https://doi.org/10.1029/2018JD029689>
- He, B., Bao, Q., Wang, X. et al and **Zhang, M** et al. (2019): CAS FGOALS-f3-L Model Datasets for CMIP6 Historical Atmospheric Model Intercomparison Project Simulation. *Adv. Atmos. Sci.* 36: 771. <https://doi.org/10.1007/s00376-019-9027-8>
- Yu, H. Y., and M. H. Zhang, 2018: Explaining the year-to-year variability of the eastern Pacific intertropical convergence zone in the boreal spring. *J. Geophys. Res. Atmos.*, <https://doi.org/10.1002/2017JD028156>
- Zhu, Jiawen, Minghua Zhang et al. 2018: Response of Tropical Terrestrial Gross Primary Production to the Super El Niño Event in 2015. *J. Geophys. Res. – Biogeosciences* <https://doi.org/10.1029/2018JG004571>
- Zhang, M., A. Mariotti, Z. Lin, V. Ramasmamy, J. Lamarque, Z. Xie, and J. Zhu, 2018: Coordination to Understand and Reduce Global Model Biases by U.S. and Chinese Institutions. *Bull. Amer. Meteor. Soc.*, 99, ES109–ES113, <https://doi.org/10.1175/BAMS-D-17-0301.1>
- Smirnov, O., Steinwand, M.C., Xiao, T. , M. Zhang, 2018: Climate Impacts, Political Institutions, and Leader Survival: Effects of Droughts and Flooding Precipitation, EconDisCliCha. <https://doi.org/10.1007/s41885-018-0024-7> *Economics of Disasters and Climate Change*
- Chen, J., Liu, Y., Zhang, M., & Peng, Y. (2018). Height dependency of aerosol-cloud interaction regimes. *Journal of Geophysical Research: Atmospheres*, 123. <https://doi.org/10.1002/2017JD027431>
- Tang, S., M. Zhang, and S. Xie (2017), Investigating the dependence of SCM simulated precipitation and clouds on the spatial scale of large-scale forcing at SGP, *J. Geophys. Res. Atmos.*, 122, 8724–8738, doi:[10.1002/2017JD026565](https://doi.org/10.1002/2017JD026565).
- Lin, Y., Dong, W., Zhang, M., Xie, Y., Xue, W., Huang, J., & Luo, Y. (2017). Causes of model dry and warm bias over central US and impact on climate projections. *Nature Communications*, 8. doi:[10.1038/s41467-017-01040-2](https://doi.org/10.1038/s41467-017-01040-2)
- Xie, J., & Zhang, M. (2017). Role of internal atmospheric variability in the 2015 extreme winter climate over the North American continent. *Geophysical Research Letters*. [10.1002/2017GL072772](https://doi.org/10.1002/2017GL072772)
- Jin, J., Zeng, Q., Wu, L., Liu, H., & Zhang, M. (2017). Formulation of a new ocean salinity boundary condition and impact on the simulated climate of an oceanic general circulation model. *Science China Earth Sciences*, 60(3), 491-500.
- Li, Y., & Zhang, M. (2017). The Role of Shallow Convection over the Tibetan Plateau. *Journal of Climate*, 30(15), 5791-5803.
- Liu, Ping and Zhu, Yuejian and Zhang, Qin and Gottschalck, Jon and Zhang, Minghua et al. (2017) , Climatology of tracked persistent maxima of 500-hPa geopotential height. *Climate Dynamics*, <https://doi.org/10.1007/s00382-017-3950-0>
- Zhang, M., S. Xie and RCJ Somerville (2017), The SCM Concept and Creation of ARM Forcing Datasets, *Meteorological Monographs* 57, 24.1-24.12, American Meteorological Societ, <https://doi.org/10.1175/AMSMONOGRAPHS-D-15-0040.1>
- Chen, J., Liu, Y., Zhang, M., & Peng, Y. (2016). New Understanding and Quantification of the Regime Dependence of Aerosol-Cloud Interaction for Studying Aerosol Indirect Effects. *Geophysical Research Letters*, 43(4), 1780-1787, doi:[10.1002/2016GL067683](https://doi.org/10.1002/2016GL067683).

- Li, Y., & Zhang, M. (2016). Cumulus over the Tibetan Plateau in the Summer Based on CloudSat-CALIPSO Data. *Journal of Climate*, 29 (3):1219-1230; 10.1175/JCLI-D-15-0492.1 FEB 2016.
- Liu, P., Zhang, Q., Zhang, C., Zhu, Y., Khairoutdinov, M., Kim, H. M., ... & Zhang, M. (2016). A Revised Real-Time Multivariate MJO Index. *Monthly Weather Review*, 144 (2):627-642; 10.1175/MWR-D-15-0237.1 FEB 2016
- Smirnov, O., Zhang, M., Xiao, T. et al. 2016: The relative importance of climate change and population growth for exposure to future extreme droughts. *Climatic Change* (2016) 138: 41. doi:10.1007/s10584-016-1716-z
- Tang, S., Xie, S., Zhang, Y., Zhang, M., Schumacher, C., Upton, H., ... & Feng, Z. (2016). Large-scale vertical velocity, diabatic heating and drying profiles associated with seasonal and diurnal variations of convective systems observed in the GoAmazon2014/5 experiment. *Atmospheric Chemistry and Physics*, 16(22), 14249-14264.
- Tang, S., M. Zhang, and S. Xie (2016), An ensemble constrained variational analysis of atmospheric forcing data and its application to evaluate clouds in CAM5, *J. Geophys. Res. Atmos.*, 121, 33–48, doi:10.1002/2015JD024167.
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- Lin, P., H Liu, W Xue, H Li, J Jiang, M Song, Y Song, F Wang, M Zhang, 2016, [A Coupled Experiment with LICOM2 as the Ocean Component of CESM1](#), *Journal of Meteorological Research* 30 (1), 76-92
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- Xie, X., and M. Zhang (2015), Scale-aware parameterization of liquid cloud inhomogeneity and its impact on simulated climate in CESM, *J. Geophys. Res. Atmos.*, 120, 8359–8371, doi:10.1002/2015JD023565.
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- Tang, S., M. Zhang, and S. Xie (2015), An ensemble constrained variational analysis of atmospheric forcing data and its application to evaluate clouds in CAM5, *J. Geophys. Res. Atmos.*, 120, doi:10.1002/2015JD024167.
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- Tang, S., and M. Zhang (2015), Three-dimensional constrained variational analysis: Approach and application to analysis of atmospheric diabatic heating and derivative fields during an ARM SGP intensive observational period, *J. Geophys. Res. Atmos.*, 120, doi:10.1002/2015JD023621.
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- Zhang, M., 2015. Coupled Ocean-Atmosphere Models: Physical Processes. P144-152, In: Gerald R. North (editor-in-chief), John Pyle and Fuqing Zhang (editors). *Encyclopedia of Atmospheric Sciences*, 2nd edition, Vol 4, pp. 144–152. ISBN: 9780123822253, 2998pp, Copyright © 2015 Elsevier Ltd.
- Lin, W., Y. Liu, A. M. Vogelmann, A. Fridlind, S. Endo, H. Song, S. Feng, T. Toto, Z. Li, and M. Zhang (2015), RACORO Continental Boundary Layer Cloud Investigations. Part III: Separation of Parameterization Biases in Single-Column Model CAM5 Simulations of Shallow Cumulus, *J. Geophys. Res. Atmos.*, 119, doi:10.1002/2014JD022524.
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- Feng, S., Z. Li, Y. Liu, W. Lin, M. Zhang, T. Toto, A. M. Vogelmann, and S. Endo (2015), Development of fine-resolution analyses and expanded large-scale forcing properties: 2. Scale awareness and application to single-column model experiments, *J. Geophys. Res. Atmos.*, 120, 667–677, doi:10.1002/2014JD022254.
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- Xiaoge Xin, Wei Xue, Minghua Zhang, Huimin Li, Tao Zhang, Jie Zhang, 2014: How much of the NAO monthly variability is from ocean–atmospheric coupling: results from an interactive ensemble climate model. *Climate Dynamics*, 10.1007/s00382-014-2246-x
- Zhang, Minghua. and 39 co-authors 2013: CGILS: Results from the First Phase of an International Project to Understand the Physical Mechanisms of Low Cloud Feedbacks in General Circulation Models. *Journal of Advances in Modeling Earth Systems.*, DOI: 10.1002/2013MS000246
- Jun Yang, Peng Gong, Rong Fu, Minghua Zhang, Jingming Chen, Shunlin Liang, Bing Xu, Jiancheng Shi and Robert Dickinson, 2013: The role of satellite remote sensing in climate change studies, *Nature Climate Change* 3 1001 PubDate: 2013-10-29|2013-10-29, DOI: 10.1038/nclimate2033
- Wang, Xiacong and Minghua Zhang, 2013: An analysis of parameterization interactions and sensitivity of single-column model simulations to convection schemes in CAM4 and CAM5. *J. Geophys. Res.*, DOI: 10.1002/jgrd.50690.
- He, J., M. Zhang, W. Lin, B. Colle, P. Liu, and A. M. Vogelmann (2013), The WRF nested within the CESM: Simulations of a midlatitude cyclone over the Southern Great Plains, *J. Adv. Model. Earth Syst.*, 5, doi:10.1002/JAME.20042.
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