Craig B. Brinkerhoff

(He/Him, Citizenship: American)

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EDUCATION

PhD Civil Engineering, University of Massachusetts, Amherst, MA Expected 2022
- -Concentration: Environmental & Water Resources Engineering
- -Dissertation: *Integrating remote sensing, hydraulic geometry, and hydrography into ungauged basins and drainage network gas evasion*
- -Advisor: Dr. Colin Gleason

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

RESEARCH & TEACHING EXPEREINCE

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

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

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

PEER-REVIEWED PUBLICATIONS

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*. https://doi.org/10.1073/pnas.2106322119.

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*. https://doi.org/10.1029/2021JG006402.

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.* https://doi.org/10.1029/2020WR028519

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,* https://doi.org/10.1029/2020GL090068

Brinkerhoff, C. B., Gleason, C.J., Feng, D., Lin, P. (2020). Constraining Remote River Discharge Estimation Using Reach-Scale Geomorphology. *Water Resources Research, 56, e2020WR027949.* https://doi.org/10.1029/2020WR027949

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.

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.

FIRST-AUTHOR CONFERENCE PRESENTATIONS

Brinkerhoff, C.B., Gleason, C.J., Raymond, P.A., Zappa, C.J., Harlan, M.E. (2021, December). Gas Exchange in Large Rivers Controlled by Largest Turbulent Eddies: Implications for Remotely Sensing Gas Exchange via SWOT. In *AGU Fall Meeting 2021*. AGU. Oral Presentation

-Won AGU Fall Meeting 2021 Hydrology Remote Sensing Technical Committee Student Award

Brinkerhoff, C.B., Saccardi, B., Winnick, M., Gleason, C.J. (2021, December). Towards continental-scale transport modeling of drainage network CO2 evasion. In *AGU Fall Meeting 2021*. AGU. eLightning presentation.

-Invited for AGU's "Student Engagement to Enhance Development: Outstanding Student Presentation Award Winners from Fall Meeting 2020" Union session

Brinkerhoff, C.B., Raymond, P.A., Maavara, T., Ishitsuka, I., Aho, K.S., Shaoda, L. Gleason, C.J. (2020, December). 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.* AGU. Oral presentation.

-Won AGU Fall Meeting 2020 OSPA Award (Outstanding Student Presentation Award)

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

GRANTS/FELLOWSHIPS

(2021-2023) "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

HONORS & AWARDS

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

TECHNICAL SKILLS

Programming languages: R, Shell, Stan, Python, JavaScript

Publishing: (R)Markdown, Microsoft Office, Adobe Illustrator
Software: QGIS, GRASS, Google Earth Engine, ArcGIS
Operating systems: Windows, Linux

PROFESSIONAL SERVICES

Member: American Geophysical Union (AGU) 2018-Present
Reviewer: Biogeosciences,
Journal of Hydraulic Engineering

REFERENCES

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

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

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

Dr. Bernhard Lehner, Associate Professor (bernhard.lehner@mcgill.ca)
Department of Geography, McGill University, Montreal, QC