

Education and Public Outreach at Caltech's Tectonics Observatory (TO)



L.J. Kovalenko, Jean-Philippe Avouac, and the TO team

Goals

- Increase the visibility of the TO
- Inform and educate the public about TO discoveries
- Inspire kids to learn science
- Recruit graduate students

Approaches

- Web
- Direct contact with local schools
- Direct contact with international communities
- Media
- Existing Caltech outreach programs

The First Five Years (2004 - present)

• Posters, brochures, and GPS station data sheets about earthquake education and safety in Indonesia

– Distributed to people living on Mentawai and Batu islands

– Explain regional tectonic processes and purpose of GPS stations (Sieh, 2006)



• Brochure about Nepal's seismological network

– Reference guide used throughout Nepal by government departments and the general public

– In collaboration with colleagues from the Nepal Department of Mines and Geology (Avouac, 2006)

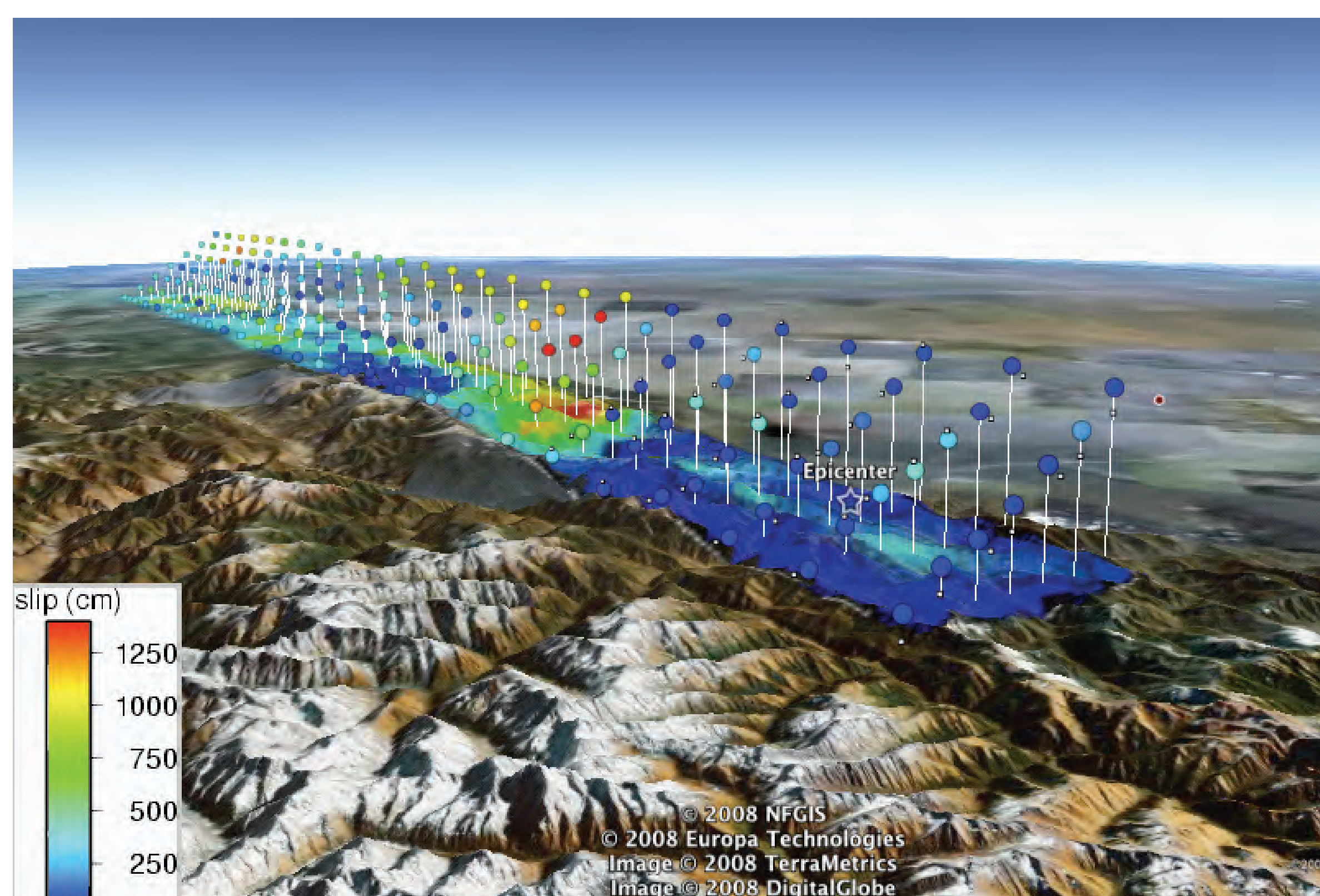
• Educational Outreach in Mexico (Professor Xyoli Pérez Campos, MesoAmerican Subduction Experiment)



– Senior engineering students at UNAM make presentations to schools that host MASE instruments (Rob Clayton)

• Google Earth

– A new way to display TO model slip maps of large earthquakes (Anthony Sladen and Faria Chowdhury)

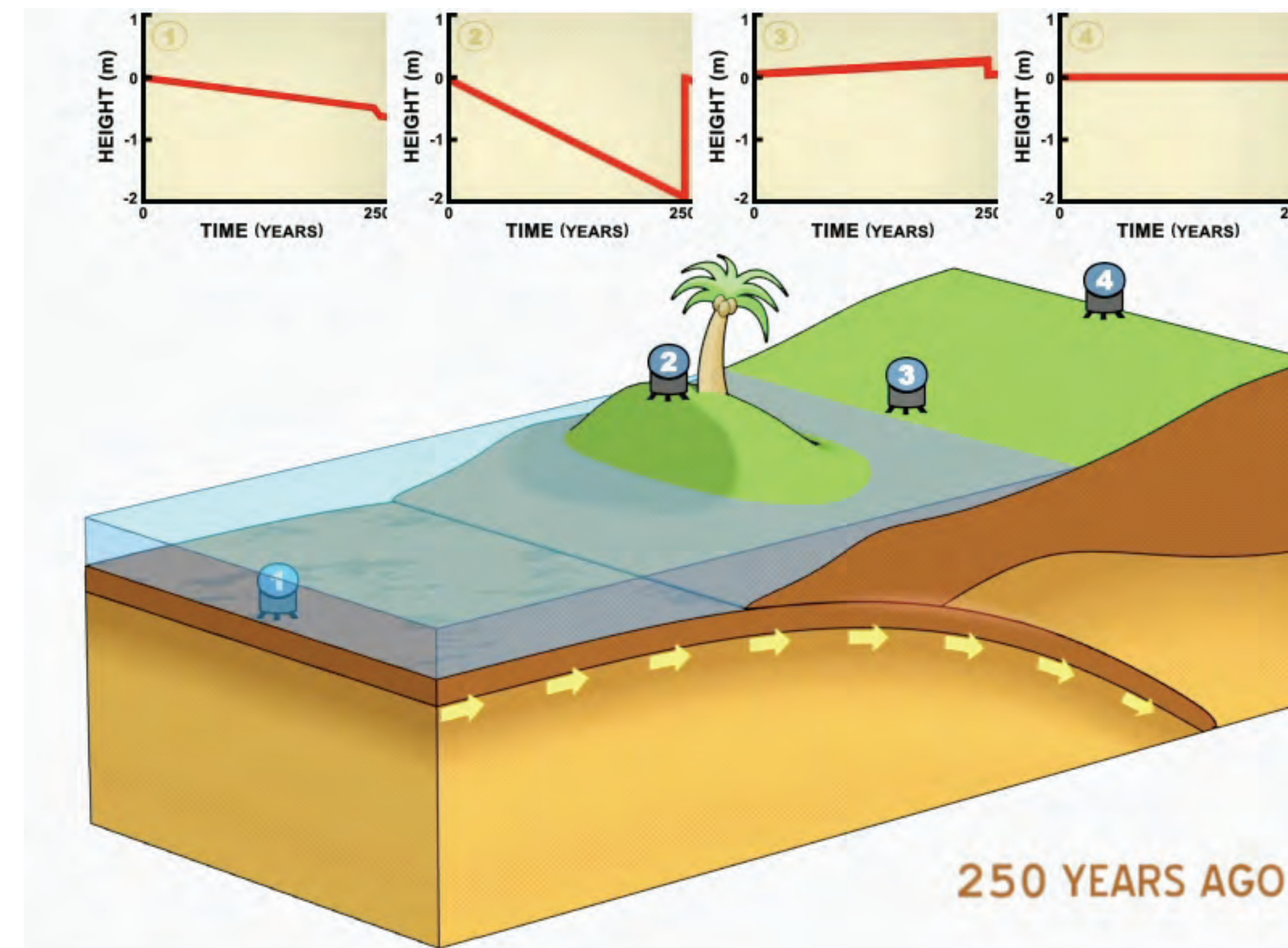


The First Five Years (2004 - present) - cont'd

• New animations and graphics

– For media, teaching, and web, as well as upcoming Seismolab exhibit (Tim Pyle, Lisa Christiansen, Anthony Sladen, Mark Turner, Valerie Thomas)

- Subduction
- Pangaea
- Coral growth
- Tsunami
- Maps



• Video links

– TO faculty lectures for general public

- Caltech Watson lectures
- American Natural History Museum, Science Bulletins
- iTunes podcasts



• Web articles

- The Science behind the May 12 Earthquake in China
- Sumatra (in progress)
- 10-million-year history of a fault (in progress)

• TO tours

– Local 6th graders from Hamilton Elementary School, June 2008, led by



- Grad students Willy Amidon & Carl Tape
- Postdoc Itai Haviv
- Jean-Philippe Avouac

– Planning for 2 to 3 per year

- Distributed flyers at district-wide PTA meeting October 2008

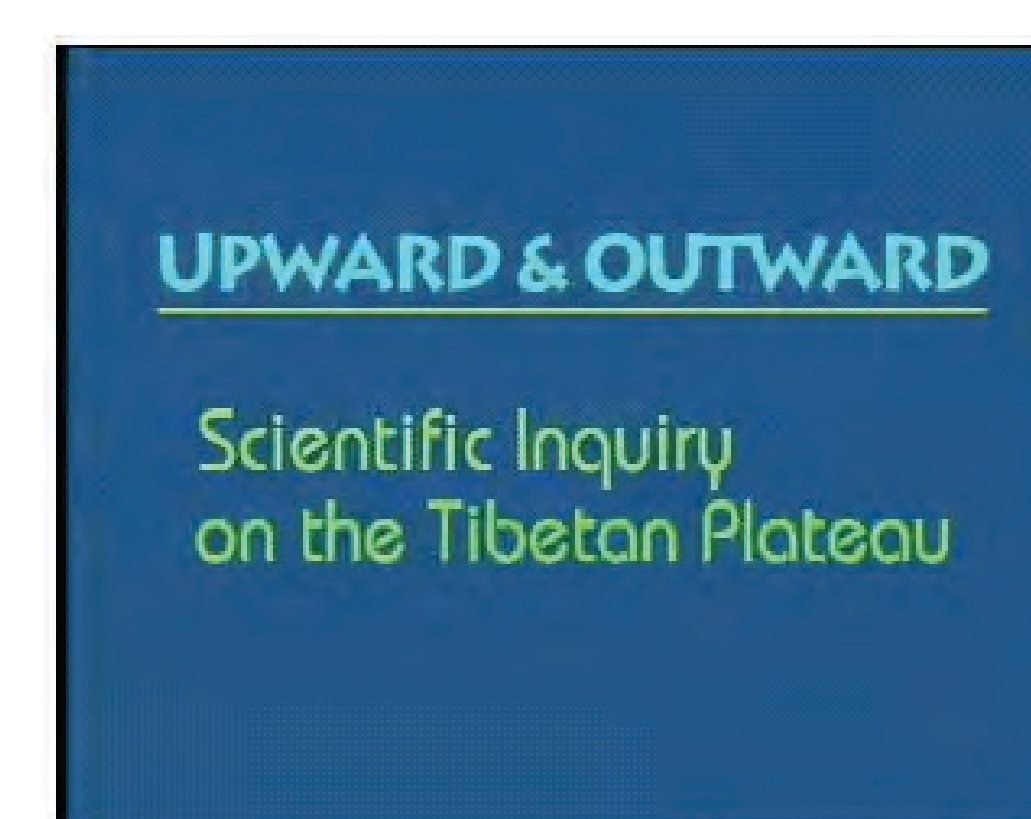
• Upcoming Dec 5 "Family Math Night" at Hamilton Elementary School

– TO grad students will present how they use math in geology (Students - Let me know if you are interested!)

• Educational video for High School and College students

– "Upward and Outward" (produced by CIRES)

- Includes Ken Farley
- Distribution of video to Caltech outreach
 - Caltech Classroom Connections (James Maloney)
 - Reel Science (Denise Nelson Nash)
 - Government and Community Relations (Hall Daily)



The First Five Years (2004 - present) - cont'd

• Educational module for high school and college students

– Uses TO data (Elisabeth Nadin, in progress)

• SURF

– Five students since 2004

• Field trips

- Taiwan, 2008
- Tien Shan, 2006



The Next Five Years

• Caltech programs

- Watson Lectures
- Reel Science
- Science Saturday
- Caltech Classroom Connection
- SURF
- YES

• Assist faculty with grants

- Provide opportunities for grad students and postdocs to contribute to broader impact of individual grants
- Supplemental funding opportunities
- Proposal preparation

• National programs

- MARGINS
- SEIZE

• Expand involvement with local schools

- Include middle and high schools
- Two or three tours of TO per year
- Two classroom presentations per year
- Educational power point presentations
- Education modules for high school
 - May have wider, national, impact through MARGINS program

• Web development

- General explanations of research
- Web articles
- Graphics and animations
- Google Maps and Google Earth
- Videotape TO faculty lunchtime presentations to the staff

• Press and external media

- Caltech press releases (new Media Relations science writer Lori Kluger)
- CNN documentary "The Earthquake Hunter"
- Discovery Channel series "Engineering Nature"
 - 3 programs on volcanoes, hurricanes, and earthquakes

• Establish Summer School to train students in use of TO equipment

- Two weeks
- International
- TO would provide funding for undergrads and grads
 - Postdocs and faculty would come with their own funding

Looking for Students and Postdocs who would like to help Local Schools!

- Give a 20-minute tour of your lab or explanation of your work to a group of about ten 6th graders
- Go into a classroom and give a presentation
- At Hamilton Elementary School's "Family Math Day" December 5, present a poster or short talk on how you use math in geology