

Joshua Benton

GIS student

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Sinkhole Conference paper: *Investigating Vadose Zone Hydrology in a Karst Terrain Through Hydrograph and Chemical Time Series of Cave Drips at Grand Caverns, Virginia*

Joshua Benton is a student of hydrology and hydrogeology, specifically critical zone hydrology and karst hydrogeology. He is a recent graduate of James Madison University, obtaining a Bachelor's of Science in geology and is currently taking classes at a local community college while continuing to work as an intern for the US Geological Survey, where he spent 3 years learning how to characterize vadose zone groundwater flow in a cavern system. He has applied to graduate schools to pursue a Master's Degree in geology beginning in the fall of 2018. His goal is to answer scientific questions involving the physical and chemical behavior of natural waters, with the long-term career goal to provide scientific data needed for policy makers to make the most informed decisions regarding the management of water resources. Mr. Benton has also conducted research in Michigan Paleozoic limestone, presented his research at local and regional conferences, and taught field geology to a local high school earth science class.



Joshua Benton 2018 Beck Scholar Statement:

I am passionate about pursuing further work and research in hydrology and hydrogeology, specifically critical zone hydrology and karst hydrogeology. I am a recent graduate of James Madison University (JMU, graduated Dec. 2017) obtaining a Bachelor's of Science in geology and I'm currently taking classes at a local community college while continuing to work as an intern for the USGS. I have applied to multiple graduate schools with the intent of pursuing a Master's Degree in geology beginning fall of 2018. My goal is to apply what I have learned from my academic and professional experiences to help answer scientific questions involving the physical and chemical behavior of natural waters. My long-term career goal is to help provide the scientific data needed for policy makers to make the most informed decisions regarding the management of water resources.

With the guidance of experts in the field, I have spent my undergraduate career developing knowledge and skills that are important for successful research in hydrology. One of my research opportunities, as a student intern at the United States Geological Survey (USGS), has allowed me to spend three years learning how to characterize vadose zone groundwater flow in a cavern system. This experience was also my introduction to working in karst environments and dealing with the complexities of groundwater flow in carbonate rocks. Growing up in South Carolina I was never introduced to concepts related to karst. Only a small portion of the state has limestone exposed at the surface so it's not a priority of South Carolina's public

education system. Moving to the Valley and Ridge of Northern Virginia and working at the USGS has had a major impact the development of my interests and on my understanding of soluble bedrock geology. Additionally, I engaged in a research project through my undergraduate institution, JMU that allowed me to investigate stable isotope excursions in Paleozoic limestone from Boney Falls, Michigan. Through JMU I also gained exposure to eogenetic karst as part of a geological field course in San Salvador, Bahamas that dramatically changed my perception of carbonate depositional environments and karst processes.

I enjoy being active within the larger scientific community by presenting my research at both local and regional conferences, volunteering for the Geological Society of Washington, and teaching field geology to a local high school earth science class. As a teacher's assistant and founding president of a geology club at my community college, I developed leadership skills while teaching scientific concepts to my peers during labs, giving lectures on course material, organizing field trips, and arranging for local scientists to visit the college and present their research. I avidly use the excitement and love that I have for science to engage others around me, and I aim to focus this trait to foster a positive environment that will boost success, both for myself and my peers, in our coursework and research goals.