

**ANDREW R. ZIMMERMAN - CIRRICULUM VITAE**  
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**Professional Preparation**

The University of Chicago	Geological Sciences,	B.A. Honors 1987
The University of Michigan	Marine Geochemistry	M.S. 1989
College of William and Mary - Virginia Institute of Marine Science	Marine Geochemistry	Ph.D. 2000

**Appointments**

Professor	University of Florida	2020 - present
Associate Professor	University of Florida	2011 - 2020
Assistant Professor	University of Florida	2004 - 2011
Postdoctoral Research Associate	Pennsylvania State University	2002 - 2003

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**Awards**

- 2019-2022 University of Florida Term Professorship Award
- 2017-2018 Colonel Allen R and Margaret G. Crow Term Professor
- Award of commendation for exemplary service to the students of the Alachua County Public Schools. June 2016 and May 2019.

**Research Specialty**

Examinations of carbon cycling and climate change.

Sub-specialties: 1) Organic matter-mineral-microbe interactions and carbon cycling in soil, sediments, and surface and ground water, 2) Fire-produced organic matter (black carbon) cycling in the environment, 3) Sorbents for use in environmental contaminant remediation.

Publications Impact [Google Scholar](#) Citations: 30,620; h-index: 74, i10-index 128

**Courses Taught at University of Florida**

- OCE 1001: Introduction to Oceanography  
GLY2110: Climate Change Science and Solutions (Quest 2)  
GLY 2038: Sustainability and the Changing Earth  
GLY 5255: Organic Geochemistry and Geobiology

**Selected Activities**

- 1) Symposia Convener
  - 'Pyrogenic Organic Matter: Production, Characterization and Cycling in the Environment', American Geophysical Union, Fall meeting, San Francisco, CA, Dec. 2019.
  - 'The role of fire in the carbon cycle: quantification and characterization of emissions, fluxes and sequestration potential'. American Geophysical Union, Fall 2016 Meeting, San Francisco, CA.
  - 'Using Paleo- and Modern Observations to Improve Understanding of Climate Projections, Environmental Change, and Biomass Burning'. American Geophysical Union Fall 2011 Meeting, San Francisco, CA.

- 2) Department Public School Outreach (*Geogators*: Founder, Coordinator). Each year, this program delivers an average of 100 geoscience lessons at about 20 schools and clubs, reaching over 2000 students. More than half of these were at underserved public schools with high proportions of minority students.
- 3) International Biochar Initiative (IBI) Biochar Panel: ‘Expert Panel to Develop Stable Biochar Carbon Test Methodology for a Carbon Market Protocol’ (June – November, 2013).
- 4) University of Florida Oil Spill Task Force – co-chair (2010).
- 5) UF Climate Action Plan (UF CAP) member (2022-2023). Working with groups made up of stakeholders from across the university to guide UF toward carbon neutrality in the next decade.
- 6) UF Governance: Academic Integrity Committee. Member, 2021 – present. UF University Faculty Senate Member (2019 - 2022). University Senate - Academic Policy Council (2019 – 2022), University Senate - Sustainability Committee (2019 – 2022, 2023 - ). Academic Freedom, Tenure, Professional Relations and Standards Committee (2023 -).
- 7) UF Dept. Geological Sciences Committees: Undergraduate Curriculum, Student Awards (Chair), Outreach and Visibility (Co-Chair).
- 8) University of Florida Sustainability Committee, 2019-present (Chair 2023-2024).
- 9) U.F. Water Scholars Program, Faculty, 2024 – Pres.

**Publications**

**Books, Contributed Chapters**

- Lehmann, J., Abiven, S., Azzi, E., Fang, Y., Singh, B.P., Sohi, S., Sundberg, C., Woolf, D., and **A.R. Zimmerman** 2024. Persistence of biochar: mechanisms, measurements, predictions. Chapter 11 in *Biochar for Environmental Management: Science, Technology and Implementation of biochar*, Routledge, New York, p 277-312.
- Eusebio, M.S., Piper, P., Campos, F., Arnold, T.E., **Zimmerman, A.R.**, and J. Krigbaum. 2022. Using Organic Compound-Specific Stable Isotope Ratios to Identify Animals in Prehistoric Foodways of Southeast Asia. In: *Isotope Research in Zooarchaeology: Methods, Applications, and Advances*. A.E. Sharpe and J. Krigbaum (eds.), pp. 201-228. University Press of Florida, Gainesville.
- Canuel, E. A., G. Brush, T. M. Cronin, R. Lockwood, and **A. R. Zimmerman**. 2017. Paleoecology studies in Chesapeake Bay: A model system for understanding interactions between climate, anthropogenic activities and the environment. In Weckström K., Saunders K., Gell P. and Skilbeck C. (eds.), *Application of Paleoenvironmental Techniques in Estuarine Studies*, Springer: Dordrecht, The Netherlands, 495-527.
- Lehmann, J., S. Abiven, M. Kleber, G. Pan, Singh, B.P., S. Sohi, and **A. R. Zimmerman**. 2015. Persistence of Biochar in Soil. In: *Environmental Management: Science, Technology and Implementation, 2<sup>nd</sup> Edition*, J. Lehmann and S. Joseph (eds.), Earthscan: London, UK., 235-282.
- Whitman, T., B. P. Singh, and **A. R. Zimmerman**. 2015. Priming effects in biochar-amended soils: implications of biochar-soil organic matter interactions for carbon storage. In J. Lehmann and S. Joseph (eds.), *Biochar for Environmental Management: Science, Technology and Implementation, 2<sup>nd</sup> Edition*, Earthscan: London, U.K., 454-487.
- Mitra, S., **A. R. Zimmerman**, G. B. Hunsinger, and W. R. Woerner. 2014. Black carbon in coastal and large river systems. In T.S. Bianchi, M.A. Allison and W.-J. Cai (eds.), *Biogeochemical Dynamics at Large River-Coastal Interfaces: Linkages with Global Climate Change*, Cambridge University Press: New York, 200-234.

- Zimmerman, A. R.**, and B. Gao. 2013. The Stability of Biochar in the Environment. In N. Ladygina and F. Rineau (eds.), *Biochar and Soil Biota*, CRC Press, Taylor & Francis Group Co.: Boca Raton, FL, 1-39.
- Zimmerman, A. R.**, and M-Y. Ahn. 2010. Organo-mineral enzyme interactions and influence on soil enzyme activity. In G. C. Shukla and A. Varma (eds.), *Soil Enzymology*, Springer Verlag: Berlin-Heidelberg, GDR, 271-292.

Refereed Publications

- Lyu, J., Obia, A., Cornelissen, G., Mulder, J., Botnen Smebye, A., and **A. R. Zimmerman** (In Press). Comparison of three quantification methods used to detect biochar carbon migration in a tropical soil: A 4.5-year field experiment in Zambia. *Geoderma*.
- Kong, W., Li, X., Li, F., **Zimmerman, A. R.**, Gao, B., and J. Wang, 2025. Iron-modified coal gangue/rice husk biochar composites for enhanced removal of aqueous As(V). *Separation and Purification Technology*, 360, 131028.
- Yang, X., Hou, Z., Li, M., Luo, S., Zhao, J., Wang, K., Guo, Y., Sun, P., Tan, F., Yan, Y., Liu, L., Zeng, F., **Zimmerman, A. R.**, and B Gao, 2024. Efficient removal of aqueous ciprofloxacin antibiotic by ZnO/CuO-bentonite composites synthesized via carbon-bed pyrolysis of bentonite and metal co-precipitation. *Science of The Total Environment*, 955: 176955.
- Frišták, V., Beliančínová, K., Poltáková, L., Moreno-Jiménez, E., **Zimmerman, A. R.**, Ďuriška, L., Černičková, I., Laughinghouse, H.D., and M. Pipiška, 2024. Engineered Mg-modified biochar-based sorbent for arsenic separation and pre-concentration. *Sci Rep* 14, 28680. <https://doi.org/10.1038/s41598-024-79446-4>. Skjennum, K.A., Krahn, K.M., Sørmo, E., Wolf, R., Goranov, A.I., Hatcher, P.J., Hartnik, T., Arp, H.P., **Zimmerman, A. R.**, Zhang, Y., and G. Cornelissen (2024). The impact of biochar's physicochemical properties on sorption of perfluorooctanoic acid (PFOA). *Science of the Total Environment*, 177191.
- Zeng, L., **Zimmerman, A. R.**, and R. Huang, 2024. Adsorption of extracellular enzymes by biochar: Impacts of enzyme and biochar properties. *Geoderma*, 117082.
- Yang, X. Yang, X., Hou, Z., Li, M., Luo, S., Zhao, J., Wang, K., Guo, Y., Sun, P., Tan, F., Liu, L., Wang, L., Han, Y., Zeng, F., **Zimmerman, A. R.**, and B. Gao, 2024. Efficient removal of aqueous ciprofloxacin antibiotic using ZnO/CuO-bentonite composites synthesized via carbon-bed pyrolysis and metal co-precipitation. *Science of the Total Environment*, 176955.
- Huang, J., **Zimmerman, A. R.**, Wan, Y., Bai, X., Chen, H., Zheng, Y., Yang, Y., Fan, Y., and B. Gao, 2024. Removal of sulfamethoxazole using Fe-Mn/biochar filtration columns: Influence of co-existing polystyrene microplastics. *Journal of Cleaner Production* 447: 143877.
- Feng, Q., Wang, B., **Zimmerman, A. R.**, Wu, P., Lee, X., Chen, M., and J. Zhang, 2024. Application of C and N isotopes to the study of biochar biogeochemical behavior in soil: A review. *Earth-Science Reviews*, 256: 104860. DOI: 10.1016/j.earscirev.2024.104860.
- Obia, A., Lyu, J., Mulder, J., Martinsen, V., Cornelissen, G., Botnen Smebye, A., **A. R. Zimmerman, 2024**. Biochar dispersion in a sandy tropical soil and effects on native soil organic carbon. *PLoS ONE* 19(4): e0300387.
- Goranov, A.I., Sormo, E., Hagemann, N., Cornelissen, G., **Zimmerman, A. R.**, and P.G. Hatcher, 2024. Using the benzenepolycarboxylic acid (BPCA) method to assess PFAS sorption abilities of activated biochars. *Chemosphere* 355, 141750.
- Wozniak, A. S., Mitra, S., Goranov,A. I., **Zimmerman, A. R.**, Bostick, K. W., and P. G. Hatcher, 2023. Effects of environmental aging on wildfire particulate and dissolved pyrogenic organic matter characteristics. *ACS Earth and Space Chemistry*, 8: 104-118.

- Zhang, R., **Zimmerman, A. R.**, Li, P., Zheng, Y., and B. Gao, 2024. Persistent free radicals generated from a range of biochars and their physiological effects on wheat seedlings. *Science of the Total Environment* 908, 168260.
- Jiang, F., Li, F. **Zimmerman, A. R.**, Yu, Z., Ji, L., Wei, C., Bachelor; Zhang, X., and B. Gao, 2023. Remarkable synergy between sawdust biochar and attapulgite/diatomite after co-ball milling to adsorb methylene blue. *RSC Adv.*, 13, 14384-14392.
- D'Andrilli, J., Romero, C.M., Zito, P., Podgorski, D.C., Payn, R.A., Sebestyen, S.D., **Zimmerman, A. R.**, and F. L. Rosario-Ortiz. 2023. Advancing chemical lability assessments of organic matter using a synthesis of FT-ICR MS data across diverse environments and experiments. *Organic Geochemistry*, 104667.
- Lyu, J., Bush, M.B., McMichael, C.H., Hwang, J.-I., and **A. R. Zimmerman**. 2023. Fire history of the western Amazon Basin recorded by multiple pyrogenic carbon proxies. *Quaternary Science Reviews*. 10811.
- Zhang, R., **Zimmerman, A. R.**, Wang, H., and B. Gao. 2023. Applications, Impacts, and Management of Biochar Persistent Free Radicals: A Review. *Environmental Pollution*, 327, 121543.
- Yang, X., Shao, X., Tong, J., Zhou, J., Feng, Y., Chen, R., Yang, Q., Han, Y., Yang, X., Wang, L., Ma, X., Fan, Z., Song, Z., **Zimmerman, A. R.**, and B. Gao. 2023. Removal of Aqueous Eriochrome Blue-Black R by novel Na-Bentonite/Hickory Biochar Composites. *Journal of Cleaner Production*, 311: 123209.
- Yang, X., Wang, L., Tong, J., B. Shao, X., Feng, Y., Zhou, J., Han, Y., Yang, X., Ding, F., Zhang, J., Li, Q., Li, G., **Zimmerman, A. R.**, and B. Gao, 2023. Alkaline ball-milled peanut-hull biosorbent effectively removals aqueous anionic organic dyes. *Chemosphere*, 313: 137410.
- Krahn, K.M., Cornelissen, G., Castro, G., Arp, H.P.H., Asimakopoulos, A.G., Wolf, R., Holmstad, R., **Zimmerman. A. R.**, and E. Sørmo, Sewage sludge biochars as effective PFAS-sorbents. 2022. *Journal of Hazardous Materials*. 130449.
- Yang, X., Wang, L., Shao, X., Tong, J., Zhou, J., Feng, Y., Chen, R., Yang, Q., Han, Y., Yang, X., **Zimmerman, A .R.**, and B. Gao. 2022. Characteristics and aqueous dye removal ability of novel biosorbents derived from acidic and alkaline one-step ball milling of hickory wood. *Chemosphere* 309: 136610.
- Patrick, M., Young, C.T., **Zimmerman, A. R.**, and S. E. Ziegler. 2022. Mineralogic controls are harbingers of hydrological controls on soil organic matter content in warmer boreal forests. *Geoderma* 425: 116059.
- Lowman, H.E., Moingt, M., **Zimmerman, A. R.**, Dugan, J.E., and J.M. Melack. 2022. Distribution of terrestrial organic material in intertidal and nearshore marine sediment due to debris flow response efforts. *Science of the Total Environment*, 834: 156886.
- Huang, J., **Zimmerman, A. R.**, Chen, H., Wan, Y., Zheng, Y., Zhang, Y., and B. Gao. 2022. Fixed bed column performance of Al-modified biochar for the removal of sulfamethoxazole and sulfapyridine antibiotics from wastewater. *Chemosphere*, 305: 13547.
- Xiang, W., Zhang, X., Cao, C., Quan, G., Wang, M., **Zimmerman, A. R.**, and B. Gao. 2022. Microwave-pyrolysis derived biochar for volatile organic compounds treatment: characteristics and adsorption performance. *Bioresource Technology* 335: 127274.
- Xu, Q., Liu, T., Liu, B., Cheng, H., Yang, C., Wang, B., **Zimmerman, A. R.**, and B. Gao. 2022. Characterization and nutritional value of hydrothermal liquid products from distillers grains. *Journal of Environmental Management*. 316: 115275.
- Zhang, X., Xiang, W., Miao, X., Li, F., Qi, G., Cao, C., Ma, X., Chen, S., **Zimmerman, A. R.**, and B. Gao. 2022. Microwave biochars produced with activated carbon catalyst: Characterization and sorption of volatile organic compounds (VOCs). *Science of the Total Environment*. 875: 153996.
- Yang, X., Wang, L., Shao, X., Tong, J., Chen, R. Yang, Q., Yang., X., Li, G., **Zimmerman, A. R.**, and B. Gao. 2022. Preparation of biosorbent for the removal of organic dyes from aqueous solution via one-step alkaline ball milling of hickory wood *Bioresource Technology*. 348: 126831.

- Goranov, Al, Wozniak, AS, Bostick, KW, **Zimmerman, A. R.**, Mitra, S, and Hatcher, PG.. 2022. Labilization and diversification of pyrogenic dissolved organic matter by microbes. *Biogeosciences*, 19: 1491–1514.
- Yang, X., Wang, L., Tong, J., Shao, X., Chen, R., Yang, Q., Li, F., Xue, B., Li, B., Han, Y., Yang, X., **Zimmerman, A. R.**, and B. Gao. 2022. Synthesis of hickory biochar via one-step acidic ball milling: Characteristics and titan yellow adsorption. *Journal of Cleaner Production*: 130575.
- Xu, Q, Liu, T., Li, L., Liu, B., Wang, X., Zhang, S., Wang, B., **Zimmerman, A. R.**, and B. Gao, 2021. Hydrothermal carbonization of distillers grains with clay minerals for enhanced adsorption of phosphate and methylene blue. *Bioresource Technology*. 340: 125725.
- Zhang, Y., Zheng, Y., Yang, Y., Huang, J., **Zimmerman, A. R.**, Chen, H., Hu, X., and B. Gao, 2021. Mechanisms and adsorption capacities of hydrogen peroxide modified ball milled biochar for the removal of methylene blue from aqueous solutions. *Bioresource Technology*. 337: 125432.
- Li, F. **Zimmerman, A. R.**, Zheng, Y., Yang, Y., Huang, J., Zhang, Y., Hu, X., Yu, Z., Huang, J., and B. Gao, 2021. P-enriched hydrochar for soil remediation: Synthesis, characterization, and lead stabilization. *Science of the Total Environment*. 783: 146983.
- Bostick, K. W., **Zimmerman, A. R.**, Goranov, A. I., Mitra, S., Hatcher, P. G., and A. S. Wozniak, 2021. Biolability of fresh and photodegraded pyrogenic dissolved organic matter from laboratory-prepared chars. *Journal of Geophysical Research: Biogeosciences*, 126.
- Sørmo, E., Silvani, L, Bjerkli, N., Hageman, N., **Zimmerman, A. R.**, Hale, S.E., Berge Hansen, C., Hartnik, T., and G. Cornelissen, 2021. Stabilization of PFAS-contaminated soil with activated biochar. *Science of the Total Environment*, 763: 144034.
- Goranov, Al, Wozniak, AS, Bostick, KW, **Zimmerman, A. R.**, Mitra, S, and P. G. Hatcher. Photochemistry After Fire: Structural Transformations of Pyrogenic Dissolved Organic Matter Elucidated by Advanced Analytical Techniques. 2020. *Geochimica et Cosmochimica Acta*, 290: 271-292.
- Zheng, Y., **Zimmerman, A. R.**, and B. Gao. 2020. Comparative investigation of characteristics and phosphate removal by engineered biochars with different loadings of magnesium, aluminum, or iron. *Science of the Total Environment*. 747: 141277.
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- Bostick, K.W., **Zimmerman, A. R.**, Goronov, A., Mitra, S., Hatcher, P., and A. S. Wozniak, 202). Photolability of Pyrogenic Dissolved Organic Matter from a Thermal Series of Laboratory-Prepared Chars. *Science of the Total Environment*. 724: 138198 - 138207.
- Li, F., **Zimmerman, A. R.**, Hu, X., Yu, Z., Huang, J., and B. Gao. 2020. One-pot synthesis and characterization of engineered hydrochar by hydrothermal carbonization of biomass with ZnCl<sub>2</sub>. *Chemosphere*, 254: 126866.
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- Li, F., **Zimmerman, A. R.**, Hu, X., and B. Gao. 2020. Removal of aqueous Cr(VI) by Zn- and Al-modified hydrochar. *Chemosphere*, 260: 127610.
- Huang, J., **Zimmerman, A. R.**, Chen, H., and B. Gao. 2020. Ball milled biochar effectively removes sulfamethoxazole and sulfapyridine antibiotics from water and wastewater, *Environmental Pollution*. 258: 113809.

- Quan, G., Fan, Q., Cui, L., **Zimmerman, A. R.**, Wang, H., Zhu., Z., Gao, B. Wu, L., and J. Yan. 2020. Simulated photocatalytic aging of biochar in soil ecosystem: Insight into organic carbon release, surface physicochemical properties and cadmium sorption. *Environmental Research*, 183: 109241.
- Quan, G., Fan, Q., **Zimmerman, A. R.**, Sun, J., Cui, L., Wang, H., and Gao, B. and J. Yan. 2020. Effects of laboratory biotic aging on the characteristics of biochar surface chemistry and its water-soluble organic products. *Journal of Hazardous Materials*, 382: 121071.
- Silvani, L., Cornelissen, G., Botnen Smebye, A., Zhang, Y., Okkenhaug, G., **Zimmerman, A. R.**, Thune, G., Sævarsson, H., and Hale, S. E. 2019. Can biochar and designer biochar be used to remediate per- and polyfluorinated alkyl substances (PFAS) and lead and antimony contaminated soils?, *Science of the Total Environment*, 694: 133693.
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#### *Non-refereed Publications*

- Budai, A., **A. R. Zimmerman**, Cowie, A. L., Webber, J. B. W., Singh, B. P., Glaser, B., Masiello, C. A., Andersson, D., Shields, F., Lehmann, J., Camps Arbestain, M., Williams, M., Sohi, S. and S. Joseph. 2013. Biochar carbon stability test method: An assessment of methods to determine biochar carbon stability. In *International Biochar Initiative Document*, 1-20. Washington D.C..
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### **Selected Invited Presentations**

#### International

“Current research on pyrogenic organic matter stability and mobility” at Agriculture University. Krakow, Poland, Oct. 9, 2017.

“Current research on pyrogenic organic matter stability and mobility” at Norwegian Institute of Bioeconomy Research – Norwegian University of Life Science. As, Norway, Sep. 13, 2017. Invited.

“Current research on pyrogenic organic matter stability and mobility” at Norwegian Geotechnical Institute. Oslo, Norway, Sep. 10, 2017.

“Evaluation of benzenopolycarboxylic Acids (BPCAs) as biomarkers for dissolved pyrogenic organic matter using laboratory-produced and environmentally-aged charcoals”, at Goldschmidt 2017 Conference, Paris, France, Aug. 17, 2017.

“New directions in biochar research” Daelim Industrial Co., Environmental and Energy Research Team, South Seoul, Korea, July 8, 2016.

“New directions in biochar research” at Seoul National University, Environmental Sciences Dept., Seoul, South Korea, July 7, 2016.

“New directions in biochar research” at Korea University, Environmental Engineering Dept., Seoul, South Korea, July 5, 2016.

“New directions in biochar research” at Korea Biochar Research Center, Kangwon National University, Applied Life Sciences Dept., Chuncheon, South Korea, June 24, 2016.

“New directions in biochar research; pyrogenic soil carbon cycling and contaminant remediation” at International Symposium and Annual Meeting of the Korean Society for Applied Biological Chemistry, Jeju Island, South Korea, June 11, 2016.

“Mutual priming of biochar and labile and refractory organic matter mineralization” at Environment and Life Chemistry Dept., Kyungpook National University, Daegu, South Korea, June 2, 2016.

#### National

"Biochar: How Charcoal Can Save the World", Daytona State College Mar. 21, 2024.

"Biochar: How Charcoal Can Save the World", Oak Hammock Retirement Community April 8, 2024.

"Climate Change and the Carbon Cycle", UF/IFAS Extension Climate Mini-Workshop, Jan. 24, 2022.

"Biochar Stability in Soil and Aquatic Environments", Soil and Water Sciences Department Seminar. Feb. 14, 2020.

"The Geogators: K-12 education outreach program of the UF Geological Sciences Department" at Scientist in Every Florida School Moonshot Kickoff Workshop, Pineland, FL, Jan. 19, 2019.

"Brown ground and black attack: Studies in organic matter preservation and degradation" at Department Seminar, University of Miami - RSMAS. March 2, 2015.

"Global Warming – Evidence and Uncertainty" at Sustainable Engineering UF course CGN 3510, Feb. 7, 2019 (and once per semester every preceding year).

"Climate Change – Evidence and Effects" at Sustainability and the Changing Earth, UF course GLY2038, Nov. 6 and 8, 2018 (and twice per year every preceding year).

"Biochar: Can Charcoal Save the World?" at Oak Hammock at the University of Florida, April 16, 2018.

"Global Warming - Scientific Fact or Chinese Hoax?" at Oak Hammock retirement community. Jan. 9, 2016.

"Response to Arctic Rising - Tobias Buckell" at Imagining Climate Change: Science & Fiction in Dialogue, University of Florida, February 17, 2016.

Zimmerman, A. R., Mukherjee, A. M. and B. Gao. "Biochar as a tool for carbon sequestration and soil amelioration" at Sustaining Economies and Natural Resources in a Changing World Conference, Gainesville, FL, Apr. 2, 2014.

"Sustainability on a Changing Earth" at Facets of Sustainability Lecture Series, Gainesville, FL, Sep. 4, 2012.

"Evidence for Climate Change" at International Sustainable Development Series course, Gainesville, FL, Sep. 6, 2012.

"Careers in Marine Science" at UF Marine Biology Club, Gainesville FL, Feb. 13, 2013.

"Ocean Half Full or Half Empty, Or Just Right?" Zimmerman, A., Dutton, A. and M. Panning, UF Department of Geological Sciences, Oct. 24, 2011.

#### **Externally-Funded Research**

Collaborative Research: Exploring the dynamic interaction between pyrogenic carbon and extracellular enzymes and its impacts on organic matter cycling in fire-impacted environments (Co-PI). Funding Agency: NSF Geobiology & Low-Temp Geochem, UF portion: \$128,542. 6/2021 - 5/2024.

Valorization of Organic Wastes into Sustainable Products for Clean-up of Contaminated Water, Soil, and Air (Co-PI). Funding Agency: The Research Council of Norway. UF Portion: \$11,610. 1/2020 - 6/2023.

Collaborative Research: Dissolved pyrogenic organic matter dynamics in the environment (PI). Funding Agency: NSF Geobiology & Low Temp. Geochem., UF Portion: \$171,915. 6/2015 – 5/2020.

Detection of dissolved pyrogenic carbon export following the Southern California fires of 2017 (PI). Funding Agency: NSF Geobiology & Low Temp. Geochem., UF Portion: \$42,924. 02/2018 - 01/2020.

Application of Microbial Induced Calcite Precipitation to Stabilize Florida High-Organic Matter Soils (Co-PI). Funding Agency: Florida Dept. Transportation. UF Portion: \$94,085. 1/2016 – 2/2019.

Biodegradation of the Deepwater Horizon oil in Florida marsh ecosystems and exploration of novel passive remediation strategies (Co-PI). Funding Agency: BP America Inc.. UF Portion: \$188,407. 11/2010 – 11/2012.

Collaborative Research: Black Carbon Remineralization in the Environment: Physical and Chemical Controls (PI). Funding Agency: NSF Geobiology & Low Temp. Geochem., UF Portion: \$190,707. 8/2008-7/2012

Evaluation of Pre-Treatment Techniques for Controlling Arsenic Mobilization during Artificial Recharge and Aquifer Storage and Recovery (Po-PI). Funding Agency: Florida Water Management Districts. UF Portion: \$150,000. 10/2008 – 7/2011.

Collaborative Research: Pre-Columbian Human Impacts on Amazonian Ecosystems (PI). : Funding Agency: NSF Division of Environmental Biology. UF Portion: \$50,001. 5/2008 – 4/2011.

Sediment Accumulation Rate and Past Water Quality in Lochloosa Lake (Co-PI). Funding Agency: St. Johns River Water Management District. Total UF: \$200,000. 10/2006-09/2008.

Naples Bay Past and Present: A Chronology of Disturbance to an Estuary (PI). Funding Agency: Southwest Florida Water Management District. Total UF: \$8,000. 1/2005-12/2006.