

Craig B. Brinkerhoff (He/him)

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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 OSPA (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>.
9. **Brinkerhoff, C.B.**, Gleason, C.J., Zappa, C.J., Raymond, P.A., Harlan, M.E. (2022) Remotely sensing river greenhouse gas exchange velocity using the SWOT satellite. *Global Biogeochemical Cycles* <https://doi.org/10.1029/2022GB007419>.

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>	\pm Accepted and upcoming	\yen Accepted but withdrawn due to illness
2022	\pm Brinkerhoff, C.B. , Gleason, C.J., Ishitsuka, I., Sosa, J., Bates, P.D., Liu, S. Anticipated Continental-Scale River Gas Exchange Dynamics: How will SWOT Inform River CO ₂ Modeling? In <i>AGU Fall Meeting 2022</i> .			
2022	\pm **Maavara, T., Brinkerhoff, C.B. , Hosen, J., Aho, K.S., Logozzo, L., Saiers, J., Stubbins, A., Raymond, P.A. (2022, December). Watershed DOC Uptake Occurs Almost Entirely in Lakes and Reservoirs: A New Model for Connected River, Lake and Reservoir DOC Cycling. In <i>AGU Fall Meeting 2022</i> .			
2022	\pm Saccardi, B., Brinkerhoff, C.B. , Gleason, C.J., Winnick, M. Upscaling a High-Resolution Reactive Transport Model for Predicting Inland Water CO ₂ Concentrations and Fluxes Across the Continental United States. In <i>AGU Fall Meeting 2022</i> .			
2022	\pm *Durand, M.T., Gleason, C.J., Pavelsky, T., Frasson, R.P.M., Turmon, T., David, C.H., Altenau, E.H., Tebaldi, N., Larnier, K., Monnier, J., Malaterre, P.O., Oubanas, H., Allen, G.H., Bates, P.D., Bjerklie, D.M., Brinkerhoff, C.B. , Coss, S.P., Dudley, R.W., Fenoglio-Marc, L., Garambois, P.A., Getirana, A., Lin, P., Margulis, S., Minear, J.T., Muhebwa, A., Riggs, R., Tarpanelli, A., Schulze, K., Safat Sikder, M., Stuurman, C., Taneja, J., Tourian, M.J. A global framework for SWOT discharge with examples from the Ohio River. In <i>AGU Fall Meeting 2022</i> .			
2022	\pm Flores, J.A., Gleason, C.J., Brinkerhoff, C.B. , Feng, D., Harlan, M.E. Assessing the flow variability of headwater streams in High Mountain Asia using satellite remote sensing. In <i>AGU Fall Meeting 2022</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	\yen * 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 *AGU Fall Meeting*.
 -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 CO₂ evasion. In *AGU Fall Meeting*.
- 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 *AGU Fall Meeting*.
- 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 *AGU Fall Meeting*.
- 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 *Regional Conference on Permafrost*.
- 2020 ***Brinkerhoff, C.B.**, Raymond, P.A., Maavara, T., Ishitsuka, I., Aho, K.S., Shaoda, L. Gleason, C.J. Lake/reservoir controls on evasion of inland water CO₂ and implications for remote sensing of network scale CO₂ emissions. In *AGU Fall Meeting*.
 -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 *EGU General 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: Journal of Hydrology
 Nature 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)