

Not My Fault: The value of scientific meetings

Lori Dengler/For the Times-Standard
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I'm in Seattle attending a meeting of the Seismological Society of America. SSA was formed in 1906 in response to the San Francisco earthquake. From the very beginning, its mission included not only the science of earthquakes but reducing earthquake hazards and communicating with people at risk.

I attended my first SSA meeting about 50 years ago as a graduate student. I've made it to nearly two-thirds of the meetings since then and have presented at least two-dozen papers and posters. SSA is the Goldilocks meeting for me. At about 800 attendees, it's not the monster that American Geophysical Union meetings have become (over 28,000), but large enough to attract top researchers in a wide range of disciplines.

I've been at the meeting for less than a day and already I've heard an excellent keynote talk on the Mars InSight Project. I wrote about InSight (11/28/18) shortly after it had landed. The primary purpose of InSight is to study the interior of Mars and the characteristics of the Martian crust, mantle and core. This is not just an academic exercise. Mars, with a radius of about half that of earth, holds keys to how planets (including earth) form and evolve.

Dr. Bruce Banerdt, the InSight principal investigator and NASA lead on the project, treated us to a grand overview of how InSight both looks back to the earliest days' of seismology and opens the door to 21st century seismology. InSight is tethered to one spot and in this sense is a throwback to the very earliest seismographs of the late 1800s. What can you learn with just one station? It turns out quite a bit, especially when you have the most expensive and sophisticated of seismic instruments.

Everything takes a longer on Mars than on earth. InSight scientists spent the first twenty-two days of the mission exploring the space around the lander to find the optimum spot to place the SEIS seismometer package. Once placed, it took another two months to install, level, shield, and calibrate the instrument. Mars is not a seismically active place but it is noisy with winds topping 60 mph and daily temperature fluctuations of more than 100°F. For the mission to be a success, the instrument

needed to be capable of detecting very small quakes (M2s and M3s), which meant shielding it from all potential noise sources.

On April 6th, the InSight team announced SEIS had detected its first likely Marsquake. Dr. Banerdt showed us several displays and, to be honest, it didn't look very impressive. Estimated to be equivalent to a magnitude 2 range earthquake, the signal was tremor-like and looked nothing like a typical earthquake. Three more possible Marsquakes were also detected. This is just the beginning of the data stream and so far SEIS is working as planned. The noise shielding has created a very quiet spot and, with more small events or a couple of meteor impacts, it's likely we will learn about the Martian substructure and what light it can shine on earth evolution.

It's not just the big news presentations like the InSight, which makes this meeting special. Professional scientific meetings are important in many ways. There are the obvious ones such as learning the latest developments, getting to present your work before peers, and having something to add to your resume. But for me, the most important part of meetings is less tangible. It's all about ideas – the chance to float new ones before colleagues and re-examine old ones.

This morning over coffee I met someone working on the statistics of aftershock sequences. We talked about recent earthquake sequences and why some (like the August Alaska earthquake) seem to have such lengthy aftershocks sequences and others (like our 1992 Cape Mendocino earthquake) relatively short-lived ones. The conversation turned to earthquake patterns and I mentioned how few serious statistical studies of North Coast earthquakes had been conducted. We had noticed a slight uptick in earthquake activity on the Mendocino fault in the past three months and I had always wondered if that could be an indicator of regional stress changes. Preliminary work suggests not, but he was intrigued. He was looking for a new area to work in and I am hoping we peaked his curiosity. Over the next three days I will likely experience more of these informal, idea-stimulating discussions.

Sadly, this may be the acme of SSA meetings for a while. On March 18th, USGS scientists were informed they could choose attend only one scientific meeting a year. Most of them regularly attend the SSA, the annual meeting of the American Geophysical Union and Geological Society of America meetings. Almost all earthquakes research involves USGS support and research participation of USGS scientists make up a significant part of the attendees.

The person I am trying to entice into working on the statistics of North Coast earthquakes is, you guessed it, an employee of the USGS.

I can understand the concern that meetings are possible boondoggles. The 2012 General Services Administration (GSA) \$800,000 “convention” made meetings suspect. But there is a big difference between what happened in Las Vegas and professional organizations that have been operating for nearly a century or longer. Meetings like SSA are one of the most efficient ways of stimulating and fact-checking research. It is at the core of what we do. There is nothing like the eyes of several hundred peers pouring over your paper or poster to make sure your work is sound. I get to see how my poster stands up on Thursday. I’m a little bit nervous, but in a good way.

Lori Dengler is an emeritus professor of geology at Humboldt State University, an expert in tsunami and earthquake hazards. Questions or comments about this column, or want a free copy of the preparedness magazine “Living on Shaky Ground”? Leave a message at (707) 826-6019 or email Kamome@humboldt.edu

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