**Craig B. Brinkerhoff**

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**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](https://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](https://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](https://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](https://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](https://doi.org/10.1073/pnas.2106322119).

* Nature Press Release: [The world’s rivers exhale a massive amount of carbon](https://www.nature.com/articles/d41586-022-00674-7)
* Yale University Press Release: [New Study Aims at Calculating Terrestrial Carbon’s Role in River and Stream Emissions](https://environment.yale.edu/news/article/new-study-aims-calculating-terrestrial-carbons-role-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](https://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](https://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 CO2.*Geophysical Research Letters.* [doi.org/10.1029/2020GL090068](https://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](https://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](https://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](https://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 CO2 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 Exchangein 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 CO2 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-SensedRiver 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