

Kyle Martin Straub

Department of Earth & Environmental Sciences

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<http://tulane.edu/sse/eens/faculty/kyle-m-straub.cfm>

EMPLOYMENT:

- | | |
|--------------|--|
| 1/15 - | Associate Professor, Department of Earth & Environmental Sciences, Tulane University, New Orleans, Louisiana. Research is outlined below. |
| 1/09 - 12/14 | Assistant Professor, Ken and Ruth Arnold Professor of Earth and Ecological Science, Department of Earth & Environmental Sciences, Tulane University, New Orleans, Louisiana. |
| 6/07- 12/08 | Post-doctorate Fellow, National Center for Earth-surface Dynamics, St. Anthony Falls Laboratory, Minneapolis, Minnesota. |
| 9/02-6/07 | Research assistant, Department of Earth, Atmospheric, and Planetary Sciences, Massachusetts Institute of Technology, Cambridge, Massachusetts. |
| 6/03-9/03 | Geology intern, Turbidite Research Group, Shell Petroleum Company, Houston, TX. |
| 6/02-8/02 | Geophysics intern, Phillips Petroleum Company, Houston, TX. |

EDUCATION:

Massachusetts Institute of Technology, Cambridge, MA

Ph.D. in Geology and Geochemistry, Graduation: June 2007, Advisor: David Mohrig

Thesis: *Quantifying turbidity current interactions with topography*

The Pennsylvania State University, University Park, PA

Bachelor of Science in Geosciences, Graduation: May 2002, Advisor: Peter Flemings

Thesis: *Fluid Pressures in The Nankai Accretionary Prism: ODP Sites 808, 1173, and 1174*

The University of Leeds, West Yorkshire, United Kingdom

Junior Year Study Abroad

RESEARCH INTEREST:

My research focuses on the transport of sediment from land through the ocean and into the stratigraphic record. Scales of interest range from the interaction of turbidity currents with channel bends over minutes to the construction and preservation of deltas over millions of years. The sedimentary bodies that arise from these processes are home to millions of people, archives of past Earth conditions, and reservoirs of natural resources. I examine the morphodynamics of these systems using a combination of remote sensing of subsurface sedimentary deposits (visualization and interpretation of seismic data), carefully designed laboratory experiments, field studies of modern and ancient sediment transport systems, and targeted numerical analysis and modeling.

AWARDS AND FELLOWSHIPS:

Recent

- Distinguished Lecturer, NSF-GeoPRISMS program, 2013-2015
- James Lee Wilson Young Scientist Award, SEPM (Society for Sedimentology), 2013
- Outstanding paper of the year in *Journal of Sedimentary Research*, 2009, "Compensational stacking of channelized sedimentary deposits"

Graduate & Undergraduate

- American Geophysical Union Outstanding Student Paper Award, 2004
- MIT Departmental Award for 'Excellence in Teaching', Fall 2005
- MIT Presidential Graduate Fellowship, 2002-2003 Academic Year
- 1st Place in Penn State Geosciences Undergraduate Senior Thesis Colloquium, Spring 2002
- Chevron Undergraduate Fellowship in Geophysics, Spring 2001
- Texaco Geosciences Scholarship, Fall 2001
- A.P. Honess Scholarship for Undergraduate Excellence in Geosciences, 2000
- Benjamin Howell Scholarship for Undergraduate Excellence in Geophysics, 2001

PUBLICATIONS: Straub students/postdocs in italics

Google Scholar: Total citations = 1317, H-index = 19, i10-index = 26

36. **Straub, K.M.**, Duller, R.A., Foreman, B.Z., Hajek, E.A., *invited review paper, submitted*, Buffered, incomplete, and shredded: Quantifying impediments for storage of environmental signals in channelized strata, American Geophysical Union Centennial Special Volume on Grand Challenges in the Earth and Space Sciences, *Journal of Geophysical Research – Earth Surface*.
35. Jobe, Z., Howes, N., **Straub, K.M.**, Cai D., Deng, H., *submitted*, Comparing Aggradation, Superelevation, and Avulsion Frequency of Submarine and Fluvial Channels, *Frontiers in Earth Science*.
34. *Toby, S.C.*, Duller, R.A., De Angelis, S., **Straub, K.M.**, 2019, A stratigraphic framework for the preservation and shredding of environmental signals, *Geophysical Research Letters*, v. 46, DOI: 10.1029/2019GL082555.
33. **Straub, K.M.**, 2019, Morphodynamics and stratigraphic architecture of shelf-edge deltas subject to constant vs. dynamic environmental forcings: A laboratory study, *Frontiers in Earth Science*, 7:121, DOI: 10.3389/feart.2019.00121.
32. *Esposito, C.R.*, Di Leonardo, D.R., *Harlen, M.*, **Straub, K.M.**, 2018, Sediment storage partitioning in alluvial stratigraphy: The influence of discharge variability, *Journal of Sedimentary Research*, v. 88, p. 717-726, DOI:10.2110/jsr.2018.36.
31. *Li, Q.*, Gasparini, N.M., **Straub, K.M.**, 2018, Some signals are not as they appear: How do erosional landscapes transform tectonic history into sediment flux records?, *Geology*, v. 46, p. 407-410, DOI:10.1130/G40026.1.
30. **Straub, K.M.** and Foreman, B.Z., 2018, Geomorphic stasis and spatiotemporal scales of stratigraphic completeness, *Geology*, v. 46, p. 311-314, DOI:10.1130/G40045.1.
29. Paola, C., Ganti, V., Mohrig, D., Runkel, A., **Straub, K.M.**, 2018, Time not our time: physical controls on the preservation and measurement of geologic time, *Annual Review of Earth and Planetary Sciences*, v. 46, p. 409-438, DOI:10.1146/annurev-earth-082517-010129.
28. *Li, Q.*, *Benson, W.M.*, *Harlen, M.*, Robichaux, P., Sha, X., Xu, K., **Straub, K.M.**, 2017, Influence of sediment cohesion on deltaic morphodynamics and stratigraphy over basin-filling time scale, *Journal of Geophysical Research – Earth Surface*, v. 122, DOI: 10.1002/2017JF004216.
27. Foreman, B.Z. and **Straub, K.M.**, 2017, Autogenic geomorphic processes control the fidelity of terrestrial paleoclimate records, *Science Advances*, v. 3, e1700683, DOI: 10.1126/sciadv.1700683.
26. Hajek, E.A. and **Straub, K.M.**, 2017, Autogenic sedimentation in clastic stratigraphy, *Annual Review of Earth and Planetary Sciences*, v. 45, p. 681-709, DOI: 10.1146/annurev-earth-063016-015935.
25. *Yu, L.*, *Li, Q.*, **Straub, K.M.**, 2017, Scaling the response of deltas to relative sea level cycles by autogenic space and time scales: A laboratory study, *Journal of Sedimentary Research*, v. 87, p. 817-838, DOI: 10.2110/jsr.2017.46.
24. Trampush, S.M., Hajek, E.A., **Straub, K.M.**, Chamberlin, E.P., 2017, Identifying autogenic sedimentation in fluvial-deltaic stratigraphy: evaluating the effect of outcrop-quality on the compensation statistic, *Journal of Geophysical Research – Earth Surface*, v. 122, DOI: 10.1002/2016JF004067.
23. *Fernandes, A.M.*, Törnqvist, T.E., **Straub, K.M.**, Mohrig, D., 2016, Connecting the backwater hydraulics of coastal rivers to fluviodeltaic sedimentology and stratigraphy, *Geology*, v. 44, p. 979-982, DOI: 10.1130/G37965.1.
22. *Li, Q.*, *Yu, L.*, **Straub, K.M.**, 2016, Storage thresholds for relative sea level signals in the stratigraphic record, *Geology*, v. 44, p. 179-182, DOI: 10.1130/G37484.1.
35. **Straub, K.M.**, *Li, Q.*, *Benson, W.M.*, 2015, Influence of sediment cohesion on deltaic shoreline dynamics and bulk sediment retention: A laboratory study, *Geophysical Research Letters*, v. 42, DOI: 10.1002/2015GL066131.
20. Armstrong, C., Mohrig, D., Hess, T., George, T., **Straub, K.M.**, 2014, Influence of growth faults on coastal fluvial systems: Examples from the late Miocene to Recent Mississippi River Delta, *Sedimentary Geology*, v. 301, p. 120-132, DOI: 10.1016/j.sedgeo.2013.06.010.

19. Kim, W., Petter, A., **Straub, K.M.**, Mohrig, D., 2014, Decoupling allogenic forcing from autogenic processes: Experimental geomorphology and stratigraphy. In: *From Depositional Systems to Sedimentary Successions on the Norwegian Continental Shelf* (Eds A.W. Martinius, R. Ravnås, J.A. Howell, R.J. Steel, and J.P. Wonham), IAS Spec. Publ., 46, 127-138.
18. **Straub, K.M.**, Paola, C., Kim, W., Sheets, B., 2013, Experimental investigation of sediment-dominated vs. tectonics-dominated sediment transport systems in subsiding basins, *Journal of Sedimentary Research*, v. 83, p. 1162-1180, DOI: 10.2110/jsr.2013.91.
17. **Straub, K.M.** and Wang, Y., 2013, Influence of water and sediment supply on the long-term evolution of alluvial fans and deltas: Statistical characterization of basin-filling sedimentation patterns, *Journal of Geophysical Research – Earth Surface*, v. 118, DOI: 10.1002/JGRF.20095.
16. Pyles, D.R., **Straub, K.M.**, Stammer, J., 2013, Spatial variation in the composition of turbidites due to hydrodynamic fractionation, *Geophysical Research Letters*, v.40, DOI: 10.1002/GRL.50767.
15. **Straub, K.M.** and Esposito, C.R., 2013, Influence of water and sediment supply on the stratigraphic record of alluvial fans and deltas: Process controls on stratigraphic completeness, *Journal of Geophysical Research – Earth Surface*, v. 118, DOI: 10.1002/JGRF.20061.
14. **Straub, K.M.** and Pyles, D.R., 2012, Quantifying the hierarchical organization of compensation in submarine fans using surface statistics, *Journal of Sedimentary Research*, v. 82, p. 889-898, DOI: 10.2110/jsr.2012.73.
13. **Straub, K.M.**, Ganti, V., Paola, C., Fofoula-Georgio, E., 2012, Prevalence of exponential bed thickness distributions in the stratigraphic record: Experiments and theory, *Journal of Geophysical Research – Earth Surface*, v. 117, DOI: 10.1029/2011JF002034.
12. **Straub, K.M.**, Mohrig, D., Pirmez, C., 2012, Architecture of an aggradational tributary submarine channel network on the continental slope offshore Brunei Darussalam, in Prather, B.E., Deptuck, M.E., Mohrig, D., Van Hoorn, B., and Wynn, R.B., eds., *Application of the Principles of Seismic Geomorphology to Continental-Slope and Base-of-Slope Systems: Case Studies from Seafloor and Near-Seafloor Analogues*, SEPM, Special Publication 99, p. 13-30, DOI: 10.2110/pec.12.99.0061.
11. Shen, Z., Törnqvist, T.E., Autin, W.J., Mateo, R.P., **Straub, K.M.**, Mauz, B., 2012, Rapid and widespread response of the Lower Mississippi River to eustatic forcing during the last glacial-interglacial cycle, *Geological Society of America Bulletin*, v. 124(5/6), p. 690-704, DOI: 10.1130/B30449.1.
10. Wang, Y., **Straub, K.M.**, Hajek, E.A., 2011, Scale dependant compensational stacking: an estimate of autogenic timescales in channelized sedimentary deposits, *Geology*, v. 39 (9), p. 811-814, DOI:10.1130/G32068.1.
9. Ganti, V., **Straub, K.M.**, Fofoula-Georgio, E., Paola, C., 2011, Space-time dynamics of depositional systems: Experimental evidence and theoretical modeling of heavy-tailed statistics, *Journal of Geophysical Research – Earth Surface*, v. 116, DOI: 10:1029/2010JF001893.
8. **Straub, K.M.**, Mohrig, D., Buttles, J., McElroy, B., Pirmez, C., 2011, Quantifying the influence of channel sinuosity on the depositional mechanics of channelized turbidity currents: A laboratory study, *Marine and Petroleum Geology*, v. 28, p. 744-760, DOI:10.1016/j.marpetgeo.2010.05.014.
7. **Straub, K.M.**, Paola, C., Mohrig, D., George, T., Wolinsky, M.A., 2009, Compensational stacking of channelized sedimentary deposits, *Journal of Sedimentary Research*, v. 79, p. 673-688, DOI: 10.2110/jsr.2009.070.
6. Paola, C., **Straub, K.M.**, Mohrig, D., Reinhardt, L., 2009, The “unreasonable effectiveness” of stratigraphic and geomorphic experiments, *Earth-Science Reviews*, v. 97, p. 1-43, DOI: 10.1016/j.earscirev.2009.05.003.
5. **Straub, K.M.** and Mohrig, D., 2009, Constructional canyons built by sheet-like turbidity currents: Observations from offshore Brunei Darussalam, *Journal of Sedimentary Research*, v. 79, p. 24-39, DOI: 10.2110/jsr.2009.006.
4. Abrams, D.M., Lobkovsky, A.E., Petroff, A.P., **Straub, K.M.**, McElroy, B., Mohrig, D.C., Kudrolli, A., Rothman, D.H., 2009, Growth laws for channel networks incised by groundwater flow, *Nature Geoscience*, v. 2(3), p. 193-196, DOI: 10.1038/NGEO432.
3. **Straub, K.M.** and Mohrig, D., 2008, Quantifying the morphology and growth of levees in aggrading submarine channels, *Journal of Geophysical Research – Earth Surface*, v. 113, DOI: 10.1029/2007JF000896.

2. **Straub, K.M.**, Mohrig, D., Buttles, J., McElroy, B., Pirmez, C., 2008, Interactions between turbidity currents and topography in aggrading sinuous submarine channels: A laboratory study, *Geological Society of America Bulletin*, v. 120(3/4), p. 368-385, DOI: 10.1130/B25983.1.
1. **Straub, K.M.**, Jerolmack, D.J., Mohrig, D., Rothman, D.H., 2007, Channel network scaling laws in submarine basins, *Geophysical Research Letters*, v.34, DOI: 10.1029/2007GL030089.

CONFERENCE PROCEEDINGS/EXTENDED ABSTRACTS:

Straub, K.M., Mohrig, D., Buttles, J., 2008, Turbidity current flow out of channels and its contribution to constructing the continental slope, Society of Exploration Geophysics Annual Meeting Extended Abstracts, p. 2767-2771.

Mohrig, D., **Straub, K.M.**, Buttles, J., and Pirmez, C., 2005, Controls on geometry and composition of a levee built by turbidity currents in a straight laboratory channel, *in* Parker, G., and Garcia, M.H. (eds.), *River, Coastal and Estuarine Morphodynamics: RCEM 2005*, Taylor & Francis/Balkema, London, ISBN 0415392705, p. 579-584.

DEPARTMENTAL COLLOQUIMS/INVITED SEMINARS (2015-present)

2018: Tulane University, Department of Earth and Environmental Sciences

2017: National Science Foundation

University of Texas at Austin, Department of Geological Sciences

University of Texas at Austin, Bureau of Economic Geology

University of New Orleans, Department of Earth and Environmental Sciences

2016: University of Indiana, Department of Geological Sciences

2015: University of Liverpool, Department of Earth, Ocean, and Ecological Sciences

The Pennsylvania State University, Department of Geosciences

Louisiana State University, Department of Oceanography and Coastal Sciences

University of Oklahoma, Department Geology and Geophysics

University of Nevada at Reno, Departments of Hydrological Sciences & Geological Sciences

University of California at Riverside, Department of Earth Sciences

INVITED TALKS (2015-present): Straub students/postdocs in italics

Ganti, V., Potter Leary, K., Hajek, E.A., **Straub, K.M.**, Paola, C., 2019: “Fluvial morphodynamic hierarchy and fabric of the sedimentary record”, Fall Meeting of the American Geophysical Union, San Francisco, CA.

Straub, K.M., B.Z. Foreman, Q. Li, 2018: “Implications of stochastic sediment transport for storage of signals in stratigraphy.” Fall Meeting of the American Geophysical Union, Washington, D.C.

Straub, K.M., 2017: “Defining thresholds for signal storage in landscapes and stratigraphy”, Sediment Experimentalists Network workshop, Tsukuba, Japan.

Straub, K.M., 2017: “The fidelity of the stratigraphic record”, Theoretical & Experimental Institute for the Rift Initiation & Evolution Initiative (Keynote Lecture), Albuquerque, New Mexico.

Straub, K.M., *A. Fernandes*, *T. Bishnoi*, 2016: “Autogenic processes in submarine transport systems and their linkage to terrestrial boundary conditions”, Annual meeting of the Geological Society of America, Denver, Colorado.

A. Fernandes, **K.M. Straub**, J. Buttles, D. Mohrig, 2016: “How do submarine channels form? An experimental perspective”, Annual meeting of the Geological Society of America, Denver, Colorado.

Straub, K.M., *C.R. Esposito*, *Q. Li*, 2015: “High Fidelity? Temporal and spatial scales of stratigraphic incompleteness and how they compare to environmental forcings.” Fall Meeting of the American Geophysical Union, San Francisco, California.

Gasparini, N.M., *Li, Q.*, **Straub, K.M.**, 2015: “Where did the signal go? Why sediment flux is not always the best place to look for a record of the rock uplift history.” Fall Meeting of the American Geophysical Union, San Francisco, California.

Li, Q., *L. Yu*, **Straub, K.M.**, 2015: “Storage thresholds for relative sea level signals in the stratigraphic record.” Fall Meeting of the American Geophysical Union, San Francisco, California.

Straub, K.M., Li, Q., 2015: “Signals of relative sea level perturbations: Defining the divide between autogenic signal shredding vs. preservation in the stratigraphic record”, Community Surface Dynamics Modeling System Meeting, Boulder, Colorado (Keynote Lecture).

Straub, K.M., 2015: “Rivers and Submarine channels: A comparison of their transport processes and resulting stratigraphic architecture over basin filling time scales”, Annual Meeting of the Society for Sedimentary Geology SEPM, Denver, Colorado.

ADDITIONAL TALKS (2015-present): Straub students/postdocs in italics

Toby, S.C., Duller, R., De Angelis, S., Straub, K.M., 2019, “Quantifying the effect of varying sediment flux on landscape dynamics and stratigraphy”, Spring Meeting of the European Geophysical Union, Vienna, Austria.

Straub, K.M. and Foreman, B.Z., 2018: “The Nyquist Frequency for Paleoclimate Records hosted within Alluvial Stratigraphy”, Fall Meeting of the American Geophysical Union, Washington, D.C.

Straub, K.M., 2018: “Morphodynamics and stratigraphic architecture of shelf-edge deltas subject to constant vs. dynamic forcings”, Annual Meeting of the American Association of Petroleum Geologist, Salt Lake City, Utah.

Straub, K.M., 2017: “Defining thresholds for signal storage in landscapes and stratigraphy”, Japanese Geophysical Union, Chiba, Japan.

Paola, C., Ganti, V., Mohrig, D.C., Runkel, A., **Straub, K.M.**, 2017, “The strange ordinariness of fluvial strata”, Fall Meeting of the American Geophysical Union, New Orleans, Louisiana.

Straub, K.M., 2017, “Morphodynamics and stratigraphic architecture of shelf-edge deltas subject to constant vs. dynamic environmental forcings” Fall Meeting of the American Geophysical Union, New Orleans, Louisiana.

Trampush, S., Hajek, E, **Straub, K.M.**, Chamberlin, E., 2017, “Advances in measuring autogenic dynamics in fluvio-deltaic stratigraphy”, Annual meeting of the Geological Society of America, Seattle, Washington.

Hajek, E., S. Trampush, **K.M. Straub**, E. Chamberlin, 2017, “Identifying the maximum scale of autogenic deposits in fluvial stratigraphy”, Climatic and Biotic Events of the Paleogene Meeting, Snowbird Resort, Utah.

Foreman, B.Z. and **K.M. Straub**, 2017, “Geomorphic controls on the resolution of terrestrial paleoclimate proxy records”, Climatic and Biotic Events of the Paleogene Meeting, Snowbird Resort, Utah.

Esposito, C.R., Di Leonardo, D.R., Harlan, M., Straub, K.M., 2016, “Are floodplains formed by floods?”, Fall Meeting of the American Geophysical Union, San Francisco, California.

Straub, K.M., 2016: “Stratigraphic completeness and “The Sadler Effect” in multi-dimensions: Experimental observations & theory”, Annual meeting of the Geological Society of America, Denver, Colorado.

Fernandes A. and **K.M. Straub**, 2016: “Linked dynamics of terrestrial and submarine transport systems on experimental shelf margins”, Annual meeting of the Geological Society of America, Denver, Colorado.

Fernandes, A.M., Törnqvist, T.E., Straub, K.M., Mohrig D., 2016, “Connecting the backwater hydraulics of coastal rivers to riverine sedimentology and stratigraphy”, South-Central Section GSA Meeting, Baton Rouge, Louisiana.

Li, Q., Gasparini, N.M., Straub, K.M., 2015, “Signal transformation in erosional landscapes: insights for reconstructing tectonic history from sediment flux records”, Fall Meeting of the American Geophysical Union, San Francisco, California.

Fernandes, A. and **Straub, K.M.**, 2015, “Statistics of stratal stacking on experimental shelf margins”, Fall Meeting of the American Geophysical Union, San Francisco, California.

CONFERENCE PROCEEDINGS (POSTERS) (2015-present): Straub students/postdocs in italics

Wahab, A., Hoyal, D.C.J.D., Sun, H., Shringarpure, M., **Straub, K.M.**, 2019, “Statistical characterization of submarine fans over a wide range of hydrodynamic and sediment-transport parameters: A numerical Campaign”, Fall Meeting of the American Geophysical Union, San Francisco, California.

Sanks, K.M., Shaw, J., **Straub, K.M.**, Zapp, S., Dutt, R., 2019, “The influence of marsh sediment accumulation on deltaic surface processes in a physical experiment”, Fall Meeting of the American Geophysical Union, San Francisco, California.

Zapp, S., Shaw, J., **Straub, K.M.**, Dutt, R., Sanks, K., 2019, “Consolidation of deltaic marsh sediments and their contribution to coastal subsidence in physical experiments”, Fall Meeting of the American Geophysical Union, San Francisco, California.

Dutt, R., Akintomide, A.O., **Straub, K.M.**, 2018, “Development of a mass-balance framework for mixed bed and suspended load systems”, Fall Meeting of the American Geophysical Union, Washington, D.C.

Wahab, A., Hoyal, D.C., Vishnampet, R., BVRSN, P., Shringarpure, M., Huafei, S., **Straub, K.M.**, 2018, “Development of statistical metrics to understand stratigraphic architecture in deep-water fan deposits”, Fall Meeting of the American Geophysical Union, Washington, D.C.

Toby, S.C., Duller, R., De Angelis, S., **Straub, K.M.**, 2018, “Transferring periodic sediment supply signals to the stratigraphic record”, Fall Meeting of the American Geophysical Union, Washington, D.C.

Yocum, T., Georgiou, I.Y., **Straub, K.M.**, 2017, “Growth laws for sub-delta crevasses in the Mississippi River Delta”, Fall Meeting of the American Geophysical Union, New Orleans, Louisiana.

Toby, S.C., Duller, R., De Angelis, S., **Straub, K.M.**, 2017, “Transfer of cyclic sediment supply signals to stratigraphy: experimental test of a theoretical framework for channelized systems”, SEPM Research Conference on Propagation of Environmental Signals within Source-to-Sink Stratigraphy, Tremp & Ainsa, Spanish Pyrenees.

Yu, L., Li, Q., **Straub, K.M.**, 2016, “Quantifying surface processes and stratigraphic characteristics resulting from large magnitude short period and small magnitude long period relative sea level cycles: An experimental study”, Fall Meeting of the American Geophysical Union, San Francisco, California.

Toby, S.C., De Angelis, S., Duller, R., **Straub, K.M.**, 2016, “Stratigraphic transfer thresholds of sediment supply signals in channelized systems”, Fall Meeting of the American Geophysical Union, San Francisco, California.

Robichaux, P., Xu, K., **Straub, K.M.**, Li, Q., Sha, X., 2016, “The impact of polymers on sediment erodibility and its implication to sediment diversion”, South-Central Section GSA Meeting, Baton Rouge, Louisiana.

Esposito, C.R., **Straub, K.M.**, Georgiou, I.Y., 2015, “Backwater hydrodynamics in complex channel networks”, Fall Meeting of the American Geophysical Union, San Francisco, California.

Li, Q., Gasparini, N.M., **Straub, K.M.**, 2015, “Exploring the imprint of tectonics on sediment output from a small mountain watershed”, Community Surface Dynamics Modeling System Meeting, Boulder, Colorado.

LABORATORY FACILITIES

Designed and built two stratigraphic basins and refurbished one flume for scientific and educational purposes: 1) Tulane Deepwater Basin, 2) Tulane Delta Basin, 3) Teaching Flume, all located in 100 Blessey Hall on Tulane University’s Uptown campus.

- Tulane Deepwater Basin:
 - Period of design and construction: September 2009 – August 2011
 - Total costs: ~\$200,000
 - Dimensions: 6-m long, 4-m wide, 2.2-m deep
 - Physically model morphodynamic and stratigraphic evolution of fluvialdeltaic and/or deepwater systems in response to sea level, water, and sediment variations.
- Tulane Delta Basin:
 - Period of design and construction: June 2009 – March 2010
 - Total costs: ~\$100,000
 - Dimensions: 4.2-m long, 2.8-m wide, 0.65-m deep
 - Physically model morphodynamic and stratigraphic evolution of fluvialdeltaic systems in response to sea level, water, and sediment variations.
- Teaching flume:
 - Period of design and construction: June 2009 – January 2010
 - Total costs: ~\$20,000
 - Dimensions: 2.75-m long, 0.1-m wide, 0.3-m deep
 - Examine open channel sediment transport, construction of deltaic stratigraphy, and two-dimensional evolution of turbidity currents. Used for practicals in undergraduate and graduate level courses as well as in pilot and full-scale research projects.

PUBLISHED DATASETS: Straub students/postdocs in italics

1. **Straub, K.M.**, 2019, TDWB_17_1, *SEAD*, DOI: 10.26009/S0FCQNQR.
2. *Toby, S., Dutt, R., Akintomide, A., and Straub, K.M.*, 2019, TDB_16_3, *SEAD*, DOI: 10.26009/S0c20606.
3. *Toby, S.* and **Straub, K.M.**, 2019, TDB_16_2, *SEAD*, DOI: 10.26009/S0XTYI86.
4. *Toby, S.* and **Straub, K.M.**, 2019, TDB_16_1, *SEAD*, DOI: 10.26009/S0IORJDX.
5. *Yu, L.* and **Straub, K.M.**, 2017, TDB_15_1, *SEAD*, DOI: 10.5967/ M00V89W1.
6. *Li, Q.* and **Straub, K.M.**, 2017, TDB_14_2, *SEAD*, DOI: 10.5967/ M0RF5S4H.
7. *Li, Q.* and **Straub, K.M.**, 2017, TDB_14_1, *SEAD*, DOI: 10.5967/ M0MP51D5.
8. *Li, Q.* and **Straub, K.M.**, 2017, TDB_13_1, *SEAD*, DOI: 10.5967/ M07D2S7Q.
9. *Li, Q.* and **Straub, K.M.**, 2017, TDB_12_1, *SEAD*, DOI: 10.5967/ M03N21GX.
10. *Wang, Y.* and **Straub, K.M.**, 2017, TDB_11_1, *SEAD*, DOI: 10.5967/ M0D50K3T.
11. *Wang, Y.* and **Straub, K.M.**, 2017, TDB_10_2, *SEAD*, DOI: 10.5967/ M0W37TFH.
12. *Wang, Y.* and **Straub, K.M.**, 2017, TDB_10_1, *SEAD*, DOI: 10.5967/ M0HX19TT.

ADVISEES:

<u>Postdoctoral</u>	<u>Start Date</u>	<u>End Date</u>
Anjali Fernandes	October 2012	August 2015

<u>Graduate Students</u>	<u>Degree Program</u>	<u>Status</u>
Jose Silvestre	PhD, EENS	1 st year
Abdul Wahab	PhD, EENS	3 rd year
J. Kevin Reece	PhD, EENS	3 rd year
Ripul Dutt	PhD, EENS	4 th year
Christopher Esposito	PhD, EENS	Graduated (2017)
W. Matthew Benson	MS, EENS	Graduated (2017)
Qi Li	PhD, EENS	Graduated (2016)
Tushar Bishnoi	MS, EENS	Graduated (2016)
Lizhu Yu	MS, EENS	Graduated (2016)
Yinan Wang	MS, EENS	Graduated (2011)

Graduate Students External to Tulane (I advised on project conducted in TSDS lab)

Sam Zapp	MS – University of Arkansas	2 nd year
Kelly Sanks	PhD – University of Arkansas	3 rd year
Eric Barefoot	PhD – Rice University	3 rd year

Stephan Toby
Jane Stammer

PhD – University of Liverpool
PhD – Colorado School of Mines

4th year
Graduated (2014)

Kyle M. Straub – cv (continued)

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Undergraduate Students

Margret Harlan (Honors thesis with Straub)
Liam Doolin
Katie Ahlstrom
Erin Cunningham
Alexander Breaux
Krystal Pennuto
Jaimeson Fredricks

Graduation Date

2016
2016
2013
2013
2012
2011
2011

Awards to Advisees

- Kevin Reece: SEPM (2019) Research Grant-in-Aid;
- Abdul Wahab: Geological Society of America (2018) Research Grant-in-Aid; AAPG (2019) Research Grant-in-Aid
- Ripul Dutt: Outstanding teaching assistant award (2018)
- Tushar Bishnoi: Schlumberger Research Grant (2016); Outstanding teaching assistant award (2015)
- Qi Li: SEPM (Society for Sedimentary Geology) (2013) Research Grant-in-Aid; Department of Earth & Environmental Sciences, Tulane University (2016) Outstanding research award
- Chris Esposito: Volkes Fellowship for outstanding PhD candidate in Earth & Environmental Sciences (2015), Geological Society of America (2014) Research Grant-in-Aid; Department of Earth & Environmental Sciences, Tulane University (2014) Outstanding research award; Department of Earth & Environmental Sciences, Tulane University (2013) Outstanding teaching assistant in an upper level undergraduate course
- Lizhu Yu: Geological Society of America – Research Grant-in-Aid (2015), Schlumberger Research Grant (2016)
- W. Matthew Benson: Geological Society of America (2013) Research Grant-in-Aid

THESIS COMMITTEE PARTICIPATION:

Akinbobola Akintomide, Tulane, EENS, Active
Stephan Toby, University of Liverpool, Department of Geological Sciences, Active
Kelly Sanks, University of Arkansas, Department of Geosciences, Active
Michael Rodriguez, Tulane, EENS, Active
Dan Culling, MS, Tulane, EENS, 2017
Jordan Adams, PhD, Tulane, EENS, 2017
Jane Stammer, PhD, Colorado School of Mines, Department of Geological Sciences, 2014
Jianwei Han, PhD, Tulane, EENS, 2014
Glenn Fischer, MS, Tulane, EENS, 2012
Kelly Williams, MS, Tulane, EENS, 2012

TEACHING EXPERIENCE:

Fall 2018	Instructor, Tulane University <i>EENS Techniques in Geoscience Writing</i>
Fall '16-18, '13-'14, '09-'11	Instructor, Tulane University <i>EENS 3270 Sedimentology and Stratigraphy</i> <ul style="list-style-type: none">• Designed, taught, and graded course required for undergraduates majoring in geology. Course included lecture, laboratory, and field components.
Summer 2013	Instructor, National Center for Earth-surface Dynamics
Summer 2018	<i>Subsurface to surface: recovering surface dynamics from stratigraphic records</i> <ul style="list-style-type: none">• Designed and taught lecture and practical for summer institute attended by upper level graduate students through early career faculty members.
Spring 2013	Instructor, Tulane University <i>EENS 1110 Physical Geology</i> <ul style="list-style-type: none">• Taught and graded undergraduate level course that introduces geological concepts to undergraduate students including majors and non-majors.
Spring 2011, 14, 16, 18	Instructor, Tulane University <i>EENS 6160 Construction and Interpretations of 3D Stratigraphy</i> <ul style="list-style-type: none">• Designed, taught, and graded graduate level course that related surfaces processes to subsurface stratigraphic record

- Course utilized experimental and industry-grade 3D seismic volumes of stratigraphy in class projects.
- Spring 2010, '12, '15, '17
Instructor, Tulane University
EENS 6080 Depositional Mechanics
- Designed, taught, and graded graduate level course in sediment transport and deposition. Course included lecture and field components.
- Spring 2010, Fall 2012
Instructor, Tulane University
EENS 6083 Seminar in Sediment Transport
- Designed, taught, and graded graduate level course centered on discussion of current research or advanced topics in sedimentary geology.
- Spring 2008
Instructor, University of Minnesota
Shallow and Deep water depositional processes
- Designed and co-taught 3-5 day courses for petroleum industry employees. Courses included classroom lectures in addition to demonstration experiments on sedimentary processes
- Fall 2005, Fall 2004
Teaching Assistant, Massachusetts Institute of Technology
Sedimentary Geology
- Worked with undergraduates on identifying and interpreting sediments and sedimentary rocks, quantifying modes of sediment transport, and understanding stratigraphic relationships in sedimentary basins.
 - Designed, taught, and graded laboratory portion of class.

PROFESSIONAL SOCIETIES:

The American Geophysical Union, SEPM (The Society of Sedimentary Geology), The Geological Society of America, The Society for Sedimentary Geology,

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UNIVERSITY SERVICE:

- Member of Department of Earth and Environmental Sciences Graduate Committee (2010-present)
- Chair of Department of Earth And Environmental Sciences Graduate Committee (2016-present)
- University Senate Budget Review Committee (2015-present)
- Member of University Honor Board (2010-2012)
- Member of Task Force on Development of an Engineering Geology Program at Tulane University (2015)
- Member of ad hoc committee for development of university wood and metal shop (2014)
- Member of search committee for new Tulane University Dean of Libraries (2015)

NON-UNIVERSITY SERVICE:

- Invited member of GeoPRISMS steering committee (2016-present)
- Member of Executive Committee Earth and Planetary Surface Process Section of American Geophysical Union (2019 – present)
- Co organizer: Summer Institute on Earth-surface Dynamics 2015: Summer in the Swamp: Self-organization in landscapes and its residue in the stratigraphic record. A 1.5 week course held at Tulane University and hosted by the National Center for Earth-surface Dynamics
- Co Chair: 2012 Meeting of Young Researchers in Earth Science (MYRES) titled *The Sedimentary Record of Landscape Dynamics*
- Member of Executive Committee & Board of Directors Sedimentary geology, Time, Environment, Paleontology, Paleoclimate, and Energy (STEPPE) program, an NSF-funded research and education coordination and communications effort representing deep-sedimentary crust research (2014-2016)
- Associate Editor for: *Journal of Sedimentary Research* (2009-present), *Sedimentology* (2018-present)
- Early Career Councilor *SEPM Society for Sedimentary Geology* (2014-2016)
- Member of Proposal Review Panel: *Marine Geology and Geophysics Program and Geomorphology and Land-use Dynamics, National Science Foundation*
- Reviewer of Manuscripts for: *Nature, Geology, Journal of Sedimentary Research, The Geological*

Society of America, Journal of Geophysical Research – Earth Surface, Geophysical Research Letters, Sedimentology, Lithosphere, Terra Nova, Marine Geophysical Researches, Basin Research

- Reviewer of Grant Proposal: *National Science Foundation (SGP, MGG, GLD), American Chemical Society - Petroleum Research Fund*
- Invited member of the NSF-funded National Center for Earth-surface Dynamics (NCED) “Emerging leaders network”, a group of young researchers recognized as doing interdisciplinary work in morphodynamics.
- Invited member of Subsidence Advisory Panel for the Louisiana Office of Coastal Protection and Restoration: Panel tasked with compiling a coast wide map of potential future subsidence ranges as part of the updated 2012 Louisiana Comprehensive Master Plan for a Sustainable Coast.
- Organized Technical Sessions:
 - Technical session co-chair, 2019 AGU Fall Meeting, *Signatures of Environmental Signals in Earth’s Surface and Subsurface.*
 - *Reconstructing landscape dynamics and environmental signals from stratigraphy and relict landscapes.*
 - Technical session co-chair, 2018 AAPG/SEPM Annual Meeting, *Quantitative Measurement and Modeling of Clastic Sedimentary Processes.*
 - Technical session co-chair, 2017 AGU Fall Meeting, *Reconstructing landscape dynamics and environmental signals from stratigraphy and relict landscapes.*
 - Technical session co-chair, 2015 AGU Fall Meeting, *Experimental studies in surface processes.*
 - Technical session co-chair, 2014 AGU Fall Meeting, *Signal propagation and preservation: routing information from the geomorphic engine to the stratigraphic record.*
 - Technical session co-chair, 2014 AAPG/SEPM Annual Meeting, *Quantitative Measurement and Modeling of Clastic Sedimentary Processes.*
 - Technical committee member, 2014 Society for Sedimentology (SEPM) Research Conference, *Autogenic Dynamics of Sedimentary Systems*
 - Technical session co-chair, 2010 International Sedimentological Congress, *Patterns of deep-marine channel and associated overbank sedimentation outcrop, modern, experimental and seismic*
 - Technical session co-chair, 2010 AAPG/SEPM Annual Meeting, *Numerical and Physical Modeling of Sedimentary Processes.*
 - Technical session co-chair, 2009 AGU Fall Meeting, *Interpreting allogenic and autogenic processes in the stratigraphic record.*

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- Technical session co-chair, 2007 AGU Fall Meeting, *Depositional landforms: Process and Product*

SUPPORT:

Project/Proposal Title:	Collaborative research: An Experimental Investigation of Morphodynamic Coupling between River Deltas and Marshes (Award: EAR-1848993)
Source of Support:	National Science Foundation – Geomorphology and Land-use Dynamics Program
Total Award Amount:	\$161,418 Straub Status: PI Total Award Period Covered: 3/01/19 – 2/28/22
Project/Proposal Title:	Stratigraphic statistics for deep-water characterization and numerical model validation
Source of Support:	ExxonMobil
Total Award Amount:	\$155,000 Straub Status: PI Total Award Period Covered: 9/01/18 – 8/31/21
Project/Proposal Title:	Stratigraphic statistics for deep-water characterization and numerical model validation
Source of Support:	ExxonMobil
Total Award Amount:	\$39,876 Straub Status: PI Total Award Period Covered: 9/01/17 – 8/31/18
Project/Proposal Title:	Signals of Relative Sea Level perturbations: Defining the divide between signal shredding versus preservation in the stratigraphic record (Award: EAR-1424312)
Source of Support:	National Science Foundation – Geomorphology and Land-use Dynamics & Sedimentary Geology & Paleobiology Programs
Total Award Amount:	\$166,516 Straub Status: PI Total Award Period Covered: 8/01/14 – 7/31/18

Project/Proposal Title: **Evaluating the influence of relative sea-level change on the morphodynamics of coastal rivers and resulting stratigraphy: Synthesis Postdoctoral Fellowship**
 Source of Support: **National Science Foundation – National Center for Earth-surface Dynamics**
 Total Award Amount: **\$50,000** Straub Status: **Co-PI** Total Award Period Covered: **4/15/14 – 4/14/15**

Project/Proposal Title: **Quantifying the morphology and composition of thin-bed levee deposits in deep-water settings and their linkage to channelized deposits: A coupled seismic geomorphology, laboratory, and numerical modeling study**
 Source of Support: **Shell International Exploration and Production, Inc.**
 Total Award Amount: **\$179,301** Straub Status: **PI** Total Award Period Covered: **1/1/12 – 12/31/14**

Project/Proposal Title: **Hydrodynamic fractionation of minerals and textures in submarine fans – implications for prediction of reservoir quality**
 Source of Support: **Chevron Center for Research Excellence**
 Total Award Amount: **\$44,677** Straub Status: **PI** Total Award Period Covered: **11/1/11 – 10/31/12**

Project/Proposal Title: **Statistical methods for quantifying autogenic processes in sedimentary basins (Award: EAR-1024443)**
 Source of Support: **National Science Foundation – Sedimentary Geology & Paleobiology Program**
 Total Award Amount: **\$175,925** Straub Status: **PI** Total Award Period Covered: **3/15/11 – 3/14/17**

Project/Proposal Title: **Reconstructing ancient passive margin dynamics by relating geomorphic and stratigraphic surfaces: a combined laboratory and field study (Award: OCE-1049387)**
 Source of Support: **National Science Foundation – Marine Geology & Geophysics Program**
 Total Award Amount: **\$192,729** Straub Status: **PI** Total Award Period Covered: **4/1/11 – 3/31/17**

Project/Proposal Title: **Quantifying the morphology and composition of thin-bed levee deposits in deep-water settings (Award: 50295-DNI8)**
 Source of Support: **American Chemical Society – Petroleum Research Fund**
 Total Award Amount: **\$100,000** Straub Status: **PI** Total Award Period Covered: **7/1/10 – 6/30/12**

Project/Proposal Title: **Quantifying the role of growth faulting in the Quaternary development of the Mississippi River Delta**
 Source of Support: **Long-term Estuary Assessment Group – US Geological Survey**
 Total Award Amount: **\$25,582** Straub Status: **PI** Total Award Period Covered: **8/1/09 – 7/31/10**