

Assumption School, 6th graders
May 2, 2013
33 students + 4 chaperones
10AM - noon
Teacher Annett Faenza
Junle Jiang, Kirsten Siebach, Kristel Chanard

Junle Jiang "Studying Earthquake Behavior Experimentally"

The topic of my 20-minute presentation is "study earthquake behavior in experiments" which highlights the importance of experiments in understanding overall fault behavior and earthquakes. There are about 10 Six-graders from Assumption School for each of the two sessions and the size is quite appropriate for the presentation and activity.

I started the presentation with self-introduction and my own motivation to be a graduate student at Caltech. Up follows the introduction of what earthquakes are and how we study it using seismogram recordings, rock experiments using fault gouge samples, etc. A video clip is featured, showcasing the frictional experiment conducted at high slip rates where rock sample are seen melted by intense heat production. Alongside with recorded data and super-computing facilities, these knowledge boil down to our better understanding of earthquakes and help construct possible hazard scenarios we'd face in future. I showed a SCEC Shake-Out movie as an integrated product of this interdisciplinary knowledge.

The second half of the visit is a hands-on experiment using the earthquake machine. It turned out none of these students have played with this machine before. Some students have an intuition of what to expect; some didn't, but all are interested in trying. The first group themselves started counting the turns it took for different bricks to move and observed the correlation between number of turns with other factors. The other group, all girls, were all the more excited to witness the unexpected jerk of the block as I demonstrated, which obviously encouraged their curiosity. They were more interested in trying out different brick weights. In all, I think they enjoyed this activity quite a lot. I hope that such experiment helped them understand the "earthquake" behavior in the system, determined by several simple factors as they have identified (brick weight, band length, etc). Simple as the system is, it's worth noting that it's still hard to predict the time of sudden motion.