



Shake Out

The Great Oregon Shake Out

We're all in this together. . .

Robert de Groot
Southern California Earthquake Center (SCEC)
CEETEP – Newport, OR 14 August 2013
degroot@usc.edu

Earthquake Country Alliance
We're all in this together.

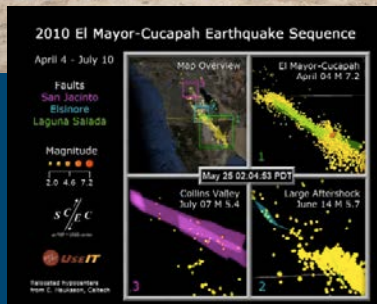
What is SCEC?

- 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. USC, UCR, Caltech, UCLA)

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.

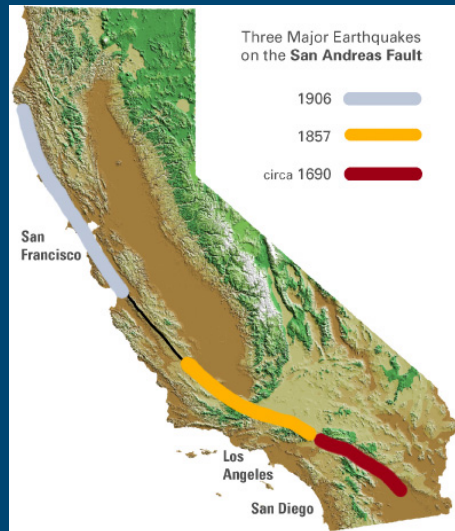


Experiential Learning and Career Advancement



Shake Out

A Natural Laboratory



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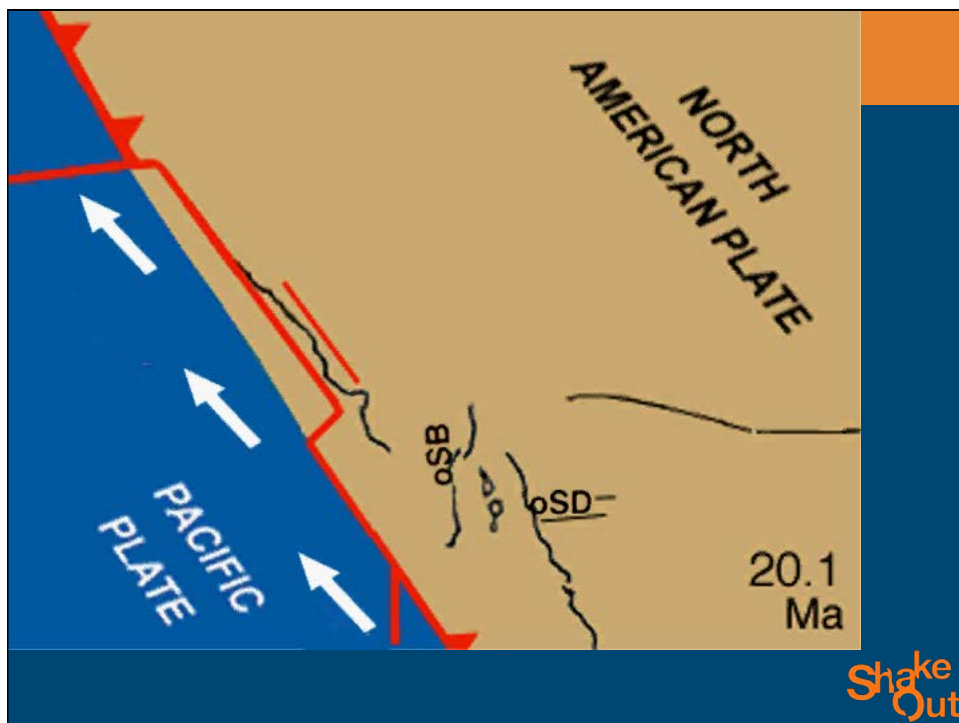
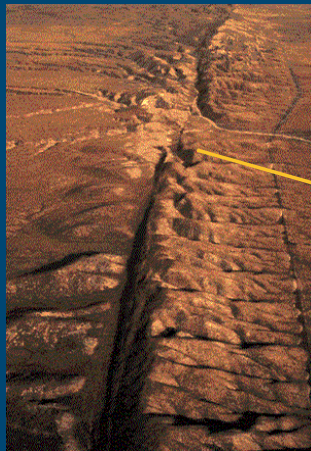
UCERF Ingredients

by Kevin Milner & Ned Field
using SCEC-VDO



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It's all our fault



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Southern California Faults



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Southern California in 1857

population ~4,000



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Southern California Today

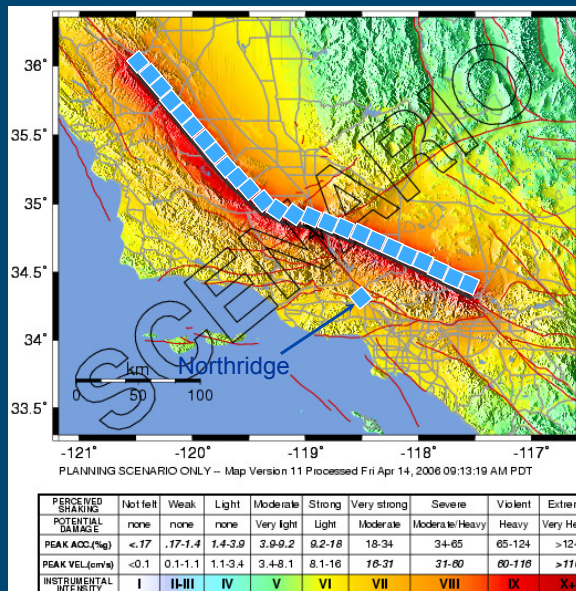


- Over 23 million people
- Fastest growing areas are close to the San Andreas

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“Ft. Tejon” Earthquake: Southern California’s last “Big One”

- Jan. 9, 1857
- Magnitude 7.9
- 240 mile long rupture, from Northwest to Southeast
- As long as 25 Northridge-sized faults
- Today: *at least* \$150 billion

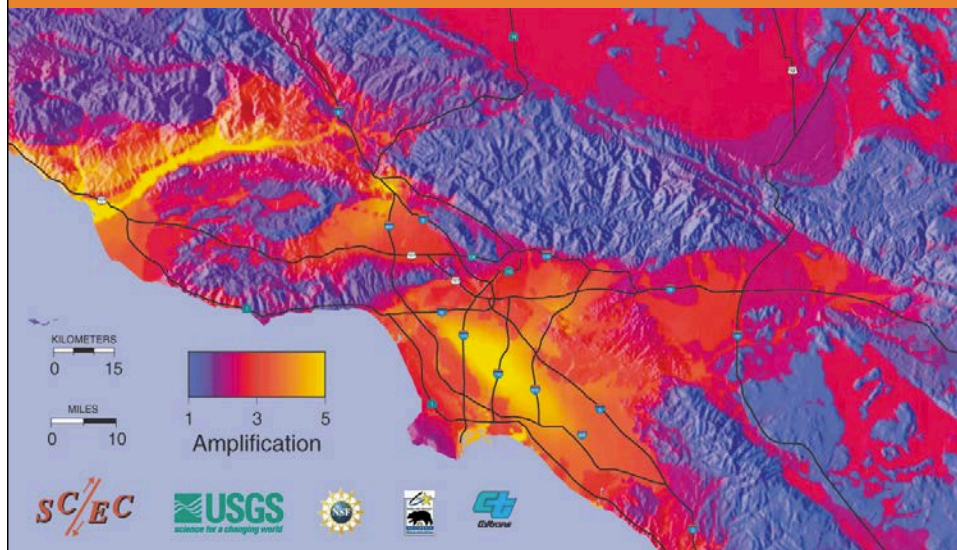


M7.8 Scenario Earthquake
Time = 000.0 s



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Sediment-filled valleys amplify shaking

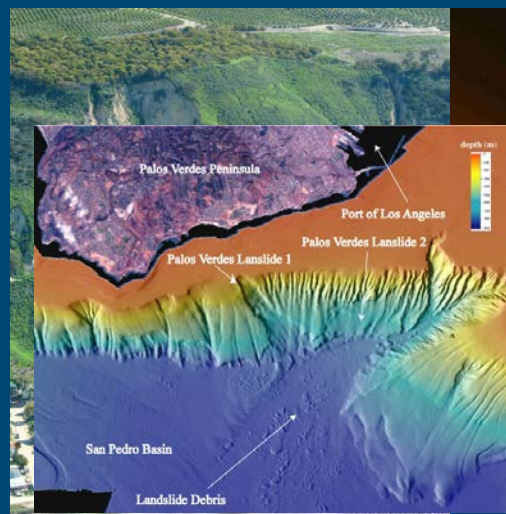


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Secondary Effects

- Fires
- Shaking induced landslides and liquefaction
- Submarine landslides and tsunamis



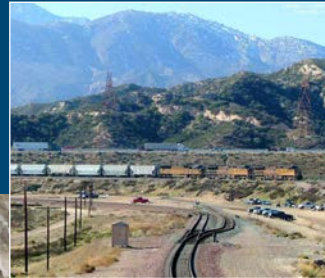
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Lifelines will be Severed along the Fault

- Water
- Electricity
- Gas
- Fiber Optics
- Telecommunications
- Railroads
- Interstate Highways

**What will you do
when these items
are unavailable?**

Cajon
Pass



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The Great
Oregon
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- October 17, 2013
- 10:17 am
- An annual, statewide earthquake drill for all residents, businesses, schools, organizations... everyone!
- Register today at ShakeOut.org



CHECK THE STATS

Over 44,000
Participants and
Counting!

12,065 in Coastal

Register to join
participants in these
counties: Clatsop,
Coos, Curry, Lincoln,
Tillamook

[More about this area...](#)

Other Areas

2012 Participants: Over 160,000
Coastal: 12,050

- October 17, 2013
- 10:17 am
- An annual, statewide earthquake drill for all residents, businesses, schools, organizations... everyone!
- Register today at ShakeOut.org

CHECK THE STATS

Over 270,000
Participants and Counting!

Click the map for details about each area

2012 Participants: Over 710,000
Click Map for Area Total:

Initial Development

- **ShakeOut began in Southern California in 2008: 5.4 million**
 - Based on comprehensive "ShakeOut Scenario" led by Lucy Jones as the initial project of the USGS Multi-Hazards Demonstration Project
 - Implements social science research on why people get prepared
 - Mostly K-12 students and staff, but also families, businesses, organizations, all practicing Drop, Cover, and Hold On (and much more)
 - Developed manuals, videos, print materials, and other resources
- **Expanded statewide in 2009: 6.9 million**
 - First statewide earthquake drill
 - Annual event on third Thursday of October
- **Continues to grow**
 - 2011 California: 8.6 million
 - Across the country and internationally



ShakeOut: A Global Activity – ShakeOut.org

SHAKEOUT REGIONS AND CURRENT REGISTRATION LEVELS

Great ShakeOut earthquake drills help people in homes, schools, and organizations improve preparedness and practice how to be safe during earthquakes. Most people participate in one of the Official ShakeOut Regions* shown below. Now anyone in other states, provinces, or countries can also register to be included in the global participation total!

To register or learn more, click a map or choose from this list:
Select one:

Current Registration Totals:
Oct. 17, 2013: over 10.2 million
2013: over 13.7 million
2012 Global Total: over 19.5 million

All current ShakeOut drills shown below will be held on 10/17/2013 unless specified.

REGION	CURRENT DRILL (as of today)	PREVIOUS DRILL	REGION	CURRENT DRILL (as of today)	PREVIOUS DRILL
California	7.4 million	8.4 million	Central U.S. (IL, IN, MI, OH, TN, KY, MO, MS)	730,000	2.9 million (2/7/2013)
SouthEast (DC, DE, GA, MD, NC, SC, VA, WV)	650,000	1.8 million	Puerto Rico	66,000	750,000
Washington	270,000	710,000	British Columbia	250,000	560,000
Nevada	460,000	510,000	Oregon	44,000	160,000
Idaho	33,000	82,000	Guam	5,000	65,000
Arizona	15,000	62,000	Alaska	9,000	51,000
NorthEast (CT, MA, ME, NH, NJ, NY, PA, RI, VT)	259		Rocky Mountain (CO, MT, WY)	2,000	
Hawaii	1,000		American Samoa	58	
Charlevoix, Quebec	2,000 (9/26/2013)		Utah	860,000 (4/17/2014)	840,000 (4/17/2012)
Southern Italy	10	18,000	Japan	440,000 (Various Dates)	158,000 (Various Dates)
New Zealand	No 2013 Drill	1.3 million (9/26/2012)	Other States and Countries	220,000	300,000

The ShakeOut began in California and has also been organized in many other states and countries. Official ShakeOut Regions require significant local or regional coordination, typically by an emergency management agency or an alliance of many organizations. If you are interested in establishing a ShakeOut drill for your region please contact us. If your

Key ShakeOut Elements

- Public and Private Partners
 - Working together in a unified effort and common understanding
- A Whole Community approach
 - Customized information for over 20 categories of participants
- [ShakeOut.org](#) website
 - Online registration and listing of participants
 - Instructions for many types of organizations
- ShakeOut Drill Manuals
 - Schools, Businesses, Organizations, and Government Agencies
 - Multiple levels of drills (simple to advanced)
- School drill resources, take home materials, class curricula
- Drill Broadcasts (audio and video narrated instructions)
- Radio, TV, and print advertising and PSAs
- Extensive traditional and social media coverage/interaction



The Seven Steps to Earthquake Safety

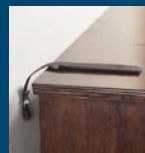
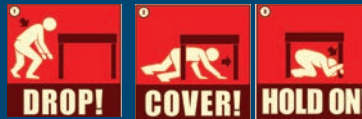
Seven Steps image
from current versions
of *Putting Down Roots
in Earthquake Country*



Key ShakeOut Preparedness Messages

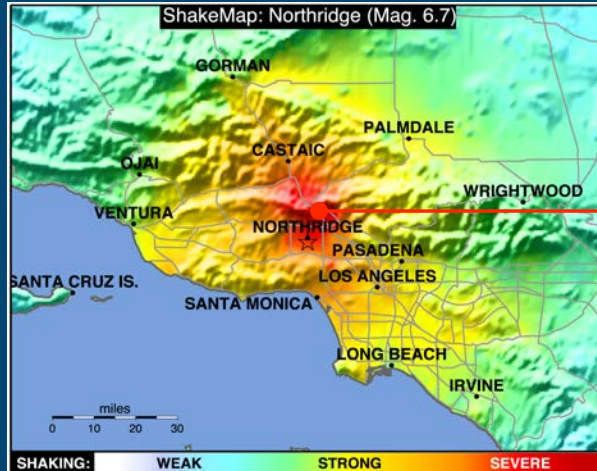
At home, work, and school:

- Consider what would happen in a big earthquake and what you can do now to reduce damage and recover quickly.
- Practice "Drop, Cover, and Hold On"
- Secure Your Space
 - Top heavy furniture
 - Water heaters
 - TVs & electronics
 - Vulnerable structures
 - Etc.
- Store More Water
 - 1 gallon per person per day for at least 3 days and *ideally* for 2 weeks
- Have a Fire Extinguisher(s)
 - Everyone must know proper use



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ShakeMap - Graphical tool used to portray the extent of shaking following an earthquake. Automatically generated within minutes.



Color coded to indicate severity of Shaking – red being extreme shaking

Indicates Level 9 damage at collapse of freeway overpass near Santa Clarita in the 1994 Northridge Earthquake

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Preparedness Resources



- www.earthquakecountry.org
- *Putting Down Roots in Earthquake Country*
 - Includes “Seven Steps to Earthquake Safety”
 - Online to read, download, or order free printed copies
 - So. Cal. English & Spanish
 - Bay Area (also multi-language special versions)
- *Oregon: Living on Shaky Ground*
- *7 Steps to an Earthquake Resilient Business*
- www.Terremotos.org

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Earthquake & Tsunami Education and Public Information Center (EPIcenter) Network

- **EPIcenters** include a variety of public venues such as museums, science centers, libraries, aquaria, park visitor centers, and universities
- Share a commitment to demonstrating and encouraging earthquake and tsunami preparedness
- Help coordinate activities in their region (including the ShakeOut), lead presentations or organize events in their communities, or in other ways demonstrate leadership in earthquake and tsunami education and risk reduction.



www.earthquakecountry.org/EPIcenter

Earthquake & Tsunami EPIcenter Network



earthquakecountry.org/epicenter

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

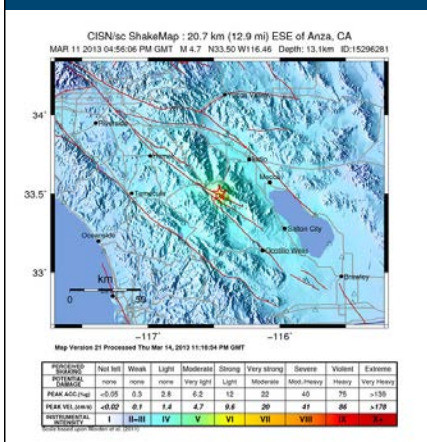


<http://qcn.stanford.edu>

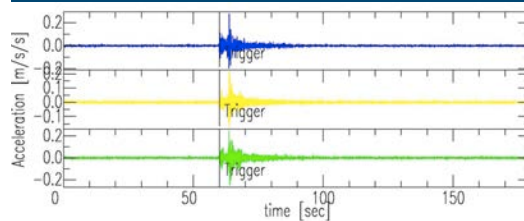


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M 4.7 Anza Earthquake 3/11/13



Recorded at Rancho Mirage Public Library

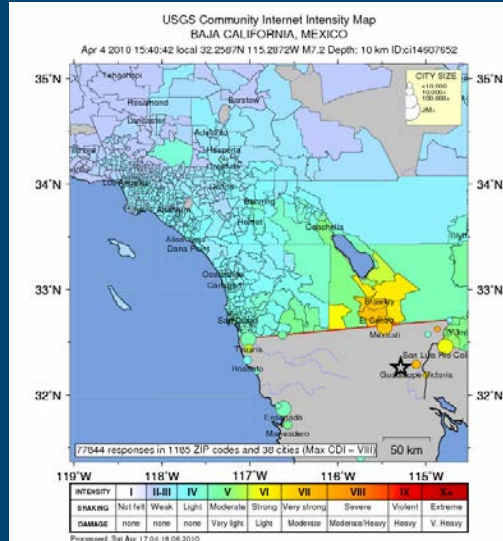


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How you can get involved!

Did you Feel It? Then Report It!

See web address on the back page of Roots.



Shake Out

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)



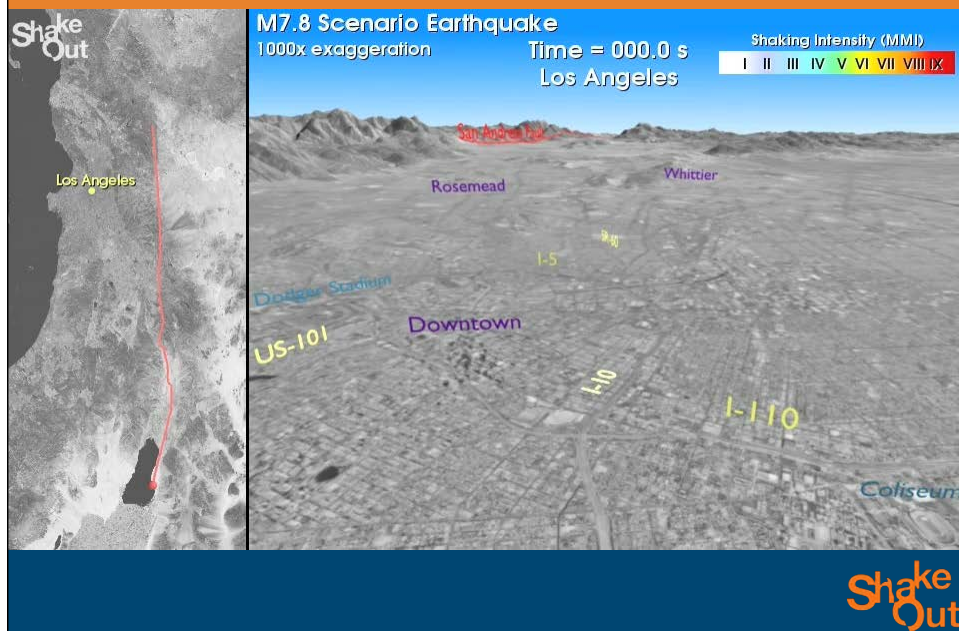


Thank you

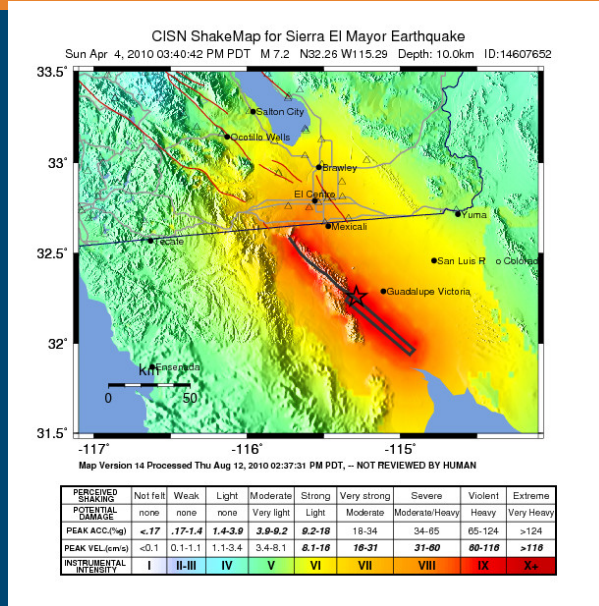


Working Together to Promote and Improve Preparedness, Mitigation, and Resilience

A view from Downtown LA



ShakeMap



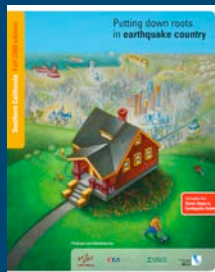
Shake Out

Readiness Information



- www.earthquakecountry.org
- *Putting Down Roots in Earthquake Country*
 - 32-page handbook
 - Includes "Seven Steps to Earthquake Safety"
 - Online to read, download, or order free printed copies

www.Terremotos.org



Earthquake Country Alliance
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Shake Out

Protect Yourself During Earthquakes



- If inside, stay inside!
- If outside, stay outside!
- **Drop** to the floor
 - before the earthquake drops you!
- **Take Cover**
 - under a sturdy desk or table
 - Or get down next to a wall and cover your head with your arms
- **Hold On** to it firmly
 - Be ready to move with it until the shaking stops.

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Thank You

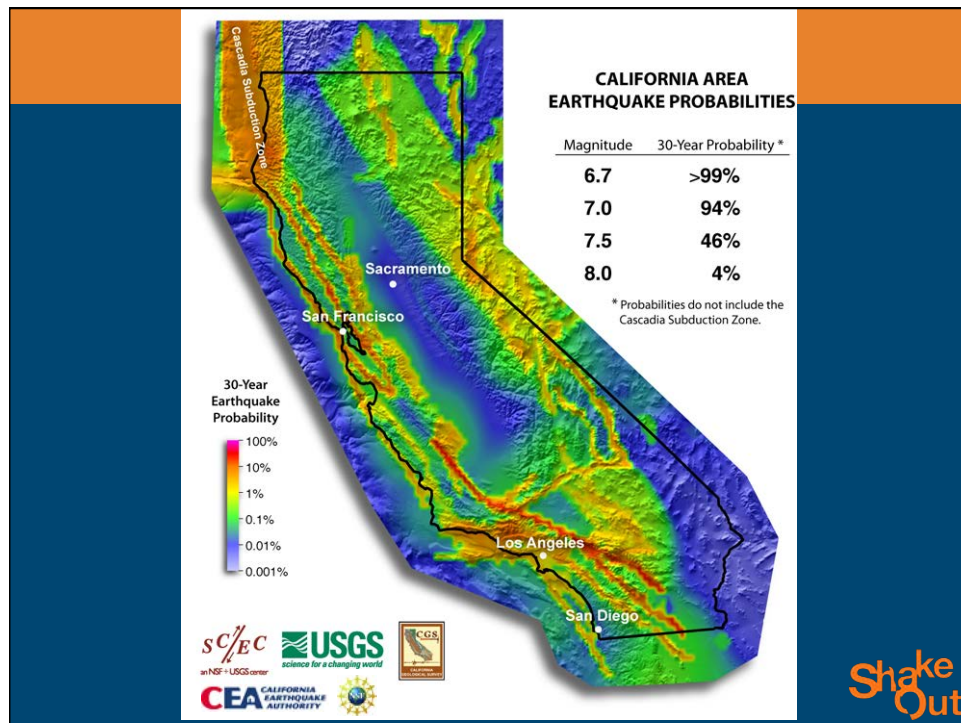


Adam Stevens, UseIT '10

Working Together to Promote and Improve
Preparedness, Mitigation, and Resilience

We're all in this together. . .

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Northridge earthquake

- Jan. 17, 1994
- Magnitude 6.7
- 10x10 mile section of fault moved, all underground, from Southeast to Northwest
- \$40 billion
- 33+ deaths

