

# Jonathan G. Harris

Licensed Registered Professional Geologist ~ Mississippi (MS0043)  
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## EDUCATION

### **Doctor of Philosophy in Instructional Systems and Workforce Development: (ABD)**

Mississippi State University College of Education. Expected Graduation: 2024  
Ph.D. Dissertation: Benefits and Outcomes of Experiential Learning in STEAM Education.

### **Master of Science in Geosciences**, Mississippi State University.

Harris, J. G., 1996, an Analysis of Banana Hole Development on San Salvador Island, Bahamas:  
M. S. Thesis, Department of Geosciences, Mississippi State University.

### **Bachelor of Science in Geology**, Mississippi State University. 1992.

## RESEARCH INTERESTS AND EXPERIENCE

- Tropical Weather Systems, Modeling (WRF) of Severe Storm Paths and Storm Surge Interactions with Coastal Environment, Bay St Louis, Mississippi Gulf Coast.
- Fluid Dynamics and Modeling of Underground Aquifers: Mississippi Sound and Tampa/Silver Springs Florida.
- Coastal Processes and Sedimentary Depositional Environments: U.S. Gulf Coast.
- Karst Geology, Hydrology and Water Resources, Coastal Processes, and Biological Diversity: Bahamian Field Station, San Salvador Island, Bahamas.
- Karst Geology and Sea Level Fluctuations: United States Geological Survey, Isla de Mona, Puerto Rico.
- Ancient Marine Volcanology and Biological Diversity: Sea Education Association, Woods Hole, MA.
- Karst Geology and Hydrology: Western Kentucky University, Center for Cave and Karst Studies, Bowling Green, Kentucky.

## PROFESSIONAL EXPERIENCE

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|-----------------|--|
| 2017 to Present | <b>Director of Education and Outreach, Northern Gulf Institute-MSU; Vessel Master and Operations Manager R/V Sound Surveyor.</b><br>Northern Gulf Institute, Mississippi State University.                       |
| 2015 to 2017    | <b>Science, Social Studies, Mathematics, and Elementary Faculty</b><br>MS License Class AA 271345, Columbus Elementary and Starkville High School, Starkville and Cook Elementary School, Columbus, Mississippi. |

## TEACHING - ELEMENTARY AND SECONDARY

Compensatory Mathematics, Foundations of Algebra, Algebra II, Geometry, General Mathematics, and General Science.

2010 to 2015

### **Offshore Field Geophysicist**

ION – GXT / POLARCUS, Seismic Data Acquisition, QC, and Analysis for Projects in Texas, Louisiana, North Sea, Africa, Southeast Asia, Australia, and the Falkland Islands (onboard POLARCUS Vessels). Utilizing UNIX based parallel computing power, PHI co-processor clusters together with Intel Xeon cores operating at ~ 170 TFLOPS.

2003 to 2010

### **Geosciences Faculty – Instructor**

Mississippi State University Department of Geosciences: Instruction of graduate and undergraduate curriculum in geosciences; Undergraduate Advising in both On-Campus and Distance Learning Environments, and Research.

## TEACHING - MSU

### **On Campus Courses and Workshops (Undergraduate)**

- Survey of Earth Sciences I, Physical Geology
- Survey of Earth Sciences II, Historical Geology
- Planetary Geology
- World Geography
- Well Log Interpretation Workshop

### **Distance Learning Courses (Undergraduate and Graduate)**

- Survey of Earth Sciences I, Physical Geology
- Environmental Science
- Oceanography
- Marine Science
- Planetary Geology
- Geology of the National Parks

### **Field Courses**

- Geology and Geography of the Mississippi River Basin from Memphis, TN to Port Fourchon, LA.
- Geology of the Bahamas, San Salvador Island, Bahamas.
- Geology of Mammoth Cave National Park, Mammoth Cave, Kentucky.
- Geology of Arizona and Grand Canyon National Park, Sedona, Flagstaff and Williams, Arizona.
- Mississippi State University – Science Education at SEA, Gulf Islands National Seashore, MS.

2003 to 2010

### **Contractor, Project Manager, Operations and Sales**

Quest Energy Services, Environmental compliance and support of petroleum and construction projects, oil spill remediation, torque and testing of well heads and BOPs.

1986 to 2003

### **Draftsman, Intern Geologist, Geologist and Exploration Manager**

Basin Exploration, Aladdin Middle East, Ltd, and Gulfport Oil & Gas: Well-site Geology, Processing and QC of Seismic Data and Manager of Seismic Data Library.

## ADDITIONAL SKILLS AND EXPERIENCE

**Divemaster and Remote Location Medical Support**, Advanced Hyperbaric Medic and Hyperbaric Chamber Operator for various groups both domestic and international. 1996 to present.

**Small Boat Handling**, Coxswain/Boatswain, Workboat Operator, POLARCUS DMMC, R/V Nadia, R/V Asima, 2013-2015; Master, R/V Sound Surveyor, Geosystems Research Institute, Mississippi State University. 2010 to Present.

**Geophysicist (PG)**, Resistivity Imaging, Gravity Surveys, and Ground Penetrating Radar, in Florida and Bahamas, Buried Geological Hazards and Lost Underground Storage Tanks in construction projects, including airport runway extensions and hotel development. 1995 to 1996 and 2000 to 2001.

**MWD Field Engineer**, Real-time pulsed gamma-ray, resistivity, and downhole directional surveys for Sperry Sun Drilling Services in support of Gulf of Mexico oil and gas exploration projects. 1996 to 1998.

**Shipboard Assistant Scientist**, Instructor of data collection and offshore sampling techniques, including side-scan sonar and gravity surveys, Sea Education Association, Woods Hole Oceanographic Institute. 1991 to 1996.

## LICENSING, CERTIFICATIONS AND TRAINING

**The State of Mississippi**: Registered Professional Geologist, Reciprocity with Texas, Alabama, Arkansas, Tennessee, and Georgia. # MS 0043.

**The State of Mississippi**: Educators License, Class AA with endorsements in Elementary Education, General Sciences, Mathematics, and Social Studies, # 271345, **Teaching English as a Foreign Language Certification TEFL Certificate**: TR2666829300 [www.teacherrecord.com](http://www.teacherrecord.com)

**The State of Mississippi**: MS Fire Academy: NFPA1001 Firefighter Cert 1 and Hazmat Technician.

**Professional Association of Diving Instructors, International Association of Nitrox and Technical Divers, and International Board of Undersea Medicine**: Advanced Diver Medic/Hyperbaric DMT - IBUM Hyperbaric Chamber Operator - IBUM Gas Physiology and Hyperbaric Life Support - PADI Dive Master - DM93218 - PADI Rescue Diver - 9307489307 - PADI Dive Medic - 9307497931

**Mississippi State Guard/MEMA**: MOS 35F: Intelligence Analyst, and MOS 31A: Military Police, Certified as Military Emergency Management Specialist, Current Rank: (O4) Major.

**Falck**: Basic Offshore Safety Induction & Emergency Training Including EBS GSK Basic Safety & Emergency Course Including Helicopter Underwater Escape, Offshore Firefighter, EBS, NOGEP & UK Standard. BOSIET/FOET.

**Sperry-Sun Drilling Services and Schlumberger Wire-Line Services**: High Performance, Parallel Computing and Unix Based Operating Systems, Basic Programming Languages and Computer Operation, Well Logging Systems, Computer Operation, Formation Evaluation While Drilling I & II: Logging Methods for Standard and Directional Drilling Practices, Logging Methods for use with Radioactive Sources, Radioactive Source Handling, Steering Directional Tools, Data Processing, Basic Concepts of Formation Evaluation.

## GRANTS AND AWARDS

National Academy of Sciences, Engineering and Medicine, 2023: Mississippi State University – Gulf Scholars Program. Value: \$495,000.

National Science Foundation 2020: Integrating Computational Science Practice, Weather Data Analysis, and 3D Visualization in the Secondary Earth and Environmental Science Curriculum. Value: \$1.63 Million.

Armin K. Elsaesser Fellowship 2019: Sea Education Association, Woods Hole Oceanographic Institute, Woods Hole, Massachusetts. Value \$10,000.

Seismic Micro-Technologies: Software and Systems, Seismic Interpretation Laboratory, MSU Department of Geosciences. Value: \$2.5 Million.

Sandia National Laboratories: Surplus Property Transfer: 3 Portable Weather Stations, of Gulf Coast Severe Weather Research, MSU Department of Geosciences. Value: \$120,000.

Global Academic Essentials Teachers Institute, College & Career Readiness, STEM, 21st-Century skills, and technology. Recipient/Participant. Value: \$2,500.

## RECENT PUBLICATIONS

Harris, J. G. (Ed.). (2024), Northern Gulf Institute: The NGI Portal: <http://www.ngi.msstate.edu/portal> Quarterly: Fall 2017 to Present.

Sun, Y., Dyer, J., & Harris, J. (2024). Preparing Teachers for Teaching Spatial Computational Thinking with Integrated Data Viewer Visualization of Weather Data: A Discipline-Based Perspective of Computational Thinking. *Journal of Educational Computing Research*, 0(0). DOI: [10.1177/07356331241226746](https://doi.org/10.1177/07356331241226746)

Turnage, G., S. Samiappan, D. McCraine, G.D. Chesser Jr., J.W. Lowe, J.S. Wolfe, J. Harris, R.J. Moorhead, J. Moorhead, and P. Dash. Real time monitoring of water quality with an autonomous surface vessel in a coastal estuary. Presented at the IEEE Oceans Gulf Coast conference, Biloxi, Mississippi, September 25-28, 2023. DOI: [10.23919/oceans52994.2023.10337340](https://doi.org/10.23919/oceans52994.2023.10337340)

Harris, J. G., Hays, T.S., Wade, J., (2023), Using Improvisational Technique and Experiential Learning in the STEM/STEAM/STREAM Classroom., Proceedings and Programs, Hawaii University International Conferences, Arts, Humanities, Social Sciences, STEM/STEAM and Education, Honolulu, Hawaii.

Sun, Y., Dyer, J., Harris, J., and Mohammadi-Aragh, M. J., Thomas, L., (2023), Teaching and Learning Spatial Computational Thinking with IDV Visualization of Weather Data: An Epistemic Cognition Perspective: Proceedings and Programs, Hawaii University International Conferences, Arts, Humanities, Social Sciences, STEM/STEAM and Education, Honolulu, Hawaii.

Sun, Y., Dyer, J., Harris, J., and Mohammadi-Aragh, M. J., Thomas, L., (2023), Measuring Spatial Computational Thinking: IDV Visualization of Weather Data: Proceedings and Programs, Hawaii University International Conferences, Arts, Humanities, Social Sciences, STEM/STEAM and Education, Honolulu, Hawaii.

Mohammadi-Aragh, M. J., Sun, Y., Dyer, J. L., Harris, J. G., Robinson, C. A., Bai, M., & Ball, K. E. (2022). Teaching Computational Thinking and Spatial Visualization in K-12 with 3D Weather Visualizations. In *2022 IEEE Frontiers in Education Conference (FIE)* (pp. 1-6). IEEE. DOI: [10.1109/fie56618.2022.9962465](https://doi.org/10.1109/fie56618.2022.9962465)

## PUBLICATIONS CONTINUED

- Harris, J. G., Dyer, J. L., Turnage, G., Skarke, A., (2022), Initial benefits and outcomes of experiential learning programs in complex field sciences., Proceedings and Programs, Hawaii University International Conferences, Arts, Humanities, Social Sciences, STEM/STEAM and Education, Honolulu, Hawaii.
- Harris, J. G., Hays, T., (2022), Performing Arts as an Integrated Method for Teaching STE(A)M Concepts to Middle and High School Students., Proceedings and Programs, Hawaii University International Conferences, Arts, Humanities, Social Sciences, STEM/STEAM and Education, Honolulu, Hawaii.
- Sun, Y., Dyer, J., Harris, J., and Mohammadi-Aragh, M. J., Thomas, L., (2022), Preparing Teachers to Teach Spatial Computational Thinking with IDV Visualization of Weather Data: Proceedings and Programs, Hawaii University International Conferences, Arts, Humanities, Social Sciences, STEM/STEAM and Education, Honolulu, Hawaii.
- Muraco, H., Meacham, S., Renz, L., Harris, J., Moorhead, R., Schultz, E., (2022), Boat-Based sUAS as a Real-Time Survey Tool to Monitor Island Beaches for Sea Turtle Strandings., Poster Session, GOMCON Gulf of Mexico Conference 2022, Baton Rouge, LA and Virtual.
- Sun, Y., Dyer, J. L., Mohammadi-Aragh, M. J., Harris, J. G., Bai, M., Ko, P. (2021), Using IDV to Promote Computational Thinking in Atmospheric Science Learning., Proceedings and Programs, AECT21 International Conference, Chicago, IL and Virtual.
- Sun, Y., Dyer, J. L., Mohammadi-Aragh, M. J., Harris, J. G., Bai, M., Ko, P. (2021), 3D Weather Data Visualization with IDV: Computational Thinking Contextualized in Atmospheric Science. Proceedings and Programs, 2021 AECT21 International Conference, Chicago, IL, and Virtual.
- Ko, P., Mohammadi-Aragh, M. J., Harris, J. G., Dyer, J. L., and Sun, Y., (2021), Incorporating Computational Thinking Instruction into K-12 Using 3D Weather, Proceedings and Programs, 2021 ASEE Virtual Annual Conference Content Access, Virtual Conference. <https://strategy.asee.org/38216>  
DOI: [10.18260/1-2--38216](https://doi.org/10.18260/1-2--38216)
- Sun, Y., Ko, P., Dyer, J., Harris, J., and Mohammadi-Aragh, M. J., (2021), Preparing Teachers to Teach Computational Thinking with 3D Weather Data Visualization: Proceedings and Programs, Hawaii University International Conferences, Arts, Humanities, Social Sciences, STEM/STEAM and Education, Honolulu, Hawaii.
- Hays, T.S. and Harris J.G., (2020), Opportunities in Creating New Theatre for Change, Workshops, and Proceedings: Mississippi Theatre Association Conference and Festival, Oxford, Mississippi
- Lynch, F. L., Pitalo, A. T., Barnhart, L. B., Clark, J. L., Harris, J. G., and Schmitz, D. W., (2004), Sedimentology and provenance of Cat Island, offshore Mississippi: Transactions-Gulf Coast Association of Geological Societies, pp 409-412
- Harris, J. G., (2002), Modern Geophysical Methods for the Location of Karst Geological Hazards: Proceedings of the Eleventh Symposium on the Geology of the Bahamas: Bahamian Field Station, San Salvador Island, Bahamas.
- Myroie, J. E., Harris, J. G., and Carew, J. L., (1996), Karst as A Land Use Hazard in Quaternary Carbonate Islands: Geological Society of America, Abstracts with Programs, v.28, no.2, p.39.
- Harris, J. G., Myroie, J. E., and Carew, J. L., (1995), Banana Holes: Unique Karst Features of the Bahamas: in Carbonates and Evaporites, v.10, no. 2.

## PUBLICATIONS CONTINUED

Harris, J. G., Mylroie, J. E., and Carew, J. L., (1995), Banana Holes: Towards an Explanation: in Program of the Paleokarst Field Conference, Bahamian Field Station, San Salvador Island, Bahamas, p. 16-17.  
DOI: [10.1007/bf03175406](https://doi.org/10.1007/bf03175406)

Mylroie, J. E., Harris, J. G., and Carew, J. L., (1995), Line Hole Field Trip: in Program of the Paleokarst Field Conference, Bahamian Field Station, San Salvador Island, Bahamas, p. 21-32.

Mylroie, J. E., Harris, J. G., Schmoll, B. S., Garrett, C., (1994), Map of Cueva del Aleman, Isla de Mona, Puerto Rico: in Mylroie, J. E., Panuska, B. C., Carew, J. L., Frank, E. F., Taggart, B. E., Troester, J. W., Carrasquillo, R., 1994, Development of Flank Margin Caves on San Salvador Island, Bahamas and Isla de Mona, Puerto Rico: in Boardman, M., ed., 1995, Proceedings of the Seventh Symposium on The Geology of the Bahamas: Bahamian Field Station, San Salvador Island, Bahamas, p. 65-66.

Mylroie, J. E., Harris, J. G., (1990), Map of Garden Cave, San Salvador Island, Bahamas, in Kunze, A. W. G., and „, J. E., 1991, Use of Gravity Techniques to Detect Shallow Caves on San Salvador Island, Bahamas: in Bain, R. J., ed., 1991, Proceedings of the Fifth Symposium on The Geology of the Bahamas: Bahamian Field Station, San Salvador Island, Bahamas, p.191-202.