Christopher Read Esposito

Curriculum Vitae

Research Scientist: Applied Geosciences
The Water Institute of The Gulf
cesposito@thewaterinstitute.org

Education

Tulane University	Ph.D.	Earth and Environmental Sciences *Advisor: Kyle M. Straub*	2017
University of New Orleans	M.S.	Earth and Environmental Sciences *Advisor: Ioannis Y. Georgiou*	2011
Rutgers The State University of New Jersey	B.S.	Majors: Mathematics, Physical Oceanography	2004

Employment and Professional Appointments

The Water Institute of The Gulf	Research Scientist: Applied Geosciences	2019 –
The Water Institute of The Gulf	Post Doctoral Research Scientist: Water Resources	2016 – 2019
Tulane University	Adjunct Professor of Earth and Environmental Sciences	2017 –
Tulane University	Teaching and Research Assistant	2011 – 2016
Conoco Phillips	Geomodeling Intern	2012, 2013
University of New Orleans	Research Assistant	2009 – 2011
Public High Schools	Math/Environmental Education Teacher	2004 – 2009

Instructional Experience

Lecture	Teaching Assistant (Sedimentology and Stratigraphy)	2012, 2013
	Teaching Assistant (Intro to Earth and Env. Sciences)	2011, 2012
	High School Math/Science	2004 – 2009
Short Course	Advanced Techniques for Water Management Delft3D Modeling Short Course (Joint Water Institute/Deltares)	2020 (pending) 2017
Field Course	Leader/designer or instructor for field lessons throughout the Mississippi River Delta, Wyoming, Florida Keys. Trips pitched to middle schoolers through senior academics.	2008 –

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Support (Active)

Thresholds for Fine Sediment Transport in Vegetation (with Massachusetts Institute of Technology and Tulane University). National Academy of Sciences: Gulf Research Program.
Award: $592,179 Esposito Status: PI Duration: Dec 2017 – Dec 2020

The Genetic and Geomorphic Basis for Carbon Sequestration and Land Building. The Joe W. and Dorothy Dorsett Brown Foundation.
Award: $65,000 Esposito Status: PI Duration: Dec 2018 – Dec 2019

Support (Pending)

Tracking Sinks and Sources of Blue Carbon in Wetlands Undergoing Restoration (with The University of New Orleans).
National Academy of Sciences: Gulf Research Program.
Proposed Amount: $806,682 Esposito Status: PI Duration: Jan 2020 – Jan 2023

Water Resources Training Course for Advanced Graduate Students (with The University of New Orleans, Deltares, and Utrecht University).
NSF-IRES
Proposed Amount: $397,000 ($75,000 to the Water Institute)
Esposito Status: co-PI Duration: Jan 2020 – Dec 2023

The Genomic Basis of Sediment Capture and Retention In Wetland Plant Communities (with The Lake Pontchartrain Basin Foundation and Tulane University). National Academy of Sciences: Gulf Research Program.
Proposed Amount: $730,607 ($150,000 to WI)
Esposito Status: co-PI Duration: Jan 2020 – Jan 2023

Synergistic Activities

- CoPe (Coastlines and People) Workshop. NSF effort to define coastal research needs. 2018
- Session Chair: CERF 2019, AGU 2017 EP43, GSA South Central 2016 T7 (co-chair)

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- Journal Reviewer: *J. Geophys. Res. Earth Surf., Geophys. Res. Lett., Geomorphology, Mar. Geol., Estuar. Coast. Shelf Sci., Earth Surf. Process. Landf., Earth Surf. Dyn., Catena*
- Proposal Reviewer: *Deleware Sea Grant, Louisiana Sea Grant*
- Advisory service to the Plaquemines Parish Coastal Zone Advisory Commission
- Practitioner Outreach: Maintain a twice yearly meeting of restoration practitioners, agency scientists, academic scientists, and stakeholders to discuss scientific topics related to the best use of vegetation in coastal restoration.
- Coastal Advisory Commission, Southeast Levee Flood Protection Authority. 2015 – 2016
- Artist collaborations through *A Studio In The Woods*. 2013 - 2015
- Frequent panelist and interviewee on coastal resilience.

Honors and Awards

- Vokes Fellowship for Outstanding PhD Candidate in Earth and Env. Sciences (2015)
- Department of Earth and Environmental Sciences, Tulane University (2014), Outstanding Graduate Student Research Award
- Department of Earth and Environmental Sciences, Tulane University (2013), Outstanding Graduate Student Teaching Award
- Department of Earth and Environmental Sciences, Tulane University (2011), McWilliams Scholarship
- New Orleans Geological Society (2010), University Earth Science Award
- Institute for Marine and Coastal Sciences (2002), Undergraduate Research Fellow
- Rutgers, The State University of New Jersey, Dean's List
- National Merit Scholar Program Finalist

Peer Reviewed Publications

Esposito, C. R., Di Leonardo, D., Harlan, M., & Straub, K. M. (2018). Sediment Storage Partitioning in Alluvial Stratigraphy: The Influence of Discharge Variability. Journal of Sedimentary Research, 88(6), 717–726. https://doi.org/10.2110/jsr.2018.36

Nienhuis, J. H., Törnqvist, T. E., & **Esposito, C. R.** (2018). Crevasse Splays Versus Avulsions: A Recipe for Land Building With Levee Breaches. Geophysical Research Letters, 45(9), 4058–4067. https://doi.org/10.1029/2018GL077933

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Esposito, C. R., Shen, Z., Törnqvist, T. E., Marshak, J., & White, C. (2017). Efficient retention of mud drives land building on the Mississippi Delta plain. Earth Surface Dynamics, 5(3), 387–397. https://doi.org/10.5194/esurf-5-387-2017

Esposito, C. R., Georgiou, I. Y., & Kolker, A. S. (2013). Hydrodynamic and geomorphic controls on mouth bar evolution. Geophysical Research Letters, 40(8), 1540–1545. https://doi.org/10.1002/grl.50333

Straub, K. M., & **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, 1–14. https://doi.org/10.1002/jgrf.20061

Submitted Publications

Esposito, C. R., Georgiou, I. Y., & Straub, K. M. (*in review*). Flow Loss in Deltaic Distributaries: Impacts on Channel Hydraulics, Morphology and Stability. Water Resources Research.

Yuill, B, Wang, Y, Allison, M.A., Meselhe, E, **Esposito, C.R.** (*in review*). Sand Settling Through Bedform-Generated Turbulence In Rivers. Journal of Geophysical Research: Earth Surface

Esposito, C. R., Meselhe, E., & Liang, M. (*in prep*). Comparing Models of Sand Transport Into Diversions and Crevasses. Geophysical Research Letters.

Invited Talks

Esposito, C.R. (2019) "Putting Ecogeomorphology Into Practice: The Future of Coastal Management", AGU Fall Meeting, Young Scientists View of The Future

Esposito, C.R. (2019) "Rapidly Changing Transport Conditions in Deltaic Marshes", Louisiana State University School of the Coast and Environment, Baton Rouge, LA.

Esposito, C.R. (2019) "Restoration and Monitoring Activity in the Bay Denesse Wetland Restoration Planting", Plaquemines Parish Coastal Zone Advisory Commission, Port Sulfur, LA.

Esposito, C.R. (2019) "Dynamic Interactions Between Channels and the Overbank Environment", Dauphin Island Sea Lab, Dauphin Island, AL.

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Esposito, C.R. (2019) "Exchange Processes Between Channels and Wetlands: Understanding and Application", Woods Hole Oceanographic Institution, Woods Hole, MA.

Esposito, C.R. (2018) "Coastal Marsh Storage Dynamics: the Clastics and The Carbon", Plant Genetics and Carbon in Coastal Louisiana, Cocodrie, LA.

Esposito, C.R., Törnqvist, T.E., Shen, Z., Marshak, J., White, C. (2015) "Building The Mississippi River Delta With Silt and Clay: Texture and Sediment Retention Efficiency of Crevasse Splays", Mississippi River Delta Coalition's Diversion Workshop, New Orleans, LA.

Esposito, C.R., Straub, K.M. (2014) "Observing Morphology Becoming Stratigraphy: The Statistical Imprint of Coastal Processes In Deltaic Stratigraphy", International Deltas Meeting, Istomino, Russia.

Esposito, C.R., Boyd, R. (2012) "Representing Stratigraphic Time With Delft3D", Deltares Energy Symposium, Delft, The Netherlands.

Conference Presentations

Esposito, C.R., Nepf, H.M., Burgos, M.B., Baustian, M.M., 2019: Rapidly Changing Transport Conditions In a Mississippi River Marsh, AGU Fall Meeting, San Francisco, CA.

Tevis, L., Mahon, R., **Esposito, C.R.**, 2019: Flow and Sediment Dynamics Through Complex Emergent Marsh Vegetation, AGU Fall Meeting, San Francisco, CA.

Esposito, C.R., Nepf, H.M., Burgos, M.B., Baustian, M.M., 2019: Sediment Retention Processes in Coastal Marshes, CERF, Mobile, AL.

Esposito, C.R., Meselhe, E.M., Allison, M.A., Ramatchandirane, C., Di Leonardo, D., Weathers, H., Yuill, B., 2018: A Sediment Budget for the Calcasieu Lake in Southwest Louisiana, AGU Fall Meeting, Washington, DC.

Esposito, C.R., Meselhe, E.M., Liang, M., 2018: "River Bar Dynamics and Sand Discharge Through Diversions", State of The Coast, New Orleans, LA.

Meselhe, E.M., Sadid, K.M., Jung, H., Messina, F., **Esposito, C.**, Liang, M., 2017: "Ecologic and Morphodynamic Analysis of a Proposed Network of Sediment Diversions", AGU Fall meeting.

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Esposito, C.R., Liang, M., Yuill, B., Meselhe., 2017: "Maintaining the Link to the Floodplain: Scour Dynamics in Crevasses", AGU Fall meeting.

Meselhe, E.M., Sadid, K.M., Jung, H., Messina, F., **Esposito, C**., Liang, M., 2017: "Ecologic and Morphodynamic Analysis of a Proposed Network of Sediment Diversions", AGU Fall meeting.

Esposito, C.R., Meselhe, E.M., Liang, M. 2017: "Sustainability and Operational Design of Sediment Delivering River Diversions", CSDMS, Boulder, CO

Fernandes, A.M., **Esposito, C.R.**, Kolker, K., Ameen, A., Wang, K., Chamberlain, E., 2016: "Time-Scales of Land Construction in Systems Dominated by Suspended Load", State of the Coast, New Orleans, LA

Esposito, C.R., Straub, K.M., Georgiou, I.Y., 2016: "Gradually Varied Flow in Delta Distributary Networks", State of the Coast, New Orleans, LA

Esposito, C.R., Shen, Z., Törnqvist, T., Marshak, J., White, C., 2016: "Efficient Retention of Mud for Land Building on the Mississippi Delta Plain", State of the Coast, New Orleans, LA

Esposito, C.R. and Straub, K.M., 2014: "Observing morphology becoming stratigraphy: The statistical imprint of coastal processes in deltaic stratigraphy", SEPM Meeting on Autogenic Dynamics of Sedimentary Systems, Grand Junction, Colorado. (talk)

Esposito, C.R. and Straub, K.M., 2013: "The statistical signal of morphological process in stratigraphy", Fall Meeting of the American Geophysical Union, San Francisco, California. (talk)

Straub, K.M. and **Esposito, C.R.**, 2013: "Influence of water and sediment supply on the completeness of the stratigraphic record and the construction of stratigraphic surfaces in alluvial fans and deltas", Annual Meeting of the American Association of Petroleum Geologist, Pittsburgh, Pennsylvania.

Esposito, C.R., R. Boyd, K.M. Straub, 2013: "Forward stratigraphic modeling of deltaic deposits using Delft3D", Annual Meeting of the American Association of Petroleum Geologist, Pittsburgh, Pennsylvania. (poster)

Straub, K.M., Y. Wang, **C.R. Esposito**, 2012: "Relating the creation and preservation of stratigraphic surfaces to geomorphic surfaces in continental margin environments", Fall Meeting of the American Geophysical Union, San Francisco, California.

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Esposito, C.R., Georgio, I.Y., Kolker, A. 2010: "Patterns of Sediment Transport and Deposition During a Single Flood Event in a River Dominated Wetland", AGU Fall Meeting, San Francisco, CA.

Esposito, C.R., Georgio, I.Y. 2010: "Delta Evolution During a Single Flood Event in a River Dominated Wetland", GSA Denver Annual Meeting, Denver CO.