Craig B. Brinkerhoff

cbrinkerhoff@umass.edu craigbrinkerhoff.github.io 978-905-1371

EDUCATION

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

HONORS & AWARDS

2021	AGU Hydrology Remote Sensing Technical Committee Student Awardee
2021-2024	NASA Future Investigators in Earth & Space Science Awardee
2020	AGU Outstanding Student Presentation Awardee
2020	NSF Graduate Research Fellowship Honorable Mention
2018	McGill Undergraduate First-Class Honours
2017	McGill Science Undergraduate Research Awardee

SCHOLARSHIP

2023

11. Lin, P., Feng, D., Gleason, C.J., Pan, M., **Brinkerhoff, C.B.**, Yang, X., Beck. H.E., Frasson, R.P.M. (2023). Inversion of river discharge from remotely sensed river widths: a critical assessment at three-thousand global river gauges. *Remote Sensing of Environment*. doi.org/10.1016/j.rse.2023.113489.
10. Maavara, T., **Brinkerhoff, C.B.**, Hosen, J., Aho, K.S., Logozzo, L., Saiers, J., Stubbins, A., Raymond, P.A. (2023). Watershed DOC uptake occurs mostly in lakes in the summer and in rivers in the winter. *Limnology & Oceanography*. doi.org/10.1002/lno.12306.

2022

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*. doi.org/10.1029/2022GB007419.
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*. doi.org/10.1029/2021GB007278.
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*. doi.org/10.1073/pnas.2106322119.
    - Nature Press Release: The world's rivers exhale a massive amount of carbon
    - Yale University Press Release: New Study Aims at Calculating Terrestrial Carbon's Role in River and Stream Emissions

2021

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*. doi.org/10.1029/2021JG006402.
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.* doi.org/10.1029/2020WR028519.

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 CO_2. *Geophysical Research Letters.* doi.org/10.1029/2020GL090068.

2020

3. **Brinkerhoff, C. B.**, Gleason, C.J., Feng, D., Lin, P. (2020). Constraining Remote River Discharge Estimation Using Reach-Scale Geomorphology. *Water Resources Research.* doi.org/10.1029/2020WR027949.
2. Andreadis, K. M., **Brinkerhoff, C. B.**, & Gleason, C. J. (2020). Constraining the Assimilation of SWOT Observations With Hydraulic Geometry Relations. *Water Resources Research.* doi.org/10.1029/2019WR026611.

2019

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*. doi.org/10.1029/2019GL084529.

GRANTS & FELLOWSHIPS

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

SELECTED CONFERENCE PRESENTATIONS

* Oral **Invited ¥Accepted but withdrawn due to illness

2022 **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? *AGU Fall Meeting, Chicago, Illinois*

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. *Frontiers in Hydrology, San Juan, Puerto Rico*

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. *AGU Fall Meeting, New Orleans, Louisiana*
- Won AGU 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. *AGU Fall Meeting, New Orleans, Louisiana*

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 CO_2 and

implications for remote sensing of network scale CO2 emissions. *AGU Fall Meeting (virtual)*
- Won AGU Outstanding Student Presentation Award

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

INVITED TALKS

May 2021 **Wooster Society of Friends,** "Rivers' role in the carbon cycle"

Feb 2020 **University of Massachusetts,** "Constraining Remotely-Sensed River Discharge Estimation Using Reach-Scale Geomorphology", Seminar, Department of Civil & Environmental Engineering, Amherst, MA

TEACHING & ADVISING

2022-Present Advising/Mentoring: Wenwen Wang (University of Massachusetts, Amherst)

2019 Teaching Assistant: CE-ENGIN 470/570: GIS for Engineers (University of Massachusetts, Amherst)

SERVICE & OUTREACH

Reviewer: Journal of Hydrology (1)
Nature Scientific Reports (1)
Biogeosciences (1)
Journal of Hydraulic Engineering (1)

Member: NASA/CNES SWOT Satellite Discharge Algorithm Working Group

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

Affiliations: American Geophysical Union
Disabled Academic Collective