Digital Resources Related to CEETEP Topics

Beth Pratt-Sitaula
CEETEP Workshop
EarthScope is a ~15 year long geophysics initiative to study the crust of North America — what it is made of, how it was assembled, and the geohazards it has. Funded by National Science Foundation.

EarthScope Facility has 3 Parts

- **Plate Boundary Observatory (PBO)** — >1100 GPS stations and strainmeters to measure crustal movements
- **USArray** — 400 Transportable Array seismic stations that have been stepping across lower-48 and now Alaska for last 10 years.
- **San Andreas Fault Observatory at Depth (SAFOD)** — drilling to San Andreas fault at 3-4 km

UNAVCO (NSF’s Geodetic Facility) runs PBO

IRIS (NSF’s Seismic Facility) runs USArray

Cascadia EarthScope Earthquake and Tsunami Education Program has 3 collaborating universities
- Oregon State Univ.
- Univ. of Portland
- Central WA Univ.
CEETEP Resources

- TOTLE-Earthquake, Tsunami, Volcanoes
  -- Topic-ordered

- CEETEP DVD – Workshop-ordered

- CEETEP Website
  • Topic-ordered
  • Workshop-ordered

AND
TOTLE DVD – Topic-driven
CEETEP DVD – Workshop-ordered

1. CEETEP Workshop Organization
2. CEETEP Workshop Presentations
3. CEETEP Lesson Plans
4. CEETEP Posters & Maps
5. CEETEP Field Trips
6. GPS Station Records
7. Earthquake&TsunamiEducationResources
8. EarthScope
9. EarthquakeScenarios
10. OR EmergencyPreparedness
11. OR Tsunami Evacuation Maps
12. WA EmergencyPreparedness
13. WA County Preparedness Guides
14. WA Earthquake & Tsunami School Resource Guide
15. WA Tsunami Evacuation Maps
16. WA Tsunami Fact Sheets
17. WA Tsunami Vertical Evacuation Reports
What’s Shaking at SCEC?

Robert de Groot
Manager – Office of Experiential Learning & Career Advancement
Southern California Earthquake Center (SCEC)
CEETEP – Forks, WA
13 October 2014
degroot@usc.edu
What is the Southern California Earthquake Center (SCEC)?

- A Multidisciplinary Research and Education Community
- Supported by the National Science Foundation and the U.S. Geological Survey
- Coordinates the efforts of over 60 institutions (e.g. Oregon State University, University of Oregon, Caltech, MIT, Harvard, UC Davis, USC, University of Alaska-Fairbanks, UC Berkeley)

**Mission:** To gather new information about earthquakes in Southern California, combine knowledge into a comprehensive understanding of earthquake phenomena, and communicate this understanding to increase earthquake awareness, reduce economic losses, and save lives.

www.scec.org
Welcome to Earthquake Country!
California: A Natural Laboratory
SCEC/USEIT: Undergraduate Studies in Earthquake Information Technology

Students develop technical tools for scientists, educators, and policy makers about faults, earthquakes, seismic hazard mitigation, and earthquake risk reduction.

• Began in 2002
  – striving for diversity
  – Over 242 interns to date
• Interdisciplinary, Team-Based Program
  – primarily computer science and computer engineering
  – nearly 3 dozen majors represented
  – many freshmen and sophomores
  – organized around a “Grand Challenge”
• Succeeds in attracting new students
  – from other majors
  – from industry career plans

www.scec.org/useit
SCEC Virtual Display of Objects (SCEC-VDO)

- An open source software tool developed by SCEC USEIT interns to visualize geo-referenced datasets for analysis, presentations, and publications.

- Includes useful datasets such as fault systems, earthquake events, three-dimensional surface imaging, and space-time displays.

- Continually improved to fulfill the requests of the user community.

- Many examples at: http://scec.usc.edu/internships/useit/scec-vdo
SCEC Plate Tectonics Puzzle Map

- Large, two-sided version of the USGS *This Dynamic Planet* poster map along with an accompanying lesson plan with a map legend, instructions, most commonly lost plates template, and suggested discussion questions.
- Back is printed with plate outlines to guide cutting.
- Provides educators with a tool to teach students about Earth science topics through interaction and visualization.
- Map includes volcanoes, mountains, earthquakes, and meteorite impacts as well as vector arrows that show direction and speed of plate movement.
- Email degroot@usc.edu for ordering information ($15)
October 16, 2014 @ 10:16 am
Register today at ShakeOut.org

As of today:
Clallam County - 7,186
Jefferson County – 2,299
Grays Harbor County – 9,254
Pacific County – 2,678
King County – 311,376

2013 Drill - 870,000 in WA

All 2013 drills 23.1 M registered
Tsunami Messaging

**Drop!**
Protect Yourself During Earthquakes

**Cover!**

**Hold On!**

**Go to High Ground!**
The Shaking is Your Tsunami Warning

**Stay There!**
Tsunami Waves May Arrive for Hours

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**ShakeOut plus Tsunami Evacuation-WalkOut Drill**

*Add a tsunami evacuation drill to your ShakeOut Drill*

**First, find out if you live, work or play in a tsunami hazard area:**
- Use the links listed below to find out where tsunami hazard zones occur.
- CGS website: [http://www.tsunami.ca.gov](http://www.tsunami.ca.gov)
- CalEMA MyHazards: [http://myhazards.calema.ca.gov/](http://myhazards.calema.ca.gov/)
- Information from either of these websites can help you identify the tsunami hazard area in your community and help you prepare. If you are located just outside of a tsunami hazard area, you might consider working with your community to see what kind of assistance you might be able to provide for potential evacuees.

**Add a Tsunami Evacuation Drill to your planned ShakeOut Drill:**
- For ShakeOut, it is important to register in advance for the event, and on the day of ShakeOut participate in the Drop-Cover-Hold On drill. Prior to ShakeOut, use the links above to determine if you are in a tsunami hazard area. If you are, you can add an organized tsunami evacuation drill that will follow the Drop-Cover-Hold On.
- To prepare for the drill, identify if there is an evacuation plan in place for your site. Contact your building manager, school district, and/or city or county offices of emergency services to find out the recommended procedures. Additionally, the maps at [www.tsunami.ca.gov](http://www.tsunami.ca.gov) and [http://myhazards.calema.ca.gov/](http://myhazards.calema.ca.gov/) can lead you to links to local, regional, state, and national information sources.
- If there is no tsunami evacuation plan in place for your building, learn what the recommended tsunami evacuation routes are in your city, county and region. Some cities and counties have this information available online.
- Identify an area outside the tsunami hazard zone where you can safely relocate (school, church, parking lot).
- Walk your evacuation route prior to the drill. Make sure there are no potential hazards that may prevent you from using this evacuation route safely.

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Materials developed by Redwood Coast, Tsunami Work Group (Humboldt State University - CA)
California Science Center Live Earthquake Program

- Developed by SCEC SURE interns and Science Center staff
- www.californiasciencecenter.org
- 15-minute program performed on the Creative World Tech Review Stage at the California Science Center in Los Angeles
- Debuted in Spring 2012 as a Science Spectacular!™ Program and will be offered weekly to school groups, families, and other visitors
- Covers earthquake science and preparedness basics
- Program will be shared with and performed by other members of the EPIcenter Network (and other free choice learning institutions).
- Will be shared on the web in spring 2014.

- Link to Video & resources: http://www.earthquakecountry.org/EPIcenter/eqshow.html
**Quake Catcher Network (QCN)**

- Largest, low-cost strong motion seismic network utilizes sensors in and attached to Internet-connected computers.
- Collaborative initiative of Stanford Univ. & USGS
- Provides educational software that uses the sensors to teach about earthquakes and their hazards
- QCN and the EPIcenter Network are initiating a campaign to bring sensors and educational programming to free-choice learning environments. Partners include SCEC, NEES, IRIS, USGS, CA Geological Survey, UNAVCO, and EarthScope

http://qcn.stanford.edu
NASA Insight

Interior Exploration using Seismic Investigations, Geodesy and Heat Transport
InSight Formal Education Program

2014 Vital Signs of the Planet

Educator Fellows will:

• Be immersed into the science of Caltech, JPL, QCN, SCEC
• Conduct 5 days of survey-mode GPS research
• 9 lesson kits to be hosted at SBCM Hub (lending kit format)
• Test teach the lessons
• Install a QCN seismometer at their school
• Host a workshop at SCEC Annual Meeting
• Participate in 2014 Great ShakeOut

http://insight.jpl.nasa.gov/home.cfm
“Native California is Earthquake Country!”

Project

- Partnership with Sherman Indian High School (Riverside, CA)
- Turtle Tale Video: Earthquake story of Gabrielino-Tongva Tribe (filmed by SCEC)
- http://www.earthquakecountry.org/EPIcenter/turtletale.html
- Two posters: one with tribal languages of students at the school (national), one for distribution throughout California (only California languages)
Recruited two new EPIcenters and Quake Catcher Network Sensor Installations at: HSU Natural History Museum, Arcata and HSU Founders Hall (Geological Sciences).

Visited Humboldt County Fair to see award-winning earthquake and tsunami room.
ShakeOut Scenario for Southern California

M7.8 Scenario Earthquake
Time = 000.0 s

Thank You!

Robert de Groot
Manager – Office of Experiential Learning & Career Advancement
Southern California Earthquake Center (SCEC)
degroot@usc.edu