

# Craig B. Brinkerhoff

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## EDUCATION

2024	PhD Civil & Environmental Engineering, University of Massachusetts
2018	Ba&Sc Honours Interfaculty Environment Program, 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 award</i> )
2024-2026	Yale Gaylord Donnelley Postdoctoral Fellowship
2021-2024	NASA FINESST Graduate Research 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: 6/11

\*\* equal contribution

17. SACCARDI B\*\*, **BRINKERHOFF CB\*\***, GLEASON CJ, WINNICK M. Towards modeling continental-scale inland water CO<sub>2</sub> emissions. *AGU Advances*. [doi.org/10.1029/2024AV001294](https://doi.org/10.1029/2024AV001294)
  - Coverage: [Eos](#), [Environmental News Network](#), [Environmental Energy Leader](#), [Smart Water](#)
  - Press release: [UMass](#)
16. **BRINKERHOFF CB** (2024). The importance of source data in river network connectivity modeling: a review. *Limnology & Oceanography*. [doi.org/10.1002/lno.12706](https://doi.org/10.1002/lno.12706).
15. **BRINKERHOFF CB**, GLEASON CJ, KOTCHEN M, KYSAR D, RAYMOND PA (2024). Ephemeral stream water contributions to United States drainage networks. *Science*. [doi.org/10.1126/science.adg9430](https://doi.org/10.1126/science.adg9430).

- Coverage: [New York Times](#), [Boston Globe](#), [Eos](#), [Science Podcast](#), [Bloomberg Opinion](#), [Bloomberg Law](#), [Mother Jones](#), [The Hill](#), [Courthouse News Service](#), [Las Vegas Sun](#), [Science News](#), [Newsweek](#), [Environmental News Network](#), [Nature World News](#), [Environmental and Energy Leader](#), [Earth.com](#), [Meteored](#), [Eurasia Review](#), [Smart Water Magazine](#)
  - Perspective: [doi.org/10.1126/science.adq1714](https://doi.org/10.1126/science.adq1714)
  - Press release: [UMass](#), [Yale](#)
14. FLORES JA, GLEASON CJ, **BRINKERHOFF CB**, HARLAN ME, FENG D, LUMMUS M, STEARNS L (2024). 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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## OTHER PUBLICATIONS

1. MEYER MF, HENSLEY RT, BARBOSA CC, BORRELLI JJ, FELDBAUER J, HARLAN ME, KUYUMCU BK, LADWIG R, MESMAN JP, PILLA RM, ZHAN Q, ZWART JA, AYALA AI, **BRINKERHOFF CB**, KNEIS D, MERCADO-BETTIN D, NICKLES C, PIERSON DC, THONGTHAISONG P, VANDERKELEN I (2024). The 2024 “Hacking Limnology” Workshop Series and Virtual Summit: Increasing Inclusion, Participation, and Representation in the Aquatic Sciences. *Limnology & Oceanography Bulletin*. [doi.org/10.1002/lob.10672](https://doi.org/10.1002/lob.10672).

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## GRANTS & FELLOWSHIPS

Summary: \$1.4m awarded (\$471k to me, including \$180k for declined NSF fellowship)

3. 2024-2028 SWOT for global inland water gas exchange and carbon biogeochemistry. *NASA SWOT Science Team (NNH23ZDA001N-SWOTST)*. PI: Dongmei Feng (UCincinnati), Co-I: Peter Raymond (Yale). As collaborator due to UMass student status at time of submission. \$960,712.
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 Student Fellowship (NNH20ZDA001N-FINESST)*. As sole author. \$135k.

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## INVITED TALKS

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| 2024 | Yale Institute for Biospheric Studies: <i>Taking the pulse of global rivers</i>   |
| 2024 | AEMON-J Hacking Limnology Summit: <i>Tracking global rivers with the SWOT satellite</i> (keynote address)                   |
| 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: First/co author: 11/21

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

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## TEACHING

### **UMass**

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| 2023 | Instructor of record, ENG 191: Engineering rivers and ecosystems |
| 2019 | Teaching assistant, ENG 470/570: GIS for Engineers               |

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## ADDITIONAL TRAINING

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| 2024- | <u>Yale ELM</u> environmental leadership and mentoring training program  |
| 2023  | <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, Ecosystems, IEEE Geoscience and Remote Sensing Letters, Journal of Hydraulic Engineering, Scientific Data, Scientific Reports</i> (n=10 papers, <u>record available on ORCID</u> )
Proposal ref.	<i>NASA Supplements for Open-Source Science</i> (n=1 proposal)
Member	NASA/CNES SWOT Satellite Discharge Algorithm Working Group
Developer	geoBAMr and BIKER community R packages for SWOT

### **To the community**

2023	Mentor, Geosciences Education & Mentorship Support ( <u>GEMS</u> ) program
2022	Workshop facilitated, UMass: “Introduction to 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