Craig B. Brinkerhoff

(He/Him, Citizenship: American)

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EDUCATION

Present **PhD Civil Engineering, University of Massachusetts, Amherst, MA**
-Concentration: Environmental & Water Resources Engineering
-Dissertation: *A holistic approach to coupling fluvial geomorphology and biogeochemistry at scale* (advised by Dr. Colin Gleason)

2018 **Ba&Sc Honours Environment, McGill University, Montreal, QC**
-Concentration: Hydrology & Water Resources, Minor: GIS & Remote Sensing
-Thesis: *An Exploratory Analysis of Watershed Characteristics and Flow Class Variation in Unregulated Eastern Canadian* Rivers (advised by Dr. Michel Lapointe)

PEER-REVIEWED PUBLICATIONS

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.

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.

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.

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.

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, 48(1), e2020GL090068*. https://doi.org/10.1029/2020GL090068

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.

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.

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.

FUNDING

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

FIRST-AUTHOR CONFERENCE PRESENTATIONS **Oral Presentation **Invited*

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 2021*.
-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*.

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. In *AGU Fall Meeting 2020*.
-Won AGU Fall Meeting 2020 OSPA Award (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. In *AGU Fall Meeting 2019*.

RESEARCH & TEACHING EXPEREINCE

2018-Present **Graduate Research Assistant**
-Department of Civil & Environmental Engineering, University of Massachusetts, Amherst
-Dr. Colin Gleason's Fluvial@UMASS lab

2019 **Teaching Assistant**
-Department of Civil & Environmental Engineering, University of Massachusetts, Amherst
-Course: GIS for Engineers (cross-listed undergraduate/graduate)

2017-2018 **Undergraduate Research Assistant**
-Department of Geography, McGill University
-Dr. Bernhard Lehner's GlobalHYDRO lab: funded project on modeling global river density

HONORS & AWARDS

2021 AGU Fall Meeting 2021 Hydrology Remote Sensing Technical Committee Student 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

TECHNICAL SKILLS & PROFESSIONAL SERVICES

Member: American Geophysical Union (AGU) 2018-Present

Reviewer: Biogeosciences, Journal of Hydraulic Engineering

Programming: R, Shell, Stan, Python, Javascript, Fortran

Publishing: (R)Markdown, Microsoft Office, Adobe Illustrator

Software: QGIS, GRASS GIS, Google Earth Engine

REFERENCES

Dr. Colin Gleason, Associate Professor (cjgleason@umass.edu)
Department of Civil & Environmental Engineering, University of Massachusetts, Amherst, MA

Dr. Peter Raymond, Professor (peter.raymond@yale.edu)
School of the Environment, Yale University, New Haven, CT

Dr. Konstantinos Andreadis, Assistant Professor (kandread@umass.edu)
Department of Civil & Environmental Engineering, University of Massachusetts, Amherst, MA