

Brad E. Rosenheim

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Biographical Information

Education

- 2005 Ph.D., University of Miami, Rosenstiel School for Marine and Atmospheric Science
1999 B.S. (*magna cum laude*), University of Vermont, Environmental Science major, Geology concentration

Professional Experience

- 2016-present Associate Professor, College of Marine Science, University of South Florida
2013-2016 Assistant Professor, College of Marine Science, University of South Florida
2008-2013 Assistant Professor, Department of Earth and Environmental Sciences, Tulane University
2005-2007 Postdoctoral Investigator, Woods Hole Oceanographic Institution

Honors and Awards

- 2010 Weiss Presidential Teaching Fellow Finalist, Tulane University
2000 Outstanding Student of the Year, Marine Geology and Geophysics, University of Miami
1999 Magna cum laude distinction, University of Vermont
1999 Induction into Alpha Chapter of Vermont, Phi Beta Kappa
1999 Charles Doll Award, Top Geology Department student, University of Vermont
1997-1999 John Dewey Scholar, University of Vermont
1995-1999 Beard Family Scholarship, College of Arts and Sciences, University of Vermont

Professional Society Memberships

American Geophysical Union, American Chemical Society, Geological Society of America, European Geosciences Union, La Société Française des Isotopes Stables, Phi Beta Kappa

Extramural Funding

Total Research Funding to Date: \$4.86 million

Current or Recommended-for-Funding Grants

- NSF Chemical Oceanography “Collaborative Research: What Happens to Terrestrial Organic Matter in the Ocean? Solving the Mystery Behind an Iconic Question.” September 1, 2019-August 31, 2022. (Funded, September 1, 2019, \$357,690). Lead PI: **Brad Rosenheim** University of South Florida
- NIFA/USDA (via NASA ROSES) “Organic carbon biomass, burial, and biogeochemistry in blue carbon ecosystems along the South Florida Coast: Climate change and Anthropogenic Influences.” May 15, 2017 – May 14, 2020. (2017-67003-26482, \$1,330,000). Lead PI: Joseph Smoak, University of South Florida Saint Petersburg
- NSF Polar Programs “Collaborative Research: Subglacial Antarctic Lakes Scientific Access (SALSA): Integrated study of carbon cycling in hydrologically-active subglacial environments.” September 1, 2016 – August 31, 2019. (PLR-1543347 \$395,644). Lead PI: John Priscu, Montana State University
- NSF Polar Programs “Collaborative Research: Time Matters – A comparison of diatom ¹⁴C and Thermochemical ¹⁴C dating methods in sediment records of ice retreat from the East and West Antarctic Margins.” March 15, 2017 – March 14, 2020. (PLR-1644117 \$488,390). Lead PI: **Brad Rosenheim**, University of South Florida

Completed Grants

- NSF Paleoperspectives of Climate Change “Collaborative Research: Partitioning early Holocene Laurentide v. Antarctic ice melt from high-resolution reconstruction of sea-level rise and glacial isostatic adjustment modeling.” June 1, 2015 – May 31, 2018. (OCE-1502977 \$151,794). Lead PI: Torbjörn Tornqvist, Tulane University
- NSF Sedimentary Geology and Paleobiology “Collaborative Research: Continuous vs. episodic fluviodeltaic sedimentation: Implications for carbon sequestration and coastal restoration.” June 15, 2012 – May 31, 2016. (EAR-1148005 \$380,913). Lead PI: Zhixiong Shen, Eastern Carolina University
- NSF Office of Polar Programs “Timing and duration of the LGM and post-LGM grounding events in Whales Deep paleo ice stream, eastern Ross Sea middle continental shelf.” October 1, 2012 – May 31, 2016. (\$41,396, current). Lead PI: Phil Bart, Louisiana State University
- NSF Paleoperspectives of Climate Change “Support for the 5th International Clumped Isotope Workshop.” September 1, 2015 – August 31, 2016. (\$10,000). Lead PI: **Brad Rosenheim**, University of South Florida
- Gulf of Mexico Research Initiative RFP-I “Consortium for the Advanced Research of Transport of Hydrocarbon in the Environment.” November 1, 2011 – December 31, 2015 (\$841,693). Consortium Leader: Tamay Özgökmen, University of Miami
- NSF Paleoperspectives in Climate Change "Assessing Wind-driven Circulation Variability in the Subtropical N. Atlantic Using an Array of Archived Radiocarbon Records," June 1, 2009 to May 31, 2013. (OCE-0902980 \$255,073). Lead PI: **Brad Rosenheim**, Tulane University (sole PI)
- NSF Geosciences Instrumentation and Facilities “Development of a Programmed-temperature Pyrolysis/Combustion Reactor System for Radiocarbon Applications,” September 15, 2009 – August 31, 2013. (EAR – 0929752 \$215,153). Lead PI: **Brad Rosenheim**, Tulane University (sole PI)

NSF Geosciences Instrumentation and Facilities “RAPID: Increasing through-put of novel Ramped Pyrolysis Radiocarbon Preparation Technique for Gulf Coast oil spill studies - Instrumentation Development.” Sep. 1, 2010 – Aug. 31, 2013 (EAR – 1058517 \$183,369). Lead PI: **Brad Rosenheim**, Tulane University (sole PI)

NSF Ecosystems “Collaborative Research: RAPID: The 2011 Atchafalaya River Flood and a possible altered system state for the Atchafalaya River Delta Estuary.” July 1, 2011 – January 1, 2013. (DEB – 1141410 \$37,396). Lead PI: Brian Roberts, LUMCON

NSF Geobiology and Low-Temperature Geochemistry “Collaborative Research: Geochemical and isotopic time-series of marine and terrestrial degradation of petroleum in the 2010 Gulf of Mexico oil spill.” Aug. 1, 2010 – July 31, 2012. (EAR – 1045845 \$66,094). Lead PI: David Finkelstein, University of Tennessee

NSF SGER Geomorphology Program "Fate and Transport of Carbon and Sediment during a Mississippi River High Water Event," June 1, 2008 to May 31, 2009. (EAR-0832754, \$29,658). Lead PI: Alexander Kolker, LUMCON

Louisiana Board of Regents "Determining the Distribution of Ages in Sedimentary Organic Material Carried and Deposited by Mississippi River," June 1, 2009 to May 31, 2012. (\$190,080). Lead PI: **Brad Rosenheim**, Tulane University (sole PI)

Publications (Advised student authors in *italics*, senior author in bold)

h-index = 24 (Google Scholar, 17 December 2020)
citations = 1805 (Google Scholar, 17 December 2020)

Refereed Journal Articles and Book Chapters, in review

Smith, J.A.; Hillenbrand, C.-D.; Subt, C.; Rosenheim B.E.; Fredrichs, T.; Ehrmann, W.; Andersen, T.J.; Wacker, L.; Mackinson, K.; Anker, P.; Venables, E.J.; Nicholls, K.J., Accepted, History of Larsen C Ice Shelf reconstructed from sub-ice shelf and offshore sediments, Geology.

Venturelli, R.A.; Vick-Majors, T.; Collins, B.; Gagnon, A.; Kasic, K.; Kurz, M.; Li, W.; Priscu, J.C.; Roberts, M.; Rosenheim, B.E.; and the SALSA Science Team, Accepted. A framework for transdisciplinary radiocarbon research: Use of natural-level and elevated-level ¹⁴C in Antarctic field research. Radiocarbon.

Priscu, J. C.; Kalin, J; Winans, J.; Campbell, T.; Siegfried, M.R.; Skidmore, M.; Dore, J.; Leventer, A.; Harwood, D.; Duling, D.; Zook, R.; Burnett, J.; Gibson, D.; Krula, E.; Mironov, A.; Roberts, G.; Rosenheim, B. E.; Christner, B.; Kasic, K.; Fricker, H.A.; Lyons, W.B.; Barker, J.; Bowling, M.; Collins, B.; Davis, C.; Gagnon, A.; Gardner, C.; Gustafson, C.; Li, W.; Michaud, A.B.; Patterson, M.O.; Tranter, M.; Venturelli, R.A.; Vick-Majors, T.; In Revision. Scientific Access into Mercer Subglacial Lake: Scientific Objectives, Drilling Operations and Initial Observations, Annals of Glaciology.

Shen, Z.; Rosenheim, B.E.; Törnqvist, T.E.; Lang, A. Accepted. Engineered continental-scale rivers can drive changes in the carbon cycle. AGU Advances

Refereed Journal Articles and Book Chapters, Published

66. Samperiz, A.; **Robinson, L.F.**; Stewart, J.A.; Strawson, I.; Leng, M. J.; Rosenheim, B.E.; Ciscato, E.R.; Hendry, K.R.; Santodomingo, Nadiezdha. (2020). Stylasterid corals: A new paleotemperature archive. Earth and Planetary Science Letters, v. 545, p. 116407. doi:10.1016/j.epsl.2020.116407.
65. Venturelli, R.A.; Siegfried, M. R.; Roush, K.A.; Li, W.; Burnett, J.; Zook, R.; Fricker, H.A.; Priscu, J.C.; Leventer, A.; **Rosenheim, B.E.** (2020). Mid-Holocene grounding line retreat and readvance at Whillans Ice Stream, West Antarctica. Geophysical Research Letters. doi: 10.1029/2020GL088476.
64. Hawkings; J.R., Skidmore, M.L.; Wadham, J.L.; Priscu, J.C.; Morton, P.L.; Hatton, J.E.; Gardner, C.B.; Kohler, T.J.; Stibal, M.; Bagshaw, E.A.; Steigmeyer, A.; Barker, J.; Dore, J.E.; Lyons, W.B.; Tranter, M.; Spencer, R.G.M.; and the SALSA Science Team (incl. B.E. Rosenheim) (2020). Enhanced trace element mobilization by Earth's ice sheets. Proceedings of the National Academy of Science, 117 (50) 31648-31659, doi: 10.1073/pnas.2014378117.
63. O'Connor, J.A.; Lu, K.; Guo, L.; Rosenheim, B.E.; **Liu, Z.** (2020). "Composition and lability of riverine dissolved organic matter: Insights from thermal slicing ramped pyrolysis GC-MS analysis" Organic Geochemistry. v. 149, doi: 10.1016/j.orggeochem.2020.104100.
62. Breithaupt, J. L., **Smoak, J. M.**, Bianchi, T. S., Vaughn, D., Sanders, C. J., Radabaugh, K.R., Osland, M.J.; Feher, L.C.; Lynch, J.C.; Cahoon, D.R.; Anderson, G.H.; Whelan, K.R.T.; Rosenheim, B.E.; Moyer, R.P.; Chambers, L.G. (2020). Increasing rates of carbon burial in southwest Florida coastal wetlands. Journal of Geophysical Research: Biogeosciences, 125, e2019JG005349. doi:10.1029/2019JG005349
Times cited: 0
61. **Chanton, J.P.**; Jaggi, A.; Radović, J.R.; Rosenheim, B.E.; Walker, B.D.; Larter, S.R.; Rogers, K.; Bosman, S.; Oldenburg, T.B.P. (2020). "Mapping Isotopic and Dissolved Organic Matter Baselines in Waters and Sediments of the Gulf of Mexico." In Scenarios and Responses to Future Oil Spills, Springer.
Times cited: 3
60. Jung, J.; Yoo, K.-C.; Rosenheim, B.E.; Conway, T.M.; Lee, J.I.; Yoon, H.I.; Hwang, C.Y.; Yang, K.; Subt, C.; Domack, E.W.; **Kim, J.** (2020). "Microbial alteration of illite as a potential Fe source responding to depositional environments under the Larsen Ice Shelf C during the Holocene." Nature Communications. 10, 5786.
<https://doi.org/10.1038/s41467-019-13741-x>
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59. Morrison, E., Robinson, D.M., Rosenheim, B.E., He, R., Warrillow, J., Hitchcock, G., Chakraborty, S., Daly, K., Margolin, A.R., Millero, F.J., Redalje, D.G., Ammerman, J.W., Herrera-Silveira, J.A., Knapp, A.N., Krause, J.W., Valdes, D.S., Hayward, A.S., Hayes, C.T., Wen, L.S., Lee, C.P., Santschi, P.H., Johannesson, K.H., Corbett, D.R., Walsh, J.P., Osburn, C.L., Guo, L., Hansell, D.A., Chanton, J., Lapham, L., Rogers, K., Hollander, D., Joye, S., Sericano, J.L., Wade, T.L., Vidal Martinez, V.L., Gold-Bouchot, G., Knap, A.H. (2019). Gulf of Mexico Origin, Waters, and Biota: Volume 5, Chemical Oceanography. Ed. T.S. Bianchi. Texas A&M University Press, College Station, Texas.
Times cited: 1
58. **Peterson, S.V.**; Defliese, W.F.; Saenger, C.; Daëron, M.; Huntington, K.W.; John, C.M.; Kelson, J.R.; Bernasconi, S.M.; Coleman, A.S.; Kluge, T.; Olack, G.A.; Schauer, A.J.; Bajnai, D.; Bonafacie, M.; Breitenback, S.F.M.; Fiebig, J.; Fernandez, A.B.; Henkes, G.A.; Hodell, D.; Katz, A.; Kele, S.; Lohmann, K.C.; Passey, B.H.; Peral, M.Y.; Petrizzo, D.A.; Rosenheim, B.E.; Tripathi, A.; Venturelli, R.; Young, E.D.; Winkelstern, I.Z. (2019). “Effects of improved ¹⁷O correction on inter-laboratory agreement in clumped isotope calibrations, estimates of mineral-specific offsets, and temperature dependence of acid digestion fractionation.” Geochemistry, Geophysics, Geosystems. V. 20, n. 7, p. 3495-3519. doi: 10.1029/2018GC008127.
Times cited: 17
57. Rogers, K.L.; Bosman, S.H.; Lardie-Gaylord, M.; McNichol, A.; Rosenheim, B.E.; Montoya, J.P.; **Chanton, J.P.** (2019). “Petrocarbon evolution: ramped pyrolysis/oxidation and isotopic studies of contaminated oil sediments from the Deepwater Horizon oil spill in the Gulf of Mexico.” PLoS One. V. 14, n. 2. e02120433, doi: 10.1371/journal.pone.0212433
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56. *Venturelli, R.A.*; **Rosenheim, B.E.** (2019). “Compositional and beam-size-dependent effects on pressure baseline in clumped isotope mass spectrometry.” Rapid Communications in Mass Spectrometry. v. 33, n. 1. p. 140-148. doi:10.1002/rcm.8303.
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55. *Reynolds, C.E.*, **Richey, J.N.**, Fehrenbacher, J.S.; Rosenheim, B.E.; Spero, H.J. (2018). “Environmental controls on the geochemistry of *Globorotalia truncatulinoides* in the Gulf of Mexico: Implications for paleoceanographic reconstructions.” Marine Micropaleontology. v. 142. p. 92-104. doi:10.1016/j.marmicro.2018.05.006.
Times cited: 3
54. **Bart, P.J.**; DeCesare, M.; Rosenheim, B.E.; Majewski, W.; McGlennan, A. (2018). “A centuries-long delay between a paleo-ice-shelf collapse and grounding-line retreat in the Whales Deep Basin, eastern Ross Sea, Antarctica.” Scientific Reports. v. 8, n. 1. doi: 10.1038/s41598-018-29911-8.

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53. Bacosa, H.P.; Erdner, D.L.; Rosenheim, B.E.; Shetty, P.; Seitz, K.W.; Baker, B.J.; **Liu, Z.** (2018). "Hydrocarbon degradation and response of seafloor sediment bacterial community in the northern Gulf of Mexico to light Louisiana sweet crude oil." The ISME Journal. v. 12, n. 10. p. 2532-2543. doi:10.1038/s41396-018-0190-1.

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52. Jacotot, A.; **Marchand, C.**; Rosenheim, B.E.; Domack, E.W.; Allenbach, M. (2018). "Mangrove sediment carbon stocks along an elevation gradient: Influence of the late Holocene marine regression (New Caledonia)." Marine Geology. v. 404. p. 60-70. doi:10.1016/j.margeo.2018.07.005.

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51. Seeley, M.E.; Wang, Q.; Bacosa, H.; Rosenheim, B.E.; **Liu, Z.** (2018). "Environmental petroleum pollution analysis using ramped pyrolysis-gas chromatography-mass spectrometry." Organic Geochemistry. v. 124. p. 180-189. doi:10.1016/j.orggeochem.2018.07.012.

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50. King, T.; Domack, E.W.; Post, A.; Gabris, T.; Burt, T.; **Rosenheim, B.E.** (2018). "Mid-19th century intrusion of Circumpolar Deep Water on Antarctic margin recorded by Stylasterid corals." Paleoceanography and Paleoclimatology. v. 33, n. 11. p. 1306-1321. doi:10.1029/2018PA003439.

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49. Waite, A.; **Swart, P.K.**; Rosenheim, B.E.; Rosenberg, A.D. (2018). "Re-evaluating Sr/Ca-derived records of post-industrial era warming from the sclerosponge *Ceratoporella nicholsoni*." Chemical Geology. v. 488. p. 56-61. doi:10.1016/j.chemgeo.2018.03.005.

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48. **Dassié, E.**; DeLong, K.; Kilbourne, H.; Williams, B.; Abram, N.J.; Brenner, L.; Brahmi, C.; Cobb, K.M.; Correge, T.; Dissard, D.; Emile-Geay, J.; Evangelista, H.; Evans, M.N.; Farmer, J.; Felis, T.; Gagan, M.; Gillikin, D.P.; Goodkin, N.; Khodri, M.; Lavaningo, A.C.; LaVigne, M.; Lazareth, C.; Linsley, B.; Lough, J.; McGregor, H.; Nurhati, I.S.; Oullette, G.; Perrin, L.; Raymo, M.; Rosenheim, B.; Sandstrom, M.; Schöne, B.R.; Sifeddine, A.; Stevenson, S.; Thompson, D.M.; Waite, A.; Wanamaker, A.; Wu, H. (2017). "Saving our marine archives." Eos. v. 98, n. 9. p. 32-36.

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45. *Subt, C.*; Yoon, H.I.; Yoo, K.C.; Lee, J.I.; Leventer, A.; Domack, E.W.; **Rosenheim, B.E.** (2017). “Sub-ice shelf sediment geochronology utilizing novel radiocarbon methodology for highly detrital sediments.” Geochemistry, Geophysics, Geosystems. v. 18. doi:10.1002/2016BC006578.
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44. Vetter, L.; **Rosenheim, B.E.**; *Fernandez, A.*; Törnqvist, T. (2017). “Short organic carbon turnover time and narrow ¹⁴C age spectra in early Holocene wetland paleosols.” Geochemistry, Geophysics, Geosystems. v. 18, n. 1. doi:10.1002/2016GC006526.
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43. Evans, M.; Liu, J.; Bacosa, H.; Rosenheim, B.E.; **Liu, Z.** (2017). “Petroleum hydrocarbon persistence following the Deepwater Horizon oil spill as a function of shoreline energy.” Marine Pollution Bulletin. doi:10.1016/j.marpolbul.2016.11.022
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41. Adhikari, P.L.; **Maiti, K.**; Overton, E.B.; Rosenheim, B.E.; Marx, B.D. (2016). “Distributions and accumulation rates of polycyclic aromatic hydrocarbons in the northern Gulf of Mexico sediments.” Environmental Pollution. v. 212, p. 413-423, doi:10.1016/j.envpol.2016.01.064.
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39. *Subt, C.*; Fangman, K.; Wellner, J.; **Rosenheim, B.E.**. (2016). “Sediment chronology in Antarctic deglacial sediments: Reconciling organic carbon ¹⁴C ages to carbonate ¹⁴C ages using Ramped PyrOx.” The Holocene. v. 26, n. 2, p. 265-273. doi: 10.1177/0959683615608688

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Wallace, D.; Donnelly, J.P.; Woodruff, J.D.; van Hengstum, P.J.; Rosenheim, B.E.; Horgan, M.C. (2015). “Paleotempestological reconstruction of western Atlantic Holocene hurricane impacts from Mangrove Lake, Bermuda.” The Geological Society of America, Baltimore, Maryland, November 1-4, 2015.

- Peck, D.A.; Domack, E.W.; Rosenheim, B.E.; Leventer, A.; Shevenell, A.E. (2015). “Evidence for extensive volcanism in the deglaciation of the Hugo-Anvers Island Trough.” The Geological Society of America, Baltimore, Maryland, November 1-4, 2015.
- Vetter, L.; Schreiner, K.; Rosenheim, B.E.; Kohl, B.; Steinmetz, B.; Newsom, L.; Tornqvist, T. (2015). “Paleoenvironmental reconstruction of coastal marsh successions during Early Holocene sea-level rise.” Goldschmidt Abstracts, 2015, 3264. Prague, Czech Republic, Poster – Session 09a. August 16-21, 2015.
- Rosenheim, B.E.; Roberts, B.J.; Van Metre, P.; Galy, V.; Shields, M; Cui, X.; Bianchi, T.S. (2015). “Domination of soil in ^{14}C age spectra in sediments from a major river system – implications for carbon cycling.” Goldschmidt Abstracts, 2015, 2678. Prague, Czech Republic, Oral – Session 11b. August 16-21, 2015.
- Kolasinski, J.; Rosenheim, B.E. (2015). “Projection of the Deepwater Horizon oil spill in the Gulf of Mexico water column using biogeochemical tracers.” 2015 Gulf of Mexico Oil Spill and Ecosystem Conference, Houston, TX. Poster 141/P-012-05.
- Chanton, J.; Rosenheim, B.E. ; Joye, S. ; Hollander, D. ; Yeager, K.; Wilson, R.; Bosman, S.; Brunner, C. (2015). “Radiocarbon tracing of the flux of petrocarbon to the seafloor and coastal foodweb associated with the Deepwater Horizon event.” 2015 Gulf of Mexico Oil Spill and Ecosystem Conference, Houston, TX. Oral – O12.
- Rosenheim, B.E.; Pendergraft, M.A.; Kolasinski, J.; Yeager, K.; Maiti, K.; Liu, Z. (2015). “Transformation of oil in sediments constrained using advanced ^{14}C analysis.” 2015 Gulf of Mexico Oil Spill and Ecosystem Conference, Houston, TX. Oral – O12.
- Evans, M.M.; Rosenheim, B.E.; Liu, Z. (2015). “Using Ramped Pyrolysis-Gas Chromatography-Mass Spectrometry to evaluate weathering intensity of the oil in Louisiana salt marshes following the Deepwater Horizon oil spill.” 2015 Gulf of Mexico Oil Spill and Ecosystem Conference, Houston, TX. Poster 121/P-010-01.

2014

- Schreiner, K.; Bianchi, T.; Rosenheim, B.E. (2014). “Sources and reactivity of terrestrial organic carbon to the Colville River Delta, Beaufort Sea, Alaska (**Invited**).” 2014 Fall Meeting, AGU, San Francisco, CA, December 15-19, 2014.
- Guitard, M. **; Shevenell, A.; Domack, E.; Rosenheim, B.E.; Yokoyama, Y. (2014). “Late Quaternary advance and retreat of an East Antarctic Ice Shelf System: Insights from sedimentary beryllium-10 concentrations.” 2014 Fall Meeting, AGU, San Francisco, CA, December 15-19, 2014.
- Vetter, L.; Schreiner, K.; *Fernandez, A.*; Rosenheim, B.E.; Tornqvist, T. (2014). “Analysis and characterization of organic carbon in Early Holocene wetland paleosols using ramped

- pyrolysis ^{14}C and biomarkers.” 2014 Fall Meeting, AGU, San Francisco, CA, December 15-19, 2014.
- Rosenheim, B.E.; Roberts, B.; *Williams, E.K.* (2014). “Ramped pyrolysis ^{14}C age spectra of riverine particulate organic matter through a record hydrograph – the Great Atchafalaya Flood of 2011.” 2014 Fall Meeting, AGU, San Francisco, CA, December 15-19, 2014.
- Wallace, D.; Rosenheim, B.; Roberts, M.; Burton, J.; Donnelly, J.; Woodruff, J. (2014). “Paleotempestological chronology developed from gas ion source AMS analysis of carbonates determined through real-time Bayesian statistical approach.” 2014 Fall Meeting, AGU, San Francisco, CA, December 15-19, 2014.
- Smith, C. **; Domack, E.W.; Shevenell, A.; Rosenheim, B.E.; Yoo, K.-C.; Lavoie, C. (2014). “The last stand of the Gerlache-Boyd paleo-ice stream and paleo-mega fjord?” The Geologic Society of America Annual Meeting, Vancouver, Canada, October 19-22, 2014.
- Fernandez, A. **; Rosenheim, B.E.; Tang, J. (2014). “Calibration of the siderite clumped isotope paleothermometer (**Invited**).” The Geologic Society of America Annual Meeting, Vancouver, Canada, October 19-22, 2014.
- Rosenheim, B.E.; Plante, A.F.; Galy, V.; Williams, E.K.; Fernandez, A.; Vetter, L.; Mollenhauer, G.; Tornqvist, T. (2014). “Interpreting radiocarbon age spectra in the framework of soil organic matter.” The Sixth International Workshop on Soil and Sedimentary Organic Matter Stabilization and Destabilization (SOM6), Kiawah Island, South Carolina, October 5-9, 2014.
- Rosenheim, B.E.; Kolasinski, J.; Plante, A.; Galy, V.; Hemmingway, J.; Derry, L.; Grant, K. (2014). “Analyse isotopique par pyrolyse graduelle de matériel organique sédimentaire : Comment tracer les sources et les mélanges de sédiments au sein des fleuves et des bassins.” SFIsoTrace 2014, Brest, France, September 8-12. (oral presentation in French)
- Rosenheim, B.E. ; Kolasinski, J. ; *Pendergraft, M.A.* (2014). “Isoscape de la matière organique sédimentaire dans le golfe de Mexique – utilisation comme traceur de contamination du pétrole.” SFIsoTrace 2014, Brest, France, September 8-12.
- Kolasinski, J.; Rosenheim, B.E.; (2014). “Caractérisation de la présence et de la transformation des hydrocarbures issus de la marée noire du Deepwater Horizon dans les sédiments profonds et dans la colonne d’eau du Golfe du Mexique.” SFIsoTrace 2014, Brest, France, September 8-12.
- Rosenheim, B.E.; *Fernandez, A.*; Tang, J. ; Dietzel, M. (2014). “Compilation of calibrations of Δ_{47} to temperature of mineralization.” 4th International Clumped Isotope Workshop, ETH Zurich, Switzerland, August 24-27.

- Vetter, L.; *Fernandez, A.*; Rosenheim, B.; Tornqvist, T. (2014). “ ^{14}C dating of early Holocene paleosols using ramped pyrolysis of organic carbon.” Goldschmidt 2014, Session 14f, Poster 207, Sacramento, California, June 8-13.
- Rosenheim B.E.; Schreiner, K.; Mollenhauer, G.; Bianchi, T.; Rethmeyer, J. (2014). “Carbon cycling in high latitudes: Ramped pyrolysis ^{14}C results from the Colville River delta and Svalbard.” Goldschmidt 2014, Session 14e, Poster 210, Sacramento, California, June 8-13.
- Rosenheim B.E. (2014). “Ramped pyrolysis ^{14}C dating of sediments: Case studies and progress from Antarctic Sediments. **(Invited)**” Invited Speaker at 20th International Symposium on Polar Sciences of the Korea Polar Research Institute. Incheon, Korea, May 27-29.
- Kolasinski, J.; *Pendergraft, M.A.*; *Leone, N.J.*; Tang, J.; Rosenheim B.E. (2014). “Projection of the Deepwater Horizon spill in deep sediments and the water column in the Gulf of Mexico using carbon isotopes.” Abstract ID 16358, Poster, presented at the 2014 Ocean Sciences Meeting, Honolulu, Hawaii, February 24 -28.
- Fernandez, A. **; Rosenheim, B.E.; Lapen, T. ; Rasmus, A. (2014), “Exploring changes in the wind-driven circulation of the Atlantic Ocean using radiocarbon archived in corals and sclerosponges.” Abstract ID: 17274, Poster, presented at the 2014 Ocean Sciences Meeting, Honolulu, Hawaii, February 24 -28.
- Rosenheim, B.E.; *Wang, S.*; *Fernandez, A.*; Karnauskas, K.B.; Swart, P.K. (2014). “Proxies and observations of temperature and salinity change differ in the Caribbean 1900-2000: A challenge to modelers, oceanographers, and paleoceanographers.” Abstract ID: 16133, Oral, presented at the 2014 Ocean Sciences Meeting, Honolulu, Hawaii, February 24 -28.
- Kolasinski, J.; Rosenheim, B.E.; *Pendergraft, M.A.*; Tang, J.; *Fernandez, A.*; *Leone, N.J.* (2014). “Investigating the presence of oil in deep sediments and the water column in the Gulf of Mexico using carbon isotopes.” Gulf of Mexico Oil Spill and Ecosystem Conference, Mobile, Alabama, January 26-29.

2013

- Bianchi, T.S.; Schreiner, K.M.; Rosenheim, B.E.; Allison, M.A. (2013). “Particulate organic carbon transport and burial in the Colville River Delta, Beaufort Sea, Alaska.” Abstract H34A-06, presented at the 2013 Fall Meeting, AGU, San Francisco, CA 11 December 2013
- Tang, J.; *Fernandez, A.*; Rosenheim, B.E. (2013). “Evaluation of kinetic effect on clumped isotope fractionation (Δ_{47}) during inorganic calcite precipitation.” Mineralogical Magazine, 77(5) p. 2308.
- Fernandez, A. **; Tang, J.; Rosenheim, B.E. (2013). “Calibration of the siderite CO_2 “clumped” isotope paleothermometer.” Mineralogical Magazine, 77(5) p. 1075.

Rosenheim, B.E.; Galy, V.; *Williams, E.K.*; Roberts, B.; Allison, M.; Schreiner, K.; Bianchi, T. (2013). “Particulate organic carbon age spectra: Evaluating different spectra from different basin types.” *Mineralogical Magazine*, 77(5) p. 2084.

Rosenheim, B.E.; *Williams, E.K.*; Roberts, B.J.; Allison, M.A. (2013). “High discharge and particulate organic carbon transport on the Mississippi-Atchafalaya System.” ASLO 2013 Aquatic Sciences Meeting, New Orleans, LA, February 17-22.

*Pendergraft, M.A.**; Rosenheim, B.E.; Schimmelmann, A.; Finkelstein, D. (2013). “Characterizing oil degradation and mixing in bulk samples from coastal environments using ramped-pyrolysis.” Gulf of Mexico Oil Spill and Ecosystem Conference, New Orleans, LA, January 21-23.

Rosenheim, B.E.; *Pendergraft, M.A.*; Carney, R.; Cruz, V.; Brunner, C.; Chanton, J. (2013). “Cruise Report - CARTHE Sediment and Water Column Sampling, DWH Spill Site West to Mississippi Canyon.” Gulf of Mexico Oil Spill and Ecosystem Conference, New Orleans, LA, January 21-23.

Rosenheim, B.E.; *Pendergraft, M.A.*; Flowers, G.; Carney, R. (2013). “Mapping historical $\delta^{13}\text{C}$ data from sedimentary organic material in the Gulf of Mexico provides background for tracking oil contamination.” Gulf of Mexico Oil Spill and Ecosystem Conference, New Orleans, LA, January 21-23.

Dincer, Z.*; *Pendergraft, M.A.*; Sericano, J.; Wade, T.; Rosenheim, B.E. (2013). “Relating PAH content to overall stability of organic matter containing DWH oil.” Gulf of Mexico Oil Spill and Ecosystem Conference, New Orleans, LA, January 21-23.

2012

Rosenheim, B.E.; Galy, V.; Roberts, B.J.; Allison, M.A.; Kolker, A.S. (2012). “Age spectra of riverine POC – does variability within or between river basins have a larger impact on POC age distributions?” Abstract B13A-0468 presented at the 2012 Fall Meeting, AGU, San Francisco, CA 3 December

*Williams, E.K.**; Rosenheim, B.E.; McNichol, A.P.; Roberts, M.L.; Xu, L. (2012). “The impact of varying depositional processes on the preservation of lignin from the Mississippi and Amazon Rivers: A dual application of compound-specific and ramped pyrolysis radiocarbon dating.” Abstract B13D-0560 presented at the 2012 Fall Meeting, AGU, San Francisco, CA 3 December

Finkelstein, D.B.; Schimmelmann, A.; Rosenheim, B.E.; *Pendergraft, M.A.** (2012). “Geochemical and isotopic time series of oil deposited in Barataria Bay and on Grand Isle, Louisiana, after the Deepwater Horizon Oil Spill.” Abstract B21A-0336 presented at the 2012 Fall Meeting, AGU, San Francisco, CA 4 December

Rosenheim, B.E.; *Williams, E.K.*; *Pendergraft, M.* (2012). “Chemistry of ramped pyrolysis radiocarbon dating.” 21st International Radiocarbon Conference, Paris, France

Rosenheim, B.E., Roberts, B.J.; Galy, V.; Allison, M.A.; Kolker, A.S.; Beaupré, S.; Roe, K.M. (2012). “Radiocarbon age distributions in riverine POC.” 21st International Radiocarbon Conference, Paris, France

2011

*Williams, E.K.**, Rosenheim, B.E. (2011). “Chemistry of decomposition of freshwater wetland sedimentary organic material during ramped pyrolysis.” Abstract B21E-0297 presented at the 2011 Fall Meeting, AGU, San Francisco, CA 6 December.

Swart, P.K., Rosenheim, B.E., Waite, A. (2011). “Paleoproxies as Indicators of Water Mass Changes in the Caribbean (Invited).” Abstract PP22C-01 presented at the 2011 Fall Meeting, AGU, San Francisco, CA 6 December.

Fernandez, A.*, Rosenheim, B.E., Swart, P.K. (2011). “A Century-long Record of Radiocarbon in the Waters of the Cape Verde Islands in the Tropical North Atlantic.” Abstract PP23A-1826 presented at the 2011 Fall Meeting, AGU, San Francisco, CA 6 December.

Rosenheim, B.E., Roberts, B.J.; Allison, M.A. (2011). “Quantifying the Age Spectra of Particulate Organic Carbon in the Lower Mississippi River and Atchafalaya Outflow during the Great Flood of 2011 – How Does a High-Flow Event Effect Carbon Transport?” Abstract B24D-05 presented at the 2011 Fall Meeting, AGU, San Francisco, CA 6 December.

Mead, K.A.* , Wellner, J.S., Rosenheim, B.E. (2011). “Age Estimates of Holocene Glacial Retreat in Lapeyrère Bay, Anvers Island, Antarctica” Abstract PP33B-1923 presented at the 2011 Fall Meeting, AGU, San Francisco, CA 7 December

Leventer, A., Domack, E.W., Ishman, S.E., Brachfeld, S.A., Vernet, M., Cape, M., Rosenheim, B.E. Gunter, M., Vadman, K.J., Santoro, J. (2011). “Holocene climatic and oceanographic change of the western Antarctic Peninsula: expanding the paleo-record to the open shelf” Abstract PP33B-1928 presented at the 2011 Fall Meeting, AGU, San Francisco, CA 7 December

Telfeyan, K.* , Chevis, D.A., Rosenheim, B.E., Johannesson, K.H. (2011). “Rare earth elements in stromatolites: Windows into early life and climate?” presented at 2011 Annual Meeting Geological Society of America, Minneapolis, MN, October

Rosenheim, B.E. (2011). “A (Dirt) Burning Desire: Running smaller samples from ramped pyrolysis radiocarbon preparation.” International Workshop on Small Scale Radiocarbon Analysis, ETH Zurich, Switzerland, September 2011

Rosenheim, B.E. (2011). “Tracing the weathering of landed oil from the BP-Deepwater Horizon Spill using isotopic techniques.” South Central Section Meeting, Geological Society of America, New Orleans, LA, March 2011.

2010

- Rosenheim, B.E., Gourmelen, N., Palmer, S.J., Leeson, A.A., *William, E.K., Fernandez, A., Shepherd, A.* (2010). "Stable isotope records from Larsen-C Ice Shelf ice cores to constrain ice shelf growth models." Abstract GC43E-1010 presented at 2010 Fall Meeting, AGU, San Francisco, CA, 13-17 Dec.
- Fernandez, A. *, Rosenheim, B.E., Swart, P.K.* (2010) "Coral radiocarbon records from the eastern tropical Atlantic - what can they tell us about Ekman upwelling and the subtropical cells?" Abstract PP43B-1700 presented at 2010 Fall Meeting, AGU, San Francisco, CA, 13-17 Dec.
- Williams, E.K. *, Rosenheim, B.E., Kolker, A.S.* (2010) "Constraining organic carbon sequestration in coastal wetlands in response to sea-level rise using samples along a salinity gradient in southeast Louisiana." Abstract B13A-0447 presented at 2010 Fall Meeting, AGU, San Francisco, CA, 13-17 Dec.
- Feng, X., Galy, V., Rosenheim, B.E., *Roe, K.M. *, Williams, E.K.* (2010) "Structure, provenance and residence time of terrestrial organic carbon: insights from Programmed temperature Pyrolysis-Combustion of river sediments." Abstract B13B-0483 presented at 2010 Fall Meeting, AGU, San Francisco, CA, 13-17 Dec.
- Roe, K.M. *, Rosenheim, B.E., Roberts, B.J., Kolker, A.S., Allison, M.A.* (2010) "A characterization of the lability of particulate organic matter in the lower Mississippi-Atchafalaya River System: An application of a programmed temperature pyrolysis/combustion system." Abstract OSG33-05 presented at 2010 Fall Meeting, AGU, San Francisco, CA, 13-17 Dec.
- ## **2009**
- Kolker, A.S., *Douglas, J.L., Rosenheim, B.E.* (2009). "Disturbance and recovery in the Anthropocene: Examining sedimentation and coastal progradation on Lana'i, Hawai'i," Eos Transactions, AGU. V. 90(52), Fall Meeting Supplement, Abs. EP43E-0687.
- Waite, A.J.*, Swart, P.K., Rosenheim, B.E., (2009). "A new calibration for the Sr/Ca-temperature relationship in sclerosponges reveals synchronous changes in Caribbean specimens indicative of warming and multi-decadal climate variability," Eos Transactions, AGU. V. 90(52), Fall Meeting Supplement, Abs. PP41B-1503.
- Roe, K.M. *, Rosenheim, B.E., Kolker, A., Allison, M.A., Nittrouer, J.A., Duncan, D.D., Nyman, J.A., Butcher, K.A., Adamic, J.F.* (2009) "The effect of flood events on the partitioning of labile and refractory carbon in the Missouri-Mississippi River system," Eos Transactions, AGU. V. 90(52), Fall Meeting Supplement, Abs. B33C-0401.
- Swart, P. K., Greer, L., Rosenheim, B. E., Moses, C.S., Winter, A., Dodge, R.E., Helmle, K.P. (2009). "13C Suess effect in scleractinian corals mirror changes in the anthropogenic CO2 inventory of the surface oceans," Eos Transactions, AGU. V. 90(52), Fall Meeting Supplement, Abs. PP13E-01.

Rosenberg, A. D.*, Swart, P. K., Eberli, G. P., Rosenheim, B. E., Reed, J. K., (2009) " Deep-sea corals reveal present temperature and salinity conditions in the Florida Straits," Eos Transactions, AGU. V. 90(52), Fall Meeting Supplement, Abs. PP11A-1291.

Rosenheim, B. E., *Adamic, J. F.*, Reed, J. K. Rosenberg, A. D., Grasmueck, M., Swart, P. K., Eberli, G. P., Correa, T., (2009) "Survivor or opportunist? Oxygen isotope records from *Styaster miniata* in the Florida Straits," Eos Transactions, AGU. V. 90(52), Fall Meeting Supplement, Abs. PP13E-08.

Douglas, J. L.°, Kolker, A. S., Gasparini, N. M., Butcher, K. A., Rosenheim, B. E. (2009) "Timing and forensics of an immense and rapid sedimentary progradation of the NE Lana'i (Hawaiian Islands) coastline," Geological Society of America Annual Meeting, Portland, OR,

Rosenheim, B.E., Domack, E., McNichol, A., Galy, V., Hayes, J. M., *Roe, K., Adamic, J. F.*, Allison, M. A., (2009) "Overview of ramped pyrolysis radiocarbon dating and application to carbon cycling and chronology," 20th International Radiocarbon Conference, Kona, Hawaii.

2008

Rosenheim, B.E., Domack, E.W., *Roe, K., Adamic, J.* (2008). "Ramped pyrolysis radiocarbon dating of Antarctic sediments." Eos Transactions, AGU, v. 89(52), Fall Meeting Supplement, Abs. PP53A-05.

Rosenheim, B.E., Villinski, J.C., Domack, E.W., Hayes, J.M., Dunbar, R. (2008). "Ross Sea core chronology using ramped pyrolysis radiocarbon dating." Geological Society of America Annual Meeting, Houston, TX.

Roberts, M. L., Han, B., Rosenheim, B. E., Galutschek, E. McIntyre, C. P. von Reden, K. F. Jenkins, W. J., Elder, K. L. Burton, J. R., Longworth, B. E. (2008) "A high-performance 14-C Accelerator Mass Spectrometry system," The 11th International Conference on Accelerator Mass Spectrometry, Rome, Italy.

Rosenheim, B.E., Correa, T., Swart, P.K., Eberli, G., Grasmueck, M. (2008), "Deep reef radiocarbon records from the Straits of Florida." The 11th International Coral Reef Symposium, Fort Lauderdale, FL

2007

Rosenheim, B.E., Swart, P.K. (2007). "The challenges of using sessile proxies for oceanography work." Eos Transactions, AGU, v. 88(52), Fall Meeting Supplement, Abs. PP23D-06

Roberts, M.L., Rosenheim, B.E., von Reden, K.F., Han, B.X., Elder, K.L., Longworth, B.E., Jenkins, W.J., Schneider, R.J. (2007). "An accelerator mass spectrometry system for the analysis of ¹⁴C in a continuously flowing stream of gas." 9th European Conference on Accelerators in Applied Research and Technology, Florence, Italy, 3-7 September 2007.

von Reden, K.F., Roberts, M.L., Jenkins, W.J., Rosenheim, B.E., McNichol, A.P., Schnieder, R.J. "Software development for continuous-gas-flow AMS: toward in-vivo analysis?" 9th European Conference on Accelerators in Applied Research and Technology, Florence, Italy, 3-7 September 2007.

2006

Rosenheim, B.E., Swart, P.K.; Eisenhauer, A. (2006). "Realistic age models from Bahamas sclerosponges indicate elevated initial Th-230." *Eos Transactions, AGU*, v. 87(52), Fall Meeting Supplement, Abs. PP13D-03.

McNichol, A.P.; Rosenheim, B.E.; Gerlach, D.S.; Hayes J.M. (2006). "The stable and radio-carbon isotopic content of labile and refractory carbon in atmospheric particulate matter." *Eos Transactions, AGU*, v. 87(52), Fall Meeting Supplement, Abs. A12C-02.

McNichol, A.P.; Rosenheim, B.E.; Gerlach, D.S.; Edgerton, E.S.; Hayes, J.M. (2006), "Measuring the radiocarbon content of labile and refractory carbon in the same sample to constrain the natural carbon cycle." 19th International Radiocarbon Conference, Oxford, United Kingdom. 3-7 April 2006.

McNichol, A.P.; Gerlach, D.S.; Edgerton, E.S.; Rosenheim, B.E.; Hayes, J.M. (2006). "Directly measuring the radiocarbon content of organic and black carbon in atmospheric and marine samples." *Eos Transactions, AGU*, v.87(36), Ocean Science Meeting Supplement, Abs. OS12K-01.

2005

Rosenheim, B.E.; Moses, C.S.; Swart, P.K. (2005). "Decadal scale variation in the subtropical N. Atlantic Shallow thermohaline circulation." *Eos Transactions, AGU*, v.86(52), Fall Meeting Supplement, Abs. PP54A-02 Invited.

Rosenheim, B.E.; Swart, P.K. (2005). "Shallow subsurface marine radiocarbon records from Bahamas sclerosponge skeletons." *Eos Transactions, AGU*, v.86(52), Fall Meeting Supplement, Abs. PP31B-1531

2004

Rosenheim, B.E.; Swart, P.K.; Thorrold, S.R. (2004). "N. Atlantic salinity change during the last century: Surface forcing at the salinity maximum propagated to the central Caribbean by subsurface waters." *Eos Transactions, AGU*, v. 85(46), Fall Meeting Supplement, Abs. PP51C-1346.

Moses, C.S.; Swart, P.K.; Rosenheim, B.E.; Thorrold, S.; Zhang, D. (2004). "Centennial-scale changes in tropical North Atlantic Salinity inferred from scleractinian corals." *Eos Transactions, AGU*, v. 85(46), Fall Meeting Supplement, Abs. PP51C-1347.

Rosenheim, B.E.; Swart, P.K.; Thorrold, S.R.; Latkoczy, C.; Eisenhauer, A. (2004). "Significant changes in temperature and salinity of the Caribbean Sea indicated by Sr/ca

ratios and $\delta^{18}\text{O}$ in the aragonite skeletons of sclerosponges." *Eos Transactions, AGU*, v. 84(52), Ocean Science Meeting Supplement, Abs. OS51I-03.

Swart, P.K.; Dodge, R.E.; Quinn, T.; Moses, C.; Rosenheim, B.E.; Helmle, K.; Mackenzie, G.; Clement, A. (2004). "A long term history of salinity changes in the Caribbean using stable isotopes in coral skeletons." *Eos Transactions, AGU*, v. 84(52), Ocean Science Meeting Supplement, Abs. OS41A-04.

2002

Rosenheim, B.E.; Swart, P.K.; Willenz, P.; Thorrold, S.; Eisenhauer, A. (2002). "Calibration of Caribbean sclerosponges to their ambient environment: Indirect and direct methods." *Eos Transactions, AGU*, v. 83(47), Fall Meeting Supplement, Abs. PP52B-06.

Swart, P.K.; Rosenheim, B.; Thorrold, S.; Eisenhauer, T. (2002). "Uranium, barium, lead, and lead isotopes in sclerosponges: New proxies in sclerosponges." *Eos Transactions, AGU*, v. 83(47), Fall Meeting Supplement, Abs. PP51A-0286.

2001

Swart, P.K.; Rosenheim, B.; Thorrold, S.; Rubenstone, J. (2001). "Annual variation in the chemical composition of sclerosponges." *Eos Transactions, AGU*, v. 82(47), Fall Meeting Supplement, Abs. OS31C-0446.

Rosenheim, B.E.; Swart, P.K.; Thorrold, S.R. (2001). "Calibration of Sr/Ca with temperature in sclerosponges." *Eos Transactions, AGU*, v. 82(47), Fall Meeting Supplement, Abs. OS31C-0447.

Rosenheim, B.; Swart, P.; Thorrold, S.; Rubenstone, J. (2001). "Annual cyclicity in high resolution Sr records from sclerosponges." *Geological Society of America Abstracts with Programs*, v. 33.

2000

Mehrtens, C.; Modley, M.; Rosenheim, B.E.; Newberry, R.; Young, R.S. (2000). "Sedimentation and water quality: Mesoamerican reef, Roatan, Honduras." *Geological Society of America Abstracts with Programs*, v. 32(7).

1999

Rosenheim, B.E., Lini, A.; Mehrstens, C.; Young, R.S. (1999). Freshwater Dilution Observed in the Stable Oxygen Isotope Record of the Scleractinian Coral *Montastrea annularis*: Roatan, Honduras. *Geological Society of America Abstracts with Programs*, v. 31(2).

Mehrtens, C.; Young, R.; Modley, M.; Rosenheim, B.; Duni, M.; Barnett, E.; Winchester, A. (1999). "Land use variation reflected in nearshore sediment: Roatan, Bay Islands, Honduras." *AGU Spring Meeting. Eos Transactions, AGU*, 80:S186.

Academic Activities

Courses Taught

OCE6934.618 (USF): Geochemistry. This course was co-taught with Tim Conway. A survey of geochemistry incorporating units on reactions, stable isotope, radionuclides, and mixing. The course featured lectures on the board, including derivations of common geochemical concepts as well as challenging in-class exercises that were often open-ended. The course featured problem sets, take-home exams, and in-class exams for a broad array of assessment.

OCE6934.648 (USF): Stable Isotope Geochemistry. This course was co-taught with David Hollander. This course features condensed intensive lectures with problem sets for 9 weeks, with simultaneous development of an independent research project for graduate students. After a mid-term exam, the class switches to a laboratory research and seminar module. Students present primary literature summaries that are important to their research, they carry out cutting edge research projects in the laboratory, they prepare a manuscript-type report, and they present their findings orally in front of the class.

OCE6934.646 (USF): Quaternary Marine Geochronology. This course has been co-taught with Eugene Domack. It relies heavily on laboratory capabilities of the Ramped PyrOx system as students are expected to work collaboratively on geochronological analyses. The students are assessed using a mid-term take-home examination and a collaborative manuscript that is to be publication-ready.

OCC6050.647 (USF): Chemical Oceanography. Co-taught with Kristen Buck, Robert Byrne, and David Hollander. This course is part of the core curriculum. I taught the ocean organic carbon cycling module of the course, I furnished exam questions for the midterm and the final examinations, and I participated in review sessions.

OCE6972.648 (USF): Directed Research: I teach graduate students individually when they need to learn special topics intensively or for which there is not enough demand to warrant a formal course. Students design syllabi for these courses and I help them prepare learning outcomes, schedules of activities, and assessment in an iterative process. With limited TAs at CMS, this is valuable for learning curriculum development. We then use that syllabus as a template to conduct advanced literature research (with writing of an introduction to a manuscript as assessment), laboratory experiments (with writing manuscript drafts as an exercise for assessment), and research expeditions (for students that need to spend a large portion of the semester at sea, usually involving a presentation at sea graded by expedition participants).

OCE6971.648 (USF): Thesis: Masters. Mentoring of M.S. students as primary adviser. This involves weekly progress meetings and filing of progress forms so that students participate actively in formulating goals and evaluating their performance.

OCE7910.648 (USF): Doctoral Dissertation Research. Mentoring of Ph.D. students as primary adviser. This involves weekly progress meetings and filing of progress forms so that

students participate actively in formulating goals and evaluating their performance. Additional professional development is carried out in the form of expecting Ph.D. students to mentor other students in the research group, publication of peer-reviewed journal articles as lead author, and presentations at national and international conferences and workshops.

EENS 6210 (Tulane University): Carbon Cycle Seminar. This course uses David Archer's Carbon Cycle monograph as a basis to explore the literature concerning changes in the Earth's carbon cycle over several time scales in relation to current changes. It is discussion and writing intensive.

EENS 6080 (Tulane University): Climatology and Paleoclimatology of the Common Era. This seminar course is designed to familiarize graduate and advanced undergraduate students with literature concerning very Late Holocene climate and to acclimate students to use of large, publicly available data sets to analyze climate. The course involves literature surveys with a Matlab seminar once per week.

EENS 1300 (Tulane University): Earth: A Living Planet. This course was designed and implemented as an introductory environmental science course. A laboratory section of the course was designed by myself, Dr. Nicole Gasparini, Dr. Gerhard Piringer, and Dr. George Flowers, and implemented by Dr. Flowers in spring of 2010.

EENS/EBIO 6240 (Tulane University): Stable Isotopes in the Environment. This course is designed to familiarize upper level majors and graduate students with the theories and applications of stable isotope measurement in natural levels found in the environment. Half of the class involves lectures and problem sets, while the second half involves performing laboratory analyses for a final class project.

EENS/EBIO 2230 (Tulane University): Introductory Oceanography. This course is aimed at science majors, but accessible to non-majors as well. It involves 3 lectures per week, plus a field trip to LUMCON to perform oceanographic measurements aboard a coastal research vessel.

MSC 101 (University of Miami): Introduction to Oceanography, Non-Science Majors. This course gave me the opportunity to teach lectures on topics as broad as wave physics to coral physiology in a delivery suitable for all backgrounds. I have received excellent reviews from students in these classes and have succeeded in presenting both traditional blackboard lectures and multi-media presentations.

Students Advised Directly

Tynisha Martin, M.S., in progress, USF
Kiersten Monahan, Ph.D., in progress, USF
Carolyn Schafer, M.S., in progress, USF
Dylan Peck, M.S., in progress, USF
Theresa King, Ph.D., in progress, USF

Ryan Venturelli, Ph.D., in progress, USF
Caitlin Reynolds, M.S., 2018, USF
Devon Firesinger, M.S., 2017, USF
Cristina Subt, Ph.D., 2017, USF
Alvaro Fernandez, Ph.D., 2015, Tulane University
Elizabeth Williams, Ph.D., 2014, Tulane University
Matthew Pendergraft, M.S., 2013, Tulane University
Emily Cardarelli, B.S. with honors, 2012, Tulane University
Kimberly Roe, M.S. 2011, Tulane University
Gabiella March, B.S. with honors, 2010, Tulane University
Jennifer Douglass, B.S. with honors, 2009, Tulane University

Students Visiting from Other Universities

Ryan Clarke, Tulane University, United States – June 2019
Dayang Sun, Zhejiang University, China – September 2018 – March 2019
Simon Reeve, University of Otago, New Zealand – August 2018
Zoe Roseby, British Antarctic Survey, United Kingdom – June-July, 2017
Kenta Suzuki, Hokkaido University, Japan – September, 2016
Usman Muhammed, ETH-Zurich, Switzerland – August, 2016
Rebecca Parker, University of Otago, New Zealand – June-July, 2016
Thomas Andro, Université de Brest Occidentale, France – February – July, 2015
Alexis Cuvillier, Université de la Réunion, France – October, 2014
Kimberly Allison Fangman, University of Houston, United States – May-June, 2011
Jennifer Santoro, Hamilton College, United States – May – August, 2010

Students Advised on Research Committee

Jonathan Sharp, Ph.D., USF, in progress
Julie Vecchio, Ph.D., USF, in progress
Travis Mellett, Ph.D., USF, in progress
Kara Vadman, Ph.D., USF, in progress
Jongjin Lee, M.S., USF, 2018
Selena Johnson, Ph.D., USF 2019
Yingli Zhu, Ph.D., USF, 2019
Rebekah Larson, Ph.D., USF, 2018
Joshua Breithaupt, Ph.D., 2017, USF
Sean Murray, Ph.D., 2016, University of Miami Rosenstiel School of Marine and Atmospheric Science
Meredith Moss Evans, M.S., 2016, University of Texas Marine Science Institute
Michelle Guitard, M.S., 2015, USF
Victoria Troeger, B.S. with honors, 2013, Tulane University
Kimberly A. Mead, M.S., 2012, University of Houston
Rebecca L. Freeman, Ph.D., 2011, Tulane University

Benjamin Jones, B.S. with honors, 2011, Tulane University
 Frida Zink, B.S. with honors, 2011, Tulane University
 Charlotte Sprehn, B.S. with honors, 2011, Tulane University
 Amy Cone, M.S., 2010, Louisiana State University
 Johanna Nevitt, B.S. with honors, 2009, Tulane University

Professional Service

National/International

2018-2019	National-Level Survey and Compiled Letter to the National Science Foundation regarding reporting of harassment in remote field stations and research vessels
2014-2017	Advisory and Planning Board, National Ocean Sciences Accelerator Mass Spectrometer, Woods Hole Oceanographic Institution (Chair, 2017).
2016	Session Convener, American Geophysical Union Ocean Sciences Meeting, Rates of ice retreat and insights into a warming Earth from Antarctic sedimentary and ice records - Dating, chronology, regional correlations, and environmental change
2016	1 st Ramped Pyrolysis Radiocarbon Workshop – Woods Hole Oceanographic Institution. Convener.
2016	National Science Foundation Marine Geology and Geophysics Proposal Review Panel
2015-2016	Host, 5 th International Clumped Isotope Workshop, USF-CMS, Saint Petersburg, Florida
2015-2018	AGU-Paleoclimatology and Paleoceanography Dansgaard Award committee
2015	Session Convener, Goldschmidt Conference, Global Changes in the Fluxes and Reactivity of Riverine Organic Carbon from Channel to Coastal Margin
2015	Session Convener, American Geophysical Union Fall Meeting, Global Changes in the Fluxes and Reactivity of Riverine Organic Carbon from Channel to Coastal Margin
2014	Session Convener, American Geophysical Union Fall Meeting, Global Changes in the Fluxes and Reactivity of Riverine Organic Carbon from Channel to Coastal Margin
2014-2017	National Ocean Sciences Accelerator Mass Spectrometer (NOSAMS) Advisory and Planning Board
2013	Session Convener, Gulf of Mexico Oil Spill and Ecosystem Conference, Models and observations working together to understand the Deepwater Horizon oil spill
2011	National Science Foundation Marine Geology and Geophysics Proposal Review Panel
2011	Technical Session Chair – South Central Sectional Meeting Geologic Society of America, New Orleans

2008	Session Convener, 11 th International Coral Reef Symposium, Coral Reef Organisms as Recorders of Local and Global Environmental Change
2007	Session Convener, American Geophysical Union Fall Meeting, Understanding Tropical Climate Variability: Combining Observations, Models, and Paleoclimate Records

College/Departmental

College of Marine Science Dean Search Committee – 2019-present

Chair, Geological Oceanography Search Committee – 2018-2019

Chair, USF-CMS Web Committee – 2015-present

USF Research Council – 2016-2019

USF-CMS Conduct and Grievance Committee – 2017-current

Chemical Oceanography Search Committee – USF-CMS, 2016

USF-CMS Web Committee – 2014-current

Biological Oceanography Faculty Search Committee – USF-CMS, 2015

Machine Shop Action Committee – Tulane University, 2012

Chair, Departmental Graduate Studies Committee – Tulane University 2009-2012

School of Science and Engineering Graduate Committee – Tulane University 2009-2012

Journal Referee

Proceedings of the National Academy of Science

Nature Communications

Nature Climate Change

Geophysical Research Letters

Geology

Geochimica et Cosmochimica Acta

Radiocarbon

Crystal Structure

Marine Chemistry

Palaeogeography, Palaeoclimatology, Palaeoecology

Paleoceanography

Earth and Planetary Review Letters

Coral Reefs

Geochemistry, Geophysics, Geosystems

AGU Books

Proceedings, International Coral Reef Symposium

Invited Seminars

- 2015 Time Matters: Refining regional deglacial chronology from Antarctic marginal marine sediments, University of Kentucky, November 11, 2015
- 2014 Paleoclimatology at the Human Timescale, Eckerd College, St. Petersburg, Florida, May 7, 2014
- 2014 How to ruin a perfectly good (radiocarbon) date – Ramped pyrolysis and age spectra of riverine POC, University of Florida, Gainesville, Florida, April 11, 2014
- 2014 How to ruin a perfectly good (radiocarbon) date – Ramped pyrolysis and age spectra of riverine POC, Northwestern University, Chicago, Illinois, February 21, 2014
- 2013 Paleoclimatology at the Human Timescale, University of South Florida, College of Marine Science, St. Petersburg, Florida, March 17, 2013
- 2010 Burn, baby, Burn! Using refined pyrolysis techniques and radiocarbon to improve our understanding of the carbon cycle, University of Southern Mississippi, Stennis, Mississippi, May 21, 2010
- 2009 Burn, baby, burn: Insights from Pyrolysis/Combustion Radiocarbon Chronology of Sediments, University of Houston, Houston, Texas, January 30, 2009

- 2008 Secrets in Secretions, Louisiana Universities Marine Consortium, Chauvin, Louisiana, December 4, 2008
- 2008 Burn, Baby, Burn! Pyrolysis Radiocarbon Dating applied to Questions of Chronology and Carbon Cycling, Louisiana State University, Wilbur Lecture series (co-hosted by Geology and Oceanography Departments), Baton Rouge, Louisiana, September 18, 2008
- 2007 Climate Change, Carbon, and Chronology, University of Vermont, Department of Geology Seminar Series, Burlington, Vermont, October 8, 2007
- 2007 The Burning Question of Antarctic Sediment Chronology, Brown University, Providence, Rhode Island, February 26, 2007
- 2007 Revealing the spectrum of ages in bulk-dated organic material from Antarctic Peninsula sediment cores using programmed temperature pyrolysis, University of Miami (RSMAS), Key Biscayne, Florida, Division of Marine Geology and Geophysics Geotopics Series, February 13, 2007

Laboratory Experience and Supervision

Isotope Ratio Mass Spectrometry. I have experience using state of the art IRMS technology. I have used systems from VG Isogas, Thermo-Finnigan (Delta Plus), Finnigan MAT (251), Europa Geo (20/20) to analyze carbonates and waters. I have developed standardized laboratory computation programs for correction of isotope data and I have performed standardization of the Thermo-Finnigan Delta Plus with Kiel III carbonate device to overcome heterogeneities associated with small sample size capabilities. I have successfully adapted an Isoprime mass spectrometer to make clumped isotope measurements at the same precision as more expensive instrumentation, broadening the base of scientists who will participate in developing this method.

Accelerator Mass Spectrometry. I was part of a team building a novel continuous flow accelerator mass spectrometer at the National Ocean Science Accelerator Mass Spectrometry facility at the Woods Hole Oceanographic Institution. I wired components for the system, designed a magnet cooling system for the high energy magnet, and wrote the control software for the instrument using LabVIEW environment.

Radiocarbon Determination and Organics. My laboratory group currently runs two Programmed Temperature Combustion systems. We use this system for radiocarbon dating applied to questions of chronology and carbon cycling, as well as oil pollution in sediments.

Laser Ablation/Decomposition. I have used laser ablation as a fine scale subsampling tool for paleoceanographic studies. I have made several advances toward developing a technique to use CO₂ generated from laser decomposition of carbonate mineral surfaces for direct AMS determination of ¹⁴C.

Minor and Trace Element Spectrometry and Spectroscopy. I experienced in operation of an Inductively Coupled Plasma spectroscope. I have used ICP-AE and OE spectrometers in both industry and academia. Most recently, I was responsible for standardizing a newly acquired Varian Vista Pro ICP-OES axial spectrometer to analyze large carbonate samples for trace elements and small carbonate samples for minor elements. I have performed standardization with seawater samples of various strengths. I have experience with ICP-MS, especially interfaced with a laser micro-sampling device.

Microscopy. I operated both epifluorescence and scanning electron microscopes for minor parts of my Ph.D. dissertation. I am familiar with the principles of these technologies and able to use them autonomously.

Field Work Experience

December 2018 – January 2019: Deployed to deep field camp at Mercer Subglacial Lake in Antarctic as an executive committee member and sediment team member for the Subglacial Antarctic Lakes Scientific Access (SALSA) project. Designed and deployed a sediment corer that was able to take the longest subglacial sediment core at the time (1.79 m).

May 2017 – present: Ongoing small boat operations and sediment coring in the Ten Thousand Islands mangrove ecosystem of Southwest Florida.

July 7 – July 10, 2014: co-Chief Scientist. PE15-01 Water Column Sampling Cruise, R.V. Pelican, Consortium for the Advanced Research of Transport of Hydrocarbon in the Environment.

June 24 – June 29, 2013: Chief Scientist. PE13-33 Benthic Observations Cruise, R.V. Pelican. Consortium for the Advanced Research of Transport of Hydrocarbon in the Environment.

October 7- October 31, 2012: Shipboard Scientist. LMG12-11 LARISSA Cruise, Antarctic Peninsula. Gravity, piston, and kasten cores of paleo ice stream drape sediment.

June 30 – July 3, 2012: Chief Scientist. PE12-33 Benthic Observations Cruise, R.V. Pelican. Consortium for the Advanced Research of Transport of Hydrocarbon in the Environment.

April 2008 - present: Small boat surveying and sampling of Mississippi River (lower reaches) and Atchafalaya River. The research was originally carried out under an NSF SGER grant for sampling of suspended sediment and new sedimentation. The goal of continued research is to characterize this sediment in terms of the spectra of radiocarbon ages present both before and after deposition and to compare between to normal and low flow stages.

August, 2008 – July 2009: Sedimentation and reef survey, Lana'i, Hawaii. These research involves pilot funds from Tulane University (post Hurricane Katrina research

enhancement funds) to commence a research collaboration in Hawai'i involving characterization of erosional processes in terms of land use change and climate change. Sedimentation and carbon transport from the ridges of the volcanoes to the reefs is the goal of measurement and quantification.

June, 2007: Submersible research cruise, Key West to Fort Lauderdale, Florida, in collaboration with the University of Miami and Harbor Branch Oceanographic Institution. Several submersible dives were made for collection of marine species living at depths less than 990m and of interest in paleoceanographic studies and pharmaceutical research.

May-June, 2003: Exploration of French Antilles for scuba-accessible sclerosponge specimens. Three week scuba exploration of all areas of the coast with either submarine grottoes or steep walls, both conducive to cryptic sclerosponge habitat.

October-November, 2002: Caribbean Atlantic Salinity Experiment (CASE-02) Cruise aboard the R/V Suncoaster. I participated in both legs of a month-long coral core collection expedition spanning the Bahamas to the St. Vincent Grenadines. Responsible for drilling corals by scuba using a hydraulic drill tethered to a small dinghy launched from the main vessel. Corals located using physical geography and existing literature to explore each island by snorkel.

August, 2002: Sequence Stratigraphy of the Madison formation. Field Assistant for the Comparative Sedimentology Laboratory of the U. of Miami. Measured stratigraphic section of the Madison formation outcropping in Montana.

May, 2002: Stage II of NSF-funded Sclerosponge Calibration Project, Discovery Bay, Jamaica. Sclerosponges were sampled after an incubation period of nearly 3 years. Other sclerosponges were re-stained with Calcein and thermistors were swapped and re-calibrated. Corals were also sampled to compare with proximal sclerosponge records.

September, 2001: Geochemical Classification of Bahamas Bank Sediment cruise, R/V Bellows. This cruise gridded the NW Great Bahamas Bank, sampling sediment and water every 10km. Analysis for salinity, grain type, and skeletal makeup of waters and sediment performed on-board.

May, 2001: Carbonate petrography class trip to Andros Island in the Bahamas. Studied Aeolian and shallow water carbonate deposits from the Pleistocene and Holocene as a class project. I took part in explorations of the supratidal mud flats of western Andros Island and sampled dolomite crusts forming in these unique environments.

August, 2000: Exploration of the Commonwealth of Dominica for mature coral colonies. Explored the leeward coast of Dominica for large heads of *Siderastraea sideraea* suitable for climate records and potential sclerosponge environments by scuba. Several *S. sideraea* colonies were drilled pneumatically and brought back to Miami. No sclerosponges were found. Also assisted in surveying reef to quantify and monitor corals with known diseases.

August, 1999: Initiation of NSF funded Sclerosponge Calibration Project, Discovery Bay, Jamaica. Installed and calibrated temperature thermistors in submarine reef enclosure and stained sclerosponge surfaces using Calcein, a fluorochrome. Operations performed by scuba.

June-July 2000: Relocation of sediment traps and levels, Roatan, Honduras. I took part in the final part of an abiotic reef survey, relocating sediment measuring devices and recording reef transects for changes since the project was started.

July, 1999: Post-Hurricane Mitch abiotic reef assessment, Roatan, Honduras. This trip was planned to assess catastrophic changes to sections of reef due to the passing of Hurricane Mitch the previous year. Sedimentation measuring devices and coral transects were located by snorkel and scuba.

July, 1998: Sampling of *Montastraea annularis* for my undergraduate honors thesis, Roatan, Honduras. Land use patterns of the island were assessed and corals were sampled from long-disturbed area, recently-disturbed area, and pristine offshore control site.

Scientific Workshops Attended

2016 1st Ramped Pyrolysis Radiocarbon Workshop – Woods Hole Oceanographic Institution. Convener.

2014 SOM6 – 6th International Workshop on Soil Organic Matter Stabilization and Destabilization, Kiawah Island, South Carolina

2014 4th International Clumped Isotope Workshop, ETH Zurich, Zurich, Switzerland

2014 Korean Polar Institute Research Symposium, *invited speaker*.

2013 MOSSFA Working Group Meeting, Florida State University, Tallahassee, Florida

2013 3rd International Clumped Isotope Workshop, Harvard University, Boston, Massachusetts

2011 International Workshop on Small Scale Radiocarbon Analysis, ETH, Zurich, Switzerland

2010 1st International Clumped Isotope Workshop, University of Washington, Seattle, Washington

2006 IODP Caribbean Gateway Workshop, Austin, Texas

2006 CLIVAR Salinity Workshop, Woods Hole Oceanographic Institution, Woods Hole, Massachusetts

Outreach

2014 – present. Paleoceanography booth at the Saint Petersburg Science Festival, serving 25,000 students from around the region. I develop content and participate in the booth.

2011 National Public Radio Interview “In Cleaning Oiled Marshlands, A Sea of Unknowns” (<http://www.npr.org/2011/04/20/135571426/in-cleaning-oiled-marshlands-a-sea-of-unknowns>)

2010 National Geographic News “Exxon Valdez Lessons Applied in Gulf Coast Cleanup.” (<http://news.nationalgeographic.com/news/2010/12/101203-nsf-gulf-oil-weathered-vin-video/>)

2010 Public Broadcasting System Televised Panel “Science of the Spill.” (https://www.youtube.com/watch?v=Q_G0qu0eUKw)

2008-2011 NOLA S.M.I.L.E. (New Orleans, Louisiana, Science and Mathematics Inquiry Learning and Experience). Workshop for 3rd and 4th grade teachers in Southeast Louisiana focusing on Earth Science.