Jiang Zhu

Postdoctoral Research Fellow
Department of Earth and Environmental Sciences
University of Michigan
1100 N. University Ave, Ann Arbor, MI 48109
Email: jiazhu@umich.edu
Website: http://jzhu86.github.io/
Google Scholar: http://goo.gl/16zkNv

RESEARCH INTERESTS

Constraining climate sensitivity by simulating past climates from hothouse to glacial maximum; Simulation and interpretation of geo-tracers in paleoclimate records; ENSO variability in the past and future; Dynamics and modeling of oceanic overturning circulation; Abrupt climate change; Global climate and hydroclimate changes

EDUCATION

Ph.D., Atmospheric and Oceanic Sciences — May 2017
University of Wisconsin-Madison, Madison, WI, USA
Advisor: *Prof.* Zhengyu Liu

M.S. Atmospheric and Oceanic Sciences — Jun 2011
Peking University, Beijing, China
Advisor: *Prof.* Haijun Yang

B.S. Atmospheric Sciences — Jun 2008
Peking University, Beijing, China

RESEARCH EXPERIENCE

Postdoctoral Research Fellow, University of Michigan — June 2017–present
Projects: Water isotope-enabled simulation of the early Eocene climate and its implication on climate sensitivity and hydrological cycle; Oceanic overturning circulation in deep-time hothouse climates; Paleoclimate data assimilation

Graduate Research Assistant, University of Wisconsin-Madison — Aug 2011–May 2017
Projects: Water isotope modeling; ENSO variability at the LGM; Holocene temperature conundrum; Evolution and mechanisms of the AMOC during the last deglaciation

Visiting Scholar, National Center for Atmospheric Research — Jan 2014–Jan 2015
Projects: Developing and testing the isotope-enabled Community Earth System Model (with focus on the sea ice, ocean, river runoff and the coupler)

PUBLICATIONS

— **Zhu, J.**, Poulsen, C. J., & Tierney, J. E. (2018). Simulation of Eocene extreme warmth and high climate sensitivity through low-cloud feedbacks. *Nature Geoscience, under review*.

— **Zhu, J.**, Poulsen, C. J., Otto-bliesner, B. L., Liu, Z., Brady, E. C., Noone, D., & iCESM Project

Members. (2018). Simulation of water isotopes during the early Eocene and its implication for hydrological cycle. *Earth and Planetary Science Letters, in preparation*.

— **Zhu, J.**, & Poulsen, C. J. (2018). Sensitivity of the early Eocene oceanic overturning circulation to CO2 in an Earth system model. *Paleoceanography and Paleoclimatology, in preparation*.

— **Zhu, J.**, Liu, Z., Otto-bliesner, B. L., Brady, E. C., Tabor, C. R., Nusbaumer, J., & Noone, D. (2018). Variations of the temporal d18O-temperature slope over Greenland to varied climatic forcings in an isotope-enabled Earth system model. *Quaternary Science Reviews, in preparation*.

— iCESM Project Members. (2018). The connected isotopic water cycle in the Community Earth System Model. *Journal of Advances in Modeling Earth Systems, in preparation*.

— Thompson, A. J., Skinner, C. B., Poulsen, C. J., & **Zhu, J.** (2018). Modulation of mid-Holocene Saharan rainfall by dust aerosol direct and indirect effects. *Geophys. Res. Lett., in preparation*.

20. Thibodeau, B., Not, C., **Zhu, J.**, Schmittner, A., Noone, D., Tabor, C., . . . Liu, Z. (2018). Last century warming over the Canadian Atlantic shelves linked to weak Atlantic Meridional Overturning Circulation. *Earth and Space Science Open Archive. (Geophys. Res. Lett., under review.)* https://doi.org/10.1002/essoar.10500026.2

19. Lu, Z., Liu, Z., **Zhu, J.**, & Cobb, K. M. (2018). A Review of Paleo El Nio-Southern Oscillation. *Atmosphere*, 9(4), 130. https://doi.org/10.3390/atmos9040130

18. Liu, Y., Zhang, M., Liu, Z., Xia, Y., Huang, Y., Peng, Y., & **Zhu, J.** (2018). A Possible Role of Dust in Resolving the Holocene Temperature Conundrum. *Scientific Reports*, 8(1), 4434. https://doi.org/10.1038/s41598-018-22841-5

17. Tabor, C. R., Otto-Bliesner, B. L., Brady, E. C., Nusbaumer, J., **Zhu, J.**, Erb, M. P., . . . Noone, D. (2018). Interpreting Precession-Driven δ^{18}O Variability in the South Asian Monsoon Region. *Journal of Geophysical Research: Atmospheres*, 123(11), 59275946. https://doi.org/10.1029/2018JD028424

16. **Zhu, J.**, Liu, Z., Brady, E. C., Otto-Bliesner, B. L., Marcott, S. A., Zhang, J., . . . Noone, D. (2017). Investigating the direct meltwater effect in terrestrial oxygen-isotope paleoclimate records using an isotope-enabled Earth system model. *Geophysical Research Letters*, 44(24), 1250112530. https://doi.org/10.1002/2017GL076253

15. **Zhu, J.**, Liu, Z., Brady, E., Otto-Bliesner, B., Zhang, J., Noone, D., . . . Tabor, C. (2017). Reduced ENSO variability at the LGM revealed by an isotope-enabled Earth system model. *Geophysical Research Letters*, 44(13), 69846992. https://doi.org/10.1002/2017GL073406

14. Liu, W., Xie, S.-P., Liu, Z., & **Zhu, J.** (2017). Overlooked possibility of a collapsed Atlantic Meridional Overturning Circulation in warming climate. Science Advances, 3(1), e1601666. https://doi.org/10.1126/sciadv.1601666. *(news release)*

13. Lu, Z., Liu, Z., & **Zhu, J.** (2016). Abrupt intensification of ENSO forced by deglacial ice-sheet retreat in CCSM3. *Climate Dynamics*, 46(5–6), 1877–1891. https://doi.org/10.1007/s00382-015-2681-3

12. Guan, J., Liu, Z., Wen, X., Brady, E., Noone, D., **Zhu, J.**, & Han, J. (2016). Understanding the temporal slope of the temperature-water isotope relation during the deglaciation using isoCAM3: The slope equation. *Journal of Geophysical Research: Atmospheres*, 121, 10,342–10,354. https://doi.org/10.1002/2016JD024955

11. Wen, X., Liu, Z., Wang, S., Cheng, J., & **Zhu, J.** (2016). Correlation and anti-correlation of the East Asian summer and winter monsoons during the last 21,000 years. *Nature Communications*, 7, 11999. https://doi.org/10.1038/ncomms11999

10. **Zhu, J.**, Liu, Z., Zhang, J., & Liu, W. (2015). AMOC response to global warming: dependence on the background climate and response timescale. *Climate Dynamics*, 44(11), 34493468. https://doi.org/10.1007/s00382-014-2165-x

9. Liu, W., Lu, J., Leung, L. R., Xie, S. P., Liu, Z., & **Zhu, J.** (2015). The de-correlation of westerly winds and westerly-wind stress over the Southern Ocean during the Last Glacial Maximum. *Climate Dynamics*, 45(11–12), 3157–3168. https://doi.org/10.1007/s00382-015-2530-4

8. **Zhu, J.**, Liu, Z., Zhang, X., Eisenman, I., & Liu, W. (2014). Linear weakening of the AMOC in response to receding glacial ice sheets in CCSM3. *Geophysical Research Letters*, 41(17), 6252–6258. https://doi.org/10.1002/2014GL060891

7. Liu, Z., **Zhu, J.**, Rosenthal, Y., Zhang, X., Otto-Bliesner, B. L., Timmermann, A., ... Timm, O. E. (2014). The Holocene temperature conundrum. *Proceedings of the National Academy of Sciences*, 111(34), E3501–E3505. https://doi.org/10.1073/pnas.1407229111. *(news release)*

6. Nace, T. E., Baker, P. A., Dwyer, G. S., Silva, C. G., Rigsby, C. A., Burns, S. J., **Zhu, J.** (2014). The role of North Brazil Current transport in the paleoclimate of the Brazilian Nordeste margin and paleoceanography of the western tropical Atlantic during the late Quaternary. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 415, 3–13. https://doi.org/10.1016/j.palaeo.2014.05.030

5. Huang, B., **Zhu, J.**, & Yang, H. (2014). Mechanisms of Atlantic Meridional Overturning Circulation (AMOC) variability in a coupled ocean-atmosphere GCM. *Advances in Atmospheric Sciences*, 31(2), 241–251. https://doi.org/10.1007/s00376-013-3021-3

4. Liu, Z., Carlson, a. E., He, F., Brady, E. C., Otto-Bliesner, B. L., Briegleb, B. P., ... **Zhu, J.** (2012). Younger Dryas cooling and the Greenland climate response to CO2. *Proceedings of the National Academy of Sciences*, 109(28), 11101–11104. https://doi.org/10.1073/pnas.1202183109. *(news release)*

3. **Zhu, J.**, & Yang, H. (2012). Response of the Atlantic Thermohaline Circulation to Changes of Atmospheric Green House Gases. *Acta Scientiarum Naturalium Universitatis Pekinensis*, 48(2), 231–238. (*in Chinese with English abstract*)

2. Yang, H., & **Zhu, J.** (2011). Equilibrium thermal response timescale of global oceans. *Geophysical Research Letters*, 38(14), L14711. https://doi.org/10.1029/2011GL048076

1. Qian, W., **Zhu, J.**, Wang, Y., & Fu, J. (2009). Regional relationship between the Jiang-Huai Meiyu and the equatorial surface-subsurface temperature anomalies. *Chinese Science Bulletin*, 54(1), 113–119. https://doi.org/10.1007/s11434-008-0410-6

SELECTED PRESENTATIONS

Zhu, J., C. Poulsen, Z. Liu, E. Brady, B. Otto-Bliesner, and D. Noone, "Modeling the oxygen isotope in the early Eocene hothouse climate using an isotope-enabled Earth system model". Goldschmidt Conference. August 2018. Boston, USA. *(POSTER)*

Zhu, J., C. Poulsen, "Simulating the Eocene hothouse climate using the water isotope-enabled Community Earth System Model (CESM1.2)". DeepMIP Conference. July 2018. Bristol, UK. *(ORAL)*

Zhu, J., Z. Liu, E. Brady, B. Otto-Bliesner, S. Marcott, J. Zhang, X. Wang, J. Nusbaumer, T. Wong, A. Jahn, and D. Noone, "Investigating the direct meltwater effect in terrestrial oxygen-isotope records using an isotope-enabled Earth system model". CESM PaleoClimate Working Group Meeting. March 2018. Austin, USA. *(ORAL)*

Zhu, J., Z. Liu, E. Brady, B. Otto-Bliesner, S. Marcott, J. Zhang, X. Wang, J. Nusbaumer, T. Wong, A. Jahn, and D. Noone, "Investigating the direct meltwater effect in terrestrial oxygen-isotope records using an isotope-enabled Earth system model". AGU Fall Meeting. Dec. 2017. New Orleans, USA. *(ORAL)*

Zhu, J., Z. Liu, B. Otto-Bliesner, E. Brady, D. Noone, J. Zhang, R. Tomas, A. Jahn, J. Nusbaumer, and T. Wong. "Reduced ENSO Variability at the LGM Revealed by an Isotope-enabled Earth System Model". CESM PaleoClimate Working Group Meeting. March 2017. Boulder, USA. *(ORAL)*

Zhu, J., Z. Liu, B. Otto-Bliesner, E. Brady, D. Noone, J. Zhang, R. Tomas, A. Jahn, J. Nusbaumer, and T. Wong. "Reduced ENSO Variability at the LGM Revealed by an Isotope-enabled Earth System Model". AGU Fall Meeting. Dec. 2016. San Francisco, USA. *(ORAL)*

Zhu, J., Z. Liu, B. Otto-Bliesner, E. Brady, D. Noone, J. Zhang, R. Tomas, A. Jahn, J. Nusbaumer, and T. Wong. "Reduced ENSO Variability at the LGM Revealed by an Isotope-enabled Earth System Model". CLIVAR Open Science Conference. Sep. 2016. Qingdao, China. *(ORAL)*

Zhu, J., Z. Liu, X. Zhang, I. Eisenman, and W. Liu. "Linear Weakening of the AMOC in Response to Lowering Ice-sheet Topography in CCSM3". High-Resolution Proxies of Paleoclimate Workshop. May 2015. Madison, WI. *(POSTER)*

Zhu, J., Z. Liu, J. Zhang, and W. Liu. "AMOC response to global warming: dependence on the background climate and response timescale". Annual CESM Workshop. Jun. 2014. Breckenridge, CO. *(POSTER)*

Zhu, J., Z. Liu, X. Zhang, I. Eisenman, and W. Liu. "Transient weakening of the AMOC to a receding glacial ice sheet in CCSM3 and its physical mechanisms". Annual CESM Workshop. Jun. 2014. Breckenridge, CO. *(ORAL)*

HONORS/AWARDS

Student Travel Grant, 2016 AGU Fall Meeting	Dec. 2016
Graduate Student Travel Award, AOS, UW-Madison	Oct. 2016
International Travel Grant, CLIVAR Open Science Conference	Sep. 2016
Honorable Mention, AOSS Community Poster Reception, UW-Madison	Apr. 2015
Reid Bryson Graduate Scholarship, CCR, UW-Madison	Mar. 2015

Merit student, Peking University Dec. 2009
Outstanding Freshman Scholarship, Peking University Sep. 2004

TEACHING EXPERIENCE

Teaching Assistant of *Introduction of Atmospheric Science*, School of Physics, Peking University Sep. 2009 – Jan. 2010
Teaching Assistant of *Descriptive Physical Oceanography*, School of Physics, Peking University Sep. 2008 – Jan. 2009

PROFESSIONAL SERVICES

Reviewer for: *Geophysical Research Letters*, *Journal of Climate*, *Journal of Geophysical Research–Oceans*, *Journal of Geophysical Research–Atmosphere*, *Climate Dynamics*, *Earth System Dynamics*, *Quaternary Science Reviews*, *Climate of the Past*
Convener of 2018 Goldschmidt Conference Session 08a: Understanding Past and Present Climate with Water Isotopes

PROFESSIONAL AFFILIATIONS

American Geophysical Union

COMPUTER SKILLS

Operating systems: Linux, Windows, Mac OS.
Programming languages: C, Fortran, Matlab, Python, Ferret, NCL, NCO, HTML.
Document preparation: LaTeX, Microsoft Office Suite.