DOUGLAS A. EDMONDS

CURRICULUM VITAE

Work Address:
Indiana University
1001 E. Tenth St
Bloomington, IN 47405

Email: edmondsd 'at' Indiana.edu

APPOINTMENTS

Associate Professor	**Indiana University** Malcolm and Sylvia Boyce Chair Department of Earth and Atmospheric Sciences	**2017-**
Assistant Professor	**Indiana University**	**2012-2017**
Assistant Professor	**Boston College,** Department of Earth and Environmental Sciences	**2010-2012**
Post-doctoral Researcher	**National Center for Earth Surface Dynamics and Saint Anthony Falls Laboratory University of Minnesota** Advisor: Dr. Chris Paola	**2009-2010**

EDUCATION

Ph.D.	**The Pennsylvania State University,** Department of Geosciences Dissertation title: Growth and Evolution of Distributary Deltas Advisor: Dr. Rudy Slingerland	**2009**
M.Sc.	**The Pennsylvania State University**, Department of Geosciences Thesis title: Mechanics of River Mouth Bar Formation Advisor: Dr. Rudy Slingerland	**2006**
B.Sc.	**Saint Louis University,** ***summa cum laude,*** Department of Earth and Atmospheric Sciences	**2003**

SELECTED AWARDS and FELLOWSHIPS

Keynote speaker, Indiana University Winter College	**2020**
IU Trustees Teaching Award Winner	**2016**
Editors' Citation for Excellence in Refereeing for *Geophysical Research Letters*	**2015**
Alfred P. Sloan Research Fellow in Ocean Sciences	**2014-2016**
Certificate of Recognition for exemplary oral presentation, AAPG/SEPM	**2011**

PEER-REVIEWED JOURNAL ARTICLES

Underlined author is a student or postdoc advised or mentored by Edmonds

Gearon, JH, Martin, HK, DeLisle, C., Barefoot, E., Mohrig, D., Paola, C., and **Edmonds, DA,** Rules of River Avulsion Change Downstream, *Nature,* in review

Valenza, J., **Edmonds, DA,** Martin, HK, Sifuentes, C, and Toby, S., Stratigraphic architecture of fluvial fans shaped by downstream changes in avulsion style, *Sedimentology, in review*

Arcuri J., **Edmonds DA**, and Robeson, S., Nonlocal effects from bend cutoffs generate clustering on meandering rivers, Geophysical Research Letters, *in review*

Sifuentes, CB, Martin, HK, Straub, KM, Hajek, EA, **Edmonds, DA**, Floodplain topography and avulsion pathfinding control stratigraphic architecture in a numerical model of a fluvial fan, *Journal of Sedimentary Research, in review*

Doane, T, Gearon, JH, Martin, HK, Yanites, BJ, **Edmonds DA**, Topographic Roughness as an Emergent Property of Geomorphic Processes and Events, *AGU Advances*, in review

75. Martin, HK, **Edmonds DA**, Yanites, BJ, and Niemi H, Quantifying landscape change following the catastrophic dam failures in Edenville and Sanford, MI, USA, *Earth Surface Processes and Landforms, in revision*
74. Martin, HK, **Edmonds DA**, Lewis QW, Four years of meandering captured by drone-based lidar surveys reveal lack of width maintenance on the White River, Indiana, USA, *Journal of Geophysical Research-Earth Surface, in revision*
73. Chenevert, E., and **Edmonds, DA** (2024) Machine Learning Predictions of Vertical Accretion in the Mississippi River Deltaic Plain, Journal of Geophysical Research – Earth Surface, *accepted*
72. Henson, R.H., **Edmonds, DA,** Lazarus, E. (2024) Remotely sensed land-cover change and floodplain disturbance following upstream-migrating river avulsions in tropical rainforests, *River Research and Applications*, 1-16, doi:10.1002/rra.4256
71. Martin, HK, and **Edmonds, DA** (2023) Avulsion dynamics determine fluvial fan morphology in a cellular model, *Geology,* https://doi.org/10.1130/G51138.1
70. Nienhuis, J.H., Ashton, A.D., **Edmonds, D.A.**, Hoitink, AJF, Kettner, AJ, Rowland, JC, Tornqvist, TE, (2023) Reply to: Concerns about data linking delta land gain to human action. *Nature* 614, E26–E28 https://doi.org/10.1038/s41586-022-05625-w
69. **Edmonds, DA**, Toby, SC, Siverd, CG, Twilley, R, Bentley, SJ, Hagen, S, and K Xu, (2023) Land loss due to human-altered sediment budget in the Mississippi River delta, *Nature Sustainability* https://doi.org/10.1038/s41893-023-01081-0
68. L. Vulis, A. Tejedor, H. Ma, J. H. Nienhuis, C. M. Broaddus, J. Brown, **D. A. Edmonds**, J. C. Rowland, and E. Foufoula-Georgiou, (2023) River delta morphotypes emerge from multiscale characterization of shorelines, *Geophysical Research Letters*
67. Doane, TH, Yanites, BJ, **Edmonds, DA**, and Novick K, (2023) Hillslope Roughness Reveals Forest Sensitivity to Extreme Winds, *Proceedings of the National Academy of* Sciences, *120*(3), e2212105120, https://doi.org/10.1073/pnas.2212105120
66. Nienhuis, J. H., Cox, J. R., O'Dell, J., **Edmonds, D. A.**, and Scussolini, P., (2022) A global open-source database of flood-protection levees on river deltas (openDELvE), *Nat. Hazards Earth Syst. Sci.*, 22, 4087–4101, https://doi.org/10.5194/nhess-22-4087-2022.
65. Broaddus, C.M., Vulis, LM, Nienhuis, JH, Tejedor, A, Brown, J, Foufoula-Georgiou, E, **Edmonds, DA**, (2022) First-order river delta morphology is explained by the sediment flux balance from rivers, waves, and tides, *Geophysical Research Letters, 10.1029/2022GL100355*
64. Lee, D.B., Martin, H.K., and **Edmonds, D.A.**, (2022) A method to detect abrupt shifts in river channel position using a Landsat-derived water occurrence record, *Earth Surface Processes and Landforms,* doi: https://doi.org/10.1002/esp.5472
63. Brooke, S, Chadwick, AJ, Silvestre, J, Lamb, MP, **Edmonds, DA**, and Ganti, V, (2022) Where Rivers Jump Course, *Science*, doi: 10.1126/science.abm1215
62. Valenza, JM, **Edmonds DA**, and Weissmann, GS, (2022) Quantifying river avulsion activity from satellite remote sensing: Implications for how avulsions build floodplains and stratigraphy in foreland basins, *Journal of Sedimentary Research,* https://doi.org/10.2110/jsr.2021.038
61. Martin, H.K., and **Edmonds, D.A.,** (2022) The push and pull of abandoned channels: How floodplain processes and healing affect avulsion dynamics and alluvial landscape evolution in foreland basins, *Earth Surface Dynamics,* https://doi.org/10.5194/esurf-2021-82
60. **Edmonds, DA**, Martin, H, Valenza, J, Henson, R, Weissmann, G, Miltenberger, K, Mans, W, Moore, J, Slingerland, R, Gibling, M, Bryk, A, and Hajek, E, (2022) Rivers in reverse: upstream-migrating

dechannelization and flooding cause avulsions on fluvial fans, *Geology,* v 49, https://doi.org/10.1130/G49318.1

59. Knights, D, Sawyer, A, **Edmonds, DA**, Olliver, E, and Barnes, R, (2021) The Relationship between Delta Form and Nitrate Retention Revealed by Numerical Modeling Experiments, *Water Resources Research, 10.1029/2021WR030974*
58. Naylor, SN, Wickert, A, **Edmonds, DA**, and Yanites BJ, (2021) Landscape evolution under the Southern Laurentide ice sheet, *Science Advances, 10.1126/sciadv.abj2938*
57. Doane, TH, **Edmonds, DA**, Yanites, BJ, and Lewis, QW, (2021) Topographic roughness on forested hillslopes: a theoretical approach for quantifying hillslope sediment flux from tree throw, *Geophysical Research Letters,* https://doi.org/10.1029/2021GL094987
56. Olliver EA, and **Edmonds DA**, (2021) Hydrological connectivity controls magnitude and distribution of sediment deposition within the deltaic islands of Wax Lake Delta, LA, USA, Journal of Geophysical Research-Earth Surface, https://doi.org/10.1029/2021JF006136
55. Sumaiya S, Czuba, JA, Schubert, JT, David SR, Johnston GH, **Edmonds, DA** (2021) Sediment Transport Potential in a Hydraulically Connected River and Floodplain-Channel System, Water Resources Research, 10.1029/2020WR028852, 57, 5.
54. **Edmonds, DA**, Chadwick, AJ, Lamb, MP, Lorenzo-Trueba, J, Murray, AB, Nardin, W, Salter, G., and Shaw JB, (2021) Morphodynamic modelling of river-dominated deltas: a review and future perspectives, *Treatise of Geomorphology, vol. 2,* doi.org/10.1016/B978-0-12-818234-5.00076-6
53. Gunn, A, Wanker M, Lancaster, N, **Edmonds, D**, Ewing, R, and Jerolmack, D, (2021) Circadian rhythm of dune-field activity, *Geophysical Research Letters,* doi.org/10.1029/2020GL090924
52. **Edmonds DA,** Caldwell, RL, Brondizio, E., Siani, S., (2020) Coastal flooding will disproportionately impact people on river deltas, *Nature Communications,* https://doi.org/10.1038/s41467-020-18531-4
51. Roy, S., Robeson, SM, Ortiz, AC, and **Edmonds, DA**, (2020) Spatial and temporal patterns of land loss in the Lower Mississippi River Delta from 1983-2016, *Remote Sensing of the Environment*, https://doi.org/10.1016/j.rse.2020.112046
50. Knights, D, Sawyer, AH, Barnes, RT, Piliouras, A, Schwenk, J, **Edmonds, DA**, and Brown AM, (2020) Nitrate removal across ecogeomorphic zones in Wax Lake Delta, Louisiana (USA), *Water Resources Research*, https://doi.org/10.1029/2019WR026867
49. Gunn, A., Schmutz, P., Wanker, M, **Edmonds, DA**, Ewing, RC, Jerolmack, DJ, (2020) Macroscopic flow disequilibrium over aeolian dune-fields, *Geophysical Research Letters,* doi.org/10.1029/2020GL088773
48. Lindroth, EM, Rhoads, BL, Castillo, CR, Czuba, JA, Guneralp, I, **Edmonds, DA**, (2020) Spatial Variability in Bankfull Stage and Bank Elevations of Lowland Meandering Rivers: Relation to Stage-Discharge Relations and Channel Planform Characteristics, *Water Resources Research*, https://doi.org/10.1029/2020WR027477
47. Valenza, J., **Edmonds DA**, Hwang, T., and Roy, S., (2020) Downstream changes in river avulsion style are related to channel morphology, *Nature Communications,* doi.org/10.1038/s41467-020-15859-9
46. Lewis, Q.W., **Edmonds, D.A.**, and Yanites, B.J., (2020) Integrated UAS and Lidar Reveals the Importance of Land Cover and Flood Magnitude on the Formation of Incipient Chute Holes and Chute Cutoff Development, Earth Surface Processes and Landforms, *https://doi.org/10.1002/esp.4816*
45. Nienhuis, J. H., Ashton, A. D., **Edmonds, D. A.**, Hoitink, A. J. F., Kettner, A. J., Rowland, J. C., & Tornqvist, T. E. (2020). Global-scale human impact on delta morphology has led to net land area gain. Nature, 1. doi:10.1038/s41586-019-1905-9
44. Olliver, E, **Edmonds, D.**, and Shaw, J, (2020) Influence of floods, tides, and vegetation on sediment retention in Wax Lake Delta, LA, USA, Journal of Geophysical Research-Earth Surface, doi.org/10.1029/2019JF005316
43. Caldwell, RL, **Edmonds, DA**, Baumgardner, S, Paola, C, Roy, S, and Nienhuis, J., (2019) A global delta dataset and the environmental variables that predict delta formation on marine coastlines, *Earth Surface Dynamics,* doi.org/10.5194/esurf-7-773-2019
42. Johnston, GJ, David SR, **Edmonds, DA**, (2019), Connecting fluvial levee deposition to flood-basin hydrology, *Journal Of Geophysical Research: Earth Surface,* doi.org/10.1029/2019JF005014
41. Zheng, S., **Edmonds, DA**, Wu, B., (2019), Backwater controls on evolution and avulsion of the Qingshuigou channel on the Yellow River Delta, *Geomorphology,* doi.org/10.1016/j.geomorph.2019.02.032

40. Czuba, JA, David, SR, **Edmonds, DA**, and Ward AS, (2019), Dynamics of surface-water connectivity in a low-gradient meandering river floodplain, *Water Resources Research,* doi.org/10.1029/2018WR023527
39. David, SR, Czuba, JA, and **Edmonds, DA**, (2018) , Channelization of meandering river floodplains by headcutting, *Geology* 47 (1): 15-18, https://doi.org/10.1130/G45529.1
38. Shaw, JB, Estep, J, Whaling, AR, Sanks, KM, and Edmonds, DA (2018), Measuring Subaqueous Progradation of the Wax Lake Delta with a Model of Flow Direction Divergence, *Earth Surface Dynamics,* doi.org/10.5194/esurf-2018-47
37. Zheng, S., Han, S., Guangming, T., Xia, J., Wu, B., Wang, K., and **Edmonds, D.A.**, (2018) Morphological adjustment of the Qingshuigou channel on the Yellow River Delta and factors controlling its avulsion, *Catena,* 166, 44-55, doi.org/10.1016/j.catena.2018.03.009
36. Tejedor, A., Longjas, A, **Edmonds, DA**, Zaliapin, I, Georgiou, T., Rinaldo, A., and Foufoula-Georgiou, E, (2017) Entropy and optimality in river deltas, *Proceedings of the National Academy of Sciences* 114 (44), 11651-11656, doi.org/10.1073/pnas.1708404114
35. Moron, S., Amos, K., **Edmonds, D.A.**, Payenberg, T., Sun, X., and Thyer, M., (2017), Avulsion triggering by El Niño-Southern Oscillation and tectonic forcing on the tropical Magdalena River, Colombia. *Geological Society of America Bulletin*, 129 (9-10): 1300–1313. https://doi.org/10.1130/B31580.1
34. Millard, C., Hajek, E., **Edmonds, DA**, (2017)**,** Evaluating controls on crevasse-spay size: Implications for floodplain-basin filling, *Journal of Sedimentary Research, v. 87, 722-739*
33. Olliver, E., and **Edmonds, D.A.**, (2017) Defining the succession of land building for freshwater, intertidal wetlands within the Wax Lake Delta, Louisiana, *Estuarine and Coastal Shelf Science,* 196, 45-57
32. Ortiz, A.C., Roy, S, and **Edmonds, D.A.**, (2017) Land loss by pond expansion on the Mississippi River Delta Plain, *Geophysical Research Letters,* 44, 3635–3642, doi:10.1002/2017GL073079.
31. Moron, S., **Edmonds, D.A.,** Amos, K., (2017) The role of floodplain width and alluvial bar growth as a precursor for the formation of anabranching rivers, *Geomorphology, DOI: 10.1016/j.geomorph.2016.10.026*
30. Rossi, VM, Kim, W, Lopez, JL, **Edmonds, DA**, Geleynse, N, Olariu, C, Steel, R, Hiatt, M, and Passalacqua, P, (2016) Impact of tidal currents on delta-channel deepening, stratigraphic architecture and sediment bypass beyond the shoreline, *Geology, DOI: 10.1130/G38334.1*
29. **Edmonds, DA,** Hajek, EA, Downton, N, and Bryk, A, (2016) Avulsion flow-path selection on rivers in foreland basins, *Geology, doi:10.1130/G38082.1*
28. David, S.R., **Edmonds, D.A.,** Letsinger, S., (2016) Controls on the occurrence and prevalence of floodplain channels in meandering rivers, *Earth Surface Processes and Landforms, doi: 10.1002/esp.4002*
27. Twilley, RT, Bentley, SJ, Chen, QJ, **Edmonds, DA**, Hagen, SC, Lam, N, Willson, CS, Xu, K, Braud, D, Peale, HR, (2016), Co-evolution of wetland landscapes, flooding and human settlement in the Mississippi River Deltaic Plain, *Sustainability Science,* 1-21, doi: 10.1007/s11625-016-0374-4
26. Tejedor, A., Longjas, A, Caldwell, RL, **Edmonds, DA**, Zaliapin, I, and Foufoula-Georgiou, E, (2016), Quantifying the signature of sediment composition on the topologic and dynamic complexity of river delta channel networks and inferences towards delta classification, *Geophys. Res. Lett.*, 43, doi: 10.1002/2016GL068210.
25. Nardin, W., **Edmonds, D.A.**, and Fagherazzi, S., (2016) Influence of vegetation on spatial patterns of sediment deposition in deltaic islands during flood *Advances in Water Resources, 10.1016/j.advwatres.2016.01.001*
24. Sawyer, A. H., **Edmonds, D. A.**, and D. Knights (2015), Surface water-groundwater connectivity in deltaic distributary channel networks, *Geophys. Res. Lett.*, 42, doi:10.1002/2015GL066156.
23. Nijhuis, A., **Edmonds, DA.**, Caldwell, RL, Cederberg, JA, Slingerland, RL, Best, JL, Parsons, DR, and Robinson, RAJ, (2015) Fluvio-deltaic avulsions during relative sea-level fall, *Geology* DOI:10.1130/G36788.1
22. Fagherazzi, S. **Edmonds, D.A.**, Nardin, W., Leonardi, N., Canestrelli, A., Falcini, F., Jerolmack, D., Mariotti, G., Rowland, J.C., and Slingerland, R.L., (2015) Dynamics of river mouth deposits, *Review of Geophysics*, 10.1002/2014RG000451
21. Burpee A.P., Slingerland, R.L., **Edmonds, D.A.**, Parsons, D., Best, J., Cederberg, J., McGuffin, A., Caldwell, R.L., Nijhuis, A., and Royce, J., (2015) Grain size control on the morphology and stratigraphy of river-dominated deltas, *Journal of Sedimentary Research, 10.2110/jsr.2015.39*

20. Liang, M.L., N.G. Geleynse, **Edmonds, D.A.**, and P.P. Passalacqua, (2015*)* A reduced-complexity model for river delta formation: Part II – Validation of the flow routing scheme, *Earth Surface Dynamics 3.1, p. 87-104*
19. Nardin, W., and **Edmonds, D.A.**, (2014) Optimal vegetation height for sedimentation in deltaic marshes, *Nature Geoscience*, v. 7, no. 10, p. 722-726.
18. Caldwell, R.L., and **Edmonds, D.A.**, (2014) A numerical modeling study of the effect of sediment properties on delta process and morphology *JGR-Earth Surface, doi: 10.1002/2013JF002965*
17. Hajek, E.A., and **Edmonds, D.A.**, (2014) Is river avulsion style controlled by floodplain morphodynamics? *Geology, doi:10.1130/G35045.1*
16. Canestrelli, A., Nardin, W., **Edmonds, D.A.**, Fagherazzi, S., and Slingerland R.L., (2014) Importance of frictional effects and jet instability on the morphodyanmics of river mouth bars and levees J*GR-Oceans,* 119, doi:10.1002/2013JC009312
15. **Edmonds, D.A.** and Caldwell, R.L., (2014) River Delta Processes and Shapes, *Encyclopedia of Natural Resources, ed.* Y.Q. Wang
14. Nardin, W., Mariotti, G., **Edmonds, D.A.**, Guerico, R., and Fagherazzi, S., (2013), Growth of river mouth bars in sheltered bays in the presence of frontal waves, J. Geophys. Res. Earth Surf., 118, 872–886, doi:10.1002/jgrf.20057.
13. Snyder, N.P., Nesheim, A.O., Wilkins, B.C., and **Edmonds, D.A.,** (2013) Predicting grain size in gravel-bedded rivers using digital elevation models: application to paraglacial watersheds in Maine. Geological Society of America Bulletin 125.1-2 (2013): 148-163
12. **Edmonds, D.A.** (2012) Restoration Sedimentology, *Nature Geoscience*, 5 (11): 758 DOI: 10.1038/ngeo1620
11. **Edmonds, D. A.**, (2012) Stability of backwater influenced bifurcations: a study of the Mississippi-Atchafalaya bifurcation. *Geophysical Research Letters, 39*, L08402, doi:10.1029/2012GL051125.
10. **Edmonds, D. A.**, Paola, C., Hoyal, D., Sheets, B. (2011) Metrics to quantify the morphology of river deltas and their channel networks. *Journal of Geophysical Research—Earth Surface*, doi:10.1029/2010JF001955
9. **Edmonds, D.A.**, Shaw, J., and Mohrig, D., (2011) Topset-dominated deltas: a new model for river delta stratigraphy, *Geology*, 39, p. 1175–1178; doi:10.1130/G32358.1
8. Paola, C., Twilley, R., **Edmonds, D. A.**, Kim, W., Mohrig, D., Parker, G., Viparelli, E., Voller, V. (2011) Natural Processes in Delta Restoration: Application to the Mississippi Delta. *Annual Reviews of Marine Science*, 25.
7. Wolinsky, M., **Edmonds, D. A.**, Martin, J., Paola, C. (2010). Delta Allometry: Growth Laws for River Deltas. *Geophysical Research Letters, 37*, L21430, doi:10.1029/2010GL044592.
6. **Edmonds, D.A.,** R.L. Slingerland, J. Best, D. Parsons, N. Smith (2010), The response of river-dominated delta networks to permanent changes in river discharge, *Geophysical Research Letters*, 37, L12404, doi:10.1029/2010GL043269.
5. **Edmonds, D. A.**, and R. L. Slingerland (2010), Significant effect of sediment cohesion on delta morphology, *Nature-Geoscience*, 3, 105–109, doi:10.1038/ngeo730.
4. **Edmonds, D.A.**, D. Hoyal, B. Sheets, and R. Slingerland (2009), Predicting delta avulsions: Implications for coastal wetland restoration, *Geology*, 37, 759–762, doi:10.1130/G25743A.1.
3. Smith, N.D., Perez-Arlucea, M., **Edmonds, D.A.**, and Slingerland, R.L., (2009) Elevation adjustments of paired natural levees during flooding of the Saskatchewan River, *Earth Surface Processes and Landforms,* doi: 10.1002/esp.1792
2. **Edmonds, D. A.**, and R. L. Slingerland (2008), Stability of delta distributary networks and their bifurcations, *Water Resources Research*, 44, W09426, doi:10.1029/2008WR006992.
1. **Edmonds, D. A.**, and R. L. Slingerland (2007), Mechanics of river mouth bar formation: Implications for the morphodynamics of delta distributary networks, *Journal of Geophysical. Research*, 112, F02034, doi:10.1029/2006JF000574

GRANTS PENDING

National Science Foundation, Foundational Research in Robotics
Collaborative Research: RiverHub: Profiling Our Rivers with Autonomous Surface Vehicles

$1,241,733 **2023- 2026**

INTERNAL GRANTS FUNDED

Indiana University Grand Challenge
Preparing for Environmental Change
STREAMS: Spatial and temporal evolution and modeling of streams, $509,021 **2018-2021**

EXTERNAL GRANTS FUNDED

*N***ational Science Foundation: Directorate for Geosciences**
Earth Sciences Division
Geomorphology and Landuse Dynamics Program (NSF 2321056)
Collaborative Research: Unraveling the Controls on the Origin and Environmental Functioning of Oxbow Lakes, $245,526 **2022-2025**

United States Department of Agriculture, Water Quality Program
How Farming Decisions Influence Soil Erosion In Marginal, Agricultural Floodplain Agroecosystems, $750,000 ($338,419 to Edmonds) **2023-2027**

National Science Foundation: Directorate for Geosciences
Earth Sciences Division
Geomorphology and Landuse Dynamics Program (NSF 2218293)
Combining Theory, Deep Learning, and Lidar to Test Climate and Slope Controls on Tree Throw Production on Hillslopes, $409,423 **2022-2025**

National Science Foundation: Directorate for Geosciences
Earth Sciences Division
Geomorphology and Landuse Dynamics Program (NSF 2038072)
RAPID: Quantifying the fluvial response to cascading dam failures at Edenville and Sanford, Michigan, $22,428 **2021**

National Science Foundation: Directorate for Geosciences
Earth Sciences Division
Geomorphology and Landuse Dynamics Program (NSF 1911321)
Testing models for river avulsion style with remote sensing and numerical simulations, $299,831 **2019-2023**

National Science Foundation: Directorate for Geosciences
Earth Sciences Division
Geomorphology and Landuse Dynamics Program (NSF 1812019)
Understanding deltas from the lens of their channel networks, $127,818 **2018-2022**

National Science Foundation: Directorates for Geoscience & Engineering
Earth Sciences Division
Coastal Science, Engineering, and Education for Sustainability (NSF 1426997)
Collaborative Research: Changes in actual and perceived coastal flood risks due to river management strategies, $232,615 **2014-2020**

National Center for Earth Surface Dynamics 2
Earthcasting land loss in the Mississippi River Delta, $48,285 **2016-2017**

Chevron Energy and Technology Company
Forward numerical model of stratal architecture in deltaic environments, $50,000 **2014-2017**

ExxonMobil Upstream Research Company
Forward numerical model of stratal architecture in deltaic environments, $55,545 **2014-2015**

Alfred P. Sloan Foundation—Ocean Sciences
Understanding the effects of vegetation on river delta resiliency, $50,000 **2014-2018**

American Chemical Society, Petroleum Research Fund
New Directions Grant (ACS/PRF 54670-ND8)
A theoretical and field-based study on the formation and shape of levees, $110,000 **2014-2017**

National Science Foundation: Directorate for Geosciences
Earth Sciences Division
Geomorphology and Landuse Dynamics Program (NSF 1249330)
Defining controls on incisional avulsions in alluvial basins, $112,307 **2012-2016**

National Science Foundation: Directorate for Geosciences
Ocean Sciences Division
Frontiers in Earth Systems Dynamics Program (NSF 1135427)
A Delta Dynamics Collaboratory, subcontract of $291,951 to Edmonds **2011-2017**

National Science Foundation: Directorate for Geosciences
Ocean Sciences Division
Marine Geology and Geophysics (NSF 1061380)
Catchments and Coastlines--The Influence of Sediment Load and Type on Delta Morphodynamics and Deposits, $149,338 **2011-2014**

INVITED TALKS

University of North Carolina-Chapel Hill	**Spring 2023**
Professional Geologists of Indiana University	**Fall 2021**
Indiana University, O'Neill School, Missouri School of Mines	**Fall 2020**
Texas Christian University	**Fall 2019**
University of South Carolina	**Spring 2019**
University of Texas	**Fall 2018**
GeoPRISMS annual meeting	**Fall 2018**
Hull University, UK	**Fall 2017**
Ohio State University	**Fall 2016**
IUPUI	**Fall 2015**
Keynote, Geological Society of London Paralic Conference	**Spring 2015**
Michigan State University	**Fall 2015**
University of Illinois (civil engineering)	**Fall 2014**
Rice University	**Spring 2014**
University of Kentucky, Louisiana State University	**Fall 2013**
University of Illinois	**Spring 2013**
University of Delaware	**Spring 2012**
Tulane University, Department of Earth Sciences	**Fall 2011**
Penn State University, Department of Geosciences	**Fall 2011**
Weston Geophysical Observatory	**Spring 2011**
Boston University, Department of Earth Sciences	**Fall 2010**
Woods Hole Oceanographic Institute, Dept. of Geology and Geophysics	**Fall 2010**
University of Texas, Jackson school of Geosciences	**Fall 2009**
University of Wisconsin-Madison, Department of Geological Sciences	**Spring 2009**
University of Massachusetts-Amherst, Dept. of Geosciences	**Spring 2008**
Saint Louis University, Dept. of Earth and Atmospheric Sciences	**Spring 2008**

PROFFESSIONAL SERVICE

Associate Editor, *Journal of Sedimentary Research* (2021- present)

Workshop participant and white-paper author "Exploring extended access to polar geospatial center by NSF earth-science investigators" (2017)

Panelist, NSF--Critical Zone Observatory Panelist (2013), Geomorphology and Landuse dynamics (2014, 2015), EAR Postdoctoral Fellowship (2016)

Organized and ran a workshop on modeling in Delft3D, using Google Earth Engine at the Community Surface Dynamics Modeling System (CSDMS) annual meeting 2011, 2018, 2020, 2021

Member of the clastic stratigraphy planning committee for AAPG 2012

Organized sessions at AGU, GSA, AAPG meetings on topics ranging from deltas, to avulsions, to quantitative stratigraphy

Reviewer for National Science Foundation, Geology, Journal of Sedimentary Research, Sedimentology, Journal of Geophysical Research, Geophysical Research Letters, Geomorphology, and Earth Surface Processes and Landforms

Member of American Geophysical Union, Geological Society of America, SEPM, AAPG

POST-DOCS SUPERVISED

William Nardin (2012-2014), Alejandra Ortiz (2015-2016), Jon Czuba (2016-2017), Quinn Lewis (2018-2020), Dylan Lee (2021), Tyler Doane (2021-2023), Eric Barefoot (2022-2024)

STUDENTS SUPERVISED

Ph.D.: James Gearon, JeongYeon Han **current**
M.S.: Etienne Chenevert

Harrison Martin, Ph.D. in Geological Sciences from IU
How Meandering Rivers Move: From Meander bends to Megafans **2018-2023**

Riley Henson, B.S. in Earth Sciences from IU, *Honors*
Land Cover Change Following Upstream-Migrating Dechannelization and River Avulsion **2019-2023**

Jack Brown, MS in Geological Science from IU
A Transit Through Galloway Space Shows that Process Dominance Naturally Changes as River Deltas Grow **2020-2023**

Caitlin Sifuentes, MS in Geological Science from IU
Floodplain topography and avulsion pathfinding control stratigraphic stacking in a numerical model of a megafan **2020-2022**

Connor Broaddus, M.S. in Geological Sciences from IU
Simulating Galloway's famous triangle: testing the hypothesis that rivers, waves, and tides control delta morphology **2019-2021**

Josie Arcuri, M.S. in Geological Science from IU
Thesis Title: *Cutoffs cluster on meandering rivers from self-induced migration* **2019-2021**

Jeff Valenza, Ph.D. in Geological Sciences from IU
Thesis Title: *Controls on river avulsion style and stratigraphy in foreland basins* **2016-2021**

Anas Rabie, M.S. in Geological Sciences from IU
A Hydrological Model of the Wabash River Watershed for Assessing and Managing Water Resources in Indiana **2018-2020**

Elizabeth Olliver, Ph.D. in Geological Sciences from IU
Thesis Title: *Dynamics of sediment deposition on the deltaic islands of Wax Lake Delta, USA* **2015-2020**

Samapriya Roy, Ph.D. in Geography from IU
Delta Dynamics: Understanding Process, Pattern, and People Using Remote Sensing and Systems Analysis in Coastal Louisiana and Amazon River Delta **2015-2019**

Matt Wanker, M.S. in Geological Sciences from IU
Thesis Title: *Testing Nodal-point relations for bed load sediment distribution at a river bifurcation* **2017-2019**

Caroline Bedwell, B.S. in Geological Sciences from IU, *Honors*
Thesis Title: *The connection between wind, waves, and pond expansion on the Mississippi River Delta* **2017-2018**

Scott David, Ph.D. in Geological Sciences from IU
Thesis Title: *Floodplain morphodynamics: The origin and function of floodplain channels* **2014-2018**

Graham Johnston, M.S. from IU
Thesis Title: *A new progradational depositional model for levees along the Muscatatuck River in Southern Indiana* **2016-2018**

Rebecca Caldwell, Ph.D. in Geological Sciences from IU
Thesis Title: *Catchments to Coastlines: Determining the controls on the global distribution of deltaic morphology and stratigraphy* **2013-2017**

Sara Moron, PhD, University of Adelaide
Thesis Title: *Understanding the origin and controls on the development of anabranching rivers* **2011-2015**

Amanda Whaling, B.S. in Geological Sciences from IU, *Honors*
Thesis Title: *Quantifying avulsion activity on river deltas* **2015-2016**

Elizabeth Olliver, M.S. from IU **2013-2016**
Thesis Title: *Ecogeomorphic succession of deltaic islands within Wax Lake Delta, USA*

Steven Davey, M.S. from IU **2013-2016**
Thesis Title: *Modelling the size, shape, and connectivity of stratal bodies in large-scale deltaic systems*

Scott David, M.S. from IU **2012-2014**
Thesis title: *Mapping floodplain morphological variability: implications for control on floodplain channel development*

Austin Nijhuis, M.S. from Boston College **2011-2013**
Thesis title: *Effect of relative sea-level rise on delta morphodynamics*

Rebecca Caldwell, M.S. from Boston College **2010-2013**
Thesis title: *The influence of sediment load and type on delta morphology and sedimentology*

Katy McGuire, BSc degree from Penn State **2007-2008**
Thesis title: *Testing a model of river mouth bar sedimentology*

TEACHING EXPERIENCE

Professor, Indiana University

G559, Earth Surface Processes	**Sp 16, 18, 20**
G690, Fluvial Seminar	**Sp 2015**
G582, Mathematical Modeling in Geosciences	**F13, 17, 19, 21**
G334, Sedimentology and Stratigraphy	**F13, 14, 15, 16**
G226, Earth Processes	**Every year**
G131, Oceanography	**Sp 13, 14**

Professor, Boston College

GE693, Environmental Sciences Seminar	**Fall 2010**
GE264, Sedimentology and Stratigraphy	**Spring 2011**
GE405, Fluid flow and sediment transport	**Fall 2011**
GE132, Exploring the Earth	**Fall 2011**
GE167, Environmental Geoscience	**Spring 2012**
GE376, Sedimentary Petrology	**Spring 2012**