

Craig B. Brinkerhoff (He/him)

Dept. of Civil & Environmental Engineering
University of Massachusetts, Amherst
craigbrinkerhoff.netlify.app
cbrinkerhoff@umass.edu

EDUCATION

2023 (expected) PhD Civil Engineering, University of Massachusetts, Amherst, MA
2018 Ba&Sc Honours Environment, McGill University, Montreal, QC

HONORS & AWARDS

2021 AGU Fall Meeting 2021 Hydrology Remote Sensing Technical Committee Student Award
2021 NASA FINESST (Future Investigators in Earth & Space Science) Award
2020 AGU Fall Meeting 2020 Outstanding Student Presentation Award
2020 NSF GRFP (Graduate Research Fellowship Program) Honorable Mention
2018 McGill University Undergraduate First-Class Honours
2017 McGill University Science Undergraduate Research Award

SCHOLARSHIP

Published

1. **Brinkerhoff, C. B.**, Gleason, C. J., & Ostendorf, D. W. (2019). Reconciling At-a-Station and At Many-Stations Hydraulic Geometry through River-Wide Geomorphology. *Geophysical Research Letters* 46(16) 9637-9647. <https://doi.org/10.1029/2019GL084529>.
2. Andreadis, K. M., **Brinkerhoff, C. B.**, & Gleason, C. J. (2020). Constraining the Assimilation of SWOT Observations With Hydraulic Geometry Relations. *Water Resources Research*, 56(5), e2019WR026611. <https://doi.org/10.1029/2019WR026611>.
3. **Brinkerhoff, C. B.**, Gleason, C.J., Feng, D., Lin, P. (2020). Constraining Remote River Discharge Estimation Using Reach-Scale Geomorphology. *Water Resources Research*, 56(11), e2020WR027949. <https://doi.org/10.1029/2020WR027949>.
4. **Brinkerhoff, C.B.**, Raymond, P.A., Maavara, T., Ishitsuka, I., Aho, K.S., Gleason, C.J. (2021). Lake Morphometry and River Network Controls on Evasion of Terrestrially Sourced Headwater CO₂. *Geophysical Research Letters*, 48(1), e2020GL090068. <https://doi.org/10.1029/2020GL090068>.
5. Frasson, R.P.M., Durand, M.T., Larnier, K., Gleason, C.J., Andreadis, K.M., Hagemann, M.H., Dudley, R.W., Bjerklie, D.M., Oubanas, H., Garambois, P.A., Malaterre, P.O., Lin, P., Pavelsky, T.M., Monnier, J., **Brinkerhoff, C.B.**, David, C.H. (2021). Exploring the factors controlling the error characteristics of the Surface Water and Ocean Topography mission discharge estimates. *Water Resources Research*, 57(6), e2020WR028519. <https://doi.org/10.1029/2020WR028519>
6. Maavara, T., Logozzo, L., Stubbins, A., Aho, K.A., **Brinkerhoff, C.B.**, Hosen, J., Raymond, P.A. (2021) Does photomineralization of dissolved organics matter in temperate rivers? *Journal of Geophysical Research-Biogeosciences*, 126(7), e2021JG006402. <https://doi.org/10.1029/2021JG006402>.
7. Liu, S, Kuhn, C., Amatulli, G., Aho, K.S., Butman, D., Allen G.H., Lin, P., Pan, M., Yamazaki, D., **Brinkerhoff, C.B.**, Gleason, C.J., Xia, X., Raymond, P.A. (2022). The importance of hydrology in routing terrestrial carbon to the atmosphere via global streams and rivers. *Proceedings of the National Academy of Sciences*, 119(11), e2106322119. <https://doi.org/10.1073/pnas.2106322119>.
 - a. Nature Press Release: [The world's rivers exhale a massive amount of carbon](#)

- b. Yale University Press Release: New Study Aims at Calculating Terrestrial Carbon's Role in River and Stream Emissions

8. Liu, S., Maavara, T., **Brinkerhoff, C.B.**, Raymond, P.A. (2022). Global controls on DOC reaction versus export in watersheds: A Damköhler number analysis. *Global Biogeochemical Cycles*, 36, e2021GB007278. <https://doi.org/10.1029/2021GB007278>.

SPONSORED RESEARCH

2021-2024 "A First Global Analysis of Daily Riverine Gas Exchange Using the SWOT Satellite, Bayesian Remote Sensing, and Carbon Transport Modeling"
 -NASA FINESST (Future Investigators in Earth & Space Science) fellowship
 -\$135,000 USD

CONFERENCE PRESENTATIONS

	<i>*Oral Presentation</i>	<i>**Invited</i>	<i>***Accepted but withdrawn due to illness</i>
2022	*Liu, S, Kuhn, C., Amatulli, G., Aho, K.S., Butman, D., Allen G.H., Lin, P., Pan, M., Yamazaki, D., Brinkerhoff, C.B. , Gleason, C.J., Xia, X., Raymond, P.A. The importance of hydrology in routing terrestrial carbon to the atmosphere via global streams and rivers. In Goldschmidt Conference.		
2022	*** Brinkerhoff, C.B. , Gleason, C.J., Zappa, C.J., Raymond, P.A., Harlan, M.E. Towards global-scale remote sensing of river gas exchange velocity via the SWOT satellite and hydraulic geometry. In <i>Frontiers in Hydrology</i> .		
2022	Flores, J.A., Gleason, C.J., Brinkerhoff, C.B. , Harlan, M.H., Feng, D. Multi-temporal high resolution mapping of small streams in High Mountain Asia. In <i>Frontiers in Hydrology</i> .		
2021	* Brinkerhoff, C.B. , Gleason, C.J., Raymond, P.A., Zappa, C.J., Harlan, M.E. Gas Exchange in Large Rivers Controlled By Largest Turbulent Eddies: Implications for Remotely Sensing Gas Exchange via SWOT. In <i>AGU Fall Meeting</i> . -Won AGU Fall Meeting 2021 Hydrology Remote Sensing Technical Committee Student Award		
2021	** Brinkerhoff, C.B. , Saccardi, B., Winnick, M., Gleason, C.J. Towards continental-scale transport modeling of drainage network CO ₂ evasion. In <i>AGU Fall Meeting</i> .		
2021	*Maavara, T., Logozzo, L., Stubbins, A., Aho, K.S., Brinkerhoff, C.B. , Hosen, J., Raymond, P.A. Does photomineralization of dissolved organics matter in temperate inland waters? In <i>AGU Fall Meeting</i> .		
2021	Lummus, M., Stearns, L.A., van der Keen, C.J., Gleason, C.J., Brown, C., Wi, S., Brinkerhoff, C.B. Classification of glaciers in Koshi River Basin, Nepal using machine learning algorithms and clustering techniques. In <i>AGU Fall Meeting</i> .		
2021	Ward Jones, M.K., Dai, C., Pollard W., Liljedahl, A., van der Sluijs, J., Brinkerhoff, C.B. , Howat, I., Freymueller, J. Using ArcticDEM and shallow boreholes to quantify mass wasting sediment loss of retrogressive thaw slumps in the Eureka Sound Lowlands, Canadian high Arctic. In <i>Regional Conference on Permafrost</i> .		
2020	* Brinkerhoff, C.B. , Raymond, P.A., Maavara, T., Ishitsuka, I., Aho, K.S., Shoda, L. Gleason, C.J. Lake/reservoir controls on evasion of inland water CO ₂ and implications for remote sensing of network scale CO ₂ emissions. In <i>AGU Fall Meeting</i> . -Won AGU Fall Meeting 2020 OSPA Award (Outstanding Student Presentation Award)		
2020	Lin, P., Pan, M., Wood, E.F., Feng, D., Gleason, C.J., Brinkerhoff, C.B. , Yang, X., Pavelsky, T.M. Scaling up the assessment of the SWOT discharge inversion algorithm to thousands of gauges globally. In <i>EGU General</i>		

Assembly.

2019 ***Brinkerhoff, C. B.**, Gleason, C. J., Lin, P., & Andreadis, K. Constraining Remotely-Sensed River Discharge Estimation Using Reach-Scale Geomorphology. In *AGU Fall Meeting*.

TEACHING EXPERIENCE

2019 Teaching Assistant

GIS for Engineers (undergraduate/graduate), University of Massachusetts, Amherst

PROFESSIONAL SERVICE

Reviewer: Scientific Reports
Biogeosciences
Journal of Hydraulic Engineering

Outreach Talks: May 2021: Rivers' role in the carbon cycle (Wooster Society of Friends)

Member: American Geophysical Union (AGU)