

**Tour of TO along with Seismo Lab tour**  
**April 3, 2012, 10 AM – noon**  
**Assumption School, Pasadena, 36 6<sup>th</sup> graders**

**Volunteers: Victor Tsai, Vito Rubino, Sylvain Barbot, Erin Burkett**

- Looking for the next earthquake in the Himalaya - Thomas Ader
- Are we children of the stars? - Jamshid Hassanzadeh
- Looking Inside the Earthquake Machine: How do we simulate the San Andreas Fault? - Sylvain Barbot
- What it's like doing Geoscience research, and example models of plate tectonic processes - Erin Burkett

**Erin:** I introduced myself to the students, asked if they knew what a 'post-doc' is, then explained. I presented a short powerpoint, encouraging them to ask questions anytime. I outlined my career path to present. I asked the kids what they imagine when they think of geologists and showed a slide with pictures to illustrate what a geoscientist might do day-to-day (field work/trips, camping, computer work, teaching, write papers to share research results, conferences (often traveling!). I then outlined a trip to Peru for seismology field work with a google map of the location and route and then two slides with photos (one slide with the equipment and showing what gets set up and why...eg. Point out the seismometer, box with battery and equipment to record data from the seismometer, and pole holding up solar panel to charge the battery; and a second slide with some fun pictures and photos of 'difficulties' like road blocks and tarantulas). Then depending on time (one group asked more questions and I didn't get much to this), I fill in with some simulations representing results of research by other scientists, which gave an overall view of plate tectonics Example simulations I showed:

- a. Continental Drift plate reconstructions  
<http://www.tectonics.caltech.edu/outreach/animations/drift2.html>
- b. Seafloor spreading...  
<http://www.tectonics.caltech.edu/outreach/animations/seafloor.html>
- c. Himalayas movie (as a zoom-in of what's going on in cross-section where india collides so rapidly with asia) ...good illustration of subduction, and then leading into the newer research field they may not have seen before of the possibilities of pieces of tectonic plates breaking off (leading to my research)  
[http://www.tectonics.caltech.edu/outreach/animations/himalayas\\_small.html](http://www.tectonics.caltech.edu/outreach/animations/himalayas_small.html)

...At the end pointing out the movies/models show rock moving slowly over Million years, so took the opportunity to use silly putty (pass out some to the kids to keep) to demonstrate that silly putty and rock can both similarly demonstrate viscous, elastic, and brittle behavior! Demonstrate and have the kids quickly pull to break the silly putty (brittle), pull more slowly to demonstrate viscous flow, and bounce the putty (elastic). (Note: kids may get distracted by the silly putty based on the

class mood & size, so plan the timing appropriately (near end?) or collect it again before any other more focused attention is expected!).

**Sylvain:** I was equipped with the small earthquake machine, a geological map of California, my laptop and a projector. I showed the students the important tectonic features on the map and introduced them to the San Andreas Fault and the Pacific and the North American Plate. I then used the earthquake machine to introduce the concept of friction. My mac is equipped with SeimoMac - a real-time seismometer -. That was useful to introduce and talk about earthquake magnitude and earthquake epicenters. Then I asked a student to sit at my computer and navigate a 3-D fault model of California. This is a model developed by SCEC - the Southern California Earthquake Center -. It consists of a 3-D representation of all the known faults in California on the free 3-D visualization software Paraview ([www.paraview.org](http://www.paraview.org)). The visualization was projected so all the students could see. Finally, I showed them a movie of the earthquake cycle at Parkfield - this is what I do for my research -.