

# Christopher Read Esposito

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I am an experienced coastal scientist and modeler seeking a position that will allow me to take a leading role in the planning and design of infrastructure scale coastal management projects. I excel at building teams, and have a demonstrated ability to work productively among disparate groups. I am a quick study, a creative thinker, and I love my work. I am enthusiastic and knowledgeable about the science and the policy underlying large coastal management initiatives, with a broad network of colleagues in both fields. Looking for a position to begin after May of 2016.

## Education

**PhD, Earth and Environmental Sciences**, Tulane University, *expected 2016*

**Project 1:** The Statistical Signature of Morphological Processes in Stratigraphy. This study investigates when and how the signs of surface morphological processes are transferred into the stratigraphic record.

*Tools: Delft3D, Matlab, Python, Petrel, Lab-scale physical experiments.*

**Project 2:** Gradually Varied Flow in Complex Channel Networks. This investigation into the hydraulics and sediment transport of complex, bifurcating deltaic channel networks is designed to test the hypothesis that channel geometry substantially mediates the backwater response of terminal distributary channels.

*Tools: ADCP, Trimble RTK GPS, bed and suspended sediment samples, simple numerical model coded in Matlab. Organized all aspects of 4 multi day field deployments, and several smaller trips, with teams of 3-9 people and 2 boats to collect data for Projects 2 and 3.*

**Project 3:** Structure, Texture, and Sediment Retention Rates of Crevasse Splay. This study investigates crevasse splays in the context of floodplain sediment budgets, to which they are understood to be major contributors. Special attention is paid to the factors that determine how efficiently a crevasse splay sequesters sediment, with an eye on designing and managing river diversions.

*Tools: Hand augured cores, Petrel, Matlab, sedimentology lab tools (sieves, peroxide, HCl, etc.)*

**MS, Earth and Environmental Sciences**, University of New Orleans, 2011

*Thesis Project: Sedimentation Rates and Patterns in River Dominated Wetlands: A Field and Numerical Study.* A field and numerical (Delft3D, SWAN) study of accretion rates in mouth bars in the Mississippi River Delta over a single flood cycle.

**BS, Mathematics/Physical Oceanography**, Rutgers The State University of New Jersey, 2003

## Relevant Employment

**Geomodeling Intern**, ConocoPhillips, Houston TX 2012-2013

I was brought into Conoco's Sedimentology and Stratigraphy group to model model wave dominated delta deposits with Delft3D in the summer of 2012. The position was extended to the summer of 2013 to incorporate input from the Geomodeling and Reservoir Engineering groups. The end product was a workflow that could be used to generate delta deposits in Delft3D, visualize and analyze them in Petrel, then apply reservoir properties and flow simulate the deposits in Conoco's in house flow simulator. My final presentation was attended by the heads of three separate geoscience work groups, as well as the chief geologist for the company.

**Math/Science Teacher**, Various Schools in New Jersey and Louisiana 2004-5, 2007-8

I taught high school math in mainstream public high schools, then developed and ran an environmental education program for adjudicated youths in rural Louisiana.

## Honors and Awards

- Vokes Fellowship (2015)
- Geological Society of America (2014) Research Grant-in-Aid, \$900
- Department of Earth and Environmental Sciences, Tulane University (2014), Outstanding Graduate Student Research Award
- Department of Earth and Environmental Sciences, Tulane University (2014), Outstanding Graduate Student Teaching Award
- Department of Earth and Environmental Sciences, Tulane University (2011), McWilliams Scholarship
- Southeastern Geological Society (2010), Graduate Student Scholarship
- New Orleans Geological Society (2010), University Earth Science Award

## Publications

**Esposito, C.R.**, Shen, Z., Tornqvist, T.E., Marshak, J., White, C. (2016): “Efficient Retention of Mud for Land Building on the Mississippi Delta Plain” (*in prep. for submission to PNAS*)

**Esposito, C.R.**, Georgiou, I.Y., Kolker, A.S. (2013) Hydrodynamic and geomorphic controls on mouth bar evolutions. *Geophysical Research Letters*, 40, 1-6

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*, 118, 1-13

## Invited Talks

**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: First Steps”, Second Deltares Workshop on Forward Stratigraphic Modeling, Delft, The Netherlands.

## Activities

Session Co-Chair, GSA South Central. 2016

Coastal Advisory Commission, Southeast Levee Flood Protection Authority. 2015 – present  
Reviewer - *Geomorphology*

Instructor/Trip Leader – *NCED Summer Institute for Earth Surface Dynamics*

## Skills

Matlab, Python, Delft3D, HEC-RAS, SWAN, Petrel, GIS tools, Arduino, SketchUp, Illustrator, C++, Various Hydroacoustic Instruments, Laser Particle Size Analyzer, Camsizer, flume design, ADCP, LISST, CTD arrays, YSI samplers, deployment rig construction, boatmanship, various suspended and bed load sediment samplers

## Conference Presentations

**Esposito, C.R.**, Shen, Z., Tornqvist, T.E., Marshak, J., White, C., 2016: “Efficient Retention of Mud for Land Building on the Mississippi Delta Plain”, American Geophysical Union Ocean Sciences Meeting, Baton Rouge, Louisiana .

**Esposito, C.R.**, Straub, K.M., Georgiou, I.Y., 2015: “Gradually Varied Flow in Complex Channel Networks”, American Geophysical Union Fall Meeting (poster)

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

**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.

Straub, K.M., Y. Wang, **C.R. Esposito**, 2012: “Relating the creation and preservation of stratigraphic surfaces to geomorphic surfaces in deltaic environments”, William Smith Meeting – Strata and Time, London, United Kingdom.

Straub, K.M., **C.R. Esposito**, J.I. Kuykendall, 2011: “Morphodynamic models for the construction of submarine channel levees and implications for the hydraulic geometry of submarine channels”, Annual meeting of the Geological Society of America, Charlotte, North Carolina.

**Esposito, C.R.**, Georgiou, I.Y., Kolker, A.S., 2010: “Patterns of Sediment Transport and Deposition During a Flood Event in a Mississippi River Crevasse Splay”, Fall Meeting of the American Geophysical Union, San Francisco, California (poster)

**Esposito, C.R.**, Georgiou, I.Y., Kolker, A.S., 2010: “Delta Evolution During a Single Flood Event in a River Dominated Wetland.”, Annual meeting of the Geological Society of America, Denver, Colorado. (talk)