

## 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, with 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 three 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, 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—(ongoing)
- [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 Anthropogenic 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 (nine 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 profile date: 19 December, 2022

Jeffrey A. Nittrouer  
Texas Tech University  
Verified email at ttu.edu - Homepage  
Geology Earth Science

TITLE	CITED BY	YEAR
<input type="checkbox"/> Spatial and temporal trends for water-flow velocity and bed-material sediment transport in the lower Mississippi River JA Nittrouer, J Shaw, MP Lamb, D Mohrig Bulletin 124 (3-4), 400-414	201	2012
<input type="checkbox"/> Bedform transport rates for the lowermost Mississippi River JA Nittrouer, MA Allison, R Campanella Journal of Geophysical Research: Earth Surface 113 (F3)	194	2008
<input type="checkbox"/> Backwater and river plume controls on scour upstream of river mouths: Implications for fluvio-deltaic morphodynamics MP Lamb, JA Nittrouer, D Mohrig, J Shaw Journal of Geophysical Research: Earth Surface 117 (F1)	185	2012
<input type="checkbox"/> Backwater controls of avulsion location on deltas P Chatanantaveit, MP Lamb, JA Nittrouer Geophysical Research Letters 39 (1)	162	2012
<input type="checkbox"/> Impacts of the dam-orientated water-sediment regulation scheme on the lower reaches and delta of the Yellow River (Huanghe): A review H Wang, X Wu, N Bi, S Li, P Yuan, A Wang, JPM Syvitski, Y Saito, Z Yang, ... Global and Planetary Change 157, 93-113	153	2017
<input type="checkbox"/> Sand as a stable and sustainable resource for nourishing the Mississippi River delta JA Nittrouer, E Viparelli Nature Geoscience 7 (5), 350-354	143	2014
<input type="checkbox"/> Mitigating land loss in coastal Louisiana by controlled diversion of Mississippi River sand JA Nittrouer, JL Best, C Brantley, RW Cash, M Czapiga, P Kumar, ... Nature Geoscience 5 (8), 534-537	111	2012
<input type="checkbox"/> Testing morphodynamic controls on the location and frequency of river avulsions on fans versus deltas: Huanghe (Yellow River), China V Ganti, Z Chu, MP Lamb, JA Nittrouer, G Parker Geophysical Research Letters 41 (22), 7882-7890	110	2014
<input type="checkbox"/> The lowermost Mississippi River: a mixed bedrock-alluvial channel JA Nittrouer, D Mohrig, MA Allison, APB PEYRET Sedimentology 58 (7), 1914-1934	105	2011
<input type="checkbox"/> Punctuated sand transport in the lowermost Mississippi River JA Nittrouer, D Mohrig, M Allison Journal of Geophysical Research: Earth Surface 116 (F4)	89	2011

Cited by: All (2555), Since 2017 (2042)  
h-index: 25  
i10-index: 40

Public access: 1 article not available, 36 articles available  
Based on funding mandates

Co-authors: No co-authors

[66] Osborn, R., Dunne, K. B. J., Ashley, T., **Nittrouer, J. A.**, and Strom, K “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”, *in review 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”, *in review at Nature Geoscience*

[64] \*Dong, T., **Nittrouer, J. A.**, Carlson, B., McElroy, B. J., Il’icheva, E., Pavlov, M., and H. Ma, “Impacts of tectonic subsidence on basin depth and delta lobe building”, *in review at Journal of Geophysical Research Earth Surface*

[62] \*Barefoot, E. J., **Nittrouer, J. A.**, and K. M. Straub, “Time dilation in the stratigraphic record”, *in review at Proceedings of the National Academy of Sciences*

[63] \*Wu, C., **Nittrouer, J. A.**, Barefoot, E. J., and K. Burmeister, “Reconstructing backwater hydrodynamics from fluvial-deltaic deposits using stratigraphic inversion: an example

from the Tullig Sandstone, Western Irish Namurian Basin, Co. Clare, Ireland”, *accepted and in press at Geological Society of America Bulletin*

[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., Tamasov, 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: 125 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*

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 21<sup>st</sup> 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](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](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](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