

Why I Want To Become A Professional Geologist

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“On rope!” I yell up to the two small lights about 300 hundred feet above me. It’s so dark, you can’t see your hand in front of your face without your headlamp; the smell of sulfur is so pungent, one can almost taste it. I begin to carefully climb out of the dark pit, trusting that the rope was correctly anchored to the cave wall so I can join my group, crawl, traverse, and wiggle our way back the surface. The sheer massiveness and beauty of the cave is apparent as my light swings from wall to wall as I climb. I unclip my ascending gear from the rope when I reach the top, shift the heavy bag full of gear and samples I’m carrying on my back, and think, “How amazing is it to be a geologist?”

My interest in geology began I was too young to even know it as a branch of science. Any outdoor activity meant collecting a new rock, questioning their origin and staring at their beauty in awe. As I grew older, science became my passion and my appreciation for the natural world grew. Geology was presented to me as a possible major by my college advisor during orientation, and I was completely hooked when he told me hiking and camping was required to earn my degree.

After I entered my first geology course, it felt like my rock collection and my interest in the outdoors finally made sense. I seized any opportunity to conduct research and be outside, filling my undergraduate career with research experiences for undergraduates (REUs) and internships. My projects spanned from hydrogeological surveys at the Sevilleta Fish and Wildlife Refuge to electromagnetic, gravity, and resistivity surveys on the Bushveld Complex in South Africa to microbial activity in soils after a burn event in Boulder, CO. Jumping in large natural springs, climbing down a chromite mine in South Africa, and scaling the Colorado Rocky Mountains are only a few of the amazing experiences being a geologist has afforded me. After studying Alaskan rocks for my senior thesis, I knew I wanted to not only experience more of the natural world, but also better understand the interconnectedness of the living and non-living worlds.

I began my Master’s degree focusing on how microbial activity affects cave formation and the limits of life as these “bugs” thrive in a subsurface environment with no sunlight and little oxygen. As a classically trained geologist who licked rocks, my horizons broadened as I learned how bright, white, sticky microbial biofilms, or “tiny bug slime,” work and investigated processes that might answer how we could find life elsewhere in our solar system. Participating in the NASA Astrobiology Summer Course 2015 in Santander, Spain, together with graduate students from many countries, we explored the minimum environmental parameters life needs by looking at beaches rocks that used to be the ocean floor called ophiolites and different types of microbes that live in extreme places on Earth.

All of that led to this moment: covered in mud, exhausted, inhaling the stench of sulfur, and carrying about 20 pounds of gear into the large Frasassi cave system. Yet, I can’t imagine myself doing anything else. Ever since studying geology, I’ve grown an appreciation for the world around me and the systems humans interact with. I have continued pursuing my passion for our planet by working towards my Ph.D. I currently study how microbes drive the formation of rocks on salt diapirs that play an important role in petroleum geology and sulfur generation. I plan on entering the work force as a professional geologist to not only share my interest in our natural world, but also to impact society through educating those who don’t understand how amazing Earth actually is. Most of our population lacks basic knowledge about how our daily lives are connected to biogeochemical cycling of essential elements like carbon, oxygen, sulfur and phosphorus and the beauty these processes provide. As a professional geologist, I hope to encourage more people to appreciate the outdoors and explore the various and wondrous places right in our backyard.