

# Craig B. Brinkerhoff

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## EDUCATION

2024	PhD Civil & Environmental Engineering, University of Massachusetts
2018	Ba&Sc Honours Interfaculty Environment, McGill University

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## APPOINTMENTS

2024-	Gaylord Donnelley Postdoctoral Fellow, Yale University
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## AWARDS

2024-2026	NSF Earth Science Postdoctoral Fellowship ( <i>declined for Yale fellowship</i> )
2021-2024	NASA FINESST Student Fellowship
2023	UMass College of Engineering Teaching Fellowship
2021	AGU Hydrology Remote Sensing Committee Presentation Award
2020	AGU Outstanding Student Presentation Award
2017	McGill Science Undergraduate Research Award
2017	Oklahoma State REU Award ( <i>declined for McGill award</i> )

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## REFEREED PUBLICATIONS

Summary: first/co author: 5/10

15. **BRINKERHOFF CB**, GLEASON CJ, KOTCHEN M, KYSAR D, RAYMOND PA. Ephemeral stream water contributions to United States drainage networks (2024). *Science*. [doi.org/10.1126/science.adg9430](https://doi.org/10.1126/science.adg9430).
14. FLORES JA, GLEASON CJ, **BRINKERHOFF CB**, HARLAN ME, FENG D, LUMMUS M, STEARNS L. Detecting proglacial headwater streams in High Mountain Asia using Planet imagery (2024). *Remote Sensing of Environment*. [doi.org/10.1016/j.rse.2024.114124](https://doi.org/10.1016/j.rse.2024.114124).
13. RIGGS RM, ALLEN GH, **BRINKERHOFF CB**, SIKDER MD, WANG J (2023). Turning lakes into river gauges using the LakeFlow algorithm. *Geophysical Research Letters*. [doi.org/10.1029/2023GL103924](https://doi.org/10.1029/2023GL103924).
12. DURAND M, GLEASON CJ, PAVELSKY TM, FRASSON RPM, TURMON M, DAVID CH, ALTENAU EH, TEBALDI N, LARNIER K, MONNIER J, MALATERRE PO, OUBANAS H, ALLEN GH, ASTIFAN B, **BRINKERHOFF CB**, BATES PD, BJERKLIE, D, COSS S, DUDLEY R, FENOGLIO L, GARAMBOIS PA, GETIRANA A, LIN P, MARGULIS SA, MATTE P, MINEAR JT, MUHEBWA

- A, PAN M, PETERS D, RIGGS R, SIKDER MD, SIMMONS T, STUURMAN C, TANEJA J, TARPANELLI A, SCHULZE K, TOURIAN MJ, WANG J (2023). A framework for estimating global river discharge from the Surface Water and Ocean Topography satellite mission. *Water Resources Research*. [doi.org/10.1029/2021WR031614](https://doi.org/10.1029/2021WR031614).
- Top 5 most-read paper in *Water Resources Research* in 2023
11. LIN P, FENG D, GLEASON CJ, PAN M, **BRINKERHOFF CB**, YANG X, BECK HE, FRASSON RPM (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 CB**, HOSEN J, AHO KS, LOGOZZO L, SAIERS J, STUBBINS A, RAYMOND PA (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).
  9. **BRINKERHOFF CB**, GLEASON CJ, ZAPPA CJ, RAYMOND PA, HARLAN ME (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 CB**, RAYMOND PA (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 KS, BUTMAN D, ALLEN GH, LIN P, PAN M, YAMAZAKI D, **BRINKERHOFF CB**, GLEASON CJ, XIA X, RAYMOND PA (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).
    - Coverage: [Nature](#), [Environmental Monitor](#)
    - Press release: [Yale](#)
  6. MAAVARA T, LOGOZZO L, STUBBINS A, AHO KA, **BRINKERHOFF CB**, HOSEN J, RAYMOND PA (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 RPM, DURAND MT, LARNIER K, GLEASON CJ, ANDREADIS KM, HAGEMANN MH, DUDLEY RW, BJERKLIE DM, OUBANAS H, GARAMBOIS PA, MALATERRE PO, LIN P, PAVELSKY TM, MONNIER J, **BRINKERHOFF CB**, DAVID CH (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 CB**, RAYMOND PA, MAAVARA T, ISHITSUKA I, AHO KS, GLEASON CJ (2021). Lake morphometry and river network controls on

- evasion of terrestrially sourced headwater CO<sub>2</sub>. *Geophysical Research Letters*. [doi.org/10.1029/2020GL090068](https://doi.org/10.1029/2020GL090068).
3. **BRINKERHOFF CB**, GLEASON CJ, 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 KM, **BRINKERHOFF CB**, GLEASON CJ (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).
  1. **BRINKERHOFF CB**, GLEASON CJ, OSTENDORF DW (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).

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## GRANTS & FELLOWSHIPS

Summary: \$471k awarded (inc. \$180k for declined NSF fellowship)

2. 2024-2026 Where does a river's water come from? Quantifying the magnitude of hydrological connectivity across scales. *Yale Gaylord Donnelley Postdoctoral Fellowship*. As sole author. \$156k.
1. 2021-2024 A first global analysis of daily riverine gas exchange using the SWOT satellite, Bayesian remote sensing, and carbon transport modeling. *NASA FINESST Fellowship (NNH20ZDA001N-FINESST)*. As sole author. \$135k.

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## INVITED TALKS

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| July 2024 | AEMON-J Hacking Limnology Summit and Workshop: <i>Tracking global rivers with the SWOT satellite</i>                        |
| 2023      | Northeastern University: <i>A holistic approach to global river science</i>   |
| 2022      | SWOT Discharge Algorithm Working Group: <i>BAM flow laws and inversion styles across thousands of rivers</i>                |
| 2020      | University of Massachusetts: <i>Constraining remotely-sensed river discharge estimation using reach-scale geomorphology</i> |

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## CONFERENCE PRESENTATIONS

Summary: Invited/oral/poster/coauthor: 1/5/4/16

26 presentations at national and international meetings (e.g. AGU/EGU/SWOT). Full bibliography available on request.

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## TEACHING

**UMass**

2023	Instructor of record, ENG 191: Engineering rivers and ecosystems
2019	Teaching assistant, ENG 470/570: GIS for Engineers
Training	<u>CIRTL</u> associate in evidence-based teaching and equitable pedagogy

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**SERVICE****To the discipline**

Journal ref.	<i>Remote Sensing of Environment, Water Resources Research, Biogeosciences, Journal of Hydrology, Geomorphology, Journal of Hydraulic Engineering, Scientific Data, Scientific Reports</i> (n=10, <u>record available on ORCID</u> )
Proposal ref.	<i>NASA Supplements for Open-Source Science</i> (n=1)
Member	NASA/CNES SWOT Satellite Discharge Algorithm Working Group
Developer	geoBAMr and BIKER community R packages for river remote sensing

**To the community**

2023-	Mentor, Geosciences Education & Mentorship Support ( <u>GEMS</u> ) program
2022	Workshop facilitated, UMass: “Introduction to geoBAMr and remote sensing of river discharge”

**To the public**

2021	Talk, Wooster Society of Friends: <i>Rivers’ role in the carbon cycle</i>
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**Society affiliations**

2023-	Association for the Sciences of Limnology and Oceanography
2018-	American Geophysical Union