

Eight Days in Death Valley National Park

Seminar concludes with field trip

by **Shanan Peters**

Where can you see cap carbonates on Cryogenian (~ 700 Ma) diamictites, a nearly continuous sedimentary section from the Ediacaran to the Ordovician, and then finish off the day with an in-depth examination of alluvial fan and lacustrine deposits while standing on modern analogues for those systems? The region around Death Valley National Park offered all of this and more to nine Geobadgers during a 2008 Spring Break field course.

After spending the first snowy months of the semester indoors, reading about the geological history of the western margin of Laurentia and the rocks around Death Valley that chronicle that history, from Proterozoic to playa, our seminar turned into a field trip on Friday, March the 14th. After an uneventful flight from Madison to Las Vegas, we rented two 4x4 Dodge Durangos, stocked up on supplies, and headed north, up Las Vegas Valley. Sunset soon forced us off the road and into the Spring Mountains, where we took advantage of public lands and camped under Joshua trees and the cold desert sky. The next morning, after the rising sun had sublimated the thick frost off of our tents and sleeping bags, we were pleased to find ourselves surrounded by good outcrops. Looking back, these scrappy carbonates would turn out to be some of the most fun and instructive of the entire trip. Why? Because they were serendipitous and because we had to all figure them out together, using only our collective knowledge of fossils, stratigraphy, and sedimentology. Is there any better way to learn geology in the field?

Next, it was on to Beatty, NV where we climbed into the hills to look at the spectacular



A group of GeoBadgers inspect a carbonate wackestone at the top of the Devonian Lost Burro Formation, Death Valley National Park. Are those silicified ooids or floating quartz sand grains?
(Amalia Doebbert)

Middle Ordovician carbonate mud mound of Meiklejohn Peak. Having puzzled over the origin and significance of “zebra rock” and associated stromatolite structures, we headed west and into Death Valley proper. There we met-up with **Alan Carroll**, co-leader of the

trip, who had flown from Madison in his self-made plane. Once in Death Valley, we spent time in, among many other places, the Cambrian of Echo Canyon, the Neogene of Mustard Canyon, Mosaic Canyon, Hole-in-the-Wall, and Ubehebe Craters, and puzzled over Racetrack Playa (our group came up with some intriguing hypotheses!). Lesser known are spectacular sections near Teakettle Junction, where the top of the Lost Burro Formation transitions from carbonates to siliciclastics, spanning the Frasnian-Famennian boundary. Everywhere, of course, were active sedimentary systems, including playas, alluvial fans, and aeolian dunes. Venturing out of the western boundary of the park, we spent most of one day looking at the Neoproterozoic in Goler Wash and then crossed Panamint Valley to see the Trona Pinnacles, which form a bizarre landscape of 43 m high Pleistocene tufa columns.

After studying some amazing rocks over the course of eight full days, Alan gave us his signature wing waggle as he took off from Death Valley and the rest of us headed east. An afternoon flight on Sunday gave us a few more hours to spend on the outcrop, so we dodged a flood of weekenders and took in some of the Permian carbonates and Jurassic aeolian sands exposed around Red Rock Canyon. Finally, after make-shift showers by the side of the road, graduate students **Wasinee Aswasereelert, Lauren Chetel, Amalia Doebbert, Andy Fraas, Preeya Jirutthitjaroen, Jennifer Walker, and Eric Williams** boarded their flight for home. I stuck around a few more days to puzzle over the Proterozoic.

To see the trip virtually in Google Earth, visit (<http://strata.geology.wisc.edu/home/geo737.html>). ●



Participants of the 2008 Death Valley field trip pose on the carbonates of the Devonian Lost Burro Formation with one of the sponsors of our trip—Louis Weeks. This invaluable trip, and others like it, are made possible by the alumni-supported Field Experiences Fund. Photo by Amalia Doebbert (who is also in the picture!).