

A&S ACADEMIC PERSONNEL CURRICULUM VITAE

NAME

Brandon McElroy

ADDRESS

Dept. 3006, Geology & Geophysics
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University of Wyoming
Laramie, WY 82071

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EDUCATION

2009	Ph.D., Geological Sciences, University of Texas at Austin, Austin, TX, Dissertation Title: <i>Expressions and Implications of Sediment Transport Variability in Sandy Rivers.</i>
2006	Transferred, Massachusetts Institute of Technology, Cambridge, MA
2003	M.Sc., Geological Sciences, University of Michigan, Ann Arbor, MI, Thesis Title: <i>Climatic Control of Continental Physiography.</i>
2000	B.Sc., Geological Sciences, University of Michigan, Ann Arbor, MI.
1997	Transferred, Boston University, Boston, MA

ACADEMIC POSITIONS

2012 -	Assistant Professor, Sedimentology & Surface Processes, Department of Geology & Geophysics, University of Wyoming, Laramie, WY
2009	Assistant Instructor, Sedimentology, Department of Geological Sciences, University of Texas at Austin, Austin, TX
2003-2005	Research Associate I, Massachusetts Institute of Technology, Cambridge, MA

OTHER POSITIONS

2009-2011	Research Physical Scientist, U.S. Geological Survey, Columbia, MO
2006-2009	Graduate Research Assistant, University of Texas at Austin and National Center for Earth-Surface Dynamics, Austin, TX
2008	Visiting Graduate Research Assistant, TU Delft, Delft, The Netherlands
2005-2006	Graduate Research Assistant, Massachusetts Institute of Technology, Cambridge, MA
2000-2002	Graduate Research Assistant & Graduate Teaching Assistant, University of Michigan, Ann Arbor, MI
1999-2000	Undergraduate Research Assistant, University of Michigan, Ann Arbor, MI

PUBLICATIONS IN PROGRESS

Under Review:

1. *Mahon, R., Ganti, V., *Shaw, J., **McElroy, B.**, A semi-empirical forward model for generalized bed form stratification, JGR-Earth Surface.
2. *Shaw, J., *Miller, K., **McElroy, B.**, Predicting the distance to islands on river deltas. JGR-Earth Surface.
3. Dong, T., Nittrouer, J., Czapiga, M., Ma, H., McElroy, B., Ilicheva, E., Pavlov, M., Chalov, S., Parker, G., Roles of bank material in setting bankfull hydraulic geometry as informed by the Selenga River delta, Russia, Water Resources Research.
4. Wilkinson, B., **McElroy, B.**, Drummond, C., Broken sheets – On the numbers and areas of tectonic plates and other geologic tiles, GSA Today.
5. Dilbone, E., Legleiter, C., **McElroy, B.**, Spectrally-based bathymetric mapping of a dynamic, sand-bedded channel: Niobrara River, Nebraska, USA, River Research and Applications.

* *Denotes advisee author, students & post-docs*

PUBLISHED WORKS

Refereed Journal Articles:

28. Naqshband, S., Hoitink, A., **McElroy, B.**, Hurther, D., Hulscher, S., (*accepted*) A sharp view on river dune transition to upper stage plane bed, Geophysical Research Letters.
27. **McElroy, B.**, Willenbring, J., Mohrig, D., 2017 Addressing timescale-dependent erosion rates from measurement methods with censorship, GSA Bulletin, doi:10.1130/B31644.1
26. *Naqshband, S., *Mahon, R., **McElroy, B.**, 2017, Validating a universal model of particle transport lengths with laboratory measurements of suspended grain motions, Water Resources Research, doi:10.1002/2016WR020024
25. Rathburn, S., Bennett, L., Wohl, E., Briles, C., **McElroy, B.**, Sutfin, N., 2017, The fate of sediment, wood and organic carbon eroded during an extreme flood, Colorado Front Range, USA, Geology, doi:10.1130/G38935.1
24. Lapotre, M., Lamb, M., **McElroy, B.**, 2017 What sets the size of current ripples? Geology, doi:10.1130/G38598.1

23. *Shaw, J. and **McElroy, B.**, 2016, Backwater number scaling of alluvial bedforms, *Journal of Geophysical Research- Earth Surface*, 121 (8), 1436-1455.
22. Dong, T., Nittrouer, J., Ilicheva, E., Pavlov, M., **McElroy, B.**, Czapiga, M., Ma, H., Parker, G., 2016, Controls on gravel termination in seven distributary channels of the Selenga River delta, Baikal Rift basin, Russia, *Geological Society of America Bulletin*, B31427. 1.
21. Heller, P., Ratigan, D., Trampush, S., Noda, A., **McElroy, B.**, Drever, J., 2015, Origins of bimodal stratigraphy in fluvial deposits: An example from the Morrison Formation, *Journal of Sedimentary Research*, 85 (12), 1466-1477.
20. *Mahon, R., *Shaw, J., Barnhart, K., Hopley, D., **McElroy, B.**, 2015, Quantifying the stratigraphic completeness of delta shoreline trajectories: Experiments and forward modeling, *Journal of Geophysical Research – Earth Surface*, 120 (5), 799-817.
19. Hsu, L., Martin, R., **McElroy, B.**, Kim, W., 2015, The current state and future of data management in experimental geomorphology: challenges, strategies, and scientific opportunities, *Geomorphology. (GSIS Annual Best Paper Award, 2016)*
18. Braaten, P., Elliott, C., Rhoten, J., Fuller, D., **McElroy, B.**, 2015. Migrations and swimming capabilities of endangered pallid sturgeon (*scaphirhynchus albus*) to guide passage designs and recruitment potential in the fragmented Yellowstone River, *Restoration Ecology*, 23(2), 186-195, doi: 10.1111/rec.12161
17. *Trampush, S., Huzurbazar, S., **McElroy, B.**, 2014. Empirical assessment of theory for bankfull characteristics of alluvial channels, *Water Resources Research*, 50, 9211-9220, doi: 10.1002/2014WR015597 (*AGU Editor's Choice Award 2015*)
16. Ganti, V., Lamb, M., **McElroy, B.**, 2014. Quantitative Bounds on Morphodynamics and Implications for Reading the Sedimentary Record, *Nature Communications*, 10.1038/ncomms4298.
15. Willenbring, J., Codilean, A., **McElroy, B.**, 2013. Earth is (mostly) flat: Apportionment of the flux of continental sediment over millennial time scales, *Geology*, doi:10.1130/G33918.1.
14. Deters, J., Chapman, D., **McElroy, B.**, 2013. Location and timing of Asian Carp spawning in the Lower Missouri River, *Environmental Biology of Fishes*, DOI 10.1007/s10641-012-0052-z.
13. **McElroy, B.**, DeLonay, A., Jacobson, R., 2012. Optimum swimming pathways of fish spawning migrations in rivers, *Ecology*, 93(1), 2012, pp. 29–34.
12. Schumer, R., Jerolmack, D., **McElroy, B.**, 2011. The stratigraphic filter and bias in measurement of geologic rates, *Geophysical Research Letters*, v. 38, L11405, doi:10.1029/2011GL047118.

11. Straub, K., Mohrig, D., Buttles, J., **McElroy, B.**, Pirmez, C., 2011. Quantifying the influence of channel sinuosity on the depositional mechanics of channelized turbidity currents: A laboratory study, *Marine and Petroleum Geology*, vol. 28, p. 744-760.
10. Wheaton, J., Gibbins, C., Wainwright, J., Larsen, L., **McElroy, B.**, 2011. Preface: Multiscale feedbacks in ecogeomorphology, for special issue in *Geomorphology*, vol. 126, p. 265–268.
9. Lamb, M., **McElroy, B.**, Kopriva, B., Shaw, J., Mohrig, D., 2010. Linking river-flood dynamics to hyperpycnal-plume deposits: Experiments, theory, and geological implications, *Geological Society of America Bulletin*, vol. 122, p. 1389-1400.
8. **McElroy, B.**, Mohrig, D., 2009. Nature of deformation of sandy bed forms. *Journal of Geophysical Research- Earth Surface*, special section (invited), Stochastic transport and emergent scaling of the earth's surface, 114, F00A04, doi:10.1029/2008JF001220.
7. Wilkinson, B., **McElroy, B.**, Kesler, S., Peters, S., Rothman, E., 2009. Global geologic maps are tectonic speedometers- Rates of rock cycling from age-area frequencies, *Geological Society of America Bulletin*, vol. 121, p.760-779.
6. Abrams, D., Lobkovsky, A., Petroff, A., Straub, K., **McElroy, B.**, Mohrig, D., Kudrolli, A., Rothman, D., 2009. Growth laws for channel networks incised by groundwater flow, *Nature Geoscience*, vol. 2, p. 193-196.
5. Straub, K., Mohrig, D., **McElroy, B.**, Buttles, J., Pirmez, C., 2008. Interactions between turbidity currents and topography that aggrade sinuous submarine channels: A laboratory study. *Geological Society of America Bulletin*, vol. 120, p. 368-385.
4. Wilkinson, B., **McElroy, B.**, 2007. The impact of humans on continental erosion and sedimentation. *Geological Society of America Bulletin*, vol. 119, p.140-156.
3. **McElroy, B.**, Wilkinson, B., 2005. Climatic control of continental physiography. *Journal of Geology*, vol.113, p.47-58.
2. **McElroy, B.**, Wilkinson, B., Rothman, E., 2005. Tectonic and topographic framework of political division. *Mathematical Geology*, vol37, p197-206.
1. Ivany, L., Wilkinson, B., Lohmann, K., Johnson, E., **McElroy, B.**, Cohen, G., 2004. Intra-annual isotopic variation in *Venericardia* bivalves: Implications for early Eocene temperature, seasonality, and salinity on the US Gulf Coast. *Journal of Sedimentary Research*, vol. 74, p.7-19.

Non-Refereed Publications:

8. *Naqshband, S., and **McElroy, B.**, 2016, Sediment transport at grain scale: A review, future research and morphological implications, in River Flow 2016, Constantinescu, Garcia & Hanes (Eds), Taylor & Francis, London, 822 pp.
7. Willenbring, J., Codilean, A., **McElroy, B.**, 2014. Reply: Comment: Earth is (mostly) flat: Apportionment of the flux of continental sediment over millennial time scales, *Geology*, doi:10.1130/G35326Y.1.
6. DeLonay, A.J., Jacobson, R.B., Chojnacki, K.A., Annis, M.L., Braaten, P.J., Elliott, C.M., Fuller, D.B., Haas, J.D., Haddix, T.M., Ladd, H.L.A., **McElroy, B.J.**, Mestl, G.E., Papoulias, D.M., Rhoten, J.C., and Wildhaber, M.L., 2014, Ecological requirements for pallid sturgeon reproduction and recruitment in the Missouri River—Annual report 2011: U.S. Geological Survey Open-File Report 2014–1106, 96 p., <http://dx.doi.org/10.3133/ofr20141106>.
5. Hsu, L., **McElroy, B.**, Martin, R., Kim, W., 2013. Building a Sediment Experimentalist Network (SEN): sharing best practices for experimental methods and data management, *The Sedimentary Record*, p. 9-12.
4. **McElroy, B.**, Abraham, D., 2011. Quantifying Bed-Load and Bed-Material-Load from Repeat Bathymetric Surveys, Federal Interagency Sedimentation Project Report.
3. **McElroy, B.**, Mohrig, D., 2008. Determining characteristic scales of dynamics and geometry of sandy bedforms. *Proceedings of Marine Sandwave and River Dune Dynamics III*.
2. **McElroy, B.**, Mohrig, D., 2007. Correlation decay and dynamic equilibria in sandy transport systems. *River, Coastal, and Estuarine Morphodynamics*, Proceedings vol. 2, p. 891-896.
1. Jerolmack, D., Mohrig, D., **McElroy, B.**, 2005. A unified description of ripples and dunes in rivers. *River, Coastal, and Estuarine Morphodynamics*, Proceedings vol. 2, p.843-852.

Other:

1. **McElroy, B.**, 2017. Report on Potential to Flush Shoshone River Channel of Fine Sediment Deposited after Fall 2016 Evacuation from Willwood Dam, Wyoming Water Development Office.

CONTRACTS & GRANTS

Funded Projects as PI (Total = \$1,224,574):

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| 2017-2019 | Benefits of Flushing Flows on the Shoshone River below Buffalo Bill Dam, Wyoming Game & Fish Dept., \$153,237 |
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- 2016-2019 Quantitative Hydraulics and Transport from Strata and Dynamics of Sandy Bedforms, NSF, \$ 260,649
- 2016-2018 Toward understanding formative geometries and hydrologic controls on sandbar habitats in the Niobrara River, Northern Nebraska, National Park Service, \$133,315
- 2016-2017 Minimizing Pre-seismic Risk through Process Stratigraphy of Potential Parkman Reservoirs, UWyo School of Energy Research, \$38,654
- 2016-2017 NCED2 Postdoctoral Research Fellowship to K. Miller at UWyo, \$99,844
- 2016 EarthCube Building Blocks: Collaborative Proposal: A Geo-Semantic Framework for Integrating Long-Tail Data and Models, NSF, Columbia subcontract, \$37,329
- 2014-2017 Preliminary Assessment of Bedload Transport in Grand Canyon of the Colorado River, USGS, \$105,857
- 2014-2016 Evaluating Channel Morphologic Controls on Mid-Channel Sandbar Geometry in the Lower Platte River, Nebraska, USGS, \$42,000
- 2014-2016 Morphologic Prediction of Delta Reservoir Quality, ACS PRF, \$110,000
- 2014-2015 Assessing the geometries, topographies, and erosion rates of sandbar habitats in the lower Niobrara River - Missouri National Recreational River, NPS, \$9,000
- 2014 Collaborative Research: RAPID Assessment of 2013 Flood Sedimentation, Button Rock Reservoir, North St. Vrain Watershed, CO, NSF, \$8,407
- 2013-2017 RCN: Building a Sediment Experimentalist Network (SEN), NSF, UTexas subcontract, \$136,482
- 2013 Collaborative Research with USGS Nebraska Office in assisting with the evaluation of sediment transport in the Missouri River, USGS, \$2,500.
- 2012 Research Vessel Laboratory Renovations, UWyo School of Energy Research, \$80,000

Funded Projects as CoPI (Total = \$3,885.8k):

- 2015-2017 Cretaceous Tight Oil Consortium II, J. Kaszuba, \$150k.

- 2015 NCALM Seed grant, 40 sq. km LiDAR flight for project area, in-kind award.
- 2012-2014 Cretaceous Tight Oil Consortium, E. Campbell-Stone, \$105k.
- 2011 Comprehensive Sturgeon Research Program, R. Jacobson, A. DeLonay, D. Papoulias, P. Braaten, K., Chojnacki, U.S. Army Corps of Engineers, Northwest Division, \$1,900k.
- 2011 Quantifying Bed Load and Bed Material Load from Repeat Bathymetric Surveys, D. Abraham, Federal Interagency Sedimentation Project, \$30.8k.
- 2010 Comprehensive Sturgeon Research Program, R. Jacobson, A. DeLonay, D. Papoulias, P. Braaten, K., Chojnacki, U.S. Army Corps of Engineers, Northwest Division, \$1,700k.

Proposals not accepted as PI:

- 2016 MRI: Development of the Sediment Experimentalist Data Library and Institutional Data Curation, National Science Foundation, \$716k
- 2013 Climate-Driven Geomorphic Change and Bird Habitat Vulnerability in Plains Rivers, National Climate Change Wildlife Science Center, \$640k

PROFESSIONAL AFFILIATIONS AND ACTIVITIES

Memberships in professional societies

- 2006- Society for Sedimentary Geology
 2000- American Geophysical Union
 1999- Geological Society of America

Review/editorial boards

- 2016- Island Arc, Japan Geological Society
 2016 Journal of Geophysical Research, American Geophysical Union
 2013-2016 Geosphere, Geological Society of America

Grant Review Panels

- 2016 NSF
 2015 CUAHSI Pathfinder Fellowship review panel.
 2014 Wyoming NASA Space Grant Consortium Faculty Grant review panel.
 2012 Geological Society of America, Quaternary Geology and Geomorphology Student Grant Proposal and Howard and Mackin Awards review panel.

Grant Refereeing

2017	NSF, 2 proposals
2016	DFG Germany, 1 proposal; NSF, 4 proposals; American Chemical Society, 1 proposal
2015	Bureau of Reclamation, 1 proposal; American Chemical Society, 2 proposals; National Science Foundation, 1 proposal
2014	National Science Foundation, 3 proposals; Marsden Fund, 1 proposal
2013	National Science Foundation, 2 proposals; Army Research Office, 1 proposal; American Chemical Society, 1 proposal
2012	National Science Foundation, 2 proposals
2011	National Science Foundation, 3 proposals; National Geographic society, 1 proposal; American Chemical Society, 1 proposal

Manuscript Refereeing

2017	Nature Communications, Sedimentology
2016	Sedimentology, Earth Science Reviews, Geology, Heliyon
2015	Water Resources Research, Journal of Sedimentary Research, Nature Geoscience, Geophysical Research Letters x2, Sedimentology, Journal of Geophysical Research – Earth Surface, Journal of Hydrology, Nature Communications, Earth Surface Processes and Landforms
2014	Estuaries and Coasts, Sedimentology, Geology, Journal of Sedimentary Research, Journal of the Royal Society- Interface, Geophysical Research Letters, Journal of Geophysical Research- Earth Surface, Environmental Biology of Fishes,
2013	Sedimentology, Earth Surface Processes & Landforms, International Journal of Geographical Information Science, Journal of the Royal Society- Interface, Journal of Sedimentary Research x2, U.S. Geological Survey, Journal of Geophysical Research- Earth Surface x3, Earth Surface Processes and Landforms, Geophysical Research Letters, Earth Surface Dynamics
2012	Sedimentary Geology, Sedimentology, World's Large Rivers, Hydrological Processes, Water Resources Research, Journal of Sedimentary Research, Earth Surface Processes & Landforms, Journal of Geophysical research x2
2011	Earth Surface Processes & Landforms, Computers & Geosciences, Journal of Geophysical Research x3, U.S. Fish & Wildlife Service, Earth Science Reviews
2010	Journal of Sedimentary Research, U.S. Geological Survey x2, U.S. Fish & Wildlife Service
2009	Geomorphology x3, Hydrological Processes, Water Resources Research
2007	Geophysical Research Letters

HONORS AND AWARDS

2016	Best Paper Award Geoscience Information Society.
2015	AGU Editor's Choice Award
2012	Delegate to Meeting of Young Researchers in Earth Science V, The Sedimentary Record of Landscape Dynamics
2011	U.S. Geological Survey, Quality Step Increase promotion
2008	National Center for Earth-Surface Dynamics International Research Exchange Program, \$10k to TU Delft, Delft, The Netherlands
2008	Delegate to Meeting of Young Researchers in Earth Science III, Dynamic Interactions of Life and Its Landscape
2007	Jackson School of Geoscience Travel Grant for International Meeting, \$1000
2007	Jackson School of Geoscience Ronald K. DeFord Field Scholarship, \$1500
2007	Jackson School of Geoscience William R. Muehlberger Field Geology Scholarship, \$1500
2006	University of Texas Chevron Scholarship, \$5000
2002	University of Michigan Rackham Travel Award, \$1000
2001	University of Michigan Rackham Travel Award, \$1000

PAPERS PRESENTED/SYMPOSIA/INVITED LECTURES/PROFESSIONAL MEETINGS/WORKSHOPS

Workshop Seminars Led:

2017 Fluvial survey techniques and instruments for sediment transport and geomorphic change, Zhengzhou, China.

2016 Community Surface Dynamics Modeling Systems, Sediment Experimentalists Clinic on data management, Boulder, CO.

2015 Advances in field survey techniques II: Reservoirs, given at short course for 1st International Science Workshop of Huanghe (Yellow River) Delta, Zhengzhou, China.

2015 Experimental data management (with SEN), given at National Center for Earth-Surface Dynamics, Summer Institute on Earth Surface Dynamics, New Orleans, LA.

2013 Experimental data management (with SEN), given at National Center for Earth-Surface Dynamics, Summer Institute on Earth Surface Dynamics, Minneapolis, MN.

2013 Measuring bed-material flux from bed form evolution, given at U.S. Geological Survey, Workshop on estimating bedload transport from bathymetric time-series data, Lincoln, NE.

2013, Sediment transport and river bars, given at U.S. Geological Survey, Sandbar Summit, Columbia, MO.

Invited Presentations:

2017 Formation of islands on deltas from radially symmetric flow expansion, JpGU Meeting, Chiba Japan.

2017 Sedimentary modeling for advancing geosciences, CU Boulder.

2016 Refining estimates and uncertainties in paleoslope analysis, GSA Annual Meeting.

2016 Sediment and fish in highly managed rivers, East Yellowstone Trout Unlimited, Cody, WY.

2016 Sedimentary processes and products of river deltas, San Francisco State University, San Francisco, CA.

2015 Scaling of sand flux over bedforms- Experiments to field scale, AGU Fall Meeting, San Francisco, CA.

2015, Fluvio-deltaic processes and organic carbon accumulation in a semi-arid surface water reservoir, 1st International Science Workshop for Huanghe (Yellow River) Delta, Zhengzhou, China.

2015, Not all rates are created equally- Quantifying variability in topographic evolution, Syracuse University, Syracuse, NY.

2015, Data management, sharing, and reuse in experimental geomorphology: Challenges, strategies, and scientific opportunities, 46th Annual Binghamton Symposium on Laboratory Experiments in Geomorphology, Scientific Committee member, Buffalo, NY.

2014, Not all rates are created equally- Quantifying variability in topographic evolution, Colorado College, Colorado Springs, CO.

2013, Not all rates are created equally- Quantifying variability in topographic evolution, Rice University, Houston, TX.

2013, Not all rates are created equally- Quantifying variability in topographic evolution, Utah State University, Logan, UT.

2013, Not all rates are created equally- Quantifying variability in topographic evolution, Colorado State University, Ft. Collins, CO.

2012, Not all rates are created equally- Quantifying variability in topographic evolution, Idaho State University, Pocatello, ID.

2012, Not all rates are created equally- Quantifying variability in topographic evolution, University of Pennsylvania, Philadelphia, PA.

2011 Understanding Habitat Needs for Rare Fish with Long Term Telemetric Studies: Pallid Sturgeon in the Lower Missouri River. American Fisheries Society, Seattle, WA.

2011, Dynamics of physical habitats, charismatic biota, and management alternatives in the Lower Missouri River, USGS, Oregon Water Science Center, Portland, OR

2011, Interpreting the Variability in Earth's Surface History, and Bedform to Clinof orm-Morphodynamics in Sandy Rivers & Submarine Channels, University of Wyoming, Geology & Geophysics, Laramie, WY

2011, Not all rates are created equally- quantifying variability in topographic evolution & Geometric and Dynamic scales of sandy river bed evolution, University of Illinois Urbana-Champaign, Geology, Champagne, IL

2010, Not all rates are created equally- quantifying variability in topographic evolution, University of Missouri, Geological Sciences, Columbia, MO

2010, Not all rates are created equally- quantifying variability in topographic evolution, Tulane University, Earth Sciences, New Orleans, LA

2008, University of Hannover, Germany, Institute for Mineralogy, Hannover, Germany

2008, Geometric and dynamic character of evolving sandy bed topography, TU Delft, Civil Engineering, Delft, The Netherlands

2008, Continuum measures of the bed topography in a sandy river, TU Twente, Civil Engineering, Enschede, The Netherlands

2007, Measuring and modeling sediment-fluid interface evolution in a sand bedded river, Naval Research Labs, Marine Geosciences, Stennis, MS

Professional Meeting Organization

2017 Sediment Experimentalists workshop: Managing the life-cycle of data, Tsukuba, Japan

Geological Society of America Technical Session: Fluvio-Deltaic Processes and Their Stratigraphic Record.

2016 American Geophysical Union Annual Meeting, Earth and Planetary Surface Processes Technical Program committee.

2015 9th Symposium on River Coastal and Estuarine Morphodynamics, International Scientific Committee member, Iquitos, Peru.

46th Annual Binghamton Symposium on Laboratory Experiments in Geomorphology, Scientific Committee member, Buffalo, NY.

- 2014 American Geophysical Union Annual Meeting Town Hall: Publishing and Sharing Earth Surface Process Data, San Francisco, CA.
- Sediment Experimentalists workshop: Exploring the life-cycle of sedimentary experiments, Utrecht, Netherlands.
- 2013 American Geophysical Union Annual Meeting Town Hall: Building a Sediment Experimentalist Network, San Francisco, CA.
- 2012 Calling All Experimentalists- Earth Cube domain end user workshop to address community needs for sharing and managing experimental data and techniques: Year 1. Experimental Stratigraphy, (~60 attendees) Austin, TX.
- American Geophysical Union Annual Meeting Technical Session: Advances in Experimental Earth Surface Processes, San Francisco, CA.
- American Geophysical Union Annual Meeting Town Hall: Surface Process Experiments – A Community Discussion, San Francisco, CA.
- 2011 Geological Society of America Annual Meeting Technical Session: Sediment Transport in Modern and Ancient Environments, Minneapolis, MN.
- 2008 American Geophysical Union Annual Meeting Technical Session: Multiscale Feedbacks in Ecogeomorphology, San Francisco, CA.

Professional Meeting Presentations

116. **McElroy, B.**, 2017, Architectural bimodality in fluvial stratigraphy of the Morrison Formation, USA, GSA Annual Meeting, Seattle, WA.
115. *Murr, M., *Alexander, J., **McElroy, B.**, 2017, Piping Plover and Least Tern nesting location compared to riverine habitat on Great Plains rivers, GSA Annual Meeting, Seattle, WA.
114. Wilkinson, B., **McElroy, B.**, Drummond, C., 2017, Broken Sheets- On the number and areas of tectonic plates and other tiles, GSA Annual Meeting, Seattle, WA.
113. **McElroy, B.**, Shaw, J., *Miller, K., 2017, Formation of islands on deltas from radially symmetric flow expansion, GSA Annual Meeting, Seattle, WA.
112. *Kaufman, S., Riebe, C., **McElroy, B.**, 2017, Cosmogenic nuclide dating of the deltaic terraces on the Selenga River delta, Lake Baikal, Siberia, GSA Annual Meeting, Seattle, WA.
111. **McElroy, B.**, *Ashley, T., 2017, Modeling Bedload Flux at Sediment Monitoring Stations on Supply-Limited, Sand-Bed Rivers, 2nd International Science Workshop of Morphodynamics and Socioeconomic Sustainability of Large River Deltas, Qingdao, China.
110. **McElroy, B.**, Shaw, J., *Miller, K., 2017, Formation of islands on deltas from radially symmetric flow expansion, RCEM, Padova, Italy.
109. Buscombe, D., Kaplinski, M., Grams, P., *Ashley, T., **McElroy, B.**, Rubin, D., 2017 The sand dunes of the Colorado River, Grand Canyon, USA, RCEM, Padova, Italy.

108. *Alexander, J., **McElroy, B.**, *Murr, M., 2017, Bankfull paleodepth scaling from clinofolds: a unique dataset from the sandy, braided Missouri National Recreational River, USA, RCEM, Padova, Italy.
107. Naqshband, S., Hoitink, A., **McElroy, B.**, 2017, River dune morphodynamics at the grain scale. RCEM, Padova, Italy.
106. *Ashley, T., **McElroy, B.**, Buscombe, D., Kaplinski, M., Grams, P., 2017, Modeling bedload flux at sediment monitoring stations on supply-limited, sand-bed rivers, ICFS, Calgary, AB, Canada.
105. *Mahon, R., Ganti, V., *Shaw, J., *Naqshband, S., **McElroy, B.**, 2017, Reconstructing paleo-shear velocity from the geometries of preserved bedform cross set bounding surfaces in the stratigraphic record, ICFS, Calgary, AB, Canada.
104. *Alexander, J., **McElroy, B.**, Huzurbazar, S., 2017, Distribution and uncertainty of bankfull paleo-depth estimates from fluvial clinofold heights exposed in outcrop, ICFS, Calgary, AB, Canada.
103. *Mahon, R., **McElroy, B.**, 2017, Indirect estimation of bedload flux from modern rivers and ancient fluvial strata, ICFS, Calgary, AB, Canada.
102. **McElroy, B.**, *Shaw, J., (invited) 2017, Formation of islands on deltas from radially symmetric flow expansion, JpGU Meeting, Chiba, Japan.
101. Gellis B., **McElroy, B.**, 2016, Promoting Art through Technology, Education and Research of Natural Sciences (PATTERNS) across Wyoming, A Wyoming NSF EPSCoR Funded Project, AGU Annual Meeting, San Francisco, CA.
100. Dong, T., Nittrouer, J., Czapiga, M., Ma, H., **McElroy, B.**, Ilyicheva, E., Pavlov, M., Parker, G., 2016, The signature of bankfull hydraulic conditions reflected by properties of the channel bank: a case study from the Selenga River delta, Lake Baikal, Russia, AGU Annual Meeting, San Francisco, CA.
99. Lapotre, M., Lamb, M., Ewing, R., **McElroy, B.**, 2016, Uniting ripple-formation theory under water and winds: A universal scaling relation for the wavelength of fluid-drag ripples across fluids and planetary bodies, AGU Annual Meeting, San Francisco, CA.
98. Hayden, A., Lamb, M., Fischer, W., Ewing, R., **McElroy, B.**, 2016, Formation of topographically inverted fluvial deposits on Earth and Mars, AGU Annual Meeting, San Francisco, CA.
97. *Alexander, J., *Murr, M., **McElroy, B.**, 2016, Depositional and erosional dynamics of emergent sandbars: a case study of the Platte River, Eastern Nebraska, AGU Annual Meeting, San Francisco, CA.
96. *Mahon, R., *Naqshband, S., **McElroy, B.**, 2016, Evaluating 2D models for fluvial bedform morphodynamics using flume experiments with profiling ADVs over a mobile sand bed, AGU Annual Meeting, San Francisco, CA.
95. *Naqshband, S., **McElroy, B.**, 2016, Testing and modeling particle excursion lengths for a wide range of flow conditions, AGU Annual Meeting, San Francisco, CA.
94. **McElroy, B.**, Ilyicheva, E., Pavlov, M., Nittrouer, J., Dong, T., Parker, G., Czapiga, M., 2016, Investigating Quaternary stratigraphy and geomorphology of the Selenga River delta, BTBSR International Conference, Chelan WA.
93. **McElroy, B.**, Huzurbazar, S., Hajek, L., Trampush, S., Lynds, R., (invited) 2016, Refining estimates and uncertainties in paleoslope estimates, GSA Annual Meeting, Denver, CO.

92. *Mahon, R., *Naqshband, S., **McElroy, B.**, 2016, 2D model for fluvial bedform morphodynamics: theory and empirical evaluation using profiling ADVs, GSA Annual Meeting, Denver, CO.
91. *Alexander, J., *Murr, M., **McElroy, B.**, 2016, Minding the gaps- paleodepth revisited, GSA Annual Meeting, Denver, CO.
90. **McElroy, B.**, 2016, Exploring formative controls and geomorphic implications of fluvial carbonate cements, Carpatho-Balkan-Dinaric Geomorphological Commission, Postojna, Slovenia.
89. *Naqshband, S., **McElroy, B.**, 2016, Quantifying grain excursion lengths for a wide range of flow conditions, River Flow, St. Louis, MO.
88. **McElroy, B.**, *Mahon, R., *Ashley, T., *Alexander, J., (invited), 2015, Scaling of sand flux over bed forms- experiments to field scale, AGU, San Francisco, CA.
87. *Ashley, T., **McElroy, B.**, Buscombe, D., Grams, P., Kaplinski, M., 2015, Examining the Relationship Between Suspended Sand Load and Bedload on the Colorado River Using Concurrent Measurements of Suspended Sand and Observations of Sand Dune Migration, AGU, San Francisco, CA.
86. *Alexander, J., **McElroy, B.**, 2015, How high do sandbars grow?, AGU, San Francisco, CA.
85. Hayden, A., Lamb, M., Fischer, W., Ewing, R., **McElroy, B.**, 2015, Paleo-hydraulic reconstructions of topographically inverted river deposits on Earth and Mars, AGU, San Francisco, CA.
84. Kaplinski, M., Buscombe, D., *Ashley, T., Tusso, R., Grams, P., **McElroy, B.**, Mueller, E., Hamill, D., 2015, Observations of Sand Dune Migration on the Colorado River in Grand Canyon using High-Resolution Multibeam Bathymetry, AGU, San Francisco, CA.
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80. *Mahon, R., Ganti, V., **McElroy, B.**, *Shaw, J., 2015, Reconstructing past fluvial flow conditions from the geometry of bedform cross sets in the stratigraphic record, BSG, Southampton, UK.
79. **McElroy, B.**, Hsu, L., Martin, R., *Miller, K., Kim, W., 2015, Data management, sharing, and reuse in experimental geomorphology: Challenges, strategies, and scientific opportunities, Binghamton, Buffalo, NY.
78. **McElroy, B.**, *Shaw, J., 2015, Backwater Scaling of Alluvial Bed Forms, RCEM, Iquitos, Peru.
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75. **McElroy, B.**, Hsu, L., Kim, W., Martin, R., *Miller, K., 2015, Experimental data management with SEN, CSDMS, Boulder, CO.
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73. *Rhodes, R., **McElroy, B.**, Campbell-Stone, E., 2015, Interpreting variability in the depositional history of the Wall Creek Member, Frontier Formation, Powder River Basin, Wyoming, USA, RMS-GSA, Casper, WY.
72. Nittrouer, J., Dong, T., Ilicheva, E., Pavlov, M., Parker, G., **McElroy, B.**, 2015, Sediment dispersal linked to hydrodynamics on the Selenga River delta topset, Lake Baikal: Combining field data and morphodynamic modeling, IGU, Moscow, Russia.
71. **McElroy, B.**, Abraham, D., 2015, Distinguishing bed-load and bed-material-load fluxes with repeat bathymetric data, SEDHYD, Reno, NV.
70. *Mahon, R., Ganti, V., **McElroy, B.**, 2014, Reconstructing fluvial flow and sediment transport conditions from preserved cross-set geometries in the sedimentary record, GSA, Vancouver, Canada.
69. *Mahon, R., *Shaw, J., Barnhart, K., Hopley, D., **McElroy, B.**, 2014, Completeness of shoreline trajectories in the stratigraphic record, GSA, Vancouver, Canada.
68. Rathburn, S., **McElroy, B.**, Wohl, E., Sutfin, N., Huson, K., 2014, RAPID assessment of extreme reservoir sedimentation resulting from the September 2013 flood, North St. Vrain Creek, CO, AGU, San Francisco, CA.
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65. *Rhodes, R., **McElroy, B.**, Campbell-Stone, E., 2014, Stratigraphic Architecture of the Frontier Formation, Powder River Basin, Wyoming, RMS-AAPG, Denver, CO.
64. *Mahon, R., *Shaw, J., Barnhart, K., Hopley, D., **McElroy, B.**, 2014, Quantifying the completeness of shoreline trajectories in the stratigraphic record, SEPM Research Conference: Autogenic dynamics of sedimentary systems, Grand Junction, CO.
63. **McElroy, B.**, 2014, Backwater zone fluctuations in freshwater reservoir deltas, International Deltas Meeting, Istomino, Russia.
62. *Trampush, S., **McElroy, B.**, Heller, P., 2013, Application of paleoslope reconstruction method to the Jurassic Morrison Formation in southeast Utah, AGU, San Francisco, CA.
61. *Logan, L., *Martin, E., **McElroy, B.**, 2013, Assessing Sediment and Organic Carbon Accumulation in Seminoe Reservoir, Wyoming, GSA, Denver, CO.
60. Willenbring, J., Codilean, A., Ferrier, K., Kirchner, J., **McElroy, B.**, 2013, Earth is (mostly) flat, but mountains dominate global denudation: Apportionment of the continental mass flux over millennial time scales, GSA, Denver, CO.
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56. Elliott, C., DeLonay, A., Braaten, P., Rhoten, J., Jacobson, R., **McElroy, B.**, Combs, D., Davenport, S., Mestl, G., Haas, J., Thorsby, M., Chojnacki, K., Bulliner, E., 2013, Pallid sturgeon migration habitat use on the Yellowstone and Missouri Rivers, MRNRC, Jefferson City, MO.
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54. Kim, W., Hsu, L., **McElroy, B.**, Martin, R., 2013, Building a network for sediment experimentalists and modelers, CSDMS Annual Meeting, Boulder, CO.
53. **McElroy, B.**, 2012. A new multipurpose teaching flume at the University of Wyoming, Calling All Experimentalists workshop, Austin, TX.
52. **McElroy, B.**, Willenbring, J., 2012. The rate of unzipping a landscape, AGU, San Francisco, CA.
51. *Trampush, S., **McElroy, B.**, Huzurbazar, S., 2012. Assessing and alluvial channel behavioral problem, AGU, San Francisco, CA.
50. **McElroy, B.**, 2012. What is preserved from dynamic bed evolution?, MYRES, Salt Lake City, UT.
49. Chapman, D., Deters, J., Garcia, T., Kocovsky, P., Mandrak, N., **McElroy, B.**, Murphy, E., 2012. (invited) Use of drift models to understand Asian cap spawning and early life history, AFS, Minneapolis, MN.
48. **McElroy, B.**, Braaten, P., Jacobson, R., 2012, Influence of bifurcation geometry on fluvial fish migration patterns, MRNRC, Pierre, SD.
47. DeLonay, A., Chojnacki, K., Papoulias, D., Elliott, C., Jacobson, R., Wildhaber, M., **McElroy, B.**, Archer, M., Mestl, G., 2012. Where Are You When I'm Not Looking: Insights into Pallid Sturgeon Behavior and Habitat Use From Surgically Implanted Data Storage Tags, MRNRC, Pierre, SD.
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45. Jacobson, R., **McElroy, B.**, Elliott, C., DeLonay, A., 2011. Habitat Complexity Metrics to Guide Restoration of Large Rivers. AGU, San Francisco, CA.
44. **McElroy, B.**, Abraham, D., 2011. Distinguishing Bed-load and Bed-material-load Fluxes with Repeat Bathymetric Data. GSA, Minneapolis, MN.
43. **McElroy, B.**, Jacobson, R., DeLonay, A., 2011. (invited) Understanding Habitat Needs for Rare Fish with Long Term Telemetric Studies: Pallid Sturgeon in the Lower Missouri River. AFS, Seattle, WA.
42. Chapman, D., Deters, J., George, A., Masagounder, K., **McElroy, B.**, 2011. Aspects of the Early Life History of Bighead and Silver Carps Pertaining to Spawning River Requirements. AFS, Seattle, WA.
41. DeLonay, A., Vishy, C., **McElroy, B.**, Chojnacki, K., 2011. Deployment of DIDSON In the Lower Missouri River to Examine Sturgeon Behavior. AFS, Seattle, WA.

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39. **McElroy, B.**, Jacobson, R., DeLonay, A., 2011. Theory of Optimum Pathways of Fish Spawning Migrations in Rivers. USGS OSW & Hydroacoustics meeting, Tampa, FL.
38. **McElroy, B.**, Abraham, D., 2011. Distinguishing Bed-load and Bed-material-load Fluxes with Repeat Bathymetric Data. USGS OSW & Hydroacoustics meeting, Tampa, FL.
37. Lamb, M., Nittrouer, J., Chatanantavet, P., **McElroy, B.**, Kopriva, B., Shaw, J., Mohrig, D., 2011. The influence of fluvial-backwater and plunge-point dynamics on hyperycnal plume generation. Chapman conference, Oxnard, CA.
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31. **McElroy, B.**, Willenbring, J., Wilkinson, B., Mohrig, D., 2010. Insights from comparing variability in rates of topographic change over tens to hundreds of years in a channel network. GSA, Denver, CO.
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28. **McElroy, B.**, 2009. Temporal scaling of sediment flux and topographic change in a sandy channel. Stochastic Transport and Emergent Scaling in Earth-Surface Processes Workshop 2, Reno, NV.
27. Wilkinson, B., **McElroy, B.**, 2009. (invited) The impact of humans on continental erosion and sedimentation. AGU, San Francisco, CA.
26. Rothman, D., Abrams, D., Devauchelle, O., Petroff, A., Lobkovsky, A., Straub, K., **McElroy, B.**, Mohrig, D., Kudrolli, A., 2009. (invited) Growth of a dendritic channel network. AGU, San Francisco, CA.

25. Lamb, M., Mohrig, D., **McElroy, B.**, Kopriva, B., Shaw, J., 2009. Reading river response to climate change from hyperpycnal-plume deposits. AGU, San Francisco, CA.
24. **McElroy, B.**, 2008. What sets the width of interdistributary bars? Meeting of Young Researchers in Earth Science, New Orleans, LA.
23. **McElroy, B.**, Mohrig, D., Buttles, J., 2008. Experiments on Substrate Erosion via Subcritical Turbidity Currents. SEPM-AAPG, San Antonio, TX.
22. Willenbring, J., **McElroy, B.**, 2008. Continental erosion and the gross control of topography over multiple time- and space-scales. EGU, Vienna, Austria.
21. **McElroy, B.**, Willenbring, J., Mohrig, D., 2007. Decadal to centennial variability of erosion rates in a rapidly degrading channel network. AGU, San Francisco, CA.
20. Ewing, R., **McElroy, B.**, Andrews, B., 2007. Point pattern analysis of star dune fields, AGU, San Francisco, CA.
19. Abrams, D., Lobkovsky, A., **McElroy, B.**, Mohrig, D., Petroff, A., Rothman, D., Straub, K., 2007. Evidence for the dynamical origin of ordered channel networks driven by subsurface flow. AGU, San Francisco, CA.
18. Buttles, J., Mohrig, D., Nittrouer, J., **McElroy, B.**, Baitis, E., Allison, M., Paola, C., Parker, G., Kim, W., 2007. Partitioning of water discharge by distributary channels in the prograding Wax Lake Delta, coastal Louisiana, USA. AGU, San Francisco, CA.
17. **McElroy, B.**, Staiger, J., 2007. Continental erosion at millennial timescales. GSA, Denver, CO.
16. Staiger, J.W., **McElroy, B.**, Perg, L., 2007. Continental erosion averaged over space and time. Goldschmidt, Cologne, Germany.
15. **McElroy, B.**, Mohrig, D., Buttles, J., 2006. Experiments on Substrate Erosion via Subcritical Turbidity Currents. AGU, San Francisco, CA.
14. **McElroy, B.**, Owens, H., Mohrig, D., Rothman, D., Lobkovsky, A., 2006. Decadal to Centennial Erosion Rates in Seepage Channels of the Florida Panhandle. GSA, Philadelphia, PA.
13. Wilkinson, B., **McElroy, B.**, 2006. The Impact of Humans On Continental Erosion and Sedimentation. GSA, Philadelphia, PA.
12. **McElroy, B.**, Mohrig, D., 2006. The Relation of Variability in Sand Bed Topography to Sediment Transport. AGU, Baltimore, MD.
11. **McElroy, B.**, Jerolmack, D., Mohrig, D., 2005. Continuum Statistics of the Bed Topography in a Sandy River. AGU, San Francisco, CA.
10. Straub, K., Mohrig, D., Buttles, J., **McElroy, B.**, Pirmez, C., 2005. When Does Flow Splitting Occur in Submarine Channel Bends. SEPM-AAPG, Calgary, Alberta.
9. Mohrig, D., Straub, K., Buttles, J., **McElroy, B.**, and Pirmez, C., 2005. Sedimentation Patterns in Zones of Flow Separation Along the Inner Banks of Bends in Submarine Channels. SEPM-AAPG, Calgary, Alberta.
8. Mohrig, D., **McElroy, B.**, Jerolmack, D., 2004. Adjustments Within Trains of Dunes Driving Bar Growth in a Sandy Braided Channel. SEPM-AAPG, Dallas, TX.
7. Jerolmack, D., **McElroy, B.**, Mohrig, D., 2004. Autogenic variability and dynamic steady- state in sand-bedded rivers. AGU, San Francisco, CA.
6. **McElroy, B.**, Wilkinson, B., 2002. Quantifying Latitudinal Variations of Continental Physiography. AGU, San Francisco, CA.

5. **McElroy, B.**, Wilkinson, B., Rothman, E., 2002. Geologic framework of political division. GSA, Denver, CO.
4. **McElroy, B.**, Smith, G., Wilkinson, B., 2001. A Species-Area Relation For Lower Michigan Fishes. GSA, Boston, MA.
3. Ruff, L., Steinberg, D., and **McElroy, B.**, 2001. Seismotectonics of Recent Large Earthquakes at 50 km Depth within Subducted Slabs. AGU, Boston MA.
2. **McElroy, B.**, Wilkinson, B., 2001. A Slope-Area Relation From Global Hypsometry. AGU, Boston, MA.
1. **McElroy, B.**, Ruff, L., 2000. The Large 1999 Sept 30 Oaxaca Earthquake. AGU, Washington D.C.

** Denotes advisee author, students & post-docs*

COMMITTEES

Geology & Geophysics, Crustal Dynamics Search, Head, 2017

Zoology & Physiology, Ecosystem Ecologist Search, 2017

Geology & Geophysics, Head's Advisory Committee, 2017, 2014, 2013

Geology & Geophysics, Curriculum Committee, Head, 2017, 2016

Geology & Geophysics, Graduate Admissions Committee, 2016, 2013, 2012

Geology & Geophysics, Ad Hoc Committee on Summer Field Course, 2013

School of Energy Resources, Faculty Search Committee, 2013, 2012

Geology & Geophysics, Graduate Handbook Development Committee, 2013, 2012

U.S. Geological Survey, Columbia Environment Research Center, Ad hoc hiring committee, 2012

University of Michigan, Geological Sciences, Earth Surface Process Hiring Committee, Student member, 2002

STUDENT ADVISING/GRADUATE SUPERVISION

UNDERGRADUATE STUDENTS:

- 14 Current Advisees – 2017
- 12 Previous Advisees – 2015
- 12 Previous Advisees – 2014
- 17 Previous Advisees – 2013
- 11 Previous Advisees – 2012

GRADUATE STUDENTS:

Current Graduate Advisees:

Jason Alexander (PhD)
 Tom Ashley (PhD)
 Kara Hoppes (MS)
 Xiaoni Hu (MS)
 Derek Lichtner (PhD)

Current Graduate Committee Chairmanships:

Jason Alexander (PhD)
 Tom Ashley (PhD)
 Kara Hoppes (MS)
 Xiaoni Hu (MS)
 Derek Lichtner (PhD)

Graduate Committee Memberships (excluding those chaired):

1 MS current (A. Platt at NAU)
 8 MS previous (T. Brussel, R. Chakradhar, E. Dilbone, C. Leonard, M. Lockwood, K. Mieras, R. Richards, J. Stern, S. Toan)
 7 PhD current (R. Herz-Thysen, R. Haupt, B. Kohler, B. Overstreet, L. Kant, N. Maier, T. dong at Rice U.)
 4 PhD previous (J. Hoffman, C. Lukens, J. Marsicek, H. Rogers.)

Graduate Degrees Completed Under Supervision

Robert Mahon, 2017 (PhD)
 Rebekah Rhodes, co-advised w/ E. Campbell-Stone, 2015 (MS)
 Sheila Trampush, co-advised w/ P. Heller, 2013 (MS)

POSTDOCTORAL RESEARCH ASSOCIATES:

Previous:

Kim Miller (2015-2017)
 Suleyman Naqshband (2015-2016), now at Wageningen University
 John Shaw (2013-2014), now at University of Arkansas