Zhengyu Xia

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RESEARCH INTERESTS

- **Paleoclimatology:** linking modern climate, through analyses on observational data and through underpinning the atmospheric dynamics, with paleoclimate data, to provide a cross-scale understanding on the climate system
- **Biogeochemistry:** the fundamental mechanisms and processes in terrestrial water, carbon, and nutrient cycle through stable isotopes and other lens of geochemical measurements to understand the feedbacks and consequences of global change
- Current specific research interests include: 1) peat-based paleoenvironment and paleoclimate reconstruction technique; 2) stable isotopes in plants and their physiological or environmental controls; 3) stable isotopes in precipitation as the dynamical tracer in atmospheric circulation; and 4) the Southern Hemisphere Westerly Winds evolution and tropical teleconnection on Southern Hemisphere climate

EDUCATION

- 2015 – Pres. **Ph.D. in Earth and Environmental Sciences**, Lehigh University, USA
  Dissertation title: A peat moss isotopic perspective on southern Patagonian climate dynamics (expected on 05/2020)
- 2011– 2015 **B.S. in Geology**, China University of Geosciences, Wuhan, P.R. China

PROFESSIONAL EXPERIENCE

- 2017 – 2019, 2020–Pres. **Teaching Assistant**, Lehigh University
  1) Teach and lead classroom for geoscience lab class EES022 (*Exploring Earth*) for three semesters
  2) Assist with lab section and grading for EES152 (*Ecology*), EES357 (*Paleoecology and Landscape History*), and EES386 (*Wetland Ecology*)
- 2016 – 2017, 2019 **Research Assistant**, Lehigh University

PUBLICATIONS

- Peer-reviewed journal articles:

Xia, Z., and Butorovic, N. The influence of moisture transport pathways on monthly oxygen isotope composition of precipitation in southern Patagonia. *Journal of Geophysical Research: Atmospheres* (in revision)

Xia, Z., Zheng, Y., Stelling, J. M., Loisel, J., Huang, Y., and Yu, Z. Environmental controls on the carbon and water (H and O) isotopes in peatland *Sphagnum* mosses. *Geochimica et Cosmochimica Acta* (in revision)

Treat, C. C., Kleinen, T., Broothaerts, N., Dalton A. S., Dommain, R., Douglas, T. A., Drexler, J., Finkelstein S. A., Grosse, G., Hope, G., Hutchings, J., Jones, M. C., Kuhry, P., Lacourse, T., Lähteenoja, O., Loisel, J., Notebaert, B., Payne, R., Peteet, D., Sannel A. B. K., Stelling, J. M., Strauss, J., Swindles, G. T., Talbot, J., Tarnocai, C., Verstraeten, G., Williams, C. J., **Xia, Z.**, Yu, Z., Väliranta, M., Hättestrand, M., Alexanderson, H., and Brovkin, V., 2019. Widespread global peatland establishment and persistence over the last 130,000 y. *Proceedings of the National Academy of Sciences*, 116(11), 4822–4827.

Xia, Z., Yu, Z., and Loisel, J., 2018. Centennial-scale dynamics of the Southern Hemisphere Westerly Winds across the Drake Passage over the past two millennia. *Geology*, 46(10), 855–858.

- Peer-reviewed book chapters:

Xia, Z. and Yu, Z. Applications of stable isotopes to studies of paleohydrology and Paleoclimatology. *Encyclopedia of Water: Science, Technology and Society*, Ed. P. A. Maurice, Wiley (in press)

CONFERENCE ABSTRACTS

Xia, Z., Zheng, Y., Stelling, J. M., Loisel, J., Huang, Y., and Yu, Z. Environmental controls on the carbon and water (H and O) isotopes in peatland *Sphagnum* mosses. AGU Fall Meeting 2019, San Francisco, USA

Xia, Z. Investigating the influence of moisture sources and trajectories on monthly isotopic composition of precipitation using daily weather station data, HYSPLIT backward trajectory modeling, and moisture uptake analysis. AGU Fall Meeting 2018, Washington D.C., USA

Xia, Z., Yu, Z., Zheng, Y., Loisel J., and Huang, Y. Late-Holocene hydroclimate and atmospheric circulation variability in southern Patagonia: insights from triple stable isotopes ($\delta^{18}O$, $\delta^{13}C$, δD) of peat bog *Sphagnum* moss. AGU Fall Meeting 2017, New Orleans, USA

Treat, C. C., Broothaerts, N., Dalton, A., Dommain, R., Finkelstein, S., Grosse, G., Jones, M. C., Kleinen, T., Kuhry, P., Lacourse, T., Lähteenoja, O., Notebaert, B., Payne, R., Peteet, D. M., Sannel, B., Stelling, J., Strauss, J., Swindles, G., Talbot, J., Tarnocai, C., Verstraeten, G., Williams, C., **Xia, Z.**, Yu, Z., and Brovkin, V. Buried Peats: Past Peatland Distribution as an Indicator of Hydroclimate and Temperature. AGU Fall Meeting 2016, San Francisco, USA

Yu, Z., Beilman D., Loisel J., Stelling, J. M., **Xia, Z.**, Parnikoza, I. Solar heating, microclimate, and the formation of peat-accumulating ecosystems in Antarctica. XXXIV SCAR Open Science Conference (2016), Kuala Lumpur, Malaysia

Xia, Z., Yu, Z., Loisel, J., and Stelling J. M. A 500-year record of atmospheric circulation change in southern Patagonia from dual water isotopes of subfossil *Sphagnum* moss cellulose. VIII Southern Connection Congress (2016), Punta Arenas, Chile

ORAL PRESENTATIONS

School of Geographical Sciences, Northeast Normal University, Changchun, China (2019)

PAGES CLIVASH2k Workshop, British Antarctic Survey, Cambridge, UK (2018)

Paleoclimatology and Paleoceanography section at AGU Fall Meeting, New Orleans, USA (2017)

HONORS AND AWARDS

Lehigh University Williams-Upton Summer Fellowship (2019)

The University of Utah SPATIAL short course participant support award (2019)

Lehigh University College of Arts and Sciences Summer Research Fellowship (2018)

Lehigh University EES Graduate Symposium Best Talk Winner (2018)

Lehigh University Presidential Fellowship (2015)

FIELD WORK EXPERIENCE

Toolik Field Station area, Alaska North Slope (2019)

Antarctic Peninsula Palmer Station area (2018–2019)

Patagonian peatlands in Chile (2016)

Peatlands in northeastern and central China (2014)

Geological field work training in China (2012–2014)

SERVICES

Reviewer for *The Holocene* (2) and *Climate of the Past*

PROFESSIONAL AFFILIATION

American Geophysical Union (2017 – pres.)

REREFERENCE LIST

1) Dr. Robert K. Booth (dissertation committee chair)
Email: rkb205@lehigh.edu
Phone: +1 610-758-6580

2) Dr. Julie Loisel (main collaborator)
Email: juloisel@hotmail.com or julieloisel@tamu.edu
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3) Dr. Zicheng Yu (PhD supervisor)
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