

Jiang Zhu

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RESEARCH INTERESTS

- Constraining climate sensitivity through simulation of past climate from hothouse to glacial maximum
- ENSO variability in the past and future
- Abrupt climate change and the oceanic meridional overturning circulation
- Simulation and interpretation of geochemical tracers in paleoclimate records
- Global climate and hydroclimate changes

EDUCATION

Ph.D., Atmospheric and Oceanic Sciences University of Wisconsin-Madison, Madison, WI, USA Advisor: <i>Prof. Zhengyu Liu</i>	May 2017
M.S. Atmospheric and Oceanic Sciences Peking University, Beijing, China Advisor: <i>Prof. Haijun Yang</i>	Jun 2011
B.S. Atmospheric Sciences Peking University, Beijing, China	Jun 2008

RESEARCH EXPERIENCE

Postdoctoral Research Fellow, University of Michigan <i>Projects:</i> Water isotope-enabled simulation of the early Eocene climate and its implication on climate sensitivity and hydrological cycle; Oceanic meridional overturning circulation in deep-time hothouse climates; Paleoclimate data assimilation for the Paleocene—Eocene Thermal Maximum and the last deglaciation	June 2017–present
Graduate Research Assistant, University of Wisconsin-Madison <i>Projects:</i> Interpretation and modeling of water isotopes; ENSO variability in the past and future; Holocene temperature conundrum; Abrupt climate changes and the large-scale ocean circulation	Aug 2011–May 2017
Visiting Scholar, National Center for Atmospheric Research <i>Projects:</i> Development and validation of the isotope-enabled Community Earth System Model (with focus on the sea ice, ocean, river runoff and the coupler)	Jan 2014–Jan 2015

PUBLICATIONS

- **Zhu, J.**, Poulsen, C. J., & Tierney, J. E. Simulation of Eocene extreme warmth and high climate sensitivity through cloud feedbacks. *Science Advances*, under review.
- iCESM Project Members. The connected isotopic water cycle in the Community Earth System Model version 1. *Journal of Advances in Modeling Earth Systems*, in revision.
21. Thompson, A. J., Skinner, C. B., Poulsen, C. J., & **Zhu, J.** Modulation of mid-Holocene African rainfall by dust aerosol direct and indirect effects. *Geophysical Research Letters*. <https://doi.org/10.1029/2018GL081225>
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. *Geophysical Research Letters*, 45. <https://doi.org/10.1029/2018GL080083> (*news release*)
19. Lu, Z., Liu, Z., **Zhu, J.**, & Cobb, K. M. (2018). A Review of Paleo El Niño-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 $\delta^{18}\text{O}$ Variability in the South Asian Monsoon Region. *Journal of Geophysical Research: Atmospheres*, 123(11), 5927–5946. <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), 12501–12530. <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), 6984–6992. <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), 3449–3468. <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, and J. Tierney, “Simulation of Eocene extreme warmth and high climate sensitivity through cloud feedbacks”. CESM Paleoclimate Working Group Meeting. February 2019. Boulder, USA. (*ORAL*)

Zhu, J., C. Poulsen, and J. Tierney, “Simulating Eocene extreme warmth and high climate sensitivity through low-cloud feedbacks”. AGU Fall Meeting. Dec. 2018. Washington, D.C., USA. (*ORAL*)

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

Participant of *Postdoctoral Short Course on College Teaching in Science and Engineering*, University of Michigan Jan. 2019 – Apr. 2019
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, Paleoceanography and Paleoclimatology, Atmosphere*
Convener of: 2018 Goldschmidt Conference Session 08a: Understanding Past and Present Climate with Water Isotopes

PROFESSIONAL AFFILIATIONS

American Geophysical Union

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