Craig B. Brinkerhoff

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I'm a river scientist and engineer working on problems in global hydrology and global change. I'm mainly interested in river corridor processes, hydrologic connectivity, and hydraulic geometry (as revealed through AI/ML, remote sensing, in situ monitoring, and data fusion).

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

AWARDS

2024 NSF Earth Science Postdoctoral Fellowship (*declined*)
2024 Yale Gaylord Donnelley Postdoctoral Fellowship
2023 UMass College of Engineering Teaching Fellowship
2021 NASA FINESST Graduate Research 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 *(declined)*

PUBLICATIONS

Summary: solo/first/co author: 1/5/15

Refereed articles

20. MAAVARA T, YUAN Z, JOHNSON AM, ZHANG S, AHO K, **BRINKERHOFF CB**, LOGOZZO L, RAYMOND PA. River metabolism in the contiguous United States: A west of extremes. *Science*. 10.1126/science.adu9843 .
    - Coverage: Phys, Environmental News Network
    - Press release: Cary Institute

19. FLORES JA, GLEASON CJ, BROWN C, VERGOPOLAN N, LUMMUS MM, STEARNS LA, LI D, ANDREWS LC, BASNYAT D, **BRINKERHOFF CB**, DUCUSIN R, FENG D, FRIEDMANN E, HE X, GIROTTO M, KUMAR SV, LAMMERS RB, LAMSAL G, MAINA FZ, PROUSSEVITCH AA, RICHEY A, SHEVLIAKOVA E, SUBEDI D,

WANG J (2025). Accelerating river discharge in High Mountain Asia. *AGU Advances*. 10.1029/2024AV001586.

- Coverage: AGU, India Today, Phys
- Press release: UMass

18. ANDREADIS KM, COSS S, DURAND M, GLEASON CJ, SIMMONS T, TEBALDI N, BJERKLIE D, **BRINKERHOFF CB**, DUDLEY R, GEJADZE I, LARNIER K, MALATERRE PO, OUBANAS H, ALLEN GH, BATES P, DAVID CH, DOMENEGHETTI A, ELMI O, FENOGLIO-MARC L, FRASSON RPM, FRIEDMANN E, GARAMBOIS PA, GEHRING J, GETIRANA A, HUGHES M, LEE J, MATTE P, MINEAR JT, MONNIER J, MUHEBWA A, TOURIAN MJ, PAVELSKY T, RIGGS RM, RODRIGUEZ E, SKIDER MD, SMITH LC, STUURMAN C, TANEJA J, TARPANELLI A, WANG J, WILLIAMS BA, YADAV B (2025). A first look at river discharge from SWOT satellite observations. *Geophysical Research Letters*. 10.1029/2024GL114185.

17. SACCARDI B, **BRINKERHOFF CB**, GLEASON CJ, WINNICK M (2024). Towards modeling continental-scale inland water CO_2 emissions. *AGU Advances.* 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*. 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.* 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: 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*. 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*. 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.* 10.1029/2021WR031614.

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*.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*. 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*. 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*. 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.* 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.* 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.* 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_2. *Geophysical Research Letters.* 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*. 10.1029/2020WR027949.

2. ANDREADIS KM, **BRINKERHOFF CB**, GLEASON CJ (2020). Constraining the assimilation of SWOT observations with hydraulic geometry relations. *Water Resources Research*. 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*. 10.1029/2019GL084529.

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*. 10.1002/lob.10672.

GRANTS & FELLOWSHIPS

Summary: $1.4m awarded ($472k to me, including $180k for declined NSF fellowship)

As PI/Co-I

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 unfunded Co-I due to UMass student status at time of submission. $961k.

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.

As unfunded collaborator

1. *In review* Tracking carbon cycling dynamics in river networks following terrestrial enhanced weathering. *NSF CAREER (NSF 22-586)*. PI: Shuang Zhang (Texas A&M). As unfunded collaborator.

INVITED TALKS

2024 Yale Institute for Biospheric Studies
2024 AEMON-J Hacking Limnology Summit (keynote address)
2023 Northeastern University
2022 SWOT Discharge Algorithm Working Group
2020 University of Massachusetts

CONFERENCE PRESENTATIONS

37 presentations (invited/first/co author: 2/10/25) at international meetings (e.g. AGU/EGU/SWOT). Full bibliography available on request.

TEACHING

UMass

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

Training

2023 CIRTL associate in evidence-based teaching and equitable pedagogy

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ADVISING & MENTORING

PhD

Committee member

2025- David Go (Virginia Tech)

Masters

Work study projects

2025 Gabriel Cabrera-Ruiz (Yale)
2024 Bella Garrioch (Yale)

Undergraduates

2025 Kaleb Diaz Alvarez (University of Connecticut)
2025 Erica Arias (Gateway Community College)
2025 Mark Taylor (University of New Haven)

Training

2024-2025 Yale ELM environmental leadership and mentorship certificate

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SERVICE

To the discipline

Journal ref. *Biogeosciences, Communications Sustainability, Ecosystems, Geomorphology, Geophysical Research Letters, IEEE Geoscience and Remote Sensing Letters, Journal of Hydraulic Engineering, Journal of Hydrology, Limnology & Oceanography Letters, Remote Sensing of Environment, Scientific Data, Scientific Reports, Water Resources Research* (n=17 papers, online record*)*

Proposal ref. Panel: *Yale YIBS Small Grants Program* (n=1 panel)

Ad hoc: *NSF CAREER, NSF Earth Sciences Postdoctoral Fellowship*, *NASA Supplements for Open-Source Science* (n=3 proposals)

To the community

2023 Mentor, Geosciences Education & Mentorship Support (GEMS) program

2022 Workshop facilitated, UMass: "Introduction to remote sensing of river discharge"

To the public

2021 Talk, Wooster Society of Friends: *Rivers' role in the carbon cycle*

Society affiliations

Association for the Sciences of Limnology and Oceanography

American Geophysical Union

European Geophysical Union