

CURRICULUM VITAE

Jeffrey A. Nittrouer, PhD

Associate Professor, Texas Tech University
Sedimentology and Stratigraphy Laboratory
Department of Geosciences
Lubbock, Texas USA

Email contact: Jeffrey.Nittrouer@ttu.edu,

Website: www.sedimentology.geo.ttu.edu

Telephone: office: +1 806 834-6550,
mobile: +1 206 251-2444

Educational Diplomas

2010 PhD, Geological Sciences, University of Texas, Austin, USA

2006 MS, Earth and Environmental Sciences, Tulane University, New Orleans, USA

2003 BS, Geology, University of Washington, Seattle, USA

Snapshot: Research

- Focuses: understanding linkages between fluid dynamics, sediment transport processes, sediment accumulation patterns, and flooding of fluvial-deltaic and coastal systems
- Aims: to evaluate earth's surface evolution, focusing on environments where changing boundary conditions, including water discharge and sediment supply, impact flooding hazards and landscape development
- Methods: detailed, targeted measurements from modern systems to inform numerical models; validated solutions to guide novel, theoretically based findings
- Ongoing and future directions: (1) evaluating the fate of fluvial-deltaic systems globally for changing climate conditions; (2) unraveling the impacts of natural variability and external perturbations (e.g., humans, tectonics, climate) on water movement and sediment transport; (3) assessing linkages between the biosphere and equilibrium states of hydrological of systems (e.g., river channel geometry)

Snapshot: Teaching

- Significant experience developing lecture, laboratory, and field-based courses across all student levels, from non-major undergraduates to advanced graduate students
- Classroom philosophy blends traditional lecture techniques (e.g., deriving analytical solutions), computational exercises (modeling), and new technology (e.g., machine learning) to expose students to a range of approaches that foster critical-thinking skills
- Extensive experience designing, planning, and leading national/international field trips to modern and sedimentary systems. Leveraging field trips to demonstrate science research, for example, operating advanced instruments to collect data for basic science

Snapshot: Mentoring

- Aims: to educate, train and equip mentees who can independently solve science problems; provide an understanding of geosciences as inherently multidisciplinary, and as such, champion collaborations; leverage hydrology and sedimentology to inform about earth's evolution from minutes to millennia
- Successes: In nine years, four MSc students, and five PhD students completed. Four former PhD students were awarded NSF post-doctoral fellowships, with four having been recently hired as assistant professors (starting 2022-2023)

Employment History

Associate Professor

2021- Department of Geosciences, Texas Tech University, Lubbock

Assistant Professor

2012-2021 Department of Earth, Environmental and Planetary Sciences, Rice University, Houston

NSF Earth Sciences Post-doctoral Research Fellow and Assistant Instructor

2010-2012 Department of Geology, and Department of Civil and Environmental Engineering, University of Illinois, Urbana-Champaign

Research and Teaching Assistantships

2006-2010 Jackson School of Geosciences, University of Texas, Austin

2003-2006 Department of Earth and Environmental Sciences, Tulane University, New Orleans

Professional Affiliations

American Geophysical Union

Geological Society of America

Professional References (listed alphabetically by last name)

Experts in the Field

- Dr. James Best** Professor, Depts. of Geology, Geography, Mechanical Science and Engineering, and Dept. of Civil and Environmental Engineering, University of Illinois, Urbana-Champaign (jimbest@illinois.edu)
Fellow of the American Geophysical Union
- Dr. Bill Dietrich** Professor, Department of Earth and Planetary Sciences, University of California, Berkeley (bill@eps.berkeley.edu)
Member of the National Academy of Sciences
- Dr. Ton Hoitink** Professor, Department of Environmental Sciences, Wageningen University, Wageningen (ton.hoitink@wur.nl)
Editor, Journal of Geophysical Research Earth Surface
- Dr. Gail Kineke** Professor, Dept. of Earth and Environmental Sciences, Boston College, Chestnut Hill (gail.kineke.1@bc.edu)
Former chair, Department Earth and Environmental Sciences
- Dr. Michael Lamb** Professor, Division of Geological and Planetary Sciences, California Institute of Technology, Pasadena (mpl@gps.caltech.edu)
Fellow of the American Geophysical Union
- Dr. David Mohrig*** Professor and Associate Dean of Research, Department of Geological Sciences, Jackson School of Geosciences, University of Texas, Austin (mohrig@jsg.utexas.edu) [*PhD Mentor]
Fellow of the American Geophysical Union
- Dr. Gary Parker** Professor, Depts. of Civil and Environmental Engineering, and Geology, University of Illinois, Urbana-Champaign (parkerg@illinois.edu)
Member of the National Academy of Sciences

Former Departmental Colleagues

- Dr. Gerald Dickens** Professor, Department of Geology, Trinity College Dublin, formally at Rice University, Houston (dickensg@tcd.ie)
- Dr. John Anderson** Professor Emeritus, Department of Earth, Environmental and Planetary Sciences, Rice University, Houston (johna@rice.edu)
- Dr. Richard Gordon** Professor, Department of Earth, Environmental and Planetary Sciences, Rice University, Houston (rgg@rice.edu)

Administrative Experiences: International, Multidisciplinary Collaborations

My career goal is to continue pursuing top-tier scientific research, through organizing and leading international coalitions of scientists. I have held a wide variety of management positions: the demands of my research program have allowed me to amass such experiences and to thrive uniquely in these roles. I have developed programs worldwide with scientists studying a variety of disciplines. These include a five-year NSF-sponsored project for which I coordinated twelve principle investigators from the USA and China. I have developed and currently manage an international research consortium focusing on earth and environmental studies at Lake Baikal (a UNESCO World Heritage Site). This group includes bio-geochemists, hydrologists, and geomorphologists from five countries. These experiences require advanced interpersonal skills to integrate and synthesize science. My track record for research funding documents my ability to bridge disciplines: my collaborators include specialists from fields of engineering, biology, economics, and sociology. In today's highly competitive funding climate, it is critical to facilitate science research via interactions among traditionally and nontraditionally aligned fields.

Supervised Students

- [13] Hamidreza Azarmidokht (Shahrouz), MS, 2022-2024, Texas Tech University
- [12] John Nelson, MS, 2022-2024, Texas Tech University
- [11] Eric Barefoot, PhD, 2016-2021, currently NSF post-doc, University of Indiana
- [10] Chenliang Wu, PhD, 2015-2020, currently post-doc, Yonsei University, Korea
- [9] Tian Dong, PhD, 2015-2020, currently NSF post-doc, University of Texas at Austin
- [8] Andrew Moodie, PhD, 2014-2020, currently NSF post-doc, University of Texas at Austin
- [7] Brandee Carlson, PhD, 2015-2020, currently assistant professor, University of Houston
- [5] Brian Demet, MS, 2014-2016
- [4] Maya Stokes, undergraduate honors research thesis, 2014-2015
- [3] Sarah Huff, MS, 2013-2015
- [2] Tian Dong, MS, 2013-2015
- [1] Kaitlin Moran, MS, 2013-2015

Visiting International Co-Supervised Students

- [3] 2017: Zhaoying Li (PhD), Ocean University of China, Dept. of Marine Geology Qingdao, China
- [2] 2016: Manuel Bagoni (PhD), Dept. of Civil, Environmental and Architectural Engineering, University of Padova, Padova, Italy
- [1] 2016: Jan Pietron (PhD), Dept. of Physical Geography, Stockholm University, Stockholm, Sweden

Post-doctoral Research Mentoring

- [6] Dr. Laura Bührig, 2022—(ongoing)
- [5] Dr. Julia Cisneros, 2020-2022, currently: post-doc, University of Texas at Austin
- [4] Dr. Kieran Dunne, 2019-2021, currently: NSF post-doc, Caltech
- [3] Dr. Hongbo Ma, 2014-2019, currently: assistant professor, Tsinghua University, China
- [2] Dr. Travis Swanson, 2016-2018, currently: assistant professor, Georgia Southern University
- [1] Dr. Jorge Lorenzo-Trueba, 2013-2014, currently: associate professor, Montclair State University

Funding Record: [total funds raised since 2010: \$1,597,000]

- 2020-2023 National Science Foundation; *Geoscience Opportunities for Leadership in Diversity – Expanding the Network (GOLD-EN)*; **lead PI**, \$300,000
- 2018-2022 National Science Foundation; *Geomorphology and Land-use Dynamics: Collaborative Research: Flocculation Dynamics in the Fluvial to Marine Transition*; **lead PI**, \$290,000
- 2014-2018 National Science Foundation; *Coastal SEES Collaborative Research: Morphologic, Socioeconomic and Engineering Sustainability of Massively Anthropic Coastal Deltas: The Compelling Case of the Huanghe*; **lead PI**, \$2,000,000 total award with \$598,000 to Rice University
- 2014-2015 National Science Foundation; *Collaborative: International Deltas Meeting: Genesis, Dynamics, Modeling, and Sustainable Development*; **lead PI** \$32,000
- 2013-2015 Shell Center for Sustainability; *The stress nexus of coastlines: Population development, infrastructure security, and morphological dynamics of the Upper Texas Gulf Coast*; **lead PI**, \$207,000
- 2011-2012 National Science Foundation Rapid-Response Grant: *Mississippi Flood of 2011 - Investigation of Initial Impact on the Landscape*; \$125,000
- 2010-2012 National Science Foundation Earth Sciences Postdoctoral Research Fellowship; University of Illinois, Urbana-Champaign; *Field observations and modeling of backwater effects on bed material sequestration and fluvial kinematics in the lowermost Mississippi River*; **lead PI**, \$170,000

Teaching Experiences – evaluations available on request

Texas Tech and Rice Universities; Lead Instructor [2012-2022]:

- [1] Introductory Geological Sciences (ten semesters, 50-180 students per semester, non-majors survey course)
- [2] Mechanics of Sediment Transport (three semesters, approximately 15 students per semester, graduate-student and advanced-undergraduate course)
- [3] Sedimentary Basin Analysis (eight semesters, approximately 15 students per semester, graduate-student and advanced-undergraduate course)
- [4] Advanced Geomorphology (two semesters, approximately 15 students per semester, graduate-student and advanced-undergraduate course)
- [5] Sedimentology, Stratigraphy and Earth Systems (five semesters, approximately 10 students per semester, sophomore/junior-level geosciences course)
- [6] Special Seminar on Artificial Intelligence and Machine Learning (one semester, approximately 30 students, graduate-student and advanced-undergraduate course)

University of Illinois, Assistant Instructor [2010-2012]

- [1] Sediment transport dynamics of large river systems and the stratigraphic record (one semester, approximately fifteen students, graduate-student and advanced-undergraduate course)

University of Texas, Laboratory Instructor [2006-2010]

- [1] Sedimentary Rocks (two semesters, approximately thirty students, undergraduate course)

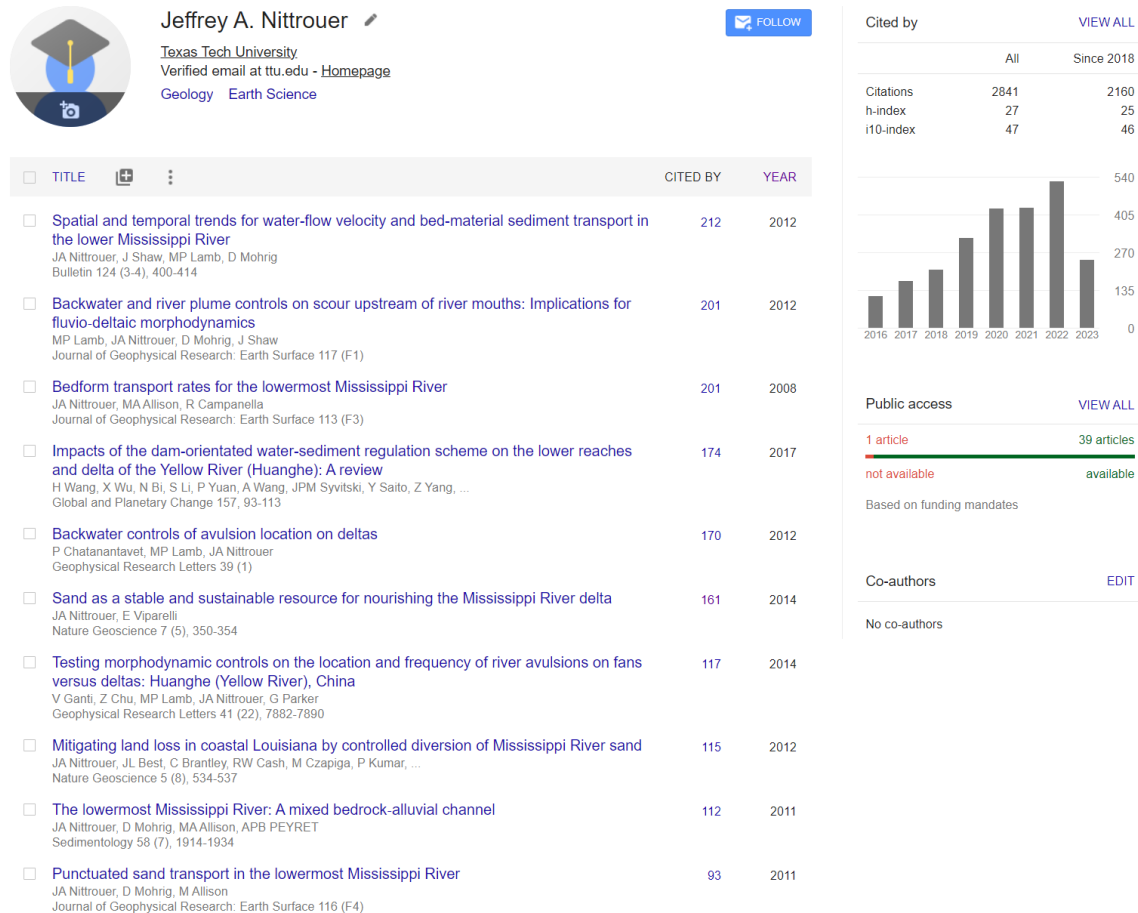
Tulane University, Laboratory Instructor [2003-2006]

- [1] Survey of Geology (two semesters, approximately thirty students, undergraduate course)

Publications (published, accepted, in review/revision)

* [asterisk] indicates supervised student or post-doc effort, † indicates student-led effort.

Please note: DOI links to manuscripts. Google Scholar snapshot: 3 July, 2023



[68] *Li, Z., **Nittrouer, J. A.**, Bi, N., and H. J. Wang, “Machine learning application for evaluating river plume spreading: identification and modeling”, *in review*, *Transactions on Geoscience and Remote Sensing*, as of May, 2023.

[67] *Dunne, K. B. J., **Nittrouer, J. A.**, Abolfazli, E., Osborn, R., and K. Strom, “Hydrodynamically-driven deposition of mud in river systems”, *in review*, *Geophysical Research Letters*, as of May, 2023

[66] †Osborn, R., Dunne, K. B. J., Ashley, T., **Nittrouer, J. A.**, and K. Strom, “The flocculation state of mud in the lowermost freshwater reaches of the Mississippi River: spatial distribution of sizes, seasonal changes, and their impact on vertical concentration profiles”, *accepted and in press at Journal of Geophysical Research Earth Surface*

[65] Wu, C., Kim, W., Herring, R., Cardenas, B., Dong, T., Ma, H., Moodie, A., **Nittrouer, J. A.**, Tsai, F., and A. Li, “Pace of meandering and avulsion set lowland river sinuosity on Earth and Mars”, *accepted and in press at Nature Geoscience*

- [64] *Barefoot, E. J., **Nittrouer, J. A.**, and K. M. Straub, “Time dilation in the stratigraphic record”, *accepted and in press at Geophysical Research Letters*
- [63] *Dong, T., **Nittrouer, J. A.**, Carlson, B., McElroy, B. J., Il’icheva, E., Pavlov, M., and H. Ma (2023), “Impacts of tectonic subsidence on basin depth and delta lobe building”, *Journal of Geophysical Research Earth Surface* DOI: 10.1029/2022JF006819
- [62] *Wu, C., **Nittrouer, J. A.**, Barefoot, E. J., and K. Burmeister (2022), “Reconstructing backwater hydrodynamics from fluvial-deltaic deposits using stratigraphic inversion: an example from the Tullig Sandstone, Western Irish Namurian Basin, Co. Clare, Ireland”, *Geological Society of America Bulletin* DOI: 10.1130/B36475.1
- [61] *Dunne, K. B. J., Dee, S. G., Reinders, J., Munoz, S. E., and **J. A. Nittrouer** (2022), “Enhanced probability of catastrophic Mississippi River floods under high emissions scenarios”, *Environmental Research Communications*, DOI: 10.1088/2515-7620/ac8d53
- [60] *Ma, H., **Nittrouer, J. A.**, Fu, X., Parker, G. Zhang, Y., Wang, Y., Wang, Y., Lamb, M. P., Best, Cisneros, J., Best, J. L., Parsons, D. R., and B. Wu (2022), “Amplification of downstream flood stage due to damming of fine-grained rivers”, *Nature Communications* DOI: 10.1038/s41467-022-30730-9
- [59] *Moodie, A. J., Carlson, B., Foreman, B. Z., Kwang, J., Naito, K., and **J. A. Nittrouer** (2022) “SedEdu: a suite of sediment-related educational modules.” *Journal of Open Source Education*, 5(56), 129. DOI: 10.21105/jose.00129
- [58] *Moodie, A. J., and **J. A. Nittrouer** (2021), “Optimized river diversion scenarios promote sustainability of urbanized deltas”, *Proceedings of the National Academy of Sciences*, DOI: 10.1073/pnas.2101649118
- [57] *Carlson, B. N., **Nittrouer, J. A.**, Swanson, T., Moodie, A. J., Dong, T., Kineke, G. C., Pan, M., and Y. Wang (2021), “Impacts of engineered diversions and natural avulsions on delta-lobe stability”, *Geophysical Research Letters*, DOI: 10.1029/2021GL092438
- [56] *Barefoot, E. J., **Nittrouer, J. A.**, and K. M. Straub (2021), “Non-monotonic responses to changes in flooding intensity”, *Journal of Geophysical Research Earth Surface*, DOI: 10.1029/2021JF006310
- [55] *Barefoot, E. J., **Nittrouer, J. A.**, Foreman, B. Z., Hajek, E. A., and G. R. Dickens (2021), “Evidence for enhanced lateral mobility and grain-size sorting in floodplain deposits due to precipitation seasonality during the PETM”, *Geology* DOI: 10.1130/G49149.1
- [54] †Osborn, R., Dillon, B., Tran, D., Abolfazli, E., Dunne, K. B. J., **Nittrouer, J. A.**, and Strom, K. (2021), “FlocARAZI: An In-Situ, Image-Based Profiling Instrument for Sizing Solid and Flocculated Suspended Sediment”, *Journal of Geophysical Research Earth Surface*, DOI: 10.1029/2021JF006210
- [53] Dubravko, J., Kourafalou, V., Mariott, G., He, S., Weisberg, R., Adroulidakis, Y., Barker, C., Bracco, A., Dzwonkowski, B., Hu, C., Huang, H., Jacobs, G., Le Henaff, M., Liu, Y., Morey, S., **Nittrouer, J.**, Overton, E., Paris, C., Roberts, B., Rose, K., Valle-Levinson, A., and J. Wiggert (2021), “Transport Processes in the Gulf of Mexico Along the River-Estuary-Shelf-Ocean

Continuum: a Review of Research from the Gulf of Mexico Research Initiative”, *Estuaries and Coasts*, DOI: 10.1007/s12237-021-01005-1

[52] *Moodie, A. J., **Nittrouer, J. A.**, Ma, H., Carlson, B., Lamb, M. P., and G. Parker, “Suspended-sediment induced stratification inferred from concentration and velocity profile measurements in the flooding lower Yellow River, China” (2020), *Water Resources Research* DOI: 10.1029/2020WR027192

[51] *Dong, T. Y., **Nittrouer, J. A.**, McElroy, B., Il’icheva, E., Pavlov, M., Ma, H., and A. Moodie (2020), “Predicting water and sediment partitioning in a delta channel network under varying discharge conditions”, *Water Resources Research* DOI: 10.1029/2020WR027199

[50] Wu, X., Bi, N., Syvitski, J., Saito, Y., Xu, J., **Nittrouer, J. A.**, Bianchi, T. S., Yang, Z., and H. Wang (2020), “Can reservoir regulation along Yellow River be a sustainable way to save a sinking delta?”, *Earth’s Future* DOI: 10.1029/2020EF001587

[49] *Wu, C., **Nittrouer, J. A.**, Swanson, T., Ma, H., Barefoot, E., Best, J., and M. Allison (2020), “Dune-scale cross-strata across the fluvial-deltaic backwater regime: preservation potential of an autogenic stratigraphic signature”, *Geology* DOI: 10.1130/G47601.1

[48] Lamb, M. P., Leeuw, J. D., Fischer, W., Moodie, A. J., Venditti, J. G., **Nittrouer, J. A.**, Haught, D., and G. Parker (2020), “Mud in rivers transported as flocculated, suspended bed material” *Nature Geoscience* DOI: 10.1038/s41561-020-0602-5

[47] † Zhang, L., Li, T., Wang, G., Kwang, J. S., **Nittrouer J. A.**, Fu, X., and G. Parker (2020), “How canyons evolve by incision into bedrock: Rainbow Canyon, Death Valley National Park, USA” *Proceedings of the National Academy of Sciences* DOI: 10.1073/pnas.1911040117

[46] *Wu, C., **Nittrouer, J. A.**, Muto, T., Naito, K., and G. Parker (2020), “Morphodynamic equilibrium of lowland river systems during autoretreat” *Geology* DOI: 10.1130/G47556.1

[45] *Li, Y., Wang, H. J., **Nittrouer, J. A.**, Bi, N., Wu, X., and B. Carlson (2020), “Modeling the filling process of abandoned fluvial-deltaic distributary channel: An example from the Yellow River delta, China”, *Geomorphology* 361 DOI: 10.1016/j.geomorph.2020.107204

[44] Leeuw, J. D., Lamb, M. P., Parker, G., Moodie, A. J., Haught, D., Venditti, J. G., and **J. A. Nittrouer** (2020), “Entrainment and suspension of sand and gravel” *Earth Surface Dynamics* 8, pp. 485–504, DOI: 10.5194/esurf-8-485-2020

[43] Hoitink, A. J. F., **Nittrouer, J. A.**, Passalacqua, P., Shaw, J. B., Langendoen, E. J., Huismans Y., and D. S. van Maren (2020), “Grasping River Delta Resilience in the Anthropocene”, *Journal of Geophysical Research Earth Surface*, DOI: 10.1029/2019JF005201

[42] *Carlson, B. N., **Nittrouer, J. A.**, Moodie, A. J., Kineke, G. C., Kumpf, L. L., Ma H., Parsons, D. R., and H. Wang (2020) “Infilling abandoned deltaic channels through tidal sedimentation: a case study from the Huanghe (Yellow River) delta, China”, *Journal of Geophysical Research Earth Surface*, DOI: 10.1029/2019JF005254

[41] Dingle, E., Sinclair, H., Venditti, J., Attal, M., Kinnaird, T., Creed, M., Quick, L., **Nittrouer, J. A.**, and D. Gautam (2020), “Sediment dynamics across gravel-sand transitions: Implications for river stability and floodplain recycling” *Geology*, DOI: <https://doi.org/10.1130/G46909.1>

- [40] Wu, X., Bi, N., **Nittrouer, J. A.**, Xu, J., Cong, S., Carlson, B., Lu, T., Li, Z., and H. Wang (2020) “Evolution of a tide-dominated abandoned channel: a case of the abandoned Qingshuigou course, Yellow River”, *Marine Geology* (422) DOI: 10.1038/s41561-019-0511-7
- [39] [†]Cisneros, J., Best, J., van Dijk, T., Paes de Almeida, R., Amsler, M., Boldt, J., Frietas, B., Galeazzi, C., Huizinga, R., Ianniruberto, M., Ma, H., **Nittrouer, J. A.**, Oberg, K., Orfeo, O., Parsons, D., Szupiany, R., Wang, P., and Y. Zhang (2020) “The Shape of Dunes in the World’s Big Rivers”, *Nature Geoscience* DOI: 10.1038/s41561-019-0511-7
- [38] *Ma, H., **Nittrouer, J. A.**, Wu, B., Zhang, Y., Mohrig, D., Lamb, M. P., Wang, Y., Fu, X., Moodie, A. J., Naito, K., Wang, G., Hu, C., and G. Parker (2019) “Universal sediment transport relation for fine-bed rivers with phase transition”, *Proceedings of the National Academy of Sciences* DOI: 10.1073/pnas.1911225116
- [37] *Moodie, A. J., **Nittrouer, J. A.**, Ma, H., Carlson, B. N., and G. Parker (2019) “Modeling deltaic lobe-building cycles and avulsions of the Yellow River delta, China” *Journal of Geophysical Research Earth Surface* DOI: 10.1029/2019JF005220
- [36] *Wu, C. and **J. A. Nittrouer** (2019), “Impacts of backwater hydrodynamics on fluvial-deltaic stratigraphy”, *Basin Research* DOI: 10.1111/bre.12385
- [35] Petter, A. L., Steel, R. J., Mohrig, D., and **J. A. Nittrouer**, “The stratigraphic consequences of long-term river aggradation, part I: the importance of backwater hydraulic conditions for downstream sediment fractionation and changes in fluvial style in the Campanian Lower Castlegate Sandstone of Utah”, *accepted at Journal of Sedimentary Research*
- [34] Venditti, J. G., **Nittrouer, J. A.**, Allison, M. A., Humphries, R. P., and M. Church (2019) “Supply Limited Bedform Patterns and Scaling through a Gravel-Sand Transition”, *Sedimentology* DOI: 10.1111/sed.12604
- [33] [†]Chadwick, A. J., Lamb, M. P., Moodie, A. J., Parker, G. and **J. A. Nittrouer** (2019) “Origin of a preferential avulsion node on lowland river deltas”, *Geophysical Research Letters*, 46, 4267-4277 DOI: 10.1029/2019GL082491
- [32] [†]Naito, K., Ma, H., **Nittrouer, J. A.**, Zhang, Y., Wu, B., Wang, Y., Fu, X., and G. Parker (2019) “Extended Engelund-Hansen type sediment transport relation for mixtures based on the sand-silt-bed lower Yellow River, China”, *Journal of Hydraulic Research* DOI: 10.1080/00221686.2018.1555554
- [31] *Dong, T. Y., **Nittrouer, J. A.**, Il’icheva, E., Pavlov, M., McElroy, B., Czapiga, M., Ma, H., and G. Parker (2019) “Roles of bank material in setting bankfull hydraulic geometry as informed by the Selenga River delta, Russia”, *Water Resources Research* DOI: 10.1029/2017WR021985
- [30] [†]Phillips, J. D., Ewing, R. C., Bowling, R., Weymer, B. A., Barrineau, P., **Nittrouer, J. A.**, and M. E. Everett (2019) “Low-angle eolian deposits formed by protodune migration, and insights into slipface development at White Sands Dune Field, New Mexico”, *Aeolian Research*, 36, pp. 9-26. DOI: 10.1016/j.aeolia.2018.10.004
- [29] *Demet, B. P., **Nittrouer, J. A.**, Anderson, J. A., and L. M. Simkins (2018) “Sedimentary processes at ice sheet grounding-zone wedges: comparing planform morphology from the western Ross Sea (Antarctica) to internal stratigraphy from outcrops of the Puget Lowlands (Washington State, U.S. A.)”, *Earth Surface Processes and Landforms* DOI: 10.1002/esp.4550

- [28] Maselli, V., Pellegrini, C., Del Bianco, F., Mercorella, A., Nones, M., Crose, L., Guerrero, M., and **J. A. Nittrouer** (2018) “River morphodynamic evolution under dam-induced backwater: an example from the Po River (Italy)”, *Journal of Sedimentary Research*, v. 88, pp. 1190-1204. DOI: 10.2110/jsr.2018.61
- [27] [†]Liu, Z., Dugan, B., Masiello, C. A., Wahab, L. M., Gonermann, H. M., and **J. A. Nittrouer** (2018) “Effect of freeze-thaw cycling on grain size of biochar”, *PLOS One*, 13(1): e0191246. DOI: 10.1371/journal.pone.0191246
- [26] *Pietron, J., **Nittrouer, J. A.**, Jarso, J., Chalov, S. R., and T. Y. Dong (2017) “Sedimentation processes in the Selenga River delta: implications for sequestering particle-reactive metals”, *Hydrological Processes*, v. 32, pp. 278-292. DOI: 10.1002/hyp.11414
- [25] *Ma, H., **Nittrouer, J. A.**, Naito, K., Fu, X., Zhang, Yuanfeng, Moodie, A., Y. Wang (2017) “The exceptional sediment load of fine-grain dispersal systems”, *Science Advances*, v. 3, pp. 1-7. DOI: 10.1126/sciadv.1603114
- [24] *Khanna, P., Droxler, A., **Nittrouer, J. A.**, Tunnell, W., and T. C. Shirley (2017) “Coralgal reef morphology records punctuated sea-level rise during last deglaciation”, *Nature Communications*, 8:1046, 8 pp. DOI: 10.1038/s41467-017-00966-x
- [23] *Anarde, K. A., [†]Kameshwar, S., [†]Irza, J. N., **Nittrouer, J. A.**, Lorenzo-Trueba, J., Padgett, J. E., Sebastian, A., and P. B. Bedient (2017) “Impacts of hurricane storm surge on infrastructure vulnerability for an evolving coastal landscape”, *Natural Hazards Review* 19(1): DOI: 10.1061/(ASCE)NH.1527-6996.0000265
- [22] [†]Wu, X., Bi, N., Xu, J., **Nittrouer, J. A.**, Yang, Z., Yoshiki, S., and H. Wang “Stepwise morphological evolution of the active Yellow River (Huanghe) delta lobe (1976-2013): Dominant roles of riverine discharge and sediment grain size” (2017), *Geomorphology*, v. 292, pp. 115-127. DOI: 10.1016/j.geomorph.2017.04.042
- [21] Karthe, D., Abdullaev, I., Boldgiv, B., Borchardt, D., Chalov, S., Jarso, J., Li, L., and **J. A. Nittrouer** (2017) “Water in Central Asia: An integrated Assessment for Science-Based Management”, *Environmental Earth Science*, 76:690, 15 pp. DOI: 10.1007/s12665-017-6994-x
- [20] Wang, H., Wu, X., Bi, N., Li, S., Yuan, P., Wang, A., Syvitski, J P.M., Saito, Y., Yang, Z., Liu, S., and **J. A. Nittrouer** (2017) “Impacts of dam-oriented water-sediment regulation scheme on the lower reaches and delta of the Yellow River (Huanghe): A review”, *Global and Planetary Change*, v. 157, pp. 93-113. DOI: 10.1016/j.gloplacha.2017.08.005
- [19] *Moran, K. E., **Nittrouer, J. A.**, Perillo, M. M., Lorenzo-Trueba, J., and J. B. Anderson (2016) “Morphodynamic modeling of fluvial channel fill and avulsion timescales during the early Holocene transgression, as constrained by the incised valley stratigraphy of the Trinity River, Texas”, *Journal of Geophysical Research, Earth Surface* DOI: 10.1002/2015JF003778
- [18] *Dong, T. Y., **Nittrouer, J. A.**, Il'icheva, E., Pavlov, M., McElroy, B., Czapiga, M., Ma, H., and G. Parker (2016) “Controls on gravel termination in seven distributary channels of the Selenga River delta, Baikal Rift basin, Russia”, *Geological Society of America Bulletin*, v. 28 (7/8), pp. 1297-1312. DOI:10.1130/B31427.1

- [17] Chalov, S., Thorslund, J., Kasimov, N., Aybullatov, D., Ilyicheva, E., Karthe, D., Kositsky, A., Lychagin, M., **Nittrouer, J. A.**, Pavlov, M., Pietron, J., Shinkareva, G., Tasasov, M., Garmaev, E., Akhtman, Y., and J. Jarso (2016) “The Selenga River delta: a geochemical barrier protecting Lake Baikal waters”, *Regional Environmental Change*, v. 16 (5), 17 pp. DOI: 10.1007/s10113-016-0996-1
- [16] [†]Czapiga, M. J., Smith, V. B., **Nittrouer, J. A.**, Mohrig, D., and G. Parker (2015) “Internal connectivity of meandering rivers: statistical generalization of channel hydraulic geometry”, *Water Resources Research*, pp. 7485-7500. DOI: 10.1002/2014WR016133
- [15] Viparelli, E., **Nittrouer, J. A.** and G. Parker (2015) “Modeling flow and sediment transport dynamics in the lowermost Mississippi River, Louisiana, USA, with an upstream alluvial-bedrock transition and a downstream bedrock-alluvial transition: implications for land-building using engineered diversions”, *Journal of Geological Research, Earth Surface*, v. 120, pp. 534-563. DOI: 10.1002/2014JF003257
- [14] **Nittrouer, J. A.** and E. Viparelli (2014) *Reply to Nature Geoscience Correspondence*, *Nature Geoscience*, 7, pp. 852.
- [13] **Nittrouer, J. A.** and E. Viparelli (2014) “Sand as a stable and sustainable resource for nourishing the Mississippi River delta”, *Nature Geoscience*, 7, pp. 350-354. DOI: 10.1083/ngeo2142
- [12] [†]Ganti, V., Zhongxin, C., Lamb, M. P., and **J. A. Nittrouer** (2014) “Testing morphodynamic controls on the location and frequency of river avulsions on fans and deltas: Huanghe (Yellow River), China”, *Geophysical Research Letters*, pp. 7882-7890. DOI: 10.1002/2014GL061918
- [11] **Nittrouer, J. A.** (2013) “Backwater hydrodynamics and sediment transport in the lowermost Mississippi River Delta: Implications for the development of fluvial-deltaic landform in a large lowland river”, in *Deltas: Landforms, Ecosystems and Human Activity. Proceedings of the International Association of Hydrological Sciences-IAHS-IAPSO-IASPEI Assembly, Gothenburg, Sweden, July 2013 IAHS Publication 358*, pp. 48-61. *Invited review: International Association of Hydraulic Sciences*
- [10] Kenney, M. A., Hobbs, B. F., Mohrig, D., Huang, H., **Nittrouer, J. A.**, Kim, W., and G. Parker (2013) “Cost analysis of water and sediment diversions to optimize land building in the Mississippi River delta”, *Water Resources Research*, v. 49(6), pp. 3388-3405. DOI: 10.1002/wrcr.20139 (*WRR Editors' Choice Award*)
- [9] **Nittrouer, J. A.**, Best, J. L., Brantley, C., Czapiga, M., Cash, R. W., Kumar, P., and G. Parker, (2012) “Mitigating land loss in coastal Louisiana by controlled diversion of Mississippi River sand”, *Nature Geoscience*, 5, pp. 534-537. DOI: 10.1038/NGEO1525
- [8] **Nittrouer, J. A.**, Shaw, J., Lamb, M. P., and D. Mohrig (2012) “Spatial and temporal trends for water-flow velocity and bed-material sediment transport in the lower Mississippi River”, *Geological Society of America Bulletin*, 124, pp. 400-414. DOI:10.1130/B30497.1
- [7] Lamb, M. P., **Nittrouer, J. A.**, Shaw, J., and D. Mohrig (2012) “Backwater and river-plume controls on scour upstream of river mouths: Implications for fluvio-deltaic morphodynamics”, *Journal of Geophysical Research*, v. 117, 15 pp. DOI: 10.1029/2011JF002079

- [6] Chatanantavet, P., Lamb, M. P., and **J. A. Nittrouer** (2012) “Backwater controls on avulsion locations on deltas”, *Geophysical Research Letters*, v. 39, 6 pp. DOI: 10.1029/2011GL050197
- [5] **Nittrouer, J. A.**, Mohrig, D., Allison, M. A., and A. B. Peyret (2011), “The Lowermost Mississippi River: A mixed bedrock-alluvial channel”, *Sedimentology*, v. 58, pp. 1914-1934. DOI: 10.1111/j.1365-3091.2011.01245.x
- [4] **Nittrouer, J. A.**, Mohrig, D., and M. A. Allison (2011), “Punctuated sand transport in the lowermost Mississippi River”, *Journal of Geophysical Research*, v. 116, pp. 1914-1934. DOI: 10.1029/2011JF002026
- [3] Venditti, J. G., Humphries, R. P., Allison, M. A., **Nittrouer, J. A.**, and M. Church (2010), “Morphology and dynamics of a gravel-sand transition”, Proceedings of the Joint Federal Interagency Conference 2010. 9th Federal Interagency Sedimentation Conference, June 27-July 1, 2010, Las Vegas, NV. 12 pp.
- [2] Ryan-Mishkin, K., Walsh, J. P., Corbett, D. R., Dail, M. B., and **J. A. Nittrouer** (2009), “Modern sedimentation in a mixed siliciclastic-carbonate coral reef environment, La Parguera, Puerto Rico”. *Caribbean Journal of Science*, 45 (2-3), pp. 151-167. DOI: 20.18475/cjos.v45i2.a4
- [1] **Nittrouer, J. A.**, Allison, M. A., and R. Campanella (2008) “Bedform transport measurements in the lower Mississippi River”, *Journal of Geophysical Research*, v. 113, F03004, 16 pp. DOI: 10.1029/2007JF000795

Conference/Meeting Abstracts

Full citation list available upon request. Synopsis: 134 conference abstracts in total, from 2003-2022, including more than 50 presentations by supervised students and post-doctoral research scientists. Conferences include: American Geophysical Union Fall Meeting (AGU), European Geophysical Union (EGU) General Assembly, Geological Society of America (GSA) Annual Scientific Meeting, International Geographical Union (IGU) Regional Conference, Canadian Geophysical Union (CGU) Annual Meeting, Lunar and Planetary Science Conference, American Association of Petroleum Geologists (AAPG) Annual Convention and Exhibition, Society for Sedimentary Geology (SEPM) Gulf Coast Section Annual Meeting, Coastal and Estuarine Research Foundation (CERF) Conference, and River, Coastal Estuarine Morphodynamics (RCEM) Symposium

Community and University Service

2012-2022: Solicited Reviews for Community Journals: 1. *Estuarine, Coastal and Shelf Science*, 2. *Geology*, 3. *Journal of Geophysical Research*, *Earth Surface*, 4. *Geophysical Research Letters*, 5. *Journal of Hydrology*, 6. *Sedimentology*, 7. *Marine Geology*, 8. *Proceedings of the National Academy of Science*, 9. *Water Resources Research*, 10. *Nature*, 11. China Ocean Engineering

2018: American Geophysical Union Fall Meeting (Washington, D. C.), session convener: [1] *River deltas: sediment accumulators and biogeochemical reactors*, Earth and Planetary Surface Processes Section;

2018: American Geophysical Union Fall Meeting (Washington, D. C.), session convener: [2] *Further research into the cause and impacts of the 2017 hurricanes with applications of flood warning and inundation mapping during storms*, Natural Hazards Section

2017: American Geophysical Union Fall Meeting (New Orleans), session convener: [1] *Sediment transport mechanics, morphologic expressions and depositional patterns of fine-grained dispersal systems*, Earth and Planetary Surface Processes Section;

2017: American Geophysical Union Fall Meeting (New Orleans), session convener: [2] *Dynamic Atmosphere, Oceans, and Landscapes: Impacts of the 2017 Atlantic Hurricane Season on Earth's Surface*, Earth and Planetary Surface Processes Section;

2017: American Geophysical Union Fall Meeting (New Orleans), session convener: [3] *The Sustainability and Resilience of Coastal Systems; Creating Synergy Among Federal, State, and NGO Initiatives*, Global Environmental Change Section

2017: Geological Society of America Annual Scientific Meeting (Seattle), session convener: *Fluvio-deltaic processes and their stratigraphic record*, Clastic Sedimentology, Stratigraphy

2017: Lead Organizer: “The Second International Science Workshop of Huanghe (Yellow River) Delta”, Qingdao, China

2017: Participant, National Science Foundation Panel, Geomorphology and Land-use Dynamics

2016: Lead Organizer: “Bringing Together Selenga-Baikal Research Conference”, Chelan, Washington; meeting of international scientists to evaluate the state of hydrological, geomorphological, and sedimentological sciences for the Selenga River basin and Lake Baikal system

2016: Participant, National Science Foundation Panel, Coastal SEES

2016: Co-Editor, “Sustainable Water Management in Central Asia”, in *Environmental Earth Sciences*

2016: Geological Society of America South-Central Section Meeting (Baton Rouge), session convener, “Fluvial Forms and Processes and Gulf Coast Rivers and Groundwater”

2015: Participant, National Science Foundation Virtual Panel, Coastal SEES

2015: Lead Organizer: “The First International Science Workshop of Huanghe (Yellow River) Delta”, Zhengzhou, China

2015: Lead Organizer, Shell Oil workshop on river deltas at Rice University

2014: Lead Organizer, Hess Oil Company workshop on river deltas at Rice University

2014: Lead Organizer: “International Deltas Meeting: Genesis, dynamics, modelling, and sustainable development”, Istomino, Russia, an academia-industry sponsored workshop

2014: American Geophysical Union Fall Meeting, session convener: *Advances in understanding fluvial-deltaic processes and their interactions with tectonic settings* Earth and Planetary Surface Processes Section

2014: Geological Society of America Annual Scientific Meeting, session convener: *Bedforms: genesis and development processes, morphology, stratigraphy, and insights into planetary environment* Clastic Sedimentology, Stratigraphy

2014: Lead Organizer: ExxonMobil workshop on river deltas, Upstream Research Laboratory, Houston, Texas

2014: Lead Organizer: Industry-Rice Earth Sciences Symposium I (IRESS) “Imaging and sedimentary basin modeling”, Houston

2013: American Geophysical Union Fall Meeting, session convener: *Morphodynamic characteristics of non-normal flow conditions* Earth and Planetary Surface Processes Section

2011: American Geophysical Union Fall Meeting, session convener: *Evaluating Hydrodynamics and Sediment Transport in Lowland Rivers* Earth and Planetary Surface Processes Section

2011: American Geophysical Union Fall Meeting, session convener: *The Great Mississippi Flood of 2011: geomorphological, ecological and engineering effects and consequences*

2007-2010: Organizer: Softrock Seminar Brownbag Series, the Jackson School of Geosciences at the University of Texas

Awards and Fellowships

- 2019 Wageningen Institute for Environment and Climate Research (WIMEK) Fellowship, Wageningen University, The Netherlands
- 2018 111 Distinguished Foreign Expert, Tsinghua University (as administered by the Foreign Expert Bureau, and Ministry of Education, People’s Republic of China)
- 2014 Editors’ Choice Award, paper published in *Water Resources Research*
- 2013 Luna B. Leopold Award, American Geophysical Union, Earth and Planetary Surface Processes focus group, “*to a young scientist for making a significant and outstanding contribution that advances the field of Earth and planetary surface processes*”
- 2013 Sharp Lectureship, American Geophysical Union, Earth and Planetary Surface Processes focus group
- 2013 Thomas A. Philpott Excellence of Presentation Award, Gulf Coast Section, SEPM Annual Convention
- 2012 AGU editors’ citation for excellence in refereeing: *Water Resources Research*

Invited Presentations: Academia

- 2022: Louisiana State University, Department of Geology and Geophysics
- 2021: Texas Tech University, Department of Geosciences
- 2020: University of Münster, Germany
- 2020: University of Tübingen, Germany
- 2020: University of Hull, United Kingdom
- 2019: Wageningen University, The Netherlands
- 2018: University of Minnesota, Alvin G. Anderson Award Keynote Speaker
- 2018: Faculty of Geography, Lomonosov Moscow State University
- 2017: American Geophysical Union Annual Fall Meeting
- 2017: University of Wyoming, Department of Geology and Geophysics
- 2017: Tulane University, Department of Earth and Environmental Sciences
- 2017: The University of British Columbia, Canadian Geophysical Union Meeting
- 2016: Ocean University of China, Department of Marine Sciences, Qingdao, China
- 2016: University of Houston, Department of Earth and Atmospheric Sciences
- 2015: Bureau of Economic Geology, University of Texas at Austin
- 2015: Louisiana State University, Department of Geography

2014: Ocean University of China, Department of Marine Sciences, Qingdao, China
 2014: Helmholtz Centre for Environmental Research, Leipzig, Germany
 2014: University of Houston, Department of Civil and Environmental Engineering
 2013: Sharp Lecture, American Geophysical Union, Earth and Planetary Sciences focus group capstone lecture, Fall Meeting
 2013: International Association of Hydrological Sciences Assembly, Gothenburg, Sweden
Keynote speaker and invited paper
 2013: Gulf Coast Associate of Geological Societies Annual Meeting, New Orleans, LA
 2012: Louisiana State University, Department of Oceanography and Coastal Studies
 2012: Rice University, Department of Earth Science
 2012: Texas A&M University, Department of Geology and Geophysics
 2012: Saint Louis University, Department of Earth and Atmospheric Sciences
 2012: Massachusetts Institute of Technology, Department of Earth and Planetary Sciences
 2012: University of Washington, Department of Earth and Space Sciences
 2011: Coastal Estuarine Research Foundation 21st Biennial Conference, Daytona Beach FL
 2011: Geological Society of America Annual Convention, Minneapolis MN
 2011: Woods Hole Oceanographic Institute

Invited Presentations: Industry

2019: ExxonMobil Upstream Research Laboratory, Houston, TX
 2016: ExxonMobil Upstream Research Laboratory, Houston, TX
 2014: Chevron Research Group, Houston, TX
 2013: ExxonMobil Upstream Research Laboratory, Houston, TX
 2012: Shell Research Group, Houston, TX

Media

- [16] National Public Radio KJZZ 91.5: “Some dams might worsen flooding”
<https://kjzz.org/content/1788738/some-dams-might-worsen-flooding>, June 20, 2022
- [15] Phys.Org: “How do silt and sand differ when going with the flow?”,
<https://phys.org/news/2019-12-silt-sand-differ.html>, December 16, 2019
- [14] Eureka Alert! AAAS: “How do silt and sand differ when going with the flow?”,
https://www.eurekaalert.org/pub_releases/2019-12/ru-hds121619.php, December 16, 2019
- [13] The New York Times: “A new formula to help tame China’s Yellow River”,
https://www.nytimes.com/2017/06/02/science/china-yellow-river-xiaolangdi-dam.html?_r=0, June 2, 2017
- [12] China Daily: “Analytical tool may improve prediction of flooding”;
http://usa.chinadaily.com.cn/world/2017-05/23/content_29466587.htm
 May 23, 2017
- [11] The Times of India: “Now, a tool that can help prevent surging waters in flood plains”,
<http://timesofindia.indiatimes.com/home/science/now-a-tool-that-can-help-prevent-surging-waters-in-flood-plains/articleshow/58668978.cms>, May 14, 2017
- [10] Phys.Org: “Yellow River formula addresses flood risk, sustainability”,
<https://phys.org/news/2017-05-yellow-river-formula-sustainability.html> May 12, 2017
- [9] Water Online: “New Tool Could Help Predict, Prevent Surging Waters in Flood Plains”,
<https://www.wateronline.com/doc/new-tool-could-help-predict-prevent-surging-waters-in-flood-plains-0001>, May 12, 2017
- [8] Futurity: “Dams won’t starve Mississippi Delta of Sand” <http://bit.ly/1i8O6Jn>, April 21 2014
- [7] Phys.org: “Centuries of sand to grow Mississippi Delta” <http://bit.ly/1h5lEwg> April 21, 2014
- [6] The Times-Picayune: “Mississippi River will carry enough sand needed to build new Louisiana wetlands for at least 600 years, new study says” <http://bit.ly/1lvBQLd>
 April 20, 2014

- [5] New Scientist: “Mississippi dams aren't to blame for flood risks” <http://bit.ly/1i3rXkD>
April 20, 2014
- [4] The New York Times: “How to Rebuild the Mississippi Delta”
<http://green.blogs.nytimes.com/2012/07/25/how-to-rebuild-the-mississippi-delta/>
July 25, 2012
- [3] Discovery News: “Can Sand Stop New Orleans From Drowning?”
<http://news.discovery.com/earth/can-sand-stop-new-orleans-from-drowning-120723.html>
July 23, 2012
- [2] Phys.ORG: “Investigative team finds river spillway flooding caused new land formation in Louisiana” <http://phys.org/news/2012-07-team-river-spillway-formation-louisiana.html>
July 23, 2012
- [1] Science, News Focus: “Rebuilding Wetlands by Managing the Muddy Mississippi” v. 335,
pp. 520-521, February 3, 2012