

The first two days of Spaceward Bound: Mojave I spent studying the geology of the region and comparing it to features on the moon and Mars. So today I decided to do something different. Well, as it turns out maybe not all that different. During breakfast, we talked with several members who had decided to hike to the top of the 'small' mountain behind the station and watch the sun rise. That had sounded very cool to me, everything except getting up at 4:00 in the morning that is, so I decided to get a group together to go up. We met shortly after the morning web broadcast with the enthusiasm of attempting to conquer Everest. After all, we thought, we could probably make it to the top and down again in two hours and have our own view of the lakebed and the geological features to share with others!

After an hour we realized that it was much more difficult than it first looked. The mountain was basically a pile of boulders and rubble, much different from any other hill or mountain I had hiked. Is this hill like a hill we would find on Mars? Probably. When we got to the top of the first peak, we took time to enjoy the view of the lakebed and again I thought of what it would be like on Mars. Would a person standing on the peak of a hill on Mars looking off across a dried up lakebed be thinking, "Wow, this is a lot like the Mojave Desert."



After the little adventure up the mountain and back again, I went on the photosynthesis expedition with Jim Nienow to look at the blue-green cyanobacteria algae crusts that are everywhere in the desert. Looking at these crusts, which were made up of small, black

clumps, one wouldn't think that they were alive, let alone thriving in this very harsh environment.



We poured water on them, which not only allowed us to more easily see the patterns that they formed but it activated them or 'woke them up' for Jim to do his analysis on. Jim used a really cool little device that shined a light on a little section of the wet clump. The algae reacted to this light and gave off its own light in reaction to the light shined on it. This reaction light allowed Jim to determine how much photosynthesis was going on and for comparison; he did the same to a dry clump. Clearly the wet clumps were undergoing more photosynthetic activity than the dry clumps. Since this was one of the earliest forms of life on Earth, maybe something like this could have been or maybe even now is on Mars!

Caves are cool! Sometimes they are warm. I have spent the last two days studying lava tubes. One major objective is to look at the temperature differences between the inside of the cave and the outside of the caves. We do this in two ways. The first step in understanding caves is to deploy sensors in the caves themselves. By deploying sensors in the deepest part of the cave, in the entrance as well as the surface we can detect temperature fluctuations. Tracking these temperature differences is the first step in understanding how to detect caves. Second we are using infrared imaging to help us detect these caves on earth. The data that is gathered from these experiments can help us detect caves on Mars. Caves on Mars can be potentially used as human habitats for future manned missions. Study caves is a lot of fun, crawling around underground and

learning about the formations of mountains, volcanoes, and life in extreme environments is science at its best.