

## *Laura J. Crossey*

Bachelors Degree, Geology

Masters Degree, Geology

Ph.D., Geology

### **BIO**

Laura Crossey has been at the University of New Mexico for seventeen years where she teaches Geology and does research. Crossey is also a member of the SLIME team. As a SLIME team member, she studies underground (cave) relationships between minerals, water, and microbiology.

Crossey's job as a Geologist has taken her to many places. She researches life in the Grand Canyon, underground mines, and in caves. Crossey loves the adventures of being in new places where her mind is challenged by her research and her body is challenged as she climbs cliffs and explores caves.

Also, Crossey, like many other 'cavers,' is concerned with the conservation of caves:

"You can see that when people go into caves, we are intrusion on the caves—our footsteps, our breathing, any kind of humidity changes, and of course the all the million microbes. It is a very unusual environment, so it is important to preserve these environments."

## Q&A

Q: What do you do for the SLIME team?

A: I am a geologist. My research area is low temperature geochemistry and sedimentary geochemistry. I also study the relationship between minerals, water, and microbiology in the subsurface.

Q: What roles do caves play in terms of a research lab for you?

A: I spend a lot of time looking at sedimentary systems. I usually work at a very high resolution, that is I magnify the systems and I look at the pores in sedimentary rocks to understand that residue from prolonged water-rock interaction. One thing that happens, over the course of geologic time, is water moves through rocks as they cement and the material above becomes more liquefied. That is what liquefaction. That is one of my areas of interest. Walking inside of a cave is like being inside of a gigantic pore. So it's like being able to walk around inside of these systems that I usually study at a microscopic scale. Essentially it allows you to be inside of a sedimentary rock in a way that I normally can't.

Q: Do you enjoy caving?

A: Yes. I'm not a cave-maniac like some of the other SLIME team members, but I do enjoy it. I'm not as experienced at caving.

Q: Which cave is your favorite?

A: The longest cave that I've been in is actually Spider Cave which is one of our study sites. I really enjoyed being in a cave that is not as viewed as extensively by people. It is always exciting to go to places where maybe not so many people have been, whether your on the surface of the Earth or inside of it.

Q: Do you have children?

A: Yes I do.

Q: Would you take them caving?

A: Sure. I understand that Spider Cave is one of the caves at Carlsbad that you can arrange for a tour. I think that it's well worth it. It's definitely a different kind of caving experience then walking along a trail into some of the larger caverns with more obvious presence of guides. You get a real feeling of caving. I really encourage people to do things the right way. It's pretty dangerous to explore subterranean holes, whether it's old, abandoned mines or caves that are near the surface. Even hiking, in extreme weather or where there is lots of cliff exposures or rivers, can be a little hazardous and you need to be aware of your surroundings. In

caves, that's really magnified because it's hard for people to find you and there are a lot of things that can happen.

Q: How would you prepare your kids?

A: Stay on the same trail that has been created. Caving in Spider Cave doesn't take anymore care or dexterity than climbing along the edge of the Sandia's, but in both cases you have a slip that could lead to a serious fall. In one case, in the cave, it's dark and you're a little distracted by that, but having the standard equipment would help in being careful. You must also wear the proper footwear.

Q: Are you concerned about the conservation of caves?

A: Yes. You can see that when people go into caves, we are intrusion on the caves—our footsteps, our breathing, any kind of humidity changes, and of course the all the million microbes. It is a very unusual environment, so it is important to preserve these environments.

Q: What kind of experience do you have in the caves?

A: In all my research activities I love the environments, I love being outside, I love observing nature and the chance to have that experience while actually doing your work is a great benefit of my job. Getting a chance to talk with people about it, whether it's students at UNM or other types of groups, it's fantastic, I consider myself pretty lucky.

Q: What's the coolest thing inside of caves?

A: I think everybody likes crystals; they're sort of wonderful things. Crystal growth is a product of nature that is not exactly life and I think it's fascinating to see how minerals grow and these sometimes wonderful and sometimes grotesque shapes that somehow capture the flow of water. I think that the cave formations themselves are the most exciting things about being in a cave rather than simply being in the dark.

Q: Do you find the atmosphere in the caves to be calming?

A: The cave I was thinking of was Spider cave where there are some very narrow passages. So, you have some people who will like it and others who won't. So caves can be very closed in and others are very expansive. When you get into a large cavern it is dark and you can't see the edges of them. So you can have either feeling of being in a large or small space and being surrounded by darkness and rocks—neither bothers me.

Q: How did you get started caving?

A: I've occasionally been in caves throughout the course of my travels and from being a Geologist. I've been in the underground in the Mt. Taylor

mines here in New Mexico as part of Geological investigations. The SLIME team caving was because of this particular project.

Q: How are the caves different from the other environments where you conduct research?

A: Well, one of the other areas where I've been doing fieldwork is in the Grand Canyon National Park and there are some similar aspects of doing research in parks. It's very nice to be working with the various people at these parks. The National Parks have a great need for the input from Geo-scientists and they are very dominated by the biological aspects and the interpretations, so it's really fun to be involved with recognition with the role of Geology in the landscapes and features of the parks. As far as physical environments, it's quite different. A canyon is open, huge, and vast expanses, and the caves, of course, are closed in. Nevertheless, one of the things that I'm doing at Grand Canyon is studying spring deposits of travertine, which is the relocation of calcium carbonate when it comes out as spring water and then it deposits at our surface. Many times these springs are pouring out of a cavernous system, which we don't always have a chance to explore. Nevertheless, there are caves in the Grand Canyon region and so I see the cave systems as a larger scale phenomenon that relates as the movement of materials from one place to another. So the travertine is the down streamside of what happens in caves not actively happening in a big way in terms of Carlsbad. Studying the travertines is sort of detective work of things that happened in the past and we can compare it to the process that is happening today in places like Havesu where beautiful spring deposits are forming today.

Q: Where are you when you're at the Grand Canyon?

A: Some of our research takes us to huge cliffs because the cliff provides good exposure. We rappel down the side of these cliffs. It's interesting because some of the cavers who come to the Grand Canyon are a little shocked with rappelling out in the open, but I would think it is scarier to rappel where you can't see what's around you. Some of the cavers feel that it's much scarier when you can see what's around you. I enjoy the view and I enjoy being out there.

Q: Have you seen any critters in the caves?

A: I thought I would encounter more spiders at Spider cave, but I didn't. Snakes, here in New Mexico, surround caves, so I have encountered snakes. We're mainly concerned with rattle snakes and one thing about the rattle snake is that they usually, politely, give you a warning, but they're not anymore interested in being near you than you are being near them. That's always been my experience with snakes. We see bats in many of the caves, but we try not to disturb them or things.

Q: Which cave do you recommend?

A: There are plenty (public caves) to choose from here in the Rocky Mountains that are fantastic, with beautiful drapes and they have lighting. But I recommend the off-the-beaten-track experience because you get the sense of exploring a little more.