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JOSHUA C. BREGY

Assistant Professor
Department of Environmental Engineering and Earth Sciences
Glenn Department of Civil Engineering
Clemson University

CONTACT INFORMATION

Email: jbregy@clemson.edu | joshua.bregy@gmail.com
Tel: (864) 656-3529
Mail: 342 Computer Court, L. G. Rich Environmental Laboratory, Anderson, SC 29625
Office: R. L. Rich Environmental Laboratory, Room 158

EDUCATION

2021 **Ph.D. (dual), Earth and Atmospheric Sciences and Geography**, Indiana University
Geography Advisor: Dr. Justin Maxwell
Earth and Atmospheric Sciences Advisor: Dr. Brian Yanites.

2016 **M.Sc., Marine Science–Geological Oceanography**, University of Southern Mississippi
Advisor: Dr. Davin Wallace

2013 **B.Sc., Environmental Sciences (Biology); B.A., Spanish**; **Honors Interdisciplinary Studies minor**, University of Central Arkansas

APPOINTMENTS

2023–present Assistant Professor, Department of Environmental Engineering and Earth Sciences and Glenn Department of Civil Engineering, Clemson University

2022–present Summer Program Faculty, Dauphin Island Sea Laboratory (DISL)

2021–2022 Postdoctoral Researcher, Department of Geography, Indiana University

2017–2020 Research/Teaching Assistant, Department of Geography, Indiana University

2013–2016 Research/Teaching Assistant, Department of Marine Sciences, University of Southern Mississippi

2010–2013 Research Assistant, Department of Biology and Department of Geography, University of Central Arkansas

RESEARCH INTERESTS

1. Paleoclimatology and Paleotempestology: regional to basin-wide tropical cyclone-climate interactions over multidecadal to multimillennial timescales, tropical cyclone hydroclimatology, patterns of teleconnections and large-scale circulation, hydroclimatic variability and flooding, techniques for multiproxy (i.e., sediment, tree rings, stable isotopes) reconstructions, proxy system modeling, natural and anthropogenic climate change, statistical climatology.
2. Coastal Geology: sea-level change, coastal hazards, sediment transport, coastal geomorphology, and extreme waves (storm surge and tsunamis).

PEER-REVIEWED PUBLICATIONS

1. Harley, G.L., Therrell, M.D., Maxwell, J.T., Bhuta, A., **Bregy, J.C.,** Heeter, K.J., and Coauthors, 2023. The Longleaf Tree-Ring Network: reviewing and expanding the utility of *Pinus palustris* Mill. dendrochronological data. *Progress in Physical Geography: Earth and Environment*, doi: 10.1177/03091333221147652 (*in press*)

2. Maxwell, J.T., Harley, G.L., Tucker, C.S., Galuska, T., Ficklin, D.L., **Bregy, J.C.,** and Coauthors, 2022. 1,100-year reconstruction of baseflow for the Santee River, South Carolina, USA reveals connection to the North Atlantic subtropical high. *Geophysical Research Letters*, 49(22), e2022GL100742, doi: 10.1029/2022GL100742.

3. Tucker, C.S., Pearl, J.K., Elliott, E.A., **Bregy, J.C.,** Friedman, J.M., Therrell, M.D., 2022. Baldcypress false ring formation linked to summer hydroclimatic extremes in the southeastern United States. *Environmental Research Letters*, 17(11), doi: 10.1088/1748-9326/ac9745.

4. **Bregy, J.C.,** Maxwell, J.T., Robeson, S.M., Harley, G.L., Elliott, E.A., Heeter, K.J., 2022. US Gulf Coast tropical cyclone precipitation influenced by volcanism and the North Atlantic subtropical high. *Communications Earth and Environment*, 3(1), 1–11, doi: 10.1038/s43247-022-00494-7.

5. Maxwell, J.T., **Bregy, J.C.**, Robeson, S.M., Knapp, P.A., Soulé, P.T., Trouet, V., 2021. Recent increases in tropical cyclone precipitation extremes over the US east coast. *Proceedings of the National Academy of Sciences USA*, 118(41), doi: 10.1073/pnas.2105636118.

6. Therrell, M., Elliott, E., Meko, M., **Bregy, J.C.**, Tucker, C., Harley, G.L., Maxwell, J., Tootle, G., 2020. Streamflow variability and false ring formation in bald cypress (*Taxodium distichum*). *Forests*, 11, doi: 10.3390/f11101100.

7. Maxwell, J.T., Harley, G.L., Matheus, T.J., Strange, B.M., Van Aken, K., Au, T.F., **Bregy, J.C.**, 2020. Sampling density and date influence spatial representation of tree-ring reconstructions. *Climate of the Past*, 16: 1901–1916, doi: 10.5194/cp-16-1901-2020.

8. **Bregy, J.C.**, Maxwell, J.T., Robeson, S.M., Ortegren, J.T., Soulé, P.T., Knapp, P.A., 2020. Spatiotemporal variability of tropical cyclone precipitation using a high-resolution gridded

(0.25°x0.25°) dataset for the eastern United States, 1948–2015. *Journal of Climate*, 33(5), 1803–1819, doi: 10.1175/JCLI-D-18-0885.1.

9. Khider, D., and Coauthors, 2019. PaCTS 1.0: a crowdsource reporting standard for paleoclimate data. *Paleoceanography and Paleoclimatology*, 34, 1570–1596, doi: 10.1029/2019PA003632.

10. Yanites, B.J., Mitchell, N.A., **Bregy, J.C.,** Carlson, G.A., Cataldo, K., Holahan, M., Johnston, G.H., Nelson, A., Valenza, J., Wanker, M., 2018. Landslides control the spatial and temporal variation of channel width in southern Taiwan: implications for landscape evolution and cascading hazards in steep, tectonically active landscapes. *Earth Surface Processes and Landforms*, 43: 1782–1797, doi: 10.1002/esp.4353.

11. **Bregy, J.C.**, Wallace, D.J., Minzoni, RT, Cruz, V, 2018. 2500-year paleotempestological record of intense storms for the Northern Gulf of Mexico, United States. *Marine Geology*, SI: Geological Records of Extreme Wave Events, 26–42, doi: 10.1016/j.margeo.2017.09.009.

TECHNICAL PUBLICATIONS

1. **Bregy, J.C.**, Doiron, K., Lightfoot-Austin, D., Schorr, M., 2020. *Meteorological Hazards of Mexico*. Pp. 1–42. Submitted to the United States embassy in Mexico.

MANUSCRIPTS IN PREPARATION

1. **Bregy, J.C.**, Maxwell, J.T., Robeson, S.M., Harley, G.L., Trouet, V. Hydroclimatic variability across the Southeast U.S. associated with subtropical high position during the Common Era. *Expected submission journal: Nature*.

GRANTS AND FELLOWSHIPS

1. NSF Paleo Perspectives on Climate Change AGS-2102888, AGS-2102886, and AGS-2102938: "Reconstructing Tropical Cyclone Precipitation throughout the Southeastern United States." Total Amount: $492,973.00 (Indiana University portion: $258,774.00). Dates: 08/01/2021–present. (Co-authored; not listed as co-PI due to graduate student status.)

2. NSF Paleo Perspectives on Climate Change AGS-2103115: "Integrating Multiproxy Records of Tropical Cyclone Activity over the Last Millennia to Contextualize 21st (twenty-first) Century Events in the Northern Gulf of Mexico." Total Amount: $327,532.00. Dates: 07/15/2021–present. (Co-authored; not listed as co-PI due to graduate student status.)

3. College of Arts and Sciences, Indiana University: Dissertation Research Fellowship, 2020–2021. Award amount: $20,000

4. Department of Geography, Indiana University: Graduate Student Summer Fellowship Award, 2018.

5. Department of Geography, Indiana University: Graduate Student Summer Fellowship Award, 2017.

6. Department of Geography, Indiana University: Graduate Student Fellowship Award, 2016–2017.

INVITED PRESENTATIONS

Underlined name indicates presenter. * indicates poster and † indicates talk

1. **Bregy, J.C.**, Maxwell, J.T., Harley, G.L., Elliott, E.A., 2021. Water over the bridge: can we connect tree rings and overwash deposits to understand regional tropical cyclone variability? *European Geophysical Union Annual Meeting*, Virtual.†

PRESENTATIONS AT PROFESSIONAL MEETINGS

Underlined name indicates presenter. * indicates poster and † indicates talk.

1. **Bregy, J.C.,** Maxwell, J.T., Robeson, S.M., Harley, G.L., Trouet, V., 2022. Extremes and volcanically driven changes in the western flank of the Bermuda High since the 12th century. *American Geophysical Union Fall Meeting*, Chicago, Illinois. †

2. Friedman, J., Elliott, E.A., Tucker, C., **Bregy, J.C.,** Pearl, J., Therrell, M., 2022. Reconstructing tropical cyclone precipitation through oxygen isotope ratios in baldcypress (*Taxodium distichum*). *American Geophysical Union Fall Meeting*, Chicago, Illinois.*

3. Tucker, C., Elliott, E.A., **Bregy, J.C.,** Pearl, J., Therrell, M., Friedman, J., 2022. Baldcypress false ring formation linked to summer hydroclimatic extremes in the southeastern United States. *American Geophysical Union Fall Meeting*, Chicago, Illinois. †

4. Elliott, E.A., Monica, S., **Bregy, J.C.,** Wallace, D.J., Friedman, J., Totten, R., Lehrmann, A., Tucker, C., 2022. Using paleotempestology and barrier island geomorphology to characterize tropical cyclone activity during the late Holocene along the northern Gulf Coast of the United States. *American Geophysical Union Fall Meeting*, Chicago, Illinois.*

5. Wallace, E.J., Dee, S., **Bregy, J.C.,** Emanuel, K., 2022. Evaluating uncertainties in latewood tree ring reconstructions of tropical cyclone precipitation using statistically/dynamically downscaled storms. *American Geophysical Union Fall Meeting*, Chicago, Illinois.*

6. **Bregy, J.C.**, Maxwell, J.T., Robeson, S.M., Harley, G.L., Elliott, E.A., Heeter, K.J. 2021. Changes in tropical cyclone rainfall driven by volcanism over the last 500 years. *American Geophysical Union Fall Meeting*, New Orleans, Louisiana. †

7. Elliott, E.A., Lehrmann, A., Totten Minzoni, R., **Bregy, J.C.**, Wallace, D.J., Tucker, C., 2021. Archives of the extreme: building multi-proxy records to characterize tropical cyclone activity

and environmental impacts in the northern Gulf of Mexico. *American Geophysical Union Fall Meeting*, New Orleans, Louisiana.*

8. Tucker, C., Therrell, M.D., Elliott, E.A., **Bregy, J.C.**, Pearl, J.K., 2021. False rings in baldcypress contain clues of past hurricanes in the southeastern United States. *American Geophysical Union Fall Meeting*, New Orleans, Louisiana.*

9. Maxwell, J.T., Galuska, T., Harley, G.L., Ficklin, D.L., **Bregy, J.C.**, Au, T.F., Heeter, K.J., Lockwood, B., Elliott, E.A., Therrell, M.D., 2021. 1100-year reconstruction of baseflow indicates that high baseflow extremes are decreasing for the Santee River, South Carolina, USA. *American Geophysical Union Fall Meeting*, New Orleans, Louisiana.*

10. **Bregy, J.C.**, Maxwell, J.T., Harley, G.L., Robeson, S.M., 2021. Reconstructing and quantifying changes in the western flank of the North Atlantic subtropical high since 1430 CE using a multispecies tree-ring network. *American Geophysical Union Fall Meeting*, New Orleans, Louisiana.*

11. Barnes, R., Basu, N., Becker, P., **Bregy, J.C.**, Gasparini, N., Myers, D., 2021. Town hall: Twitter in the sciences. *American Geophysical Union Fall Meeting*, New Orleans, Louisiana.†

12. Elliott, E.A., **Bregy, J.C.**, Tucker, C.S., Lehrmann, A., Minzoni, R.T., Wallace, D.J., Therrell, M.D., 2021. Recording storms – Utilizing multiproxy records to identify and characterize tropical cyclone activity along the northern Gulf of Mexico. *Geological Society of America Fall Meeting*, Portland, Oregon.†

13. **Bregy, J.C.**, Maxwell, J.T., Harley, G.L., Elliott, E.A., Robeson, S.M., Heeter, K.J., 2020. 500 years of tropical cyclone precipitation variability along the Gulf Coast: multidecadal patterns, trends, and climate connections. *American Geophysical Union Fall Meeting*, Virtual.*

14. **Bregy, J.C.**, Maxwell, J.T., Harley, G.L., 2019. A ~500-year reconstruction of seasonal tropical cyclone precipitation estimates along the Gulf Coast, USA. *American Geophysical Union Fall Meeting*, San Francisco, California.*

15. **Bregy, J.C.**, Wallace, D.J., Maxwell, J.T., 2019. Cooking up a storm: a recipe for the North Atlantic hurricane climate in only ~100 Ma. *American Geophysical Union Fall Meeting*, San Francisco, California.*

16. Maxwell, J.T., **Bregy, J.C.**, Knapp, P.A., Soule, P.T., 2019. Increasing tropical cyclone precipitation extremes along the southeast Atlantic Coast over the last 350 years. *American Geophysical Union Fall Meeting*, San Francisco, California.†

17. Roberts, T., Elliott, E.A., Therrell, M.D., Lampman, C.R., Maxwell, J.T., Harley, G.L., **Bregy, J.C.**, 2019. Utilizing anatomical anomalies in *Taxodium distichum* to reconstruct tropical cyclone activity along the northern Gulf of Mexico. *American Geophysical Union Fall Meeting*, San Francisco, California.*

18. Knapp, P.A., Soule, P.T., Maxwell, J.T., Ortegren, J.T., **Bregy, J.C.**, 2019. North Atlantic tropical cyclone precipitation changes post volcanic eruptions: evidence from North Carolina longleaf pine (*Pinus palustris* Mill.): AD 1770–2000. *Annual Meeting of the American Association of Geographers*, Washington, D.C.*

19. **Bregy, J.C.**, Maxwell, J.T., and Harley, G., 2018. Latewood radial growth as a proxy for reconstructing tropical cyclone precipitation along the Gulf Coast, United States. *American Geophysical Union Fall Meeting*, Washington, D.C.*

20. **Bregy, J.C.**, Maxwell, J.T., Robeson, S.M., 2018. North Atlantic tropical cyclone precipitation and climate interactions in the eastern United States, 1948–2015. *American Association of Geographers Annual Meeting*, New Orleans, Louisiana.†

21. Soule, P.T., Knapp, P., Maxwell, J.T., **Bregy, J.C.**, 2018. An update to a multi-century reconstruction of tropical cyclone precipitation in the North Carolina coastal region using the tree-ring record of longleaf pine. *American Association of Geographers Annual Meeting*, New Orleans, Louisiana.*

22. **Bregy, J.C.**, Maxwell, J.T., Robeson, S.M., 2017. North Atlantic tropical cyclone precipitation and climate interactions using a high-resolution dataset for the eastern United States, 1948–2015. *American Geophysical Union Fall Meeting*, New Orleans, Louisiana.*

23. Yanites, B.J., **Bregy, J.C.**, Carlson, G., Cataldo, K., Holahan, M., Johnston, G., Mitchell, N.A., Nelson, A., Valenza, J., Wanker, M., 2017. Landslides control the spatial and temporal variation of channel width in southern Taiwan: implications for landscape evolution and cascading hazards in steep, tectonically active landscapes. *American Geophysical Union Fall Meeting,* New Orleans, Louisiana.†

24. Yanites, B.J., **Bregy, J.C.**, Carlson, G., Cataldo, K., Holahan, M., Johnson, G.H., Mitchell, N., Nelson, A., Valenza, J., Wanker, M., 2017. Landslides control the spatial and temporal variation of channel morphology in southern Taiwan: implications for landscape evolution in steep, tectonically active landscapes. *Geological Society of America Fall Meeting*, Seattle, Washington.†

25. **Bregy, J.C.**, Wallace, D.J., 2016. Paleotempestological record of intense storms for the Northern Gulf of Mexico, United States. *American Geophysical Union Fall Meeting*, San Francisco, California.†

26. **Bregy, J.C.**, Passe-Smith, M.S., 2013. Using GIS to determine mean tornado direction and path length during different ENSO events. *ESRI International User Conference*, San Diego, California.*

TECHNICAL PROFESSIONAL PRESENTATIONS

1. **Bregy, J.C.**, Doiron, K., Lightfoot-Austin, D., Schorr, M., 2020. Meteorological hazards in Mexico. *Presented to the United States embassy in Mexico*. †

ACADEMIC PRESENTATIONS

1. Indiana University—Department of Geography and Department of Earth and Atmospheric Sciences doctoral defense: *Reconstructing multidecadal to multicentennial variations in the tropical cyclone hydroclimate and its climatic controls in the Southeastern United States.* (2021)

2. Indiana University–Department of Geography Fall Colloquium Series/dissertation proposal presentation: *Understanding multidecadal to multicentennial variations in the tropical cyclone hydroclimate and its controls in the southeastern United States*. (2019)

3. 2018–2019 IU/WonderLab Summer Science Institute for Teachers: "Understanding and preparing for environmental change." Presented my previous and current research on paleotempestology and modern tropical cyclones. (2018–2019)

4. University of Southern Mississippi–Department of Marine Science Master of Science thesis defense: *Determining the viability of recent storms as modern analogues for north-central Gulf of Mexico paleotempestology through sedimentary analysis and storm surge reconstruction.* (2016)

5. University of Southern Mississippi–Graduate Student Symposium: *Determining the viability of recent storms as modern analogues for north-central Gulf of Mexico paleotempestology through sedimentary analysis and storm surge reconstruction.* (2016)

6. University of Southern Mississippi Three Minute Thesis competition: *Using modern storms to identify prehistoric storms.* Finalist. (2015)

7. University of Southern Mississippi–Department of Marine Science Fall Seminar Series: *Determining the viability of recent storms as modern analogues for north-central Gulf of Mexico paleotempestology through sedimentary analysis and storm surge reconstruction.* Presentation over my prospectus for the spot reserved for students to give seminars. (2015)

8. University of Central Arkansas–Honors College senior thesis defense: *An in-depth study on lightning-produced ground-level NOx and other influencing meteorological factors during the lifecycle of a thunderstorm.* (2013)

9. University of Central Arkansas–Department of Foreign Languages: Spanish capstone defense: *La presencia de ecología en la cultura costarricense*. This presentation was conducted in Spanish and focused on the link between culture and ecology in Costa Rica. (2013)

10. University of Central Arkansas–College of Natural Sciences and Mathematics Student Research Symposium: *Mussel biodiversity and distribution in the Sylamore Ranger District in Arkansas.* (2013)

SCHOLARSHIPS, HONORS, AND AWARDS

1. Department of Geography, Indiana University: Founder's Award for Outstanding Paper in Climatology, 2020–2021.

2. College of Arts and Sciences, Indiana University: Dissertation Research Fellowship, 2020–2021. Award amount: $20,000

3. Department of Geography, Indiana University: Lester Spicer Poster Award, 2020.

4. Department of Geography, Indiana University: Stephen S. Visher Award for Outstanding Paper in Climatology, 2018–2019.

5. Department of Geography, Indiana University: Graduate Student Summer Fellowship Award, 2018.

6. College of Arts and Sciences, Indiana University: College of Arts and Sciences Fall Travel Award, 2017.

7. Department of Geography, Indiana University: Graduate Student Summer Fellowship Award, 2017.

8. Department of Geography, Indiana University: Graduate Student Fellowship Award, 2016–2017.

9. University of Southern Mississippi Three Minute Thesis: Finalist, 2015.

10. Arkansas Lottery Scholarship, 2010–2013.

11. Norbert O. Schedler Honors College, University of Central Arkansas: Honors College Full Scholarship, 2009–2013.

TEACHING EXPERIENCE

2022–present | Instructor of record for Hurricanes of the Gulf Coast (DISL summer program)

2019–2020 | Instructor of record for GEOG 305: Paleoclimates

2019–2019 | Graduate teaching assistant for GEOG 107: Physical Systems of the Environment

2018–2019 | Instructor of record for GEOG 109: Introduction to Weather and Climate

2017–2018 | Graduate teaching assistant for GEOG 109: Introduction to Weather and Climate

2013–2016 | Graduate teaching assistant for MAR 151L: Introduction to Marine Science

2012–2013 | GIS teaching/lab assistant at UCA

2011–2013 | Environmental education

2010–2011 | Honors College mentor: Specialization in the philosophy of science, deep ecology and environmentalism, Taoism, Buddhism, and Confucianism.

PROGRAMMING AND SOFTWARE EXPERIENCE
ArcGIS, ARSTAN, COFECHA, CooRecorder, Malvern Mastersizer 3000 software, MATLAB, PCReg, PPR, Unix, WinDendro

SCIENTIFIC SERVICE
Meeting Sessions Convened: AGU Fall Meeting 2022 – Novel Approaches to Reconstructing Extreme Events and Hydrological Hazards During the Holocene and Common Era

Peer reviewer: *GCAGS Journal (1)*, *Paleoceanography and Paleoclimatology (1), Geophysical Research Letters (2), Bulletin of the American Meteorological Society (1), npj Climate and Atmospheric Science (1), Communications Earth and Environment (1), Earth Interactions (3)*

Member: *American Geophysical Union*, *European Geophysical Union*, *Past Global Changes (Floods Working Group, PALSEA, DAPS, Iso2k)*, *International Union for Quaternary Research*

Outreach: Science Fest (2016, 2019); Skype-a-Scientist (2019–2020); Guest on *Climate Scientists* podcast ("Disability in the Earth System Sciences" series; 2020); Guest on *Climate Scientists* podcast (2021); Guest on *Science… Sort Of* podcast ("American Geophysical Union fall meeting" series; 2021)

LANGUAGE FLUENCY
English (native language; fluent)
Spanish (fluent)