

# DR. KAREN S. MCNEAL (SELL)

**Current Title:** Full Professor

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**Education:** **Ph.D., Geology**, 2003-2007  
Texas A&M University, College Station, Texas

**M.S., Oceanography**, 2000-2003  
Texas A&M University, College Station, Texas

**B.S., Major: Marine Science, Minor: Environmental Studies**, 1996-2000, Eckerd College, St. Petersburg, Florida

## EXPERIENCE

2020-present	Full Professor, Department of Geosciences, Auburn University
2023-present	Program Director, Division of Graduate Education, National Science Foundation
2020-2023	Associate Department Chair, Department of Geosciences, Auburn University
2016-2020	Associate Professor, Department of Geosciences, Auburn University
2013 – 2016	Associate Professor, Department of Marine Earth and Atmospheric Sciences, North Carolina State University
2012 -2013	Associate Professor, Department of Geosciences, Mississippi State University
2007-2012	Assistant Professor, Department of Geosciences, Mississippi State University
Summer 2007	Post-Doctoral Research Associate, Department of Chemistry, Texas A&M University
2006-2007	Graduate Fellow, NSF Graduate K-12 Program, Texas A&M University
2003-2006	Graduate Assistant, NSF Information Technology in Science Center for Teaching and Learning, Texas A&M University
2002-2003	Research Assistant, Department of Oceanography, Texas A&M University
2000-2002	Scherck Fellow, Department of Oceanography, Texas A&M University
1998-2000	Laboratory Teaching Assistant, Chemical and Physical Oceanography and Inorganic Chemistry, Eckerd College

## HONORS and AWARDS (Post-Graduate Only):

2022-present	Marguerite Scharnagle Endowed Professor, College of Science and Mathematics, Auburn University
2022	NAGT Geoscience Education Research Transformation Award

2022 SEC Auburn University Faculty Achievement Award  
 2019-2022 Molette Endowed Professor, College of Science and Mathematics,  
 Auburn University  
 2017 Auburn University Senate Departmental Award for Excellence in  
 Education (DAEE) (Development of new course: Geol. 4970/7030:  
 Climate Change and Society for interactive EASL classroom).  
 2017 SEC Travel Award, Auburn University  
 2016 “Thank a Teacher” student letters (2), North Carolina State  
 University  
 2014 NCSU Faculty Diversity Professional Development Award  
 2013 – 2016 Faculty Affiliate, Southeast Climate Science Center  
 2012 Selected for the MSU Office of Research and Economic  
 Development Faculty Leadership Program  
 2010 Recipient of the Mississippi State University Faculty Pride Award  
 2009-2013 Faculty Fellow, GeoSystems Research Institute, Mississippi State  
 University

## FUNDING

\$30 million total on 46 external grants; \$11.8+ million to home institutions; \* indicates grants  
 McNeal was awarded but removed herself due to COI during NSF IPA detail.

Title	Agency	Collaborative Total	NCSU/ MSU/AU Total	Dates	Role and Details
<b>Pending Grants (1)</b>					
<i>Developing a Diverse Research Workforce with Expertise in Hydrological Climate Events in the Upland Watersheds of the Northern Gulf of Mexico (Hydroclimate-Auburn)-Cycle 2</i>	USGS CAST	\$280k	\$280k	PENDING	PI
<b>Active Grants (9)</b>					
<i>Inclusive Course Design for Enhancing Active Learning in STEM</i>	NSF-IUSE	\$599k	\$599k	07/01/23- 06/30/26	Co-PI (PI: Shepherd)*
<i>Hosting the SE Climate Science Center</i>	USGS SECASC	\$7M	\$319k	08/01/23- 07/31/28	AU PI
<i>Hosting the SE Climate Science Center – Year 6</i>	USGS	\$15k	\$15k	08/01/2022- 07/31/2024	PI
<i>Karen McNeal IPA</i>	NSF- NRT	\$183k	\$183k	03/11/23- 03/10/24	PI
<i>NSF NRT Climate Resilience Supplement</i>	NSF-NRT	\$24k	\$24k	04/28/23- 08/31/24	PI*
<i>Collaborative Research: Developing a Diverse, Future-oriented Workforce for Renewable Energy Industries</i>	NSF-IUSE	\$299k	\$139k	07/01/21- 06/30/24	Co-PI (PI: Beckingham)*
<i>Developing a Diverse Research Workforce with Expertise in Hydrological Climate Events in the Upland Watersheds of the Northern Gulf of Mexico</i>	USGS- CASC	\$180k	\$180k	03/01/2022- 02/28/2024	PI

<i>(Hydroclimate-Auburn)</i>					
<i>Best Practices for Project Design: Effectively Addressing Natural Resource Management Needs Supplement</i>	USGS-SECASC	\$37k	\$37k	05/01/20-04/30/24	Auburn PI (Lead PI: Armsworth)
<i>NRT: Addressing Resiliency to Climate Related Hazards and Disasters through Data Informed Decision Making</i>	NSF	\$2.98M	\$2.98M	N/A	PI (Co-PI's: (Burton, Tian, Srivastova, Pan)*)
<b>Previous Grants (37)</b>					
<i>Best Practices for Project Design: Effectively Addressing Natural Resource Management Needs</i>	USGS-SECASC	\$150k	\$68k	05/01/20-04/30/23	Auburn PI (Lead PI: Armsworth)
<i>Supplemental Funding – Hosting the SE Climate Science Center</i>	USGS-SECASC	\$19k	#19k	08/01/21-07/31/22	PI
<i>The Effectiveness of the Augmented-Reality Sandbox for Improving Spatial Thinking in Undergraduates</i>	NSF GRFP	\$138k	\$138k	06/01/18-12/31/22	PI (Student Awardee Eli Johnson)
<i>Collaborative Approaches among Scientists and Engineers (CASE)</i>	NSF-REU	\$500k	\$500k	06/01/20-05/31/2023	Internal Evaluator (PI: Mulligan-Guy)*
<i>Building capacity for the DOI Southeast Climate Science Center to co-produce actionable science focused on global change impacts to natural resources</i>	USGS	\$5M	\$78k	05/01/17-07/30/23	Auburn PI; (PI: N. Haddad)
<i>Geoscience Education Research (GER) Community Synthesis and Planning Project</i>	NSF-IUSE	\$97k	\$5k	02/01/15-01/31/16	Consultant; Lead PI: K. St. John
<i>Using Eye-tracking to Assess Effectiveness of Climate Data Visualizations on Public Perception and Understanding</i>	NSF GRFP	\$138k	\$138k	06/01/18-05/31/21	PI (Student Awardee Steph Courtney)
<i>Climate-Energy Simulations and Immersive Exercises for Deep Learning about Complex Systems</i>	NSF-IUES-GEOPATHS	\$340k	\$15k	07/01/17-06/30/21	Consultant; PI: J. Rooney-Varga
<i>Geo-STEM</i>	NSF-S-STEM	\$500k	\$21k	01/01/15-12/31/21	External evaluator & consultant; PI: C. Benitez-Nelson
<i>Becoming an African American Geoscientist: A Qualitative Exploration of Race and Critical Incidences on Recruitment and Persistence</i>	NSF GRFP	\$138k	\$138k	06/01/20-05/31/21	PI (Student Awardee Akilah Alwan)
<i>The Geo Tech High School Academy: A combined program of experiential field learning and classroom instruction</i>	NSF-IUSE: GEOPATHS	\$375k	\$71k	9/15/15-8/31/19	Co-PI (Auburn PI); Lead PI: K. Ellins; co-PI: J. Libarkin
<i>NSF Supplement: National Geoscience Teaching Practices Survey</i>	NSF	\$100k	\$8k	07/01/17-06/30/19	Consultant; PI: K. Manduca

<i>A Framework for Transformative Geoscience Education Research</i>	NSF-IUSE	\$97k	\$6k	02/01/16-01/31/17	Consultant; Lead PI: K. St. John
<i>Shaping the Future of Geoscience Education Research: Synthesizing Results and Articulating Future Directions</i>	NSF-IUSE	\$99k	\$3k	01/01/15-12/31/16	Consultant; Lead PI: H. McDonald
<i>Developing and Testing Materials to Improve Spatial Skills in Upper Division Geoscience Courses-TUES Type I</i>	NSF-TUES	\$500k	\$7k	06/01/11-05/31/16	External Evaluator & Consultant; Lead PI; C. Ormand
<i>Initiating New Science Partnerships in Rural Education (INSPIRE)</i>	NSF-GK12	\$2.9M	\$2.9M	06/2010-05/2016	Lead PI/Consultant: Co-PIs: D. Schmitz, D. Pierce, L. Bruce
<i>Confronting the Challenges of Climate Literacy [Supplement to on-going project]</i>	NSF-DRK12	\$68k	\$6k	09/2010-09/2016	NCSU PI; Lead PI: T. Ledley, Co-PIs: K. Ellins and J. Libarkin
<i>Confronting the Challenges of Climate Literacy</i>	NSF-DRK12	\$2.8M	\$637k	9/15/10-9/30/16	NCSU PI; Lead PI: T. Ledley; co-PI: J. Libarkin & K. Ellins
<i>Testing the use of Augmented Reality Sandbox in the Undergraduate Classroom.</i>	NCSU-STEM Initiative	\$3.7k	\$3.7k	01/01/16-12/31/17	PI
<i>Hazards TEAMS Teacher Education &amp; Activities for Minority Students in the Meteorological, Geologic, and Hydrologic Hazards. Track 1</i>	NSF-OEDG	\$200k	\$200k	09/01/11-08/31/15	Co-PI; Lead PI; K. Sherman-Morris
<i>Earth System Science: A Key to Climate Literacy</i>	NASA-Global Education	\$280k	\$37k	08/31/09-08/30/12	MSU PI; (Lead PI T. Ledley)
<i>CLiPSE Network Expansion Supplement</i>	NSF-CCEP	\$150k	\$150k	09/01/11-08/31/14	PI; Co-PIs: B. Smith; D. Rutherford, U. Nair,
<i>A Regional Network Partnership for Climate Science Literacy in the Southeastern United States [CLiPSE]</i>	NSF-CCEP	\$1M	\$1M	09/05/10-08/31/14	PI; Co-PIs: B. Smith; D. Rutherford, U. Nair
<i>Fueling the Geosciences educational pipeline: The development of a K-12 network to support minority participation</i>	NSF-OEDG	\$40k	\$40k	12/31/09-09/30/2011	Co-PI; PI; K. Sherman-Morris
<i>Diversity Enhancement of the Geosciences through Research Experiences (DEGRE): Mentoring African Americans</i>	NSF-OEDG	\$200k	\$200k	09/01/09-08/30/13	Co-PI; PI: B. Kirkland

<i>through Research</i>					
<i>Project SMARTER: Science and Mathematics Advancement and Reform Utilizing Technology and Enhanced Resources</i>	ARC	\$260k	\$260k	12/2008-12/2009	Co-PI: PI: S. Harpole
<i>Facilitating Student Understanding of Change in the Earth System on Multiple Time Scales</i>	NSF-GEO	\$150k	\$4k	12/2008-12/2009	Consultant; Lead PI T. Ledley at TERC
<i>Improving TMDL and Waste Load Allocation Permit Limits by Determination and Application of New Sediment Diagenesis Input Parameters in Current Water Quality Models</i>	EPA-RARE	\$185k	\$185k	01/11/12-12/31/13	PI; Co-PI: J. Martin
<i>Exploratory Research - Using volatile organic compounds to separate heterotrophic and autotrophic forest soil respiration</i>	U.S. Dept. of Energy – Terrestrial Carbon Cycle	\$150k	150k	01/01/12-12/31/2014	Co-PI: Lead PI: J. Hatten
<i>Comprehensive Study of the Impact of the Deepwater Horizon Oil Spill on the Health and Productivity of Gulf Coast Salt Marshes, Deep Water Horizon Oil Spill Research: Phase II Supplement</i>	NOAA-NGI	\$81k	\$81k	06/2011-12/2011	Co-PI: PI Deepak Mishra
<i>Comprehensive Study of the Impact of the Deepwater Horizon Oil Spill on the Health and Productivity of Gulf Coast Salt Marshes, Deep Water Horizon Oil Spill Research: Phase II</i>	NOAA-NGI	\$193k	\$193k	08/2010-12/2011	Co-PI: PI Deepak Mishra
<i>Deep Water Horizon Oil Spill Research: Phase I</i>	NOAA-NGI	\$250k	\$250k	06/2010-12/2010	Senior Personnel; PI; W. McAnally
<i>Modeling Mobile Bay Sediments and Pollutants with New Technologies</i>	NOAA-NGI	\$200k	\$200k	09/2008-09/2009	Senior Personnel; PI: McAnally
<i>Field Research on Bahamian Lakes-Exploring Records of Anthropogenic and Climate Change</i>	NSF-REU	\$500k	\$10k	01/01/09-12/31/012	Faculty Mentor & Consultant; PI: L. Park
<i>The Sediment Biogeochemistry of Weeks Bay during Bottom Water Hypoxic and Norm-oxic Events</i>	NOAA-Fellowship	\$29k	\$29k	06/01/2009-05/31/2010	PI
<i>Sediment and Mercury Modeling</i>	NOAA-NGI	\$315k	\$315k	01/01/2010-12/31/2012	Co-PI; PI: W. McAnally
<i>In-situ Measurements of Microbial Volatile Organic Compound Production in Mississippi Pine Forest Soils</i>	MSU-Research Initiation Program	\$10k	\$10k	01/2008-12/2009	PI

**Publications h-index = 23, i10-index=40** (underlined names represent students or post-docs)

*Peer- Reviewed Geoscience Education Publications:*

- 1) Cashwell, H., **McNeal, K.S.**, Dello, K., Davis, C., 2023. Addressing Usability of a Decision Support System, *Weather Climate and Society* (in review).
- 2) Johnson, E.J. and **McNeal, K.S.** 2023. Evaluating the Effectiveness of Digital and Physical Geologic-Block Models on Student Performance on a Structural Geology Activity and Spatial Assessment, *Journal of Geoscience Education*. (in revision).
- 3) Courtney, S., et al. 2023. Evaluating Science for Society: Lessons from the Climate Adaption Science Centers. *Frontiers in Ecology and the Environment* (in review).
- 4) Benetiz-Nelson, C.R., **McNeal, K.S.**, Jones, W.J. (2023). Improving Retention of Underrepresented Groups in the Geoscience through an Intensive First Year Experience at the University of South Carolina. *Oceanography*  
<https://doi.org/10.5670/oceanog.2024.108>.
- 5) Ojeda, A., Rogers, S., Jannach, C., **McNeal, K.S.** 2023. Development and validation of a groundwater concept inventory (GWCI) for a general audience" presents an innovative approach to designing a concept inventory (CI) instrument that can be utilized to assess groundwater knowledge for a broad audience. *Groundwater* <https://doi.org/10.1111/gwat.13380>.
- 6) Smith, T. and **McNeal, K.S.** 2023. Assessing motivations, benefits, and barriers of implementing virtual field experiences in geoscience-related disciplines. *Journal of Geoscience Education*  
<https://www.tandfonline.com/doi/full/10.1080/10899995.2023.2258760>
- 7) Cashwell, H.J., **McNeal, K.S.**, Dello, K., Boyles, R., Davis, C. 2023. User Engagement Testing with a Pilot Decision Support Tool Aimed to Support Species Managers. *Weather, Climate & Society*. 327-338. DOI: <https://doi.org/10.1175/WCAS-D-22-0010.1>
- 8) Courtney, S., **McNeal K.S.** 2023. Seeing is believing: Climate change graph design impacts user judgments of credibility, usability, and risk, *Geosphere*  
doi: <https://doi.org/10.1130/GES02517.1>
- 9) Courtney, S., A. A. Hyman, **K. McNeal**, L. Maudlin, P. Armsworth, 2022. Development of a survey instrument to quantify individual and organizational use of climate adaptation science, *Environmental Science and Policy*: 271-279.
- 10) Hyman, A., Courtney, S., **McNeal, K.**, Bialic-Murphy, L., Furiness, C., Armsworth, P. 2022. Distinct pathways to stakeholder use versus scientific impact in climate adaptation research. *Conservation Letters* <http://doi.org/10.1111/conl.12892>.
- 11) Maudlin, L.C. and **McNeal K.S.** 2022. Can a Science Café and a Concert Communicate Global Change Concepts?" *Applied Environmental Education & Communication*: 21: <https://doi.org/10.1080/1533015X.2022.2108524>
- 12) Hensel, M., Bryan, J., McCarthy, C., McNeal, K.S., Norfles, N., Rath, K., Rooney-Varga, J.N. 2022. Participatory Approaches Enhance a Sense of Urgency and Collective Efficacy About Climate Change: Qualitative Evidence from the World Climate Simulation, *Journal of Geoscience Education* (DOI 10.1080/10899995.2022.2066927).
- 13) Soltis, N. and **McNeal K.S.**, 2022. Development and Validation of a Concept Inventory for Earth Systems Thinking Skills. *Journal for STEM Education Research*. ([10.1007/s41979-021-00065-z](https://doi.org/10.1007/s41979-021-00065-z)).

- 14) Johnson, E. and **McNeal, K.S.** 2021. Undergraduate students' perceptions of a geology spatial training activity using the augmented-reality sandbox, *Journal of Geoscience Education*, 70:13-24.
- 15) Rooney-Varga, J.N., Hensel, M., McCarthy, C., **McNeal, N.**, Rath, K., Schnell, A., Sterman, J.D. 2021. Building Consensus for Ambitious Climate Action Through World Climate Simulation. *Earth's Future*. (<https://doi.org/10.1029/2021EF002283>).
- 16) Soltis, N., **McNeal, K.S.**, Schnittka, C. 2021. Understanding Undergraduate Student Conceptions about Biogeochemical Cycles and the Earth System. *Journal of Geoscience Education*, 69(3):265-280.
- 17) Gold, A.U., Atkins, R., **McNeal, K.S.** 2021. Undergraduates' Graph Interpretation and Scientific Paper Reading Shift from Novice- to Expert-like as a Result of Participation in a Summer Research Experience. *Scholarship and Practice of Undergraduate Research (SPUR)*, 5:7-19.
- 18) **McNeal, K.S.**, Zhong, M., Soltis, N., Doukolopoulos, L. Alwan, A., Johnson, E., Courtney, S., Porch, M. 2020. Biosensors Show Promise as a Measure of Student Engagement in a Large Introductory Biology Course. *CBE-Life Sciences Education*. 19: 1-10. <https://doi.org/10.1187/cbe.19-08-0158>.
- 19) David, C., Aldridge, H., Boyles, R., **McNeal, K.S.**, Maudlin, L., Atkins, R. 2020. Visually communicating climate in a web format. *Weather, Climate and Society*, 12: 877-896.
- 20) Kristen St. John, **Karen S. McNeal**, R. Heather MacDonald, Kim A. Kastens, Kelsey S. Bitting, Cinzia Cervato, John R. McDaris, Heather L. Petcovic, Eric J. Pyle, Eric M. Riggs, Katherine Ryker, Steven Semken & Rachel Teasdale. 2020. A community framework for geoscience education research: Summary and recommendations for future research priorities, *Journal of Geoscience Education*, DOI: [10.1080/10899995.2020.1779569](https://doi.org/10.1080/10899995.2020.1779569)
- 21) Soltis, N., **McNeal, K.S.**, Atkins, R., Maudlin, L. 2020. A Novel Approach to Measuring Student Engagement While Using an Augmented Reality Sandbox, *Journal of Geography in Higher Education*, 44(4):512-531. [doi.org/10.1080/03098265.2020.1771547](https://doi.org/10.1080/03098265.2020.1771547).
- 22) Maudlin, L., **McNeal, K.S.**, Dinon-Aldridge, H., Davis, C. Boyles, R., Atkins R.M., 2020. Website Usability Differences between Males and Females: An Eye-tracking Evaluation of a Climate Decision Support System, *Weather, Climate and Society*, 12:183-192.
- 23) **McNeal, K.S.**, Ryker, K., Atkins, R., Whitemeyer, S., Giorgis, S., Clark, C., Soltis, N., LaDue, N., Pingel, T. 2020. A multi-institutional study of inquiry-based lab activities using the Augmented Reality Sandbox: impacts on undergraduate student learning. *Journal of Geography in Higher Education*, 44(1): 85-107. DOI: [10.1080/03098265.2019.1694875](https://doi.org/10.1080/03098265.2019.1694875).
- 24) Soltis, N., **McNeal, K.S.**, Forbes, C. & Lally, D. 2019. The relationship between active learning, course innovation and teaching Earth system thinking: A structural equation modeling approach. *Geosphere*, 15 (5): 1703-1721.
- 25) St. John, K., Bitting, K., Cervato, C., Kastens, K., MacDonald, H., McDaris, J., **McNeal, K.S.**, Petcovic, H., Pyle, E., Riggs, R., Ryker, K., Semken, S., Teasdale, R. 2019. Geoscience Education Research Poised for an Evolutional Leap that will Impact How you Teach. *Eos* 100 DOI: [10.1029/2019EO127285](https://doi.org/10.1029/2019EO127285)
- 26) Beane, R., **McNeal, K.S.**, MacDonald, R.H. 2019. Probing the National Geoscience Faculty Survey for Reported Use of Practices that Support Inclusive Learning Environments in Undergraduate Courses. *Journal of Geoscience Education*, 67: 427-445. DOI: [10.1080/10899995.2019.1621714](https://doi.org/10.1080/10899995.2019.1621714)

- 27) Lally, D., Forbes, C.T., **McNeal, K.S.**, & Soltis, N. 2019. National Geoscience Faculty Survey 2016: Prevalence of systems thinking and scientific modeling learning opportunities. *Journal of Geoscience Education*, 67:2, 174-191.
- 28) Atkins, R. and **McNeal, K.S.** 2018. Exploring Differences Among Student Populations During Climate Graph Reading Tasks: An Eye Tracking Study. *Journal of Astronomy & Earth Sciences Education*, 5: 85-114.
- 29) Libarkin, J.L., Gold., A.E., Harris., S., **McNeal, K.S.**, Bowles, R. 2018. A new, valid measure of climate change understanding: Associations with risk perception *Climatic Change*, 150: 403-416.
- 30) Strawderman, L., Carruth, D., Sherman-Morris, K., Menard, P., Warkentin, M., & **McNeal, K.S.** 2018. Individual Transportation Decisions under Conditions of Risk and Uncertainty. *Natural Hazards*, 92(2), 927-942.
- 31) Aksit, O., **McNeal, K.S.**, Libarkin, J.L., Gold, A.U., Harris, S. 2017. The influence of instruction, prior knowledge, and values on climate change risk perception among undergraduates. *Journal of Research in Science Teaching*, 55: 550-572.
- 32) **McNeal, K.S.**, Radencic-Llack, S., Cartwright, J., Pierce, D.M., and Schmitz, D. 2017. An Earth Hazards Approach to Implementing GIS with Middle School Students through a University-School Partnership. *The Earth Scientist*, 32: 16-21.
- 33) Shipley, T.F., McConnell, D., **McNeal, K.S.**, Petcovic, H.L., St. John, K.E. 2017. Transdisciplinary education research: Opportunities for GER in a developing STEM discipline based education research alliance (DBER-A). *Journal of Geoscience Education* 65, 354-362.
- 34) St. John, K. and **McNeal, K.S.** 2017. The Strength of Evidence Pyramid: One Approach for Characterizing the Strength of Evidence of Geoscience Education Research (GER) Community Claims. *Journal of Geoscience Education* 65, 363-372.
- 35) **McNeal, K.S.** and Petcovic, H. 2017. Sparking Conversations about Graduate Programs in Geoscience Education Research. *Journal of Geoscience Education*, 65, 399-406.
- 36) Sherman-Morris, K., Clary, R. **McNeal, K.S.**, Ramirez, J., and Brown, M. 2017. An Earth Hazards Camp to Encourage Minority Participation in the Geosciences. *Journal of Geoscience Education*, 65, 12–22.
- 37) Mitra, R., **McNeal, K.S.**, Bondell, H. 2017. Task evolved pupillary response with compound interdependent tasks: a cognitive load theory perspective. *Behavior Research Methods*, 49(5):1905-1919.
- 38) Ryker, K., **McNeal, K.S.**, LaDue, N., Atkins, R.M., Clark, C. 2016. Augmented Reality Sandboxes: Hacking a hands-on experience. *In the Trenches*, 6:1-4.
- 39) Sherman-Morris, K. and **McNeal, K.S.** 2016. Understanding Minority and Non-Minority Undergraduate Student Perceptions of the Geosciences, *Journal of Geoscience Education*, 64: 147-156.
- 40) **McNeal, K.S.**, Spry, J., Mitra, R., Tipton, J. 2014. Measuring Student Engagement, Knowledge, and Perceptions of Climate Change in an Introductory Geology Course. *Journal of Geoscience Education*, 62: 655-667.
- 41) **McNeal, K.S.**, Walker, S.L., and Rutherford D. 2014. Assessment of 6-20 Grade Educator's Climate Knowledge and Perceptions in the Southeast United States: Results from the Climate Stewardship Survey. *Journal of Geoscience Education*, 62: 645-654.
- 42) **McNeal, K.S.**, Libarkin, J., Shapiro Ledley, T. Haddad, N., Bardar, E., Ellins, K. and Dutta, S. 2014. The role of research in online curriculum development: The case of the EarthLabs climate change curriculum. *Journal of Geoscience Education*, 62: 560-577.



- 43) **McNeal, K.S.**, Hammerman, J.K.L., Christiansen, and J.A, Carroll, J. 2014. Climate Change Education in the Southeastern U.S. Through Public Dialogue: Not Just Preaching to the Choir! *Journal of Geoscience Education*, 62: 631-644.
- 44) Ellins, K., Gold, A., Haddad, N., Shapiro Ledley, T., Lynds, S., and **McNeal, K.** 2014. Supporting Teacher Professional Development to Facilitate Effective Teaching of Climate Science. *Journal of Geoscience Education*, 62: 330-342.
- 45) Walker, S. L. and **McNeal, K.S.** 2013. Development and validation of an instrument for assessing climate change knowledge and perceptions: The climate stewardship survey (CSS). *International Electronic Journal of Environmental Education* 3(1): 57-73.
- 46) Sherman-Morris, K., Brown, M.E., Dyer, J.L., **McNeal, K.S.**, and Rodgers, J.C. 2013. Teachers' geoscience career knowledge and implications for enhancing diversity in the geosciences, *Journal of Geoscience Education* 61, 326-333.
- 47) Sherman-Morris, K., Rodgers, J.C., **McNeal, K.S.**, Brown, M.E., and Dyer, J.L. 2012. Professional Development Strategies to Enhance Diversity in the Geosciences. *The Science Educator* 21(2): 31-38.
- 48) Ledley, T.S., Haddad, N., Bardar, E., Ellins, K., **McNeal K.**, and Libarkin J. 2012. EarthLabs-An Earth System Science Laboratory Module to Facilitate Teaching About Climate Change. *The Earth Scientist* 28: 19-24.
- 49) Miller, H.R., **McNeal, K.S.**, and Herbert, B.E. 2010. Inquiry in the physical geology classroom: supporting students' conceptual model development. *Journal of Geography in Higher Education* 34: 595-615.
- 50) Sherman-Morris, K., Schumacher, A., Drobot, S., and **McNeal, K.** 2010. Hurricane preparedness and response among pet care providers along the Gulf Coast: An investigation of the Ike and Gustav storm events. *International Journal of Mass Emergencies and Disasters* 28: 345-367.
- 51) **McNeal K.S.**, Miller H.R., and Herbert B.E. 2008. The effect of using inquiry and multiple representations on introductory geology students' conceptual model development of coastal eutrophication. *Journal of Geoscience Education* 56: 201-211.
- 52) **Sell K.S.**, Herbert B.E., Stuessy C. and Schielack J. 2006. Supporting student conceptual model development of complex earth systems through the use of multiple representations and inquiry. *Journal of Geoscience Education* 54: 396-407.

*Invited Book Chapters Geoscience Education:*

- 53) **McNeal, K.S.**, Atkins, R., Johnson, E., 2021. Visualizing Student Navigation of Geologic Block Diagrams. *In* Applying bio-measurements methodology in Science Education Research, Springer (Ed Devetak, I. and Glazar, S.A.).
- 54) Rooney-Varga, J.N., Fracassi, E., Franck, T., Kapmeier, F., McCarthy, C., **McNeal, K.S.**, Norfles, N., Rath, K., Sterman, J.D. 2021. A simulation game that motivates people to act on climate. *In WSPC Encyclopedia of Climate Change*, 3: 231-244.
- 55) **McNeal, K.S.**, Libarkin, J.L., Ledley, T.S., Ellins, K. 2020. *Measuring the Efficacy of the EarthLabs Climate Modules among High School Students using the Climate Concept Inventory*, *In: Active Learning in College Science: The Case for Evidence-Based Practice* (Mintzes, J. and Walter, E. eds.), Springer, Switzerland, pp. 683-696. DOI 10.1007/978-3-030-33600-4
- 56) **McNeal, K.S.**, Courtney, S., Johnson, E. 2020. *Teaching the Earth: Pathways and Careers in Geoscience Education*. *In* Encyclopedia of Geological Sciences, Elsevier.

- 57) **McNeal, K.S.**, Van der Hoeven Kraft, K., Nagy-Shadman, E., Beck, M., and Jones, J. (2018): *Research on Students' Self-Regulated Learning, Metacognition, and Affect*. In: St. John, K. (ed.): A Community Framework for Geoscience Education Research. Framework of the Grand Challenges in Geoscience Education Research. (online at [https://nagt.org/nagt/geodresearch/GER\\_framework/](https://nagt.org/nagt/geodresearch/GER_framework/)).
- 58) **McNeal, K.S.**, Steward, A. Brossman, C., Plonski, B., and Spuck, T. 2013. *Teacher-Fellow and Fellow-Student Partnerships*. In *The Power of Partnerships: A Guide from the NSF Graduate STEM Fellows in K-12 Education (GK-12) Program*, (Ed. Stoll, K., Ortega, S, Spuck, T.) American Association for the Advancement of Science, Washington, DC. ISBN: 978-0-87168-754-8
- 59) Steward, A., **McNeal, K.S.**, and Godoy, C. 2013. *Integrating STEM content and Research in the Classroom*. In *The Power of Partnerships: A Guide from the NSF Graduate STEM Fellows in K-12 Education (GK-12) Program*, (Ed. Stoll, K., Ortega, S, Spuck, T.) American Association for the Advancement of Science, Washington, DC. ISBN: 978-0-87168-754-8
- 60) **McNeal, K.S.** and Anderson, R. 2012. *Adaptation and Development of ITS Learning Ecology Participants: An Individual Perspective*. In *The New Science Education Leadership: An IT-Based Learning Ecology Model* (Eds. J.F. Schielack and S.L. Knight) Teachers College Press, New York, NY. ISBN: 080-7-75343-2

*Peer-Reviewed Biogeochemistry Publications:*

- 61) Mills, C.G. and **McNeal, K.S.** 2014. Salt marsh sediment biogeochemical response to the BP *Deepwater Horizon* blowout. *Journal of Environmental Quality*, 43:1813-1819.
- 62) Puckett, M.K., **McNeal, K.S.**, Kirkland, B.L., Corley, M., and Ezell, J.E. 2011. Biogeochemical stratification and carbonate dissolution-precipitation in hypersaline microbial mats (Salt Pond, San Salvador, The Bahamas), *Aquatic Geochemistry* 17: 397-418.
- 63) Gardner, W.S., McCarthy, M.J., Carini, S.A., **McNeal, K.S.**, Puckett, M.K., and Pennington, J. 2009. Collection of intact sediment cores with overlying water to study nitrogen- and oxygen-dynamics in regions with seasonal hypoxia. *Continental Shelf Research* 29: 2207-2213.
- 64) **McNeal K.S.** and Herbert B.E. 2009. Volatile organic metabolites as indicators of microbial activity and community composition shifts. *Soil Science Society of America Journal* 73: 579-588.
- 65) McCarthy M.J., **McNeal K.S.**, Gardner W.S., and Morse J.W. 2008. Bottom-water hypoxia effects on sediment-water interface nitrogen transformations in a seasonally hypoxic, shallow bay (Corpus Christi Bay, Texas, USA). *Estuaries and Coasts* 31: 521-531.
- 66) **Sell K.S.** and Morse J.W. 2006. Dissolved Fe<sup>2+</sup> and  $\sum$ H<sub>2</sub>S behavior in sediments seasonally overlain by hypoxic-to-anoxic waters as determined by CSV microelectrodes. *Aquatic Geochemistry* 12: 179-198.
- 67) Gardner W.S., McCarthy M.J., Sobolev D., Soonmo A., **Sell K.S.** and Brock D. 2005. Nitrogen fixation and dissimilatory nitrate reduction to ammonium (DNRA) support nitrogen dynamics in Texas estuaries. *Limnology and Oceanography* 51: 558-568.
- 68) Morse J.W., DiMarco S.F., Hebert A.B., and **Sell K.S.** 2003. A scaling approach to spatial variability in early diagenetic processes. *Hydrobiologia* 494: 25-29.

- 69)Morse J.W., DiMarco S.F., **Sell K.S.** and Herbert A.B. 2003. Determination of the optimum sampling intervals in sediment pore waters using the autocovariance function. *Aquatic Geochemistry* 9: 41-57.
- 70)Morse J.W., Gledhill D.K., **Sell K.S.**, and Arvidson R.S. 2002. Pyritization of iron in sediments from the continental slope of the northern Gulf of Mexico. *Aquatic Geochemistry* 8: 3-13.
- 71)Byrne R.H., Xuewu L., and Kaltenbacher E.A., **Sell K.S.**, 2002. Spectrophotometric measurement of total inorganic carbon in aqueous solutions using liquid core waveguide. *Analytica Chimica* 451: 221-229.
- 72)Hopkins A.E., **Sell K.S.**, Soli A.L., and Byrne R.H. 2000. In-situ spectrophotometric pH measurements: the effect of pressure on thymol blue protonation and absorbance characteristics. *Marine Chemistry* 71: 103-109.

*Invited Book Chapters Biogeochemistry:*

- 73)**McNeal, K.S.**, Anderson, E., Ezell, J.E., Guthrie, C., and Spry, J. 2013. *Microelectrodes in marine environments: The exploration of sedimentary sulfide dynamics in shallow estuaries, salt marshes, and hypersaline microbial mats.* In *Microelectrodes: Techniques, Structures for Biosensing and Potential Applications* (Eds. Lei, K.F.). Nova Publishing, Hauppauge, NY. ISBN 978-1-62948-721-2

*Technical Reports, Proceedings, and Editorials:*

- 74)Solomon, J., Beckingham, L., **McNeal, K.S.**, Song, H. (2022). Building High-Level Environmental Behavior into HBCU Engineering, ASEE Conference Proceedings.
- 75)Gates, A., **McNeal, K.S.**, Riggs, E., Sullivan, S., & Dalbotten, D. 2019. New Developments in Diversity and Inclusiveness in Geoscience Education. *Journal of Geoscience Education* 67, 286-286.
- 76)**McNeal, K.S.**, St. John, K., Kortz, K., Nagy-Shadman, E., Riggs, E., 2017. Editorial: Introduction to the Theme: Synthesizing Results and Defining Future Directions of Geoscience Education Research, *Journal of Geoscience Education* 65, 347-352.
- 77)St. John, K., Petcovic, H., Stokes, A., Arthurs, L., Callahan, C., Feig, A., Gates, A., Gray, K., Kortz, K., **McNeal, K.**, Nagy-Shadman, E., Teed, R., and Van Hoesen, J. 2016. Un-Packing Manuscript Preparation and Review Guidelines for Curriculum and Instruction and Research Papers. *Journal of Geoscience Education*, 64: 1-4.
- 78)**McNeal, K.S.**, St. John, K., Buhr Sullivan, S. 2014. Editorial: Introduction to the Theme: Outcomes of Climate Literacy Efforts (Part 1). *Journal of Geoscience Education*, 62: 291-295.
- 79)St. John, K., Dickerson, D., **McNeal, K.S.** 2013. Editorial: Guide to Inspiring Authors. *Journal of Geoscience Education* 61, 252-255.
- 80)**McNeal K.S.** 2010. Editorial: The Earth science gap in K-12 education. *Journal of Geoscience Education* 58, 197.
- 81)Libarkin, J., Elkins, J.T., **McNeal K.S.**, St. John, K. 2010. Editorial: What role do geoscientists play in society? *Journal of Geoscience Education*, 58, 1.
- 82)Schumacher, A., Sherman-Morris, K., **McNeal, K.**, and Drobot, S. 2009. Pet care professionals' preparedness for, response to, and utilization of resources during Hurricane Gustav. Quick Response Report. Boulder, CO: University of Colorado Natural Hazards Center.
- 83)Martin, J.L., Evans, D.W., McAnally, W.H., **McNeal, K.S.**, Horton, M. 2009. Evaluation of the factors affecting the fate and transport of mercury in coastal estuaries with a focus on Mobile Bay. Northern Gulf Institute.

*Theses and Dissertations:*

- 84) **McNeal K.S.** 2007. Understanding complex earth systems: volatile metabolites as microbial ecosystem proxies and student conceptual model development of coastal eutrophication. Doctoral Dissertation, Texas A&M University. pp. 1-172.
- 85) **Sell K.S.** 2003. Temporal influences of seasonal hypoxia on sediment biogeochemistry in coastal waters. Masters Thesis, Texas A&M University. pp. 1-142.
- 86) **Sell, K.S.** 2000. In-situ spectrophotometric pH measurements: the use of thymol blue indicator in both high pressure and long pathlength cells to determine the CO<sub>2</sub> parameters of seawater. Undergraduate Thesis, Eckerd College. pp. 1-50.

**Abstracts and Presentations:**

*Invited Presentations and Seminars:*

- 2023 ASER student session, AMS national meeting
- 2023 CuWiP, Auburn University
- 2021 Department of Engineering and Geological Sciences, Clemson University
- 2021 Florida Mechanical A&M University, School of the Environment, Tallahassee, FL
- 2021 Virtual Pub Speaker, Paleontological Research Institution, Ithaca, NY
- 2021 Dept. Ecology and Evolutionary Biology, University of Tennessee-Knoxville
- 2020 Geological Society of America, Pardee Session (P5), Montreal, CA
- 2020 School of The Environment and Earth Sciences, LSU
- 2020 Water Resources Institute, University of Florida-Gainesville
- 2020 Department of Geological Sciences, Baylor University
- 2018 COSAM Science Café, Auburn University
- 2017 American Geophysical Union, Session ED42A
- 2017 Geological Society of America Annual Meeting, Session 205 T120
- 2017 Geological Society of America Annual Meeting, Session 45 T99.
- 2016 University of Colorado-Boulder, CIRES
- 2016 Auburn University, College of Science and Mathematics/Department of Geosciences
- 2014 American Geophysical Union Annual Meeting, Session ED020
- 2014 North Carolina State University, Retired Faculty Association
- 2014 University of South Carolina, Department of Marine Science
- 2013 University of South Florida, Department of Geology
- 2013 North Carolina State University, Department of Marine, Earth and Atmospheric Sciences
- 2013 Virginia Polytechnic University, Department of Geosciences
- 2013 American Geophysical Union, Meeting of the Americas, May 14-17
- 2012 American Geophysical Union Annual Meeting, Session ED11E
- 2012 Geological Society of America, Session T71
- 2012 University of Texas, Institute for Geophysics
- 2010 Mississippi State University, Department of Chemistry
- 2009 Michigan State University, Division of Science and Math Education
- 2009 Michigan State University, Department of Geological Sciences
- 2009 Mississippi State University, Department of Soil Science
- 2008 Dauphin Island Sea Lab, Alabama Marine Science Institution
- 2008 Mississippi State University, Department of Biology
- 2007 California State University, Fullerton, Department of Geology

2007	Eastern Washington University, Department of Geology
2007	Grand Valley State University, Department of Geology
2006	Mississippi State University, Department of Geosciences
2006	Grinnell College, Departments of Chemistry and Biology
2006	Harper College, Department of Geology

*National and International Presentations and Abstracts (underlined names represent students or post-docs):*

- 1) Song, H., **McNeal, K.S.**, Beckingham, L., Solomon J. 2023. Continuing Evaluation of Undergraduate Engineering Students' Perspectives on Renewable Energy: A Two-Year Study American Geophysical Union Annual Meeting (San Francisco, CA)
- 2) Brown, J., **McNeal, K.**, Chandler, M., Zhou, J. Evaluating the usability of the EZGCM toolkit and it's impact on undergraduate student's understanding of the climate modeling process and climate science. Poster session presented at: Ninth Annual Earth Educators Rendezvous, July 2024, Pasadena, CA. (10% Contribution)
- 3) Solomon, J., Beckingham, L., **McNeal, K.S.**, Song, H. (2022). Building High-Level Environmental Behavior into HBCU Engineering, ASEE Conference Proceedings.
- 4) Mikulak H. and **K. McNeal** 2023. Factors Influencing Sense of Belonging During Undergraduate Atmospheric Science Studies. Presented at: *European Science Education Research Association Summer School*, July 2023, Neustadt an der Weinstrasse, Germany.
- 5) Cashwell, H.J., **McNeal, K.S.** (2023) *Implementation of a Climate Decision Support System in an Undergraduate Weather and Climate Classroom*. Poster presentation at the 2023 Earth Educators' Rendezvous, Pasadena, CA.
- 6) Cashwell, H.J., Dello, K.D., Runkle, J., **McNeal, K.S.**, Ward, R. (2023) *Enhancing Climate Resiliency and Literacy of a Frontline Community in Rural North Carolina*. Oral presentation at the American Meteorological Society Annual Meeting, Denver, Colorado.
- 7) Cashwell, H.J., Dello, K.D., Runkle, J., **McNeal, K.S.**, Ward, R. 2023. Enhancing Climate Resiliency and Literacy of a Frontline Community in Rural North Carolina. American Meteorological Society Annual Meeting, Denver, Colorado.
- 8) Mikulak, H. and **McNeal, K.S.**, 2023. Sense of Belonging During Undergraduate Studies in Atmospheric Science and the Influence on Career Goals. American Meteorological Society Annual Meeting, Denver, Colorado.
- 9) Soltis, N. and **McNeal, K.S.**, 2022. Connecting Undergraduate Conceptions of Biogeochemical Cycles to Earth Systems Thinking Skills. American Geophysical Union Fall Meeting, Dec 12-16.
- 10) Johnson, E., Burmeister, K., Georgios, S., McNeal, K.S., 2022. The Effects of 3d Geologic Block Models on Student Understanding of Spatial and Structural Geology Concepts: Comparing Digital and Physical Modalities. American Geophysical Union Fall Meeting, Dec 12-16.
- 11) Song, H., **McNeal, K.**, Beckingham, L., Solomon, J., Lazar, K. 2022. Developing a Broad Measure of Undergraduate Students' Sustainability and Renewable Energy Knowledge and Perspectives. American Geophysical Union Fall Meeting, Dec 12-16.
- 12) Smith, T. and **McNeal K.S.**, 2022. Assessing the Motivations, Benefits, and Barriers of Implementing Virtual Field Experiences. Geological Society of America *Abstracts with Programs*. Oct. 9-12.

- 13) Smith, T., Cain, C., Ashwood, L., Lee, M.K., **McNeal, K.S.** 2022. Assessing the Source, Distribution and Attenuation of Radon Contamination in Fractured Groundwater Aquifers. Geological Society of America *Abstracts with Programs*. Oct. 9-12.
- 14) Courtney, S. and **McNeal, K.S.** 2022. Just trust me: Undergraduates' perceptions of climate science and scientists. *Earth Educator's Rendezvous*. July 11-15.
- 15) Cashwell, H.J., **McNeal, K.S.**, Dello, K., Boyles, R., Davis, C. 2022. *User Engagement Testing with a Pilot Decision Support Tool Aimed to Support Species Managers*. Oral presentation at the American Meteorological Society Annual Meeting, Virtual Meeting.
- 16) Courtney, S., Hyman, A., **McNeal, K.**, Armsworth, P. & Maudlin, L. 2022. *How science becomes action: Measuring applications of climate adaptation research*. American Meteorological Society 17th Symposium on Societal Applications: Policy, Research, and Practice, Virtual Meeting, January 24-27.
- 17) **McNeal, K.S.**, Benitez-Nelson, C., Jones, J. 2021. *Supporting Underrepresented Undergraduate Students in the Geosciences Through Partnerships Between University Housing and Academics*. In Geological Society of America Southeast Regional Meeting, Virtual Meeting, April 1-2.
- 18) Johnson, E.T., Pitre, M., Maudlin, L., Mitra, C., **McNeal, K.** 2021. The Ecosystem Services of Greenspaces in the Southeastern United States. In Geological Society of America Southeast Regional Meeting, Virtual Meeting, April 1-2.
- 19) Smith, T.G., **McNeal, K.S.**, 2021. Outdoor activities during COVID-19 and their connection to environmental risk perception (ERP). In Geological Society of America Southeast Regional Meeting, Virtual Meeting, April 1-2.
- 20) Courtney, S., **McNeal, K.**, Hyman, A., Armsworth, P. & Maudlin, L. 2021. *Climate adaptation science to action: Measuring use of CASC-funded research*. In Geological Society of America Southeast Regional Meeting, Virtual Meeting, April 1-2.
- 21) Courtney, S., **McNeal, K.**, Hyman, A., Armsworth, P. & Maudlin, L. 2021. *Measuring the Use of Actionable Science for Natural and Cultural Resource Management*. American Meteorological Society 16th Symposium on Societal Applications: Policy, Research, and Practice, Virtual Meeting, January 9-15.
- 22) Courtney, S., & **McNeal, K.** 2021. Gamifying climate change communication, action, and justice for public audiences. American Meteorological Society 30th Conference on Education, Virtual Meeting, January 9-15.
- 23) Cashwell, H.J., **McNeal, K.S.**, Dello, K., Boyles, R. 2021. User Engagement with a Web-based Decision Support Tool to Support USFWS Scientists' Development of Species Status Assessments. In Geological Society of America Southeast Regional Meeting, Virtual Meeting, April 1-2.
- 24) Cashwell, H.J., **McNeal, K.S.**, Dello, K., Boyles, R. 2021. An Evaluation of Species Status Assessments: Discovering Climate Information Themes, Understanding USFWS Scientists' Climate Information Needs, and User Engagement with a Web-based Decision Support Tool. In American Meteorological Society Annual Meeting, Virtual Meeting, January 9-15.
- 25) Johnson, E.T. and **McNeal, K.S.** 2020. Exploring the spatial ability of undergraduates and the general public. In 2020 Geological Society of America, October 26-30.
- 26) Maudlin, L.C., **McNeal, K.S.**, Dinon-Aldridge, H., Davis, C., Boyles, R., Atkins, R.: Which User Characteristics Influence the Usability of a Climate Decision Support

- System? American Meteorological Society 30<sup>th</sup> Conference on Education, Virtual. January 2021.
- 27) Maudlin, L.C., **McNeal, K.S.**, Soltis, N.A., Hassol, S.J.: Narrated Animations and Still Frame Figures: A Comparison Study. The Geological Society of America Fluid Earth Science Education, Virtual. October 2020.
  - 28) Maudlin, L.C., **McNeal, K.S.**, Soltis, N.A., Hassol, S.J.: Narrated Animations and Still Frame Figures: When and How Should I Use Them? American Meteorological Society 29<sup>th</sup> Conference on Education, Boston, Massachusetts. January 2020.
  - 29) Hensel, M., Bryan, J., McCarthy, C., **McNeal, K.S.**, Norfles, N., Rath, R., Rooney-Varga, J. N. 2020. How the Simulation-Based Learning Game, *World Climate*, Shapes Climate Change Perspectives Among High School and College Students, Traditionally Under-Represented in STEM Fields. Geological Society of America Meeting.
  - 30) Rooney-Varga, J. Rath, K., McCarthy, K., **McNeal K.S.**, Norfles, N., Hensel, M., Serman, J.D. 2020. Depolarizing climate change communication: A simulation-based experience shifts climate change beliefs and worldview among people who value individualism and social hierarchy. American Geophysical Union Fall Meeting, Dec 1-17.
  - 31) Cashwell, H., **McNeal, K.S.**, Boyles, R., Dello, K. 2020. An Evaluation of Species Status Assessments: Discovering Climate Information Themes, Understanding USFWS Scientists' Climate Information Needs and User Engagement with a Web-based Decision Support Tool. American Geophysical Union Fall Meeting, Dec 1-17.
  - 32) Courtney, S. and **McNeal K.S.** 2019. Seeing is believing: Evidence-based graph design for advancing climate literacy. In 2019 American Geophysical Union Fall Meeting, San Francisco, December 9-13.
  - 33) Jones, W., Benetiz-Nelson, C., **McNeal, K.S.**, 2020. Increasing Undergraduates Participation in the Geosciences through the Partnership of University Housing and Academics. Ocean Sciences Meeting, San Diego, CA. Feb 17-20.
  - 34) Maudlin, L., **McNeal, K.S.**, Hassol, S., Soltis, N. 2020. Narrated Animations and Still Frames: When and how should I use them? 100<sup>th</sup> American Meteorological Society Meeting, Boston, Jan 13-17.
  - 35) Courtney, S. and **McNeal K.S.** 2019. Seeing is believing: Evidence-based graph design for advancing climate literacy. In 2019 American Geophysical Union Fall Meeting, San Francisco, December 9-13.
  - 36) Maudlin, L., and **McNeal, K.S.** 2019. Communicating Global Change through Music. In 2019 American Geophysical Union Fall Meeting, San Francisco, December 9-13.
  - 37) Alwan, A. and **McNeal, K.S.**, 2019. Becoming an African American Geoscientists: A Exploration of Race and Critical Indices on Recruitment and Persistence. Geological Society of America *Abstracts with Programs*. Sept. 22-25.
  - 38) Courtney, S. and **McNeal, K.S.**, 2019. Seeing is Believing: Using Eye-Tracking to Evaluate Climate Change Graph Usability. Geological Society of America *Abstracts with Programs*. Sept. 22-25.
  - 39) Johnson, E.T. and **McNeal, K.S.** 2019. Exploring the Spatial Ability Perceptions of Undergraduate Students Before and After a Spatial Intervention. Geological Society of America *Abstracts with Programs*. Sept. 22-25.
  - 40) Soltis, N.A. and **McNeal, K.S.** 2019. The Underpinnings of Developing an Instrument to Measure Systems Thinking Abilities in the Context of Earth System Science. Geological Society of America *Abstracts with Programs*. Sept. 22-25.

- 41) Johnson, E.T. and **McNeal, K.S.** 2019. Understanding the Effectiveness of The AR Sandbox through Student Experiences. Earth Educator's Rendezvous, Nashville, TN, July 15-19.
- 42) Courtney, S. and **McNeal, K.S.**, 2019. Building Better Graphs for Climate Change Communication: Perceptions of Credibility. Earth Educator's Rendezvous, Nashville, TN, July 15-19.
- 43) Soltis, N.A. and **McNeal, K.S.** 2019. Using Student Drawings of Biogeochemical Cycles to Explore Systems Thinking Abilities. Earth Educator's Rendezvous, Nashville, TN, July 15-19.
- 44) Johnson, E.T. and **McNeal, K.S.** 2019. Training undergraduate students' spatial reasoning ability using the augmented-reality sandbox: Abstract presented at 68th Annual Southeast Section Meeting, GSA, Charleston, South Carolina, March 28-29.
- 45) Maudlin, L., **McNeal, K.S.**, Soltis, N., and Hassol, J. 2019. Narrated Animations or Still Frame Figures: Do Both Formats Produce the Same Results? In 2019 American Meteorological Society Meeting, Phoenix, January 6-10.
- 46) Maudlin, L. and **McNeal, K.S.** 2018. Communicating Global Change through Music: The Affect on Attendee Engagement, Conceptions, Perceptions, and Behaviors. In 2018 American Geophysical Union Fall Meeting, Washington D.C., December 11-15.
- 47) Rooney-Varga J., Norfles, N., Rath, K., **McNeal, K.**, Cahlahan, M., Stilwell, B., Cloran, S. 2018. Interactive simulations and systems thinking to broaden pathways into climate change and sustainability. In 2018 American Geophysical Union Fall Meeting, Washington D.C., December 11-15.
- 48) Courtney, S. and **McNeal, K.S.**, 2018. Building Better Graphs for Climate Change Communication: Evidence from Eye-tracking. In 2018 American Geophysical Union Fall Meeting, Washington D.C., December 11-15.
- 49) **McNeal, K.S.** Zhong, M., Doukolopoulos, L. Soltis, N., Alwan, A. 2018. Measuring Student Engagement in an Active Learning Biology Classroom Using Galvanic Skin Response. AAC&U Transforming STEM Higher Education Conference, Atlanta, GA, Nov. 11-13.
- 50) Anne, G., Curry, R., Briggs, J., Smith, L., **McNeal, K.S.** 2018. Research Experiences for Community College Students: Expanding the Pipeline for 2YC students into Geoscience Programs at 4YCS. Geological Society of America *Abstracts with Programs*. Vol. 50, No. 6.
- 51) **McNeal, K.S.**, Soltis, N., Zhong, M., Doukopoulos, L., Porch, M. Alwan, A. 2018 Using Skin Sensors to Measure Student Engagement in Traditional and Active Learning Classrooms. Geological Society of America *Abstracts with Programs*. Vol. 50, No. 6
- 52) **McNeal, K.S.**, Van Der Hoeven Kraft, K.J., Nagy-Shadman, E.A., Beck, M., Jones, J. P. 2018. A Community Framework for Geoscience Education Research: Research on Geoscience Students' Self-Regulated Learning, Metacognition, and Affect. Geological Society of America *Abstracts with Programs*. Vol. 50, No. 6
- 53) Soltis, N.A., **McNeal, K.S.**, Forbes, C., and Lally, D. 2018. The Relationship between Active Learning, Course Innovation and Teaching Earth System Thinking: A Structural Equation Modeling Approach. Geological Society of America *Abstracts with Programs*. Vol. 50, No. 6
- 54) Lally, D., Forbes, C., **McNeal K.S.**, Soltis, N. 2018. National Survey of Geoscience Teaching Practices 2016: Current Trends in Geoscience Instruction of Scientific



- Modeling and Systems Thinking. Geological Society of America *Abstracts with Programs*. Vol. 50, No. 6
- 55) Beane, R.J., MacDonald, R., **McNeal, K.S.** 2018. National Geoscience Faculty Survey Results on Education Practices that Support Diversity and Inclusion in Undergraduate Courses. Geological Society of America *Abstracts with Programs*. Vol. 50, No. 6
  - 56) Johnson, E. T. and **McNeal, K.S.** 2018. Spatial Thinking in Undergraduates Using the Augmented-Reality Sandbox. Geological Society of America *Abstracts with Programs*. Vol. 50, No. 6
  - 57) Courtney, S.L. and **McNeal, K.S.** 2018. Building Better Graphs for Climate Change Communication. Geological Society of America *Abstracts with Programs*. Vol. 50, No. 6
  - 58) **McNeal, K.S.** 2018. Exploring the Applications of Eyetracking and Skin Biosensors in Geoscience Education. CIRCLE Conference, St Louis, MO. Sept. 6-7.
  - 59) Courtney, S., **McNeal, K.S.** 2018 Undergraduate perceptions of climate change. Earth Educator's Rendezvous, Lawrence, KS, July 16-20.
  - 60) Morrison, A., Kay, J. Gold, A., **McNeal, K.S.**, Soltis, N. 2018. Using Galvanic Skin Sensors to Measure Engagement and Learning Outcomes During Teacher Workshops and Undergraduate Classes about Climate Science Earth Educator's Rendezvous, Lawrence, KS, July 16-20.
  - 61) Lally, D., Forbes, C., **McNeal, K.** 2018. National Survey of Geoscience Teaching Practices 2016: Current Trends in Geoscience Instruction of Scientific Modeling and Systems Thinking. Earth Educator's Rendezvous, Lawrence, KS, July 16-20.
  - 62) **McNeal, K.S.**, Zhong, M., Doukopoulos, L., Soltis, N., Alwan, A. 2018. Measuring student engagement in an active learning biology classroom using galvanic skin response. AAC&U's *Transforming STEM Higher Education* conference November 8-10, Atlanta, GA.
  - 63) Johnson, E., **McNeal, K.S.** 2018 The Effectiveness of the Augmented Reality Sandbox for Improving Spatial Thinking in Undergraduates. Earth Educator's Rendezvous, Lawrence, KS, July 16-20.
  - 64) Soltis N., **McNeal, K.S.** 2018 Understanding Undergraduate Student Conceptions about Biogeochemical Cycles and the Earth System. Earth Educators' Rendezvous, Lawrence, KS, July 16-20.
  - 65) Soltis, N., **McNeal, K.S.**, Atkins, R., Maudlin, L., Schnittka, C. 2018. Understanding Student Engagement while Using an Augmented Reality Sandbox in National Association for Research on Science Teaching, Atlanta, GA, March 10-13.
  - 66) Maudlin, L.C., **McNeal, K.S.**, Dinon-Aldridge, H., Davis, C., Boyles, R., Atkins, R. 2018. Does user experience determine user success with a climate decision support system? Earth Educators Rendezvous, Lawrence, Kansas. July 16-20.
  - 67) **McNeal, K.S.**, Luginbuhl, S., Ngo, A. What are the Best Practices of Using to Twitter in Climate Change Communication?: A Case Study of Two Climate Related Events. In 2017 American Geophysical Union Fall Meeting, New Orleans, December 11-15. (INVITED)
  - 68) Libarkin, J.L., Gold, A.U., Harris, S.E., **McNeal, K.S.**, Bowles, R. 2017. Relating Understanding and Risk Perception with a Validated Measure of Climate Change Conceptions. In 2017 Geological Society of America GSA, Seattle, Oct. 22-25. (INVITED)
  - 69) Atkins, R.M. and **McNeal, K.S.** 2017. Visualizing Student Navigation of Geologic Block Diagrams. In 2017 Geological Society of America GSA, Seattle, Oct. 22-25.

- 70) Ryker, K., McNeal, K.S., Giorgis, S., Whitmeyer, S.J., LaDue, N., Atkins, R.M., Clark, C.M. 2017. In 2017 Geological Society of America GSA, Seattle, Oct. 22-25.
- 71) Soltis, N.A., **McNeal, K.S.**, Atkins, R.M., Maudlin, L.C. 2017. Understanding Student Engagement While Using an Augmented Reality Sandbox. In 2017 Geological Society of America GSA, Seattle, Oct. 22-25.
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- 99) Ellins, K.K, Lookwood, J., Mote, A., Haddad, N., Ledley, T.S., Lynds, S., **McNeal, K.S.**, Libarkin, J. 2014. Earthlabs Climate Detectives: Curriculum Based on IODP Expedition 341 on the Joides Resolution. In 2014 American Geophysical Union Fall Meeting, San Francisco, December 15-19.
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- 106) Burke, R., McKinley, R., Parsons, M., **McNeal, K.**, and Martin, J. 2014. Sediment Pore Water Concentrations in Old Tampa Bay as Determined by the Diffusive Equilibration in Thin Films (DET) Technique The Joint Aquatic Sciences Meeting, Portland, OR, May 18-23.
- 107) Geroux, J., **McNeal, K.S.**, Templeton, C., Schmitz, D., 2014. In-Situ Polyacrylamide Gels to Ex-Situ Microelectrodes and Centrifugation Colorimetric measures; A comparison of Porewater Analysis Methodologies. AAPG ACE 2014, Houston, TX April 6-9.
- 108) **McNeal, K.S.**, Tipton, J. 2013. Optimizing the Affective Domain during Teaching and Learning about Climate Change in an Undergraduate Geology Course. In 2013 Geological Society of America GSA, Denver, Oct. 27-30, *Abstracts with Programs*, Vol. 45, No. 7, p. 729.
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- 110) Radencic, S.P., **McNeal, K.S.**, Hare, R.D. 2013. Evaluating Graduate Student Communication of STEM Science in 7<sup>th</sup>-12<sup>th</sup> Grade Classrooms. . In 2013 Geological Society of America GSA, Denver, Oct. 27-30, *Abstracts with Programs*, Vol. 45, No. 7, p. 283.
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  - 112) St. John, K. Dickerson, D., **McNeal, K.S.** 2013. Guide to Aspiring Authors: Getting Started in Geoscience Education Scholarship and JGE Publication. In 2013 Geological Society of America GSA, Denver, Oct. 27-30, *Abstracts with Programs*, Vol. 45, No. 7, p. 871.
  - 113) Ellins K., Ledley, T.S., Haddad, N., **McNeal, K.S.**, Gold, A., Lynds, S. Libarkin, J. 2013. EarthLabs Workshops: Increasing Teachers' Understanding and Ability to Teach Climate Science. In 2013 Geological Society of America GSA, Denver, Oct. 27-30, *Abstracts with Programs*, Vol. 45, No. 7, p. 502.
  - 114) Lynds, S.E., Gold, A. U., **McNeal, K.S.**, Libarkiin, J.C., Buhr, S.M., Ledley, T.S., Haadad, N., Ellins, K.K. 2013. Investigating Climate Science Misconceptions Using a Teacher Professional Development Workshop Registration Survey. In 2013 American Geophysical Union, ED33A-0766, San Francisco, December 9-13.
  - 115) **McNeal, K.S.**, Libarkin, J., Ellins K., Haddad, N., Ledley, T.S., Gold, A., Lynds, S., Dunlap, C., Bardar, E. Youngman, B. 2013. . In 2013 American Geophysical Union, Abstract ED31DA-06, San Francisco, December 9-13.
  - 116) **McNeal, K.S.**, Guthrie, C.L., and Mishra, D. 2013 Sedimentary Biogeochemical Indicators for Assessing the Impacts of the Deepwater Horizon Blowout on Coastal Wetlands. In 2013 American Geophysical Union Meeting of the Americas, Abstract B41A-01, Cancun, May 14-17. [INVITED]
  - 117) Radencic, S. and **McNeal, K.S.** 2013 Evaluation Earth and Space Sciences STEM Communication in 7<sup>th</sup>-12<sup>th</sup> Grade Rural Mississippi Classrooms and Resulting Student Attitudes. In 2013 American Geophysical Union Meeting of the Americas, Abstract ED43A-05, Cancun, May 14-17.
  - 118) Carroll, F.J., **McNeal, K.S.**, Hammerman, J., Christiansen, J. 2013 Climate Literacy Partnership in the Southeast (CLiPSE): A Focus on Climate Change-related Dialogs with Faith-based groups as a form of Network Building in the Southeastern US– Lessons Learned. In 2013 American Geophysical Union Meeting of the Americas, Abstract GC51A-04, Cancun, May 14-17.
  - 119) Haddad, N. Ledley, T.S., Dunlap, C., Bardar, E. Youngman, B., Ellins, K., **McNeal K.S.**, Libarkin J.L. 2012 Climate Literacy: Supporting Teacher Professional Development. In 2012 American Geophysical Union Fall Meeting, Abstract ED23A-0734, San Francisco, December 3-7.
  - 120) Radencic, S.P., **McNeal, K.S.**, Pierce, D.M. 2012 Initiating New Science Partnerships in Rural Education (INSPIRE) Bringing STEM Research to 7<sup>th</sup>-12<sup>th</sup> Grade Science and Math Classrooms. In 2012 American Geophysical Union Fall Meeting, Abstract ED21E-04, San Francisco, December 3-7.
  - 121) Guthrie, C. L., **McNeal, K. S.**, Mishra D. R., Blakeney, G. A. 2012 Salt Marsh Sediment Biogeochemical Response to the Deep Water Horizon BP Oil Spill (Skiff Island, LA, and Cat Island, Marsh Point, and Salt Pan Island, MS). In 2012

- American Geophysical Union Fall Meeting, Abstract B21A-0338, San Francisco, December 3-7.
- 122) Wright K., **McNeal, K.S.**, Han, F.X. 2012. Mn-Oxidizing Bacteria in Oak Ridge, TN and the Potential for Mercury Remediation. In 2012 American Geophysical Union Fall Meeting, Abstract H42F-06, San Francisco, December 3-7.
  - 123) **McNeal, K.S.** 2012 Addressing Value and Belief Systems on Climate Literacy in the Southeastern United States. In 2012 American Geophysical Union Fall Meeting, Abstract ED11E-06, San Francisco, December 3-7. [INVITED]
  - 124) Geroux, J., **McNeal, K.S.** An Assessment of 6<sup>th</sup> -12<sup>th</sup> Grade Climate and Energy Standards in the Southeast United States. 2012. Association of Environmental and Engineering Geologists (AEG) 55<sup>th</sup> Annual Meeting, Salt Lake City, Utah, September 17-22.
  - 125) Anderson, E. L., **McNeal, K. S.**, Parsons, M., Ortega-Archuy, S. Templeton, C. Blakeney, G. A., and Geroux, J. M. 2012. Determining a Proxy for Sediment Oxygen Demand of Coastal Estuaries and the Role of Sedimentary Iron and Sulfur. In 2012 Geological Society of America GSA, Charlotte, Nov. 4-7. *Abstracts with Programs*, Vol. 44, No. 7, p. 519.
  - 126) Guthrie, C. L., **McNeal, K. S.**, Mishra D. R., Blakeney, G. A., Ghosh, S., Downs, C. G. 2012. Temporal Salt Marsh Sediment Response to the Deep Water Horizon BP Oil Spill at Marsh Point, MS. In 2012 Geological Society of America GSA, Charlotte, Nov. 4-7. *Abstracts with Programs*, Vol. 44, No. 7, p. 389.
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  - 128) Libarkin, J.L., **McNeal, K.S.**, Templeton, M.C., 2012. Climate Change Communication: Barriers and Knowing what People Know. In 2012 Geological Society of America GSA, Charlotte, Nov. 4-7. [INVITED]. *Abstracts with Programs*, Vol. 44, No. 7, p. 468.
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  - 130) **McNeal, K.S.**, Libarkin, J.L, Ledley, T.S., Haddad, N., Ellins, K., Bardar, E. 2012 The Role of Research in Online Curriculum Development: The Case of the EarthLabs Climate Change Curriculum. In 2012 Geological Society of America GSA, Charlotte, Nov. 4-7. *Abstracts with Programs*, Vol. 44, No.7, p. 469.
  - 131) Templeton, M.C., **McNeal, K.S.**, Libarkin, J.L. 2011. Misconceptions Surrounding Climate Change: A Review of the Literature. In 2011 American Geophysical Union Fall Meeting, Abstract ED11B-0774, San Francisco, December 5-9.
  - 132) Radencic, S.P., **McNeal, K.S.**, Pierce, D.M., Hare, R.D. 2011. Overcoming Constraints of Building Successful Partnerships Incorporating STEM Research into K-12 Classrooms. In 2011 American Geophysical Union Fall Meeting, Abstract ED51A-0733, San Francisco, December 5-9.
  - 133) Carroll, F.J., **McNeal, K.S.**, Williams, C., Paz, J., Cho, J. Nair, U., Geroux, J., Guthrie, C., Wright, K., and Hill, J. 2011. Creating a Library of Climate Change Education Resources for Audiences in the Southeast United States. In 2011 American Geophysical Union Fall Meeting, Abstract ED31A-0742, San Francisco, December 5-9.

- 134) **McNeal, K.S.**, Libarkin, J., Ledley, T., Dutta, S., Templeton, C., Geroux, J., Blakeney, G. 2011. Understanding Student Cognition about Complex Earth System Processes Related to Climate Change. In 2011 American Geophysical Union Fall Meeting, Abstract ED11B-0777, San Francisco, December 5-9.
- 135) Haddad, N. Ledley, T.S., Bardar, E., Dunlap, C., Youngman, B., **McNeal, K.S.**, Libarkin, J. Confronting the Challenges of Climate Literacy at the High School Level. In 2011 American Geophysical Union Fall Meeting, Abstract ED21C-0595, San Francisco, December 5-9.
- 136) Stauffenberg, H.A., **McNeal, K.S.**, Evans, D. 2011. Investigating the Degree of Pyritization and Methylmercury Concentrations of Weeks Bay, Alabama. In 2011 American Geophysical Union Fall Meeting, Abstract B33H-0564, San Francisco, December 5-9.
- 137) Rutherford, D., **McNeal, K.S.**, Smith, B., Nair, U., Hare, D. 2011. Creating a Partnering Community Aimed to Foster Climate Literacy in the Southeastern United States. In 2011 American Geophysical Union Fall Meeting, Abstract ED21B-0584, San Francisco, December 5-9.
- 138) Pierce, D., **McNeal, K.**, and Radencic, S. 2011. Utilizing the Scientist as Teacher Through the Initiating New Science Partnerships in Rural Education (INSPIRE) Program. In 2011 American Geophysical Union Fall Meeting, Abstract ED33A-0775, San Francisco, December 5-9.
- 139) Williams, C. **and McNeal, K.S.** Eye tracking and climate change: How is Climate Literacy Information Processed? In 2011 American Geophysical Union Fall Meeting, Abstract ED11B-0778, San Francisco, December 5-9.
- 140) **McNeal K.S.**, Libarkin, J.L., Ledley, T., Dutta, S., Templeton, M.C., Geroux, J. 2011. Measures of High School Student's Understanding of Temporal and Spatial Thinking Related to Earth System Science. In 2011 Geological Society of America GSA, Minneapolis, Oct. 9- Oct. 12. *Abstracts with Programs*, Vol. 43, No. 5, p. 184.
- 141) Radencic, S., **McNeal, K.S.**, Pierce, D.M. 2011. Enhancing STEM Graduate Student Communication Skills through the Initiating New Science Partnerships in Rural Education (INSPIRE). In 2011 Geological Society of America GSA, Minneapolis, Oct. 9- Oct. 12. *Abstracts with Programs*, Vol. 43, No. 5, p. 570.
- 142) Guthrie, C.L., **McNeal, K.S.**, Rutherford, D., Smith, R., Carroll, J., Hill, J., Geroux, J. 2011. Supporting Climate Literacy in the Southeastern United States through Aligning 6-12 Grade Education Resources with State Standards. In 2011 Geological Society of America GSA, Minneapolis, Oct. 9- Oct. 12. *Abstracts with Programs*, Vol. 43, No. 5, p. 594.
- 143) Cherry, W.B., **McNeal, K.S.**, Schmitz, D., McBryde, W., Burnnett, E., and Irvin, S. 2011. Developing Global Geoscientists: From Poland to Australia. In 2011 Geological Society of America GSA, Minneapolis, Oct. 9- Oct. 12. *Abstracts with Programs*, Vol. 43, No. 5, p. 519.
- 144) Libarkin, J.L., Singer, T., Drost, T., **McNeal, K.**, Ledley, T. Search Efficiency and Usability in an Online Climate Change Curriculum. In 2011 Geological Society of America GSA, Minneapolis, Oct. 9- Oct. 12. *Abstracts with Programs*, Vol. 43, No. 5, p. 535.
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- 148) **McNeal, K.S.**, Libarkin, J., Ledley, T., and Guthrie, C. 2010. High School Students' Understanding of Change over Time and System Complexity: A Focus on the Cryosphere. In 2010 American Geophysical Union Fall Meeting, Section ED12-0659, San Francisco, December 13-1.
- 149) Radencic, S., **McNeal, K.S.** 2010. Expanding Earth and Space Science through the Initiating New Science Partnerships In Rural Education (INSPIRE). In 2010 American Geophysical Union Fall Meeting, Section ED03-0669, San Francisco, December 13-17.
- 150) Ruhs, C.V. and **McNeal, K.S.** 2010. A Novel Method for Analyzing Microbially Affiliated Volatile Organic Compounds in Soil Environments. In 2010 American Geophysical Union Fall Meeting, Section A53C-0261, San Francisco, December 13-17.
- 151) Donna M. Pierce, **K. S. McNeal**, L. M. Bruce, S. H. Harpole, D. W. Schmitz. 2010. INSPIRE: Initiating New Science Partnerships in Rural Education. Bull. Am. Astron. Soc., 42, 37.09.
- 152) Gulich, L., Libarkin, J.C., **McNeal, K.**, Ledley, T. 2010. High School Student Understanding of the Cryosphere. In 2010 Geological Society of America GSA, Denver, Oct. 31- Nov. 3, Abstract 248-25.
- 153) Ledley, T., Barder, E., Haddad, N., and **McNeal, K.S.** 2010. Confronting the Challenges of Teaching Climate Science. 6<sup>th</sup> Quadrennial Conference of the International Geoscience Educators Organisation (IGEO), Johannesburg, South Africa, Aug. 30- Sept. 3.
- 154) Ezell, J.E. and **McNeal, K.S.** 2010. Biogeochemistry of Weeks Bay during bottom water hypoxic and norm-oxic events. Goldschmidt, Knoxville, TN, June 13-18, In 2010 Goldschmidt 20<sup>th</sup> Annual Meeting, Section 16B, Abstract A275.
- 155) Ruhs, C.V., and **McNeal, K.S.**, 2010. Authentic inquiry into gas chromatography for a chemistry laboratory class. Goldschmidt, Knoxville, TN, June 13-18, In 2010 Goldschmidt 20<sup>th</sup> Annual Meeting, Section 21B, Abstract A890.
- 156) Wright, K., **McNeal, K.S.**, and Han, F.X. 2010. Metabolic diversity and identification of soil microbial communities in mercury contaminated soil of Oak Ridge, TN. Goldschmidt, Knoxville, TN, June 13-18, In 2010 Goldschmidt 20<sup>th</sup> Annual Meeting, Section 16E, Abstract A1143.
- 157) Kirkland, B.L., Thibaudeau, G., **McNeal, K.S.**, Sherman-Morris, K., Baghi-Riding, N., Meek, C., Dickerson, O.E., Jennings, M.M., 2010, Human Resources for the Energy Workforce of the Future: Finding the best employees requires addressing diversity now, American Association of Petroleum Geologists, Annual Meeting Abstracts, v. 19.
- 158) Frank, E., **McNeal, K.S.**, Donaldson, J.R., Lawrence A. 2010. The Analysis of a Microbial Mat Profile using three Community Composition Methods: Polymerase Chain Reaction, Community Level Substrate Utilization, and Fatty Acid Methyl Ester. In 2010 Geological Society of America 44<sup>th</sup> Annual North-Central/South-Central Joint Meeting, Section 33, Branson, MI, April 11-13, Abstract 18-16.
- 159) Spry, J., **McNeal, K.S.**, Donaldson, J.R., Lawrence A. 2010. Redox Dynamics and Community Structure in Hypersaline Microbial Mats, San Salvador: Salt Pond, French Pond, Triangle Pond. In 2010 Geological Society of America 44<sup>th</sup> Annual North-Central/South-Central Joint Meeting, Section 33, Branson, MI, April 11-13, Abstract 18-17.



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- 163) Ezell J.E. and **McNeal K.S.** 2009. A diurnal study of the sediment biogeochemistry of Weeks Bay during bottom water hypoxic and norm-oxic events. In 2009 Geological Society of America GSA, Section 116, Portland, Oct. 18-21, *Conference abstracts with programs*, 41(7): pp. 195.
- 164) Corley, M.E., Folk, R.L., Kirkland, B.L., Lynch, F.L., **McNeal, K.S.**, Puckett, M.K., 2009. A New Look at Familiar Environmental: Early Carbonate Precipitates and Biofilms in Hot Springs, Salt Ponds, and Reefs, American Association of Petroleum Geologists, Denver, June 7-10.
- 165) Ledley, T., Libarkin, J., **McNeal, K.**, Ellins, K., Barstow, E., and Comer, C. 2008. AGU. Facilitating Students Understanding Change in the Earth System on Multiple Time Scales. In 2008 American Geophysical Union Fall Meeting, Section ED21B, San Francisco, December 10-14, *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract ED21B-0627.
- 166) Herbert B.E. and **McNeal, K.S.** 2008. Developing Student Understanding of Complex Earth Systems. A Critical Review. In 2008 Joint Meeting of The Geological Society of America, Soil Science Society of America, American Society of Agronomy, Crop Science Society of America, Gulf Coast Association of Geological Societies with the Gulf Coast Section of SEPM, Section T175, Houston, Oct. 5-9, *Conference abstracts with programs*, pp.192.
- 167) Puckett, K., **McNeal, K.S.**, and Kirkland, B.L. 2008. A Biogeochemical Description of Microbial Biofilms from Fowl Cay Reef and Microbial Mats at Salt Pond, the Bahamas. In 2008 Joint Meeting of The Geological Society of America, Soil Science Society of America, American Society of Agronomy, Crop Science Society of America, Gulf Coast Association of Geological Societies with the Gulf Coast Section of SEPM, Section T273, Houston, Oct. 5-9, *Conference abstracts with programs*, pp. 238.
- 168) Radencic, S. and **McNeal, K.S.** 2008. The Use of Internet-Based GIS Resources to Increase Conceptual Understanding of Hydrologic Systems In Low-Income, Middle School Students. In 2008 Joint Meeting of The Geological Society of America, Soil Science Society of America, American Society of Agronomy, Crop Science Society of America, Gulf Coast Association of Geological Societies with the Gulf Coast Section of SEPM, Section T175, Houston, Oct. 5-9, *Conference abstracts with programs*, pp.192.
- 169) **McNeal, K.S.**, Brown, M., Rodgers, J., and Sherman-Morris, K. 2008. The Use of Technologies to Foster On-Line Learning Communities in the Geosciences. In

- 2008 Geological Society of America Fall Meeting Southeastern Section Spring Meeting, Section T10, Charlotte, April 10-12, *Conference abstracts with programs 40(4): pp. 45.*
- 170) **McNeal, K.S.**, Vasquez, Y., Alvandano, C., Moreno, C., Besnaiz, J. 2007. At-Risk and Bilingual Fifth-Grade Students' On-Task Behavior and Conceptual Understanding in Earth Science-Related Topics during Inquiry-, Technology-, and Game-Based Activities. In 2007 American Geophysical Union Fall Meeting, Section ED23B, San Francisco, December 10-14, *Eos Trans. AGU, 87(53)*, Fall Meet. Suppl., Abstract ED23B-1293.
  - 171) **McNeal, K.S.** and Herbert, B.H. 2007. Volatile Organic Metabolites as Indicators of Soil Microbial Community Structure and Activity. In 2007 Soil Science Society of America, American Society of Agronomy, Crop Science Society of America Annual Meeting, Section 188, New Orleans, November 4-8, *Annual meetings abstracts [CD-ROM] ASA-CSSA-SSSA.*
  - 172) Herbert, B.E. and **McNeal, K.S.** 2006. Following The Money: Characterizing the Dynamics of Microbial Ecosystems and Labile Organic Matter in Grassland Soils. In 2006 American Geophysical Union Fall Meeting, Section B-09, San Francisco, December 11-15, *Eos Trans. AGU, 87(52)*, Fall Meet. Suppl., Abstract B52A-02.
  - 173) **McNeal K.S.**, and Herbert B.E. 2006. Volatile Organic Carbon Metabolites as Indicators of Soil Microbial Community Shift in Microcosm Studies. In 2006 Geological Society of America Fall Meeting, Section T51, Philadelphia, November 22-25, *Conference abstracts with programs 38(7): pp.29.*
  - 174) Miller H.R., **McNeal K.S.** and Herbert B.H. 2006. Transfer of Geoscience Field Research at Laguna Atascosa National Wildlife Refuge through Authentic Inquiry in the Science Classroom. In 2006 Geological Society of America Fall Meeting, Section T51, Philadelphia, November 22-25, *Conference abstracts with programs 38(7): pp. 361.*
  - 175) **McNeal K.S.**, Stuessy, C.S, Simanek E., Herbert B.E. 2006. The GK12 Experience in the Fifth Grade Classroom with At-Risk Students: The Benefits and Challenges. In 2006 Geological Society of America Fall Meeting, Section T51, Philadelphia, November 22-25, *Conference abstracts with programs 38(7): pp.158.*
  - 176) **Sell K.S.** 2006. How do ITS Participants Adapt Their Authentic Science Experiences to Their Planned Classroom Instructional Frameworks? In 2006 American Education Research Association Spring Meeting, Section 26.085, San Francisco, April 8-12, *Annual meeting program and supplement, pp. 130.*
  - 177) **Sell K.S.**, Peschel J., Simmons M., and Herbert B. 2005. IT-Supported Authentic Inquiry in Undergraduate Science and Engineering Education. In 2005 American Geophysical Union Fall Meeting, Section ED-53A, San Francisco, December 5-9, *Eos Trans. AGU, 86(52)*, Fall Meet. Suppl., Abstract ED53A-0334.
  - 178) **Sell K.S.**, Miller H.R., Herbert B.E. 2004. The use of Multiple Representations to Enhance Student Mental Model Development of a Complex Earth System in an Introductory Geoscience Course. In 2004 American Geophysical Union Fall Meeting, Section ED-41A, San Francisco, December 14-17, *Eos Trans. AGU, 85(47)*, Fall Meet. Suppl., Abstract ED41A-0248.
  - 179) Miller H.R., **Sell K.S.**, Hebert B.E. 2004. Influences of Learning Environment Characteristics on Student Learning During Authentic Science Inquiry in an Introductory Physical Geology Course. In 2004 American Geophysical Union Fall Meeting, Section ED-41A, San Francisco, December 14-17, *Eos Trans. AGU, 85(47)*, Fall Meet. Suppl., Abstract ED41A-0249.

- 180) **Sell K.S.**, B.E. Herbert, J. Schielack, and C. Stuessy 2004. Use of Physical Models and Information Technology to Explore Student Difficulties in Developing Rich Mental Models of Complex Earth & Environmental Systems. In 2004 Geological Society of America Fall Meeting, Section T133, Denver, November 7-10, *Conference abstracts with programs 36(5): pp. 555.*
- 181) **Sell K.S.**, B.E. Herbert, and J. Schielack. 2004. Student Cognitive Difficulties and Mental Model Development of Complex Earth and Environmental Systems. In 2004 American Geophysical Union Spring Meeting, Section ED-31A, Montreal, Canada, May 17-21, *Eos Trans. AGU, 85(17)*, Jt. Assem. Suppl., Abstract ED31A-02.
- 182) **Sell K.S.** and Morse J.W. 2003. Temporal Influences of Seasonal Hypoxia on Sediment Biogeochemistry, In 2003 Geological Society of America Fall meeting, Section 19, Seattle, November 2-5, *Conference abstracts with programs 35(6): pp.83.*
- 183) **Sell K.S.** and Morse J.W. 2003. Temporal Influences of Seasonal Hypoxia on Sediment Biogeochemistry, In 2003 Oceanography International and The Oceanography Society Summer Meeting, New Orleans, June 4-6, *Oceanography 16(2): pp.60.*
- 184) Anderson, E., **McNeal, K.S.**, Parsons, M. Identifying a Proxy for Sediment Oxygen Demand. 2012 Alabama Water Resources Conference, Mobile, AL, Sept. 5-7.
- 185) Stauffenberg, H., **McNeal, K.S.**, Guthrie, C., Evans, D. 2011. Sediment and Mercury analysis in Weeks Bay Alabama and MeHg production potential. 2011 NGI Conference, Mobile, AL, May 17-18.
- 186) Diaz-Ramirez, J., McAnally, W., Martin, J.L., **McNeal, K.**, Ezell, J.E., Sharp, J., and Phipps, S. 2010. Assessment of Weeks Bay and Its Watershed, Alabama, 2010 Alabama Water Resources Conference, Auburn University, Sept. 9-10.
- 187) B. L. Kirkland, F. M. Corely, K. Puckett, **K.S. McNeal**, L. Lynch, R. L. Folk, 2009. Nano-scale Nessies and other Serendipitous Observations (about Calcium Carbonate Precipitation and Organic Matter). College of Arts and Sciences Research Showcase, Mississippi State University, Oct. 21-22.
- 188) B.L. Kirkland, F. L. Lynch, R. L. Folk, A.M. Lawrence, M. Corely, K. Puckett, and **K.S. McNeal**. 2008. Nannobacteria, Organic Matter, and Precipitation in Hot Springs, Reefs, and Tidal Flats: serendipitous science and real implications. Bio Inspired Design Conference, Mississippi State University, August 19-22.
- 189) Metoyer S. and **Sell K.S.** 2006. Authentic Science Inquiry Lessons; Tested, Approved, and "Good to Go". In 2006 Conference for Advancement of Science Teachers Fall Meeting, November 9-11.
- 190) McCarthy, M.J., Gardner W.S., **Sell K.S.** and Morse J.W. 2006. Bottom-water Hypoxia Effects on Sediment-Water Interface Nitrogen Transformations Corpus Christi Bay, Texas, USA. In 2006 Texas Bays and Estuaries Meeting, Port Aransas.
- 191) **Sell K.S.** and Metoyer S. 2005. Influencing Science Teaching Practices Through Authentic Scientific Research Learning: The Water Environment Team. In 2005 School, Science, and Math Association Meeting, Fort Worth, November 10-12.
- 192) **Sell K.S.** and Morse J.W. 2003. Temporal Influences of Seasonal Hypoxia on Sediment Biogeochemistry, Gulf Estuarine Research Symposium, Port Aransas, April 18.
- 193) Beazley M. and **Sell K.S.** 2002. Biogeochemistry of the Deep Gulf of Mexico, The Sixth Annual Symposium of the Geochemistry of the Earth's Surface, Honolulu, University of Hawaii, June 4-6.

**Courses:**

*STEM Studio (ESSI 7200) Graduate Course, Auburn University*  
*Climate Internship (ESSI 7920) Graduate Course, Auburn University*  
*Science Communication (ESSI 7150) Graduate Course, Auburn University*  
*Geocommunication (GEOL 7100) Graduate Course, Auburn University*  
*Climate Change and Society (GEOL 4970/6930)- Graduate/Undergraduate Course, Auburn University*  
*Climate Change Literacy and Communication (GEOL 7286) – Graduate Course, Auburn University*  
*Earth System Science (ESSI 8000) – Graduate Course, Auburn University*  
*Climate Change Communication (MEA 593) – Graduate Course, North Carolina State University*  
*Earth System Science (MEA 100) – Undergraduate Course, North Carolina State University*  
*Global Change and Earth System Science (NSGK 295) – General Science Requirement, North Carolina State University*  
*Environmental Geology (GG 3113) - Geoscience Undergraduate Program, Mississippi State University*  
*Principles of Pedagogical Design with STEM Research Products (GG 6990) – Geoscience Graduate Degree Program, Mississippi State University*  
*Geoscience Education: Theory, Research, and Practice (GG 8990) - Geoscience Graduate Degree Program, Mississippi State University*  
*Biogeochemical Cycles and Processes (GG 8990) – Geoscience Graduate Degree Program, Mississippi State University*  
*Environmental Geosciences (GG 8233) - Teachers in Geoscience Masters Degree Program, Distance Learning Program, Mississippi State University*  
*Ocean Science (GG 8203) - Teachers in Geoscience Masters Degree Program, Distance Learning Program, Mississippi State University*  
*Field Research Methods (GG 8400) - Teachers in Geoscience Masters Degree Program, Distance Learning Program, Mississippi State University*  
*Geology I: Process and Products (GG 8113) - Teachers in Geoscience Masters Degree Program, Distance Learning Program, Mississippi State University*  
*Resources and the Environment (GG 4033/6033) – Geoscience Undergraduate/ Graduate Degree Program, Mississippi State University*

**Professional Affiliations:**

National Association of Geoscience Teachers  
American Association of University Professors

**Professional Service:*****Professional Organization Positions Held***

2018-2019	Past-President NAGT, Geoscience Education Research Division
2017-2018	President NAGT, Geoscience Education Research Division
2016-2017	Vice-President NAGT, Geoscience Education Research Division
2015-2019	Associate Editor, <i>Journal of Geoscience Education</i>
2010-2014	Editor for Research, <i>Journal of Geoscience Education</i>
2009-2010	Associate Editor, <i>Journal of Geoscience Education</i>

*Journal/Book/International Thesis Reviews*

Climatic Change  
Studies in Science Education  
Journal of Research in Science Teaching  
The Anthropocene Review  
Norton & Company  
McGill University  
PLOS ONE  
Geosphere  
NSTA Press  
Pearson, Inc.  
International Journal of Science Education  
Biogeosciences  
Geological Society of America Special Paper  
Bioresources Technology  
Soil Science Society of America  
Journal of Geoscience Education  
Limnology & Oceanography  
Journal of Geography in Higher Education  
Science of the Total Environment

#### *Proposal Reviews*

NSF Proposal Panelist (8 different programs)  
NOAA Proposal Panelist, Coastal Hypoxia Program  
Research Initiative Program, Mississippi State University

#### *Other*

##### **Auburn University (2016-present)**

- Executive Committee Member, AAUP, Auburn University Chapter (2022-present)
- Committee Chair, Geosciences Advisory Committee (2018-Present)
- Curriculum/Student Enhancement Task Force Lead, Department of Geosciences (2019-present)
- Member, COSAM Curriculum Committee (2020-Present)
- Member, COSAM College P&T Committee (2020-2022)
- Co-Organizer, Climate Symposium and Teach-in (2022)
- Earth Day Outreach Event Co-Organizer (2021, 2022)
- Member, Geoscience Chair 4-year review committee (2021)
- Member, QEP Implementation Committee (2021)
- Member, Geophysics Search Committee, (2021-2022)
- Committee Chair, Geosciences Paleoclimate Search Committee (2020-2021)
- Member, COSAM Dean's Search Committee (2020-2022)
- Member, Senate Core Curriculum and General Education Committee, Auburn University (2019-2022)
- Panelist, Sustainability Film From Paris to Pittsburg (Fall 2019)
- Faculty Mentor, NFS, Auburn University (2018-2020)
- Faculty Hiring Task Force Lead, Department of Geoscience (2019)
- Search Committee Chair, Organic Biogeochemistry Faculty Search (2018-2019)
- Committee Chair, College of Science and Mathematics, Discipline Based Education Research Faculty Hiring Committee, Auburn University (2017-2018, 2018-2019)
- Committee Member, Applied Geochemistry Lecturer Search (2018-2019)

- Speaker, COSAM Science Night, June 21 (2018)
- Presenter, COSAM Summer Bridge Program (2018, 2019, 2022)
- Member, University Faculty Advisory Committee to ACLC Building Design and Faculty PD
- Volunteer, Destination STEM, Department of Geosciences (2017, 2019)
- Roundtable co-Convener, Faculty Research Day, Auburn University (2017)
- Member, College of Science and Mathematics, College IT Director position (2017)
- Member, College of Science and Mathematics, Discipline Based Education Research Faculty Hiring Committee, Auburn University (2016-2017)
- Faculty Volunteer, SWISM (Society of Women in Science and Math Annual meeting) (2017)
- Guest Lecturer: Sustainability 101 (2017, 2018, 2019, 2021), Business Sustainability (2019), Environmental Geochemistry (2019), Earth System Science (2019, 2020, 2021, 2022), ESS Seminar (2019, 2022)

### **North Carolina State University (2013-2016)**

- Panelist, ClimateAction Pack Day, 11/13/2015
- Member, MEAS graduate program, undergraduate curriculum, Teaching Assistant Assignment, Faculty Affairs, Marine Microbiology search, and MEA 100 re-development committees
- Interviewer, Professional Development Unit, Grant Coordinator Position, 2015
- MEAS Faculty Participant, NC State Building Future Faculty Program (2014-2016)
- Presenter, Eyes Don't Lie: Role of Eye-Tracking in the Arts and Sciences, Retired Faculty Association, North Carolina State University, February 18<sup>th</sup>, 2014
- Presenter, MEAS Department, Opportunities for Enhancing Diversity in Geosciences Program, High school student laboratory tours
- Member, College of Science, Flipped Classroom Committee, North Carolina State University
- Presenter, MEAS departmental 5-year review, November, 2015
- Presenter, NC State History Weekend Climate Change Library Reading, April, 9<sup>th</sup>, 2015
- Faculty participant, MEAS new student orientation (2014)

### **Mississippi State University (2007-2013)**

- GIS Day Co-organizer, Mississippi State University (2010-2013)
- Panelist, Research Initiative Program, Mississippi State University (2008)
- Advisory Board to the Dean, Assistant to the Dean Search, College of Arts and Sciences, Mississippi State University (2011)
- Co-sponsor Geosciences Club, Mississippi State University (2007-2009)
- Co-sponsor MSU Upsilon Chapter, Sigma Gamma Epsilon (2007-2009)
- Geological Society of America, Campus Representative, Mississippi State University (2008-2013)
- Guest Speaker, Women in Science and Engineering Student Group, Mississippi State University (2012-2013)

### **Professional Service off campus:**

- Consultant, Polar PASS, University of Colorado- Boulder, External Evaluator (2022-2024)
- Consultant, Norton Inc. (2020, 2022)

- Faculty Tenure and Promotion External Evaluator (5+ letters, 2018-2022)
- Co-Technical Chair, Southeast Geological Society of America Meeting, Auburn University, April 1-2 (2021)
- Former Vice President & President/Current Past-President for the Geoscience Education Research Division of the NAGT (2016-2019)
- Associate Editor/Editor for Research, Journal of Geoscience Education (2009-2019)
- NAGT James Shea Award Committee Member (2011-2019)
- Committee Member, NAGT Teacher Education Division (TED) election board (2014-2019)
- Co-Convener, Session T190. Making Sense of Methodologies and Theoretical Frameworks in Geoscience Education Research, Geological Society of America (2017, 2018, 2019)
- Co-Convener, Geoscience Education Research Community Planning Workshop, Earth Educator's Rendezvous, July 18-22 (2016)
- Co-Convener, Geoscience Education Research Community Planning Workshop, Earth Educator's Rendezvous, July 16-21 (2017)
- Co-Convener, Session T113. Geoscience Education Research: Implications for Undergraduate Geoscience Teaching and Learning, Geological Society of America (2017)
- Co-Editor, Synthesizing Results and Defining Future Directions of Geoscience Education Research, Journal of Geoscience Education (2017)
- Convener, Roundtable Geoscience education faculty tenure and promotion, Earth Educator's Rendezvous (2017)
- Co-Editor, Climate Change Literacy Special Issue, Journal of Geoscience Education (2013)
- Co-Convener, Session ED21D, Understanding Learning Processes in Geoscience Classrooms: New Tools and Insights Posters, American Geophysical Union, Dec. 13-18 San Francisco, CA, 2015.
- Panelist and Campus Faculty Liaison, PROGRESS (Promoting Geoscience Research, Education and Success Workshop) (2015-2016)
- Co-Convener, Synthesizing Geoscience Education Research: Where are we? What is the path forward? Earth Educator's Rendezvous, July 13-15 (2015)
- Co-Presenter at Hunter GT/AIG Magnet Elementary Science Night, Raleigh, NC (April, 2014)
- Co-Presenter, NC State History Weekend Climate Change Library Reading, West Library, Cary, April, 9<sup>th</sup> (2015)
- External reviewer for faculty promotion & tenure application (2014)
- Committee Member, Coasts, Oceans, Ports, and Rivers Institute (COPRI) Navigation (2011)
- AAAS, Invited Meeting Panelist, NSF GK12 Annual PI Meeting (2010)
- Consultant, *Shaping the Future of Geoscience Education Research: Synthesizing Results and Articulating Future Directions*, National Science Foundation, PI: Heather McDonald (2015-2016)
- Consultant, *Developing and Testing Materials to Improve Spatial Skills in Upper Division Geoscience Courses-TUES Type I*. 06/01/11-05/31/14, National Science Foundation, Division of Undergraduate Education (PI Carol Ormand) (2011-2014)
- Consultant/Co-PI, *Hazards TEAMS Teacher Education & Activities for Minority Students in the Meteorological, Geologic, and Hydrologic Hazards. Track 1.*

- 09/01/11-08/31/14, National Science Foundation, OEDG Program, Mississippi State University (PI Kathy Sherman-Morris) (2013-2015)
- Consultant/Former PI, *GK12: Initiating New Science Partnerships in Rural Education (INSPIRE)*, National Science Foundation (NSF), Graduate K-12 Program, Mississippi State University (PI Darrel Schmitz) (2013-2015)
  - Consultant, *REU Site: Field Research on Bahamian Lakes-Exploring Records of Anthropogenic and Climate Change*, 01/01/09-12/31/012, National Science Foundation (NSF), Akron University (PI Lisa Park) (2009-2010)
  - Consultant, *Facilitating Student Understanding of Change in the Earth System on Multiple Time Scales*, National Science Foundation (NSF), Geoscience Education Division, 09/2008-08/2010, TERC (PI Tamara Ledley) (2008-2010)
  - Co-Convener, Session T116, "Climate Literacy: Research and Results from Informal and Formal Education Efforts", Geological Society of America, Denver, CO, Oct. 27-30 (2014).
  - Co-Convener, Session T136, "Training, Assessment, and Outreach that Enhance Communication of Geosciences for Formal and Informal Audiences", Geological Society of America, Denver, CO, Oct. 27-30 (2013).
  - Co-Convener, Session ED14A, "Climate Literacy: Achieving Widespread Climate Literacy Through Innovative Engagement Strategies, Effective Partnerships, and Large-Scale Networks II" American Geophysical Union, Dec. 5-9, San Francisco, CA. (2012).
  - Co-Convener, Session ED31D, "Climate Literacy: Barriers, Misconceptions, and Progress in Improving Climate Literacy I" American Geophysical Union, Dec. 5-9, San Francisco, CA. (2012).
  - Co-Convener, Session T71, "Climate Literacy: Research and Evaluation Outcomes from Informal and Formal Climate Education Efforts", Geological Society of America, Nov. 4-7, Charlotte, NC (2012).
  - Co-Convener, Session ED12B, Climate Literacy: Evidence From Research and Evaluation on Effectiveness of Interdisciplinary Programs I, American Geophysical Union, Dec. 3-7, San Francisco, CA (2012).
  - Co-Convener, Session ED32A, Climate Literacy: Reaching Diverse Audiences Through Informal Education Experiences, Public Outreach, and Community Programs II, American Geophysical Union, Dec. 3-7, San Francisco, CA (2012).
  - Co-Convener, Session ED09, "Climate Literacy: Addressing the Barriers to Climate Literacy - What Does the Research Tell Us?", American Geophysical Union, Dec. 5-9, San Francisco, CA. (2011).
  - Co-Convener, AEG Teacher Training Workshop, New Orleans, (2008).
  - Co-Convener, Session T175, "Teaching and Learning about Complex Earth Systems: Effective Strategies in Undergraduate Classrooms and Teacher Development Programs", Geological Society of America Joint Meeting, Oct 5-9, Houston, TX, (2008).

**Certificates:**

2010-present	Responsible Conduct of Research Certified
2007-present	Human Subjects Research CITI Certified
2007-2013	Mississippi State Hazardous Waste Safety Certified
2007-2013	Mississippi State Laboratory Safety Certified
2008	Perkin Elmer Gas Chromatography Mass Spectrometry Operator Training Course



2004	Information Technology in Science Center for Teaching & Learning, two-year program certification
2002-present	Scientific diving, American Academy of Underwater Scientists certified
2002-present	Advanced open water SCUBA, PADI certified
1997-present	Open water SCUBA, PADI certified

**Students/Post-Docs Advised:** \*=major advisor/co-chair \*\*= committee member/minor professor \*\*\*=external Reader

*Post-Docs (2)*

Dr. Ritayan Mitra (NCSU)\*

Dr. Lindsay Maudlin (Auburn)\*

*Doctoral Degree Students-Graduated (21; 4 Chair; 1 Reader)*

Ms. Lindsay Maudlin (Graduated NCSU, Spring 2018, Current Assistant Professor Iowa State University)\*

*Dissertation: An Evaluation of a Climate Decision Support System: An Eye-Tracking Study*

Mr. Nick Soltis (Graduated Auburn, May 2020, Current Assistant Professor, University of Indianapolis)\*

*Dissertation: Exploring and Measuring the Teaching and Development of Earth Systems Thinking Skills in Undergraduate Geoscience Courses*

Ms. Stephanie Courtney (Ms. Stephanie Courtney (Graduated Auburn, August, 2022)\*

*Dissertation: Perception and application of climate science by distinct audiences: Impacts of measurement, attention, and credibility*

Mr. Elijah Johnson (Graduated Auburn, August, 2023)\*

*Dissertation: Expanding the Measurement, Use, and Support of Spatial Reasoning in STEM and Geosciences*

Mr. Robert Thorton (Graduated MSU, Spring 2012)\*\*

Mr. Sachi Mishra (Graduated MSU, Spring 2012)\*\*

Mr. Shankar Ganapathi Shanmugam (Graduated MSU, Spring 2013)\*\*

Mr. Michael Pelch (Graduated NCSU, Spring 2016)\*\*

Ms. LeeAnna Chapman (Graduated NCSU, Spring 2017)\*\*

Mr. Doug Czajka (Graduated NCSU, Spring 2018)\*\*

Mr. Osman Askit (Graduated NCSU, Spring 2018)\*\*

Ms. Amal Alenzi (Graduated Auburn, Spring 2018)\*\*

Ms. Whitney Richardson (Graduated NCSU, Spring 2019)\*\*

Ms. Virginia Rolling (Graduated Auburn, Spring 2019)\*\*\*

Mrs. Sarah Luginbuhl (Graduated NCSU, Summer 2019)\*\*

Ms. Shannon Bales (Graduated Auburn, Spring 2019)\*\*

Ms. Qu Qui (Graduated Auburn 2021)\*\*

Ms. Katherine Gasaway (Graduated Auburn, Spring 2022)\*\*\*

Ms. Emily Driessen (Graduated Auburn, Spring 2023)\*\*

Ms. Megha Shrestha (Graduated Auburn, Spring 2023)\*\*

Ms. Tingting Qu (Graduated Auburn, Spring 2023)\*\*

*Master Degree Students-Graduated Students (35; 14 Chair)*

Ms. Mary Keith Puckett (Graduated MSU, Fall 2009, Geologist, Nexen, Inc.)\*

*Thesis: Biogeochemistry of Microbial Mats from a Hypersaline Pond and Reef Biofilm from a Modern Coral Reef, The Bahamas*

Ms. Sarah Radencic (Graduated MS MSU, August 2009, Graduated PhD 2016)\*\*

Mr. John Eric Ezell (Graduated MSU, Spring 2010, Teacher, Starkville Academy)\*

- Thesis: The Sediment and Water Column Biogeochemistry of Weeks Bay During Bottom Water Hypoxic and Norm-oxic Events*
- Mr. Chris Ruhs (Graduated MSU, August 2011, Employment Unknown)\*  
*Thesis: Soil-Microbe-Volatile Organic Compound (SMVOC) Analysis and Authentic Science in the Classroom*
- Mr. Henry Stauffenburg (Graduated MSU, August 2012, Field Specialist August Mack Environmental Consulting Inc.)\*  
*Thesis: Degree of Pyritization and Methylmercury Analysis, Weeks Bay, Alabama*
- Ms. Kendra Wright (Graduated MSU, August 2012, Employment Unknown)\*  
*Thesis: Mn-Oxidizing Bacteria and the Potential for Mercury Remediation in Oak Ridge, TN*
- Ms. Calista Guthrie (Graduated MSU, Spring 2013, Environmental Protection Agency, Wetlands Division)\*  
*Thesis: Salt marsh sediment biogeochemical response to the BP Deepwater Horizon blowout (Skiff Island, LA and Cat Island, Marsh Point, and Saltpan Island, MS)*
- Ms. Erin Anderson (Graduated MSU, Summer 2013, Geologist Neel-Schaffer, Inc.)\*  
*Thesis: Identification of Acid Volatile Sulfides as a Predictor of Sediment Oxygen Demand and Comparison of the Degree of Pyritization in Weeks Bay, AL and Old Tampa Bay, FL*
- Mr. Jonathon Geroux (Graduated MSU, Spring 2014, Geophysicist at Geokinetics)\*  
*Thesis: Polyacrylamide Gels, Microelectrodes, and Centrifugation-Colorimetric Measures: A Comparison of Porewater Analysis Methodologies*
- Ms. Rachel Atkins (Graduated NCSU, August 2016, Current NCSU PhD Student)  
*Thesis: An Eye-tracking Study on Expert/Novice Differences During Climate Graph Reading Tasks: Implications for Climate Communication*
- Ms. Stephanie Courtney (Graduated Auburn, May 2019)\*  
*Thesis: Building Better Graphs for Climate Change Communication: Evidence from Eye-tracking*
- Mr. Elijah Johnson (Graduated Auburn, May 2019)\*  
*Thesis: The Effectiveness of the Augmented Reality Sandbox for Improving Spatial Thinking in Undergraduates*
- Ms. Haven Cashwell (Graduated Auburn, May 2021)\*  
*Thesis: Analysis of Climate Information to Support US Fish and Wildlife Service Species Status Assessments: An Eye-Tracking Study*
- Ms. Jena Brown (Graduated Auburn, August 2023)\*  
*Thesis: Evaluating the Three Dimensions of Usability for an Online Climate Modeling Tool: A Produced Eye Tracking Study*
- Ms. Charlotte Buehler (Graduated MSU, Spring 2010)\*\*
- Mr. William Cherry (Graduated MSU, Spring 2012)\*\*
- Ms. Laila Jover (Graduated MSU, Summer 2012)\*\*
- Mr. Adam Lenz (Graduated MSU, Spring 2013)\*\*
- Mr. Assonman Degny (Graduated MSU, Spring 2013)\*\*
- Mr. Corey Ladner (Graduated MSU, Summer 2013)\*\*
- Ms. Hayley Smith (Graduated NCSU, Spring 2014)\*\*
- Mr. Charles Doug Czajka (Graduated NCSU, Spring 2014)\*\*
- Ms. April Grissom (Graduated NCSU, Spring 2014)\*\*
- Mr. Alon Blakeney (Graduated MSU, Fall 2014)\*\*
- Mr. Jason Jones (Graduated NCSU, Spring 2017)\*\*
- Ms. Jessica Atar (Graduated NCSU, Spring 2017)\*\*
- Ms. Robin King (Graduated Auburn, Spring 2019)\*\*
- Ms. Jessica Romaine (Graduated Auburn, Summer 2019)\*\*
- Ms. Sara Odom (Graduated Auburn 2020)\*\*
- Ms. Margaret Hensel (Graduated UMASS-Lowell 2020)\*\*
- Ms. Megha Shrestha (Graduated Auburn 2019)\*\*
- Mr. Todd Lamb (Graduated Auburn 2022)\*\*
- Ms. Hannah Steward (Graduated Auburn 2022)\*\*
- Mr. Brandon Ryan (Graduated Auburn 2022)\*\*

*Doctoral Degree Students-Current Students (9; 4 Chair; 1 Co-Chair)*

Mr. Hang Song (Current Auburn)<sup>+</sup>  
Ms. Haven Cashwell (Current Auburn)<sup>\*</sup>  
Mr. Tyler Smith (Current Auburn)<sup>\*</sup>  
Ms. Jena Brown (Current Auburn)<sup>\*</sup>  
Ms. Haylie Mikaluk (Current Auburn)<sup>\*</sup>  
Mr. Ben Webster (Current Auburn)<sup>\*\*</sup>  
Ms. Sukanya Dasgupta (Current Auburn)<sup>\*\*</sup>  
Ms. Carly Cummings (Current Auburn)<sup>\*\*</sup>

*Master Degree Students-Current Students (1)*

Ms. Bethany Foust (Current Auburn)<sup>\*\*</sup>

*MS-Non-thesis (5)*

Ms. Carly Cummings (Graduated Auburn, May 2022)<sup>\*\*</sup>  
Ms. Joanna Cox (Graduated Auburn, May 2021)<sup>\*\*</sup>  
Ms. Emma Vaters (Graduated Auburn, May 2019)<sup>\*\*</sup>  
Ms. Jessica Ross (Graduated Auburn, August 2019)<sup>\*\*</sup>  
Ms. Joni Lakin (Graduated Auburn, December 2019)<sup>\*\*</sup>

*NCSU Undergraduate Advisees (6)*

Ms. NiKolai Simonsen  
Ms. Morgan Piner  
Ms. Lauren Ball  
Mr. Andrew Lamb  
Mr. Nicholas Lavoie  
Mr. Adam Michalak

*MSU Undergraduate Advisees (22)*

Mr. Samuel Lamar	Mr. John Hickson
Mr. Larry Flippo	Ms. Emilie Kelly
Mr. Mark McDaniel	Mr. John King
Mr. Daniel Merritt	Mr. Kyle Little
Mr. Zachary Poole	Mr. Brandon Moorhead
Mr. Skyler Dowdle	Ms. Katherine Nilsson
Mr. Andrew Harwell	Mr. Ben Northrup
Mr. Joseph Killens	Mr. John Robinson
Mr. David Diduch	Mr. Assonman Degny
Mr. Ian Dufur	Mr. Jason Leist
Mr. Marshall Furrh	Ms. Maria Cade

*MSU TIG Distance Learning Program Graduate Student Advisees (46) – Non-thesis*

Ms. Tracie Schroeder <sup>**</sup>	Ms. Janette Stewart <sup>**</sup>
Ms. Jennifer Haydon <sup>**</sup>	Ms. Cheryl Utech <sup>**</sup>
Mr. Garrett Bostwick <sup>**</sup>	Ms. Kimberly Drake <sup>**</sup>
Mr. Robert Sidebotham <sup>**</sup>	Ms. Stephanie Linders <sup>**</sup>
Mr. Curt Taylor <sup>**</sup>	Ms. Julian Carroll <sup>**</sup>
Mr. Eric Stauffer <sup>**</sup>	Ms. Megan Cordes <sup>**</sup>
Ms. Shannon Wright-Sahabi <sup>**</sup>	Mr. Christopher Etherington <sup>**</sup>

Ms. Katia Etherington\*\*  
Mr. Matthew Farrer\*\*  
Mr. David Moyer\*\*  
Mr. Matthew Olsen\*\*  
Mr. Trevor Oystriick\*\*  
Mr. Jason Plawa\*\*  
Mr. Chris Benson\*\*  
Mr. Jason Charpinsky\*\*  
Ms. Audra Degg\*\*  
Ms. Carolyn Ford\*\*  
Ms. Christy Pratt\*\*  
Ms. Robin Reinarts\*\*  
Ms. Leigh Remack\*\*  
Ms. Patricia Russell\*\*  
Ms. John Urgese\*\*  
Mr. Bryan Valko\*\*  
Ms. Michelle Amin\*\*

**Lab Technicians (1)**

Ms. Kendra Wright (Intermittent Worker)

**REU Students Advised (8)**

Ms. Emily Frank (University of Akron)  
Mr. Evan Playle (Eckerd College)  
Mr. Jake Spry (University of Alabama)  
Ms. Akilah Alwan (University of South Carolina)  
Ms. Emily Boudreau (University of Massachusetts)  
Ms. Abrianna Lance (University of Alaska)  
Ms. Andrea Wrenn (University of Arizona)  
Mr. Emmanuel Kipruto (Stillman University)

**Full-time Employees (4)**

Ms. Sarah Radencic (Project Coordinator - MSU)  
Mr. Julian Carroll (Project Coordinator-MSU)  
Mr. Curry Templeton (Research Associate- MSU)

**Student Awards (partial list)**

NSF GRFP  
NSF NRT Trainee

Ms. Jessica Jones\*\*  
Ms. Jennifer Kennedy\*\*  
Mr. Michael Lamonica\*\*  
Mr. Daniel Miller\*\*  
Mr. Thomas Savage\*\*  
Mr. Mark Van Zwe\*\*  
Ms. Christine Faught\*\*  
Mr. Billie Cole\*\*  
Ms. Heather Marshall\*\*  
Ms. Kelly Heid\*\*  
Mr. James Darlow\*\*  
Mr. Vejheh Tavakoli\*\*  
Ms. Genifer Lara\*\*  
Ms. Laura Marts\*\*  
Ms. Kristin Gelsleichterden\*\*

Ms. Katie Brown (Project Coordinator-Auburn)

**\*\*Over 50+ additional graduate students supported from external grant funding received by McNeal**

**Student Workers (20)**

Ms. Lindsay Maudlin (NCSU)  
Ms. Rachel Atkins (NCSU)  
Ms. Maggie Corley (MSU)  
Ms. Saranee Dutta (MSU)  
Ms. Maria Cade (MSU)  
Ms. Calista Guthrie (MSU)  
Mr. Jason Leist (MSU)  
Mr. Jonathon Geroux (MSU)  
Mr. Gary Blakeney (MSU)  
Mr. Michael Mann (MSU)  
Mr. Andrew Cupil (MSU)  
Ms. Danielle Merritt (MSU)  
Ms. Jamie Tipton (MSU)  
Mr. Emory Quillian (NCSU)  
Mr. John Perfetti (NCSU)  
Ms. Angel Ngo (NCSU)  
Mr. Adam Michalak (NCSU)  
Mr. Johnathon Enteen (Wake Community College)  
Mr. Quinlin Swain (Auburn)  
Mr. Mason Pitre (Auburn)

NSF SRFI Supplement  
SREB Fellowship

UCAR Fellowship  
AU Outstanding Graduate Student  
GAB Outstanding Student Award  
Award  
Geology Svarda Award  
GAB Travel  
GAB Research  
Water Resources Graduate Research  
Grant  
Geography Outstanding Student Award  
Geoscience Graduate Leadership  
Award  
COSAM Travel Award  
NAGT Outstanding TA Award  
1<sup>st</sup> Place AMS Oral Presentation award