Lucas J. Gloege, Ph.D

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EDUCATION

2017 - 2020	Columbia University, Ph.D. Earth and Environmental Sciences	New York, NY
2014 - 2017	University of Wisconsin, M.S. Atmospheric and Oceanic Sciences Heinz Lettau Award for excellent thesis	Madison, WI
2012 - 2014	University of Minnesota, M.S. Water Resources Sciences	Duluth, MN
2007 - 2012	University of Minnesota, B.S. Mathematics, B.S. Physics	Duluth, MN

WORK EXPERIENCE

2021-present	Postdoctoral research fellow, NASA-Goddard Institute for Space Studies
2020-2021	Postdoctoral scholar, Columbia University, Earth and Environmental Engineering Department
Spring 2018	Teaching assistant, Columbia University, Earth and Environmental Science Department
Spring 2016	Teaching assistant, University of Wisconsin, Atmospheric and Oceanic Sciences Department
2009 - 2014	Teaching assistant, University of Minnesota, Physics Department

TECHNICAL SKILLS

Languages	Bash, LaTeX, Python
Libraries	Dask, Numpy, Pandas, Scikit Learn, Streamlit, Tensorflow/Keras, Xarray, XGB
Software Dev.	Docker, Git

PROFESSIONAL DEVELOPMENT

January 2018	2nd annual Data Science Bootcamp, Columbia University

PUBLICATIONS

11. **Gloege, Lucas**, Kornhuber, K., Skulovich, O., Pal, I., Zhou, S., Ciais, P., and Gentine, P. Land-atmosphere cascade fueled the 2020 siberian heatwave. *AGU Advances (under review)*

10. **Gloege, Lucas**, Yan, M., Zheng, T., and McKinley, G. A. (2022). Improved quantification of ocean carbon uptake by using machine learning to merge global models and pCO_2 data. *Journal of Advances in Modeling Earth Systems*, 14:e2021MS002620

9. **Gloege, Lucas**, McKinley, G. A., Landschützer, P., Lovenduski, N. S., Rodgers, K., Fay, A. R., Frölicher, T., Fyfe, J., Illyina, T., Jones, S., Rödenbeck, C., Schlunegger, S., and Takano, Y. (2021). Quantifying errors in observationally-based estimates of ocean carbon sink variability. *Global Biogeochemical Cycles*, 35:e2020GB006788

8. Stamell, J., Rustagi, R. R., **Gloege, Lucas**, and McKinley, G. A. (2020). Strengths and weaknesses of three machine learning methods for pCO_2 interpolation. *Geoscientific Model Development Discussions*, pages 1–25

7. Abell, J. T., Rahimi, S. R., Pullen, A., Lebo, Z. J., Zhang, D., Kapp, P., **Gloege, Lucas**, Ridge, S., Nie, J., and Winckler, G. (2020b). Model evidence for the hami basin and possibly other modern stony deserts in asia as dust sources during the plio-pleistocene. *Geophysical Research Letters*, 47:e2020GL090064

6. McKinley, G. A., Fay, A. R., **Gloege, Lucas**, and Lovenduski, N. S. (2020). External forcing explains recent decadal variability of the ocean carbon sink. *AGU Advances*, 1(2):e2019AV000149

5. **Gloege, Lucas**, McKinley, G. A., Mooney, R., Allan, J., Diebel, M., and McIntyre, P. (2020). Lake hydrodynamics intensify the potential impact of watershed pollutants on coastal ecosystem services. *Environmental Research Letters*, 15(6):064028

4. Abell, J. T., Pullen, A., Lebo, Z. J., Kapp, P., **Gloege, Lucas**, Metcalf, A. R., Nie, J., and Winckler, G. (2020a). A wind-albedo-wind feedback driven by landscape evolution. *Nature Communications*, 11(1):1–9

3. **Gloege, Lucas**, McKinley, G. A., Mouw, C. B., and Ciochetto, A. B. (2017). Global evaluation of particulate organic carbon flux parameterizations and implications for atmospheric pCO_2. *Global Biogeochemical Cycles*, 31(7):1192–1215

2. Mouw, C. B., Barnett, A., McKinley, G. A., **Gloege, Lucas**, and Pilcher, D. (2016b). Phytoplankton size impact on export flux in the global ocean. *Global Biogeochemical Cycles*, 30(10):1542–1562

1. Mouw, C. B., Barnett, A., McKinley, G. A., **Gloege, Lucas**, and Pilcher, D. (2016a). Global ocean particulate organic carbon flux merged with satellite parameters. *Earth System Science Data*, 8(2):531–541

CONFERENCE PRESENTATIONS (SELECTED 10/14)

February 2020	Ocean Sciences Meeting 2020, San Diego, CA oral, "Large ensemble testbed to evaluate pCO_2 interpolation methods"
August 2019	AGU Chapman Conference - understanding carbon climate feedbacks, La Jolla, CA poster, "Large ensemble testbed to evaluate pCO_2 interpolation methods"
July 2019	Large Ensemble Workshop, Boulder, CO oral, "Large ensemble testbed to evaluate pCO_2 interpolation methods"
June 2019	New York Scientific Data Summit, New York, NY poster, "Can a neural network trained with a climate model inform the real-world?"
December 2018	AGU Fall meeting / CMIP6 Workshop, Washington, DC poster, "Large ensemble testbed to evaluate pCO_2 interpolation methods"
May 2018	Society for Freshwater Science meeting, Detroit, Michigan oral, "Potential impacts of tributary loads on coastal ecosystem services in Lake Michigan"
February 2018	Ocean Sciences Meeting 2018, Portland, Oregon oral, "Potential impacts of tributary loads on coastal ecosystem services in Lake Michigan"
August 2017	10th International Carbon Dioxide Conference, Interlaken, Switzerland poster, "Constraining the potential influence of the ccean biological pump on atmospheric pCO_2"
April 2017	2017 Climate Change Symposium / Reid Bryson Poster Competition, Madison, WI poster, "Fate of tributary loads to Lake Michigan" Reid Bryson scholarship recipient
June 2016	1st Gordon Research Conference on Ocean Biogeochemistry, Hong Kong, China poster, "Parameterizing carbon export below the euphotic zone" Acknowledged for excellent student poster presentation

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