

# Jiang Zhu

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## RESEARCH INTERESTS

Simulating climate of Earth's deep past, Simulating and interpreting water isotopes in paleoclimate records, ENSO variability in the past and future, Dynamics and modeling of oceanic thermohaline circulation, Abrupt climate change, Global climate change and global warming

## 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 Projects: Simulating climate of Earth's deep past	June 2017–present
Graduate Research Assistant, University of Wisconsin-Madison Projects: Water isotope modeling; ENSO variability at the LGM; Holocene temperature conundrum; Evolution and mechanisms of the AMOC during the last deglaciation	Aug 2011–May 2017
Visiting Scholar, National Center for Atmospheric Research Projects: Developing and testing 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.**, Z. Liu, B. Otto-Bliesner, E. Brady, D. Noone, J. Zhang, R. Tomas, A. Jahn, J. Nusbaumer, and T. Wong, Investigating the Varied Spatial and Temporal Water Isotope-Temperature Slopes in an Isotope-enabled Earth System Model, *in preparation*.

**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 oxygen-isotope records using an isotope-enabled Earth system model, *in preparation*.

**Zhu, J.**, Z. Liu, E. Brady, B. Otto-Bliesner, J. Zhang, D. Noone, R. Tomas, J. Nusbaumer, and

- T. Wong, A. Jahn, C. Tabor, Reduced ENSO Variability at the LGM Revealed by an Isotope-enabled Earth System Model, *Geophys. Res. Lett.*, 44(13), 6984–6992, doi:10.1002/2017GL073406.
- Liu, W., S. Xie, Z. Liu, and **J. Zhu** (2017), Overlooked possibility of a collapsed Atlantic meridional overturning circulation in warming climate, *Science Advances*, 3, e1601666, doi:10.1126/sciadv.1601666. (*news release*)
- Lu, Z., Z. Liu, and **J. Zhu** (2016), Abrupt intensification of ENSO forced by deglacial ice-sheet retreat in CCSM3, *Climate Dynamics*, 46(5–6), 1877–1891, doi:10.1007/s00382-015-2681-3.
- Guan, J., Z. Liu, X. Wen, E. Brady, D. Noone, **J. Zhu**, and J. Han (2016), Understanding the temporal slope of the temperature-water isotope relation during the deglaciation using isoCAM3: The slope equation, *J. Geophys. Res. Atmos.*, 121, 10,342–10,354.
- Wen, X., Z. Liu, S. Wang, J. Chen, and **J. Zhu** (2016), Correlation and Anti-Correlation of the East Asian Summer and Winter Monsoons during the Last 21,000 Years, *Nature Communications*, 7:11999, doi:10.1038/ncomms11999.
- Zhu, J.**, Z. Liu, J. Zhang, and W. Liu (2015), AMOC response to global warming: dependence on the background climate and response timescale, *Climate Dynamics*, 44(11–12), 3449–3468.
- Liu, W., J. Lu, L. R. Leung, S.-P. Xie, Z. Liu, and **J. Zhu** (2015), The de-correlation of westerly winds and westerly-wind stress over the Southern Ocean during the Last Glacial Maximum, *Climate Dynamics*, 45(11), 3157–3168, doi:10.1007/s00382-015-2530-4.
- Zhu, J.**, Z. Liu, X. Zhang, I. Eisenman, and W. Liu (2014), Linear weakening of the AMOC in response to receding glacial ice sheets in CCSM3, *Geophys. Res. Lett.*, 41, 6252–6258.
- Liu, Z., **J. Zhu**, Y. Rosenthal, X. Zhang, B. Otto-Bliesner, A. Timmermann, R. Smith, G. Lohmann, W. Zheng, O. Timm (2014), The Holocene temperature conundrum, *Proc. Natl. Acad. Sci.*, 111(34), E3501–E3505, doi:10.1073/pnas.1407229111. (*news release*)
- Nace, T. E., P. A. Baker, G. S. Dwyer, C. G. Silva, C. A. Rigsby, S. J. Burns, L. Giosan, B. Otto-Bliesner, Z. Liu, **J. Zhu** (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, *Palaeogeogr. Palaeoclimatol. Palaeoecol.*, 415, 3–13.
- Huang, B., **J. Zhu**, H. Yang (2013), Mechanisms of Atlantic Meridional Overturning Circulation (AMOC) variability in a coupled ocean atmosphere GCM. *Adv. Atmos. Sci.*, 31(2), 241–251.
- Liu, Z., A. Carlson, F. He, E. Brady, B. Otto-Bliesner, B. Briegleb, M. Wehrenberg, P. Clark, S. Wu, J. Cheng, J. Zhang, D. Noone, **J. Zhu** (2012), Younger Dryas cooling and the Greenland climate response to CO<sub>2</sub>, *Proc. Natl. Acad. Sci.*, 109(28), 11101–11104. (*news release*)
- Zhu, J.**, H. Yang (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*)
- Yang, H., **J. Zhu** (2011), Equilibrium thermal response timescale of global oceans. *Geophys. Res. Lett.*, 38(14), L14711, doi:10.1029/2011GL048076.
- Qian, W., **J. Zhu**, Y. Wang, J. Fu (2009), Regional relationship between the Jiang-Huai Meiyu and the equatorial surface-subsurface temperature anomalies. *Chinese Science Bulletin*, 54(1), 113–119, doi:10.1007/s11434-008-0410-6.

## SELECTED PRESENTATIONS

**Zhu, J.,** Z. Liu, B. Otto-Bliesner, E. Brady, D. Noone, J. Zhang, R. Tomas, A. Jahn, J. Nussbaumer, 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. Nussbaumer, 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
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 <i>Introduction of Atmospheric Science</i> , School of Physics, Peking University	Sep. 2009 – Jan. 2010
Teaching Assistant of <i>Descriptive Physical Oceanography</i> , School of Physics, Peking University	Sep. 2008 – Jan. 2009

## WORKSHOP COLLOQUIA

High-Resolution Proxies of Paleoclimate Workshop, Madison, WI	Jun. 2015
19th Annual CESM Workshop, Breckenridge, CO	Jun. 2014
Synthesis of Transient Climate Evolution of the last 21-kyr, Providence, RI	Nov. 2012
Community Earth System Modeling Tutorial, Boulder, CO	Aug. 2012
Thermodynamics of the Oceanic Environment, Xiamen, China	Sep. 2009
Beijing International Summer School on Climate and Environment, Beijing, China	Aug. 2009

## COMPUTER SKILLS

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