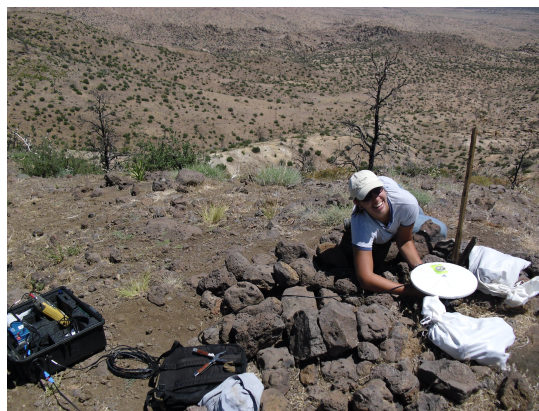


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SCEC Evaluation Activities
Activity 4: Field Notes

When will the next big earthquake in Southern California hit? How can we say for certain where it will originate, how much damage it will cause or how large it will actually be? These are the questions that we are trying to answer. No one can provide an absolute answer on when the next earthquake will happen but we can do our best to narrow down the time frame and say when and where it will most likely occur. This summer, the five of us interns have the opportunity to work with an incredible mentor, Dr. Sally McGill, primarily on collecting GPS data on faults throughout the San Bernardino Mountains and surrounding areas. This data will tell us how much movement, or build up strain, occurs each year on different locales based on the exact position of that locale in previous years.

The main campaign for this project included five days, over twenty sets of heavy GPS equipment, eight interns/undergrads, ten high school teachers and a handful of high school students. We were split into pairs to go out and set up the equipment. Here are some first-hand stories from our different groups:



Chaparossa—

My partner and I went to four different sites, two of which were accessible by vehicle and fairly simple to get set up, another was off a highway and up a small hillside. None of this sounds very strenuous or challenging in the least, but the last site was a six mile round trip hike in the high desert. It was only about ninety degrees when we started hiking around 9am, but as we finished just after noon, the car's AC was the only thing on our minds. Imagine hiking in the hot sun and up a steep trail with no shade for hours. Not comfortable, but not too bad either. Now imagine doing that while carrying a forty pound hard plastic "briefcase," a large antenna and some other miscellaneous awkwardly shaped equipment. That's what we did, twice. But as we say, it's all in the name of science. Just hope that you don't forget to bring the all-important level or compass, both of which you cannot live without during this adventure.



White Mountain—

We began our campaign early in the morning and went off to find our sites. We got lost on awkward, hard to maneuver back road intersections and rarely marked roads named by a mixture of letters and numbers such as 3N16 or 3N01. We used photos that past volunteers took when they reached these benchmarks to help us navigate, along with USGS GPS coordinates of intersections or other distinguishing places. We asked for help from a colleague who had been to one of the sites. He laughed and sided with us on the difficulty of finding the site the first time.

When we found a site we loaded up all our tools: a handheld GPS, directions, a tripod or a spike-mount, an antenna, a receiver, a battery, a solar panel, a compass, a Phillips screwdriver, sandbags and a trowel to fill them. The receiver, battery, solar panel and wiring came in an industrial suitcase called a pelican case. They are bulky and awkward to carry by the handle for long distances so I strapped two tie downs around our pelican case and made it into a backpack. We hiked one mile up a large mountain at one site and about two miles at another site where the road was too rocky for our vehicle to make it all the way up the road.

Our first day, we made it to two of our three sites because of all the complications I mentioned set us back and we ran out of sunlight. The next day, after gassing up, we drove two hours to the last site and then hiked another hour to it to set up the last GPS unit. The next three and a half days were spent in the shade, playing countless card games and reading several books to make the time pass. We had to leave the GPS units up for four days to get the accuracy of the positions down to the nearest couple of millimeters.

Our last day was exiting. We were quite antsy to take down our equipment and go home since we had about gone stir crazy. We left early in the morning and took down the site at our camp. Then, luckily, my partner's husband Tim had a vehicle that could make it up the difficult road to our hardest to reach site and he agreed to take us there. He drove us the whole way to the site. After taking that site down and saying goodbye to Tim, we headed off toward the third and last site. There we saw a five-foot diamondback rattlesnake in the road and stopped to admire it from within the truck. We knew exactly where the last site was now, after having gotten lost when setting it up. We hurriedly hiked up the mountain, took down the GPS unit and hiked back down. We took a lunch break and headed home.



Meeks—

We started with an hour-long bumpy, sandy ride in a desert “Dr. Seuss” land, complete with mountains, big stacks of rounded rotund rocks, and bizarre looking, fantasy-like (Joshua) trees. Finally, the view before us included a pointy peak on the left and a broad flat peak on the right, which undoubtedly matched the photo printout I had in my hand. On the printout, a convincing red line went from the suggested parking spot, slightly up and to the right, wrapped back to the left, and continued in diminishing squiggles up the left-side pointy peak to a triumphant arrow labeled “MEEK.” We packed up the GPS equipment, packed the written directions and handheld GPS as backup, took one more look at the diagram, and headed towards the pointy peak.

After plenty of sweat, bush-whacking, Yucca tree-darting, and at least a dozen new scratches on my arms and legs, we reached where the (virtual) triumphant “MEEK” arrow would be. There was no GPS marker in sight. The situation was, in fact, far from triumphant. After a few frantic minutes of searching under and around just about every rock crevice, we took out the GPS. The handheld GPS told us the MEEKS GPS marker was actually 0.25 miles to the northeast. It was no coincidence that the summit of the broad flat peak was in that exact direction.

Lessons learned: read and re-read the written directions and *follow* them; use GPS coordinate checkpoints if given, even if coordinate checking is tedious and the destination seems obvious.



Deadman—

Sitting in my hammock, I pause from plucking foxtails out from between the mesh in a pair of sneakers and look up. The sun is just about to disappear behind the mountains to the west.

The sky is lit up with streaks of fiery red and orange against a darkening sea blue backdrop. A silvery-blue slither of Big Bear Lake shimmers in the distance. With an unobstructed view, I have literally watched the sun rise in the mountains in the east and set in the mountains in the west. Graceful Swallow/Mountain Swift-like birds glide in the sky, spin and drop, swoop, dive, and let out a mysterious yet distinctive sound that could very well be a dinosaur's burp. As the stars begin to twinkle in yet another breathtakingly clear night, the number of flies diminishes. The peaceful, relaxing stillness of this gorgeous 7462 foot tall Deadman's Ridge has cycled from morning to noon to afternoon to dusk to night, and is ready to begin again tomorrow.



Pits and Meadow—

For my part of the GPS campaign, I had a rather uneventful but good time. Setting up our first site, MEAD, my partner and I did not have much trouble except that the key the forest rangers gave us did not work. Two of our other sites we could not get to on the first day because we would need a Fire Patrol escort to take us up to where the next two sites were. That was fine; we set up our last site, PITS, just hardly off of Highway 38. This was where we were to be camping for the next few days to make sure no one would take the GPS equipment. The next day, my partner had to go put up the other two sites on her own because I needed to watch over the equipment. The location of PITS is, I think, aptly named. It was used as a logging site a few years ago when the forest was being thinned to control a harmful bug infestation. The site had woodchips everywhere and no shade. I got to read and finish two books while avoiding the sun for five days, while my partner spent the whole time trying to put up our last two sites because of problems with the Forest Service availability and site location. It was a very educational experience for sure.