SCEC

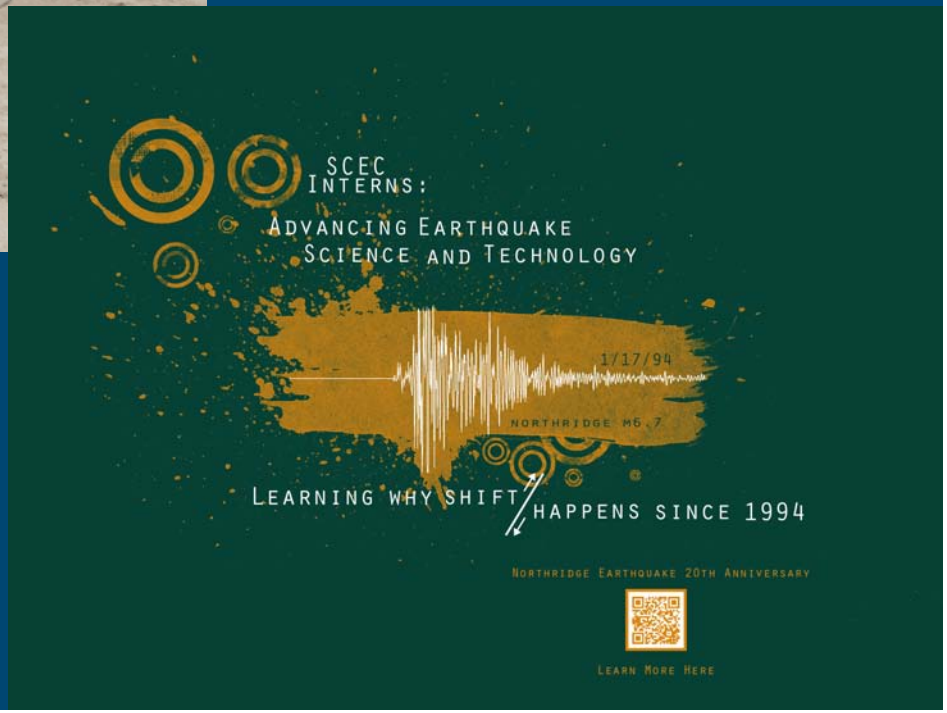
an NSF + USGS center

Southern California Earthquake Center

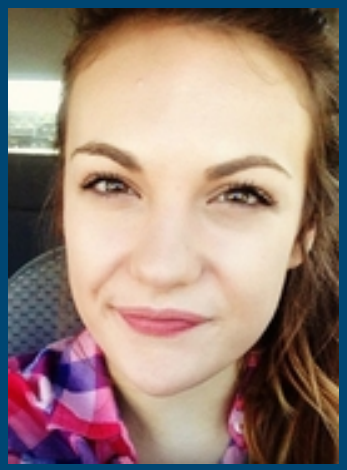
Communication, Education, and Outreach

Creating an Earthquake and Tsunami Resilient California

Experiential Learning and Career Advancement



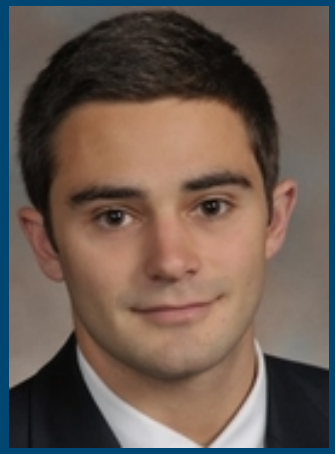
2013 SURE Program



Jessica Zimmerman
Texas A&M
Mentor: Z. Peng
(Georgia Tech)

Paul Morgan
UC Santa Cruz
Mentor: Z. Peng
(Georgia Tech)

Michelle Vanegas
Cal State Los Angeles
Mentors: K. Springer (SBCM)
& R. de Groot (USC)



Gavin Rinaldo
Georgia Tech
Mentor: Z. Peng
(Georgia Tech)

2013 SURE Program

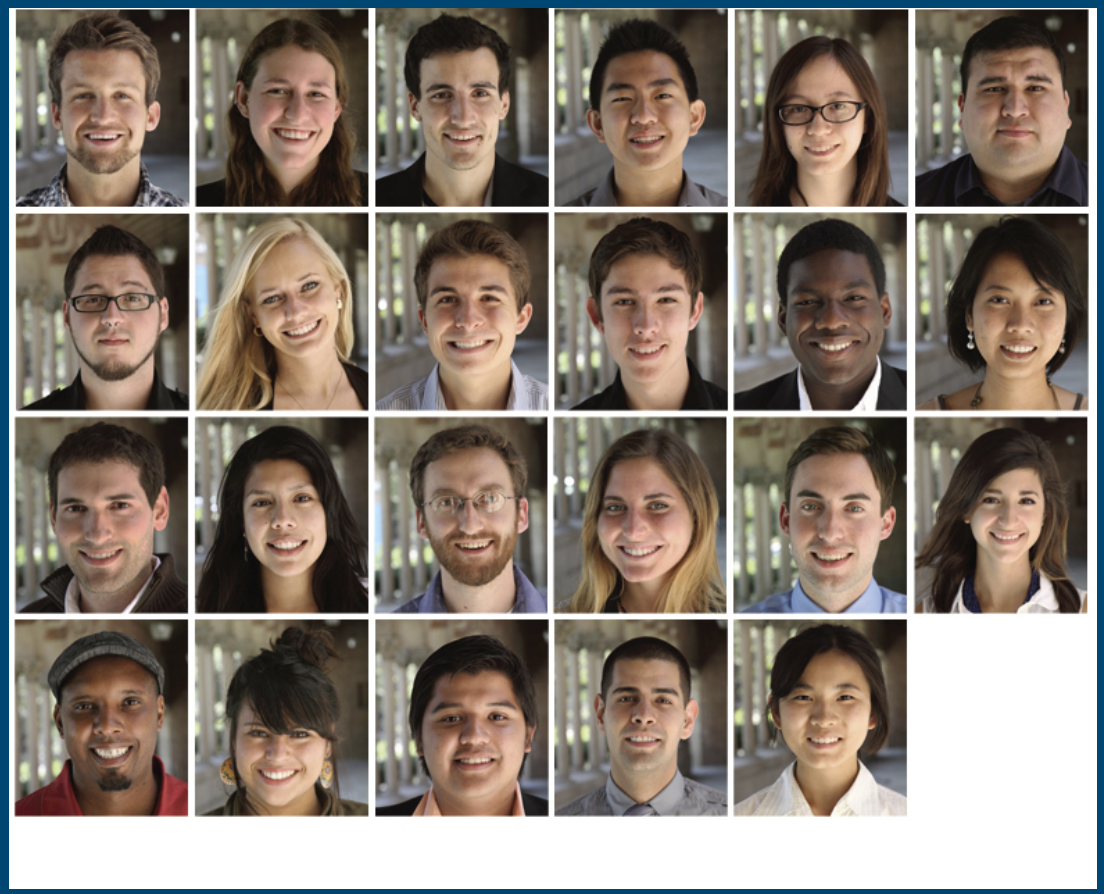
Matthew Warbritton
St Louis University
Mentor: S. McGill, CSUSB

Edgar Chu
University of Southern California
Mentors: R. Welti & J. Taber (IRIS)

Walter Nelson
Sewanee – The University of the South
Mentors: S. McGill (CSUSB)

Daniel Halford
Stanford University
Mentors: S. Akciz (UCLA)
& L. Grant-Ludwig (UCI)

2013 USEIT Interns



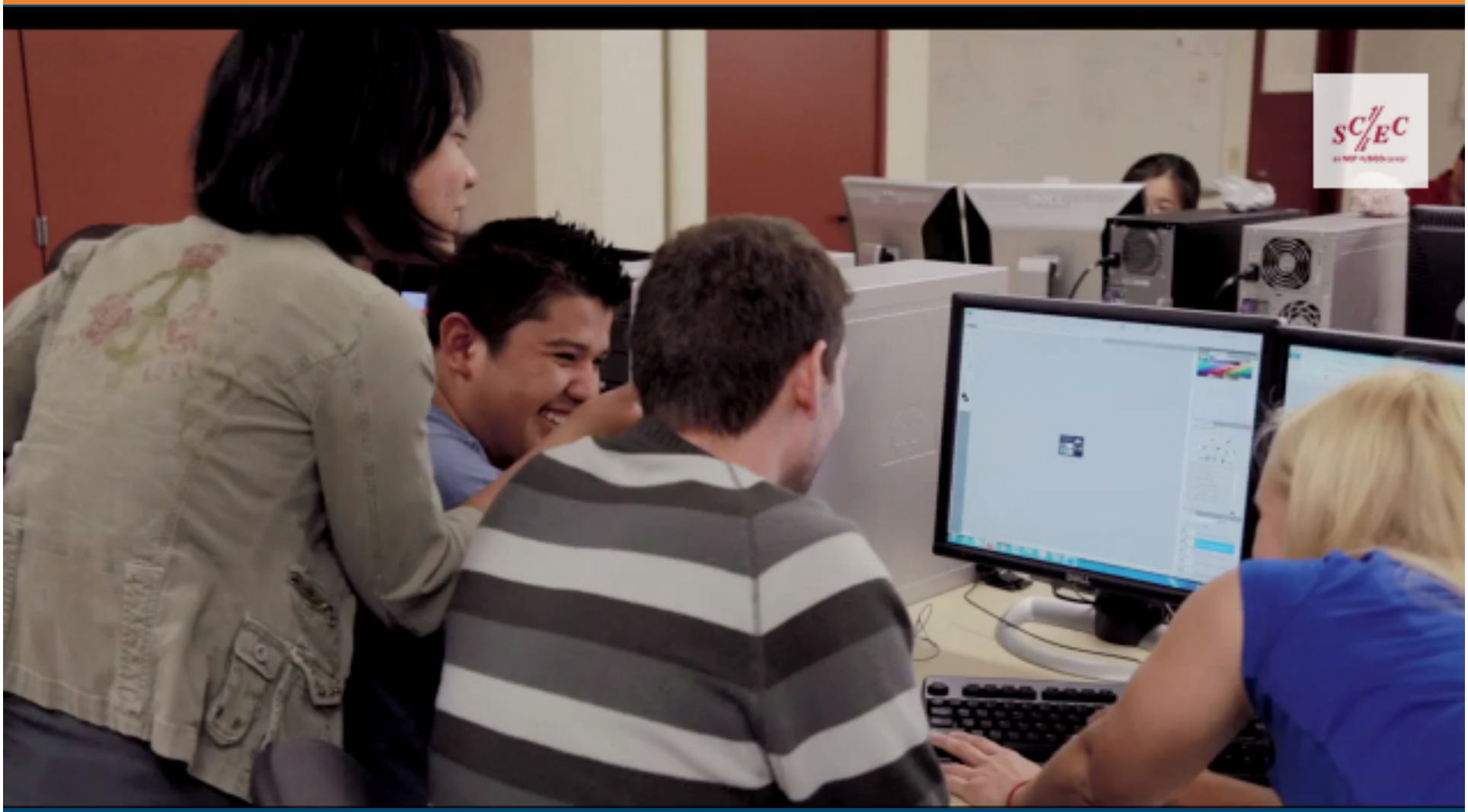
2013 Grand Challenge: Develop SCEC-VDO and GIS tools for exploring the new Uniform California Earthquake Rupture Forecast, Version 3.3, and use the UCERF3.3 to produce visualizations of the earthquake hazard in Southern California for public education during the 20th Anniversary of the 1994 Northridge earthquake.

USEIT 2013 Schools Represented

California State University, Los Angeles
California State University, Fullerton
California State University, Northridge
Chaffey College - 2YC (CA)
Clemson University (SC)

East Los Angeles College -2YC
Georgia Institute of Technology
Harvey Mudd College (CA)
Lyndon State College (VT)
Pasadena City College -2YC (CA)

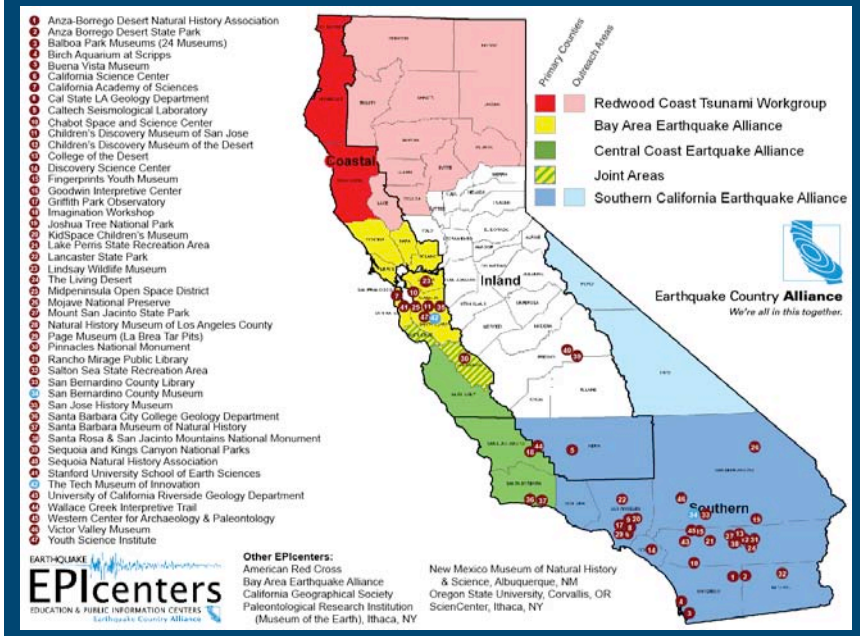
2013 USEIT Documentary



http://www.youtube.com/watch?v=XSE3w2Xdrt4

Earthquake & Tsunami
Education and **P**ublic **I**nformation **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

Visit with Redwood Coast Tsunami Work Group

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.

EPIcenter Network Update

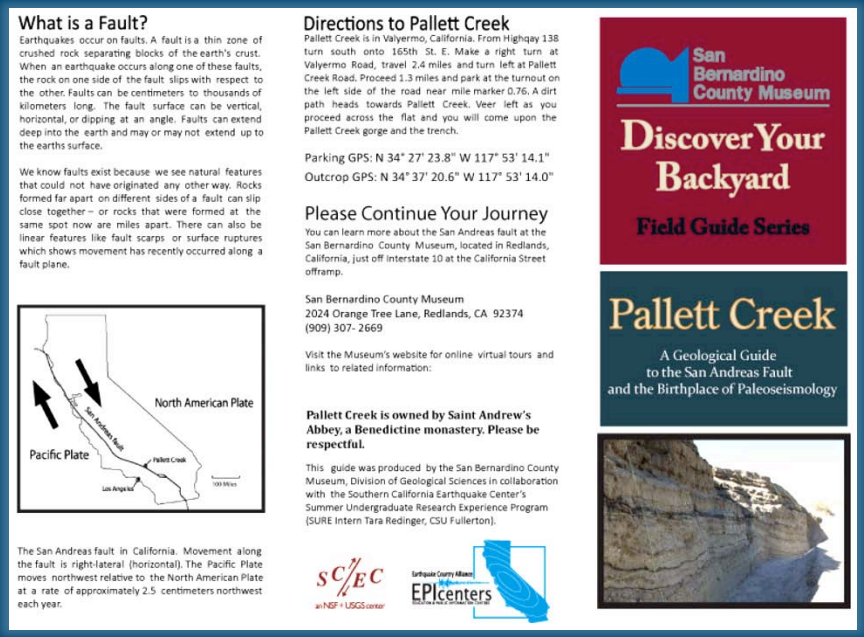
Earthquake Country Alliance

EPIcenter

EDUCATION & PUBLIC INFORMATION CENTER

Project Updates

A Virtual Field Excursion to Pallett Creek – A new educational product of the San Bernardino County Museum's Hall of Geological Wonders *Discover Your Backyard* Field Guide Series.



What is a Fault?

Earthquakes occur on faults. A fault is a thin zone of crushed rock separating blocks of the earth's crust. When an earthquake occurs along one of these faults, the rock on one side of the fault slips with respect to the other. Faults can be centimeters to thousands of kilometers long. The fault surface can be vertical, horizontal, or dipping at an angle. Faults can extend deep into the earth and may or may not extend up to the earths surface.

We know faults exist because we see natural features that could not have originated any other way. Rocks formed far apart on different sides of a fault can slip close together – or rocks that were formed at the same spot now are miles apart. There can also be linear features like fault scarps or surface ruptures which shows movement has recently occurred along a fault plane.

The San Andreas fault in California. Movement along the fault is right-lateral (horizontal). The Pacific Plate moves northwest relative to the North American Plate at a rate of approximately 2.5 centimeters northwest each year.

Directions to Pallett Creek

Pallett Creek is in Valyermo, California. From Highqay 138 turn south onto 165th St. E. Make a right turn at Valyermo Road, travel 2.4 miles and turn left at Pallett Creek Road. Proceed 1.3 miles and park at the turnout on the left side of the road near mile marker 0.76. A dirt path heads towards Pallett Creek. Veer left as you proceed across the flat and you will come upon the Pallett Creek gorge and the trench.

Parking GPS: N 34° 27' 23.8" W 117° 53' 14.1"

Outcrop GPS: N 34° 37' 20.6" W 117° 53' 14.0"

Please Continue Your Journey

You can learn more about the San Andreas fault at the San Bernardino County Museum, located in Redlands, California, just off Interstate 10 at the California Street offramp.

San Bernardino County Museum
2024 Orange Tree Lane, Redlands, CA 92374
(909) 307- 2669

Visit the Museum's website for online virtual tours and links to related information:

Pallett Creek is owned by Saint Andrew's Abbey, a Benedictine monastery. Please be respectful.

This guide was produced by the San Bernardino County Museum, Division of Geological Sciences in collaboration with the Southern California Earthquake Center's Summer Undergraduate Research Experience Program (SURE Intern Tara Redinger, CSU Fullerton).

SCEC an NSF + USGS center

Earthquake Country Alliance EPIcenters

San Bernardino County Museum

Discover Your Backyard

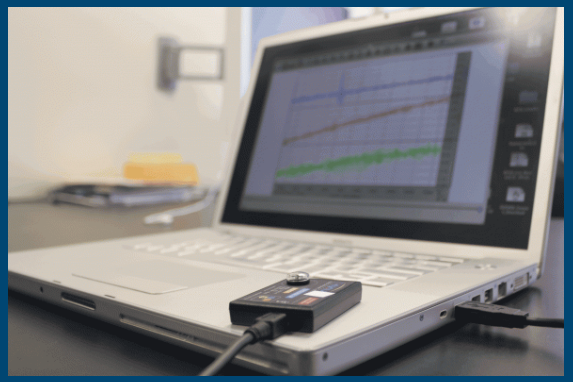
Field Guide Series

Pallett Creek

A Geological Guide to the San Andreas Fault and the Birthplace of Paleoseismology

Native California Project – Engagement with Native American cultural centers & QCN Sensor Installations

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

QCN-EPIcenter Network

Like 0 +1 0 Tweet 0

QCN and Education and Public Information Centers (EPIcenters)

The Quake-Catcher Network's (QCN) collaboration with the Earthquake Country Alliance (ECA) Earthquake and Public Information Centers (EPIcenters) is a 'network within a network' that supports the missions of the QCN, the ECA-EPIcenter network, as well as its collaborating partners (e.g. USGS, SCEC, NEES, IRIS, NSF, EarthScope, and UNAVCO). This joint network will assist participating free-choice learning institutions in engaging broad and diverse audiences in QCN activities, by providing program materials and products for implementation and use. Overall, through access to these cutting-edge technologies, participating institutions will increase public awareness of earthquake science, participation in earthquake data collection, and earthquake preparedness of their communities throughout the United States.

EPIcenter Network Website

The EPIcenter community shares a commitment to demonstrate and encourage earthquake and tsunami preparedness. They coordinate the Earthquake County Alliance (ECA) activities in their county or region (e.g. ShakeOut), lead presentations or organize events in their communities, or in other ways demonstrate leadership in earthquake education and risk reduction. EPIcenters are found in a variety of free-choice learning venues, such as museums, science centers, libraries, and universities.

QCN-EPIcenter Kit

The QCN-EPIcenter Kit aims to ensure that we are helping institutions meet their education and research goals, appeal and encourage partners (e.g. NEES, IRIS, CGS, and USGS) to help promote QCN by incorporating their ideas, serve as a medium to promote the QCN and EPIcenter networks, and foster education in earthquake science, while also promoting research in the field. In addition, you can find how YOUR participation is crucial to the success of the QCN-EPIcenter network. Details on how to install and how to perform demonstrations with the sensor are included.

qcn.stanford.edu/learning-center/qcn-epicenter-network

Join Our Team!

Members of QCN-EPIcenter Network

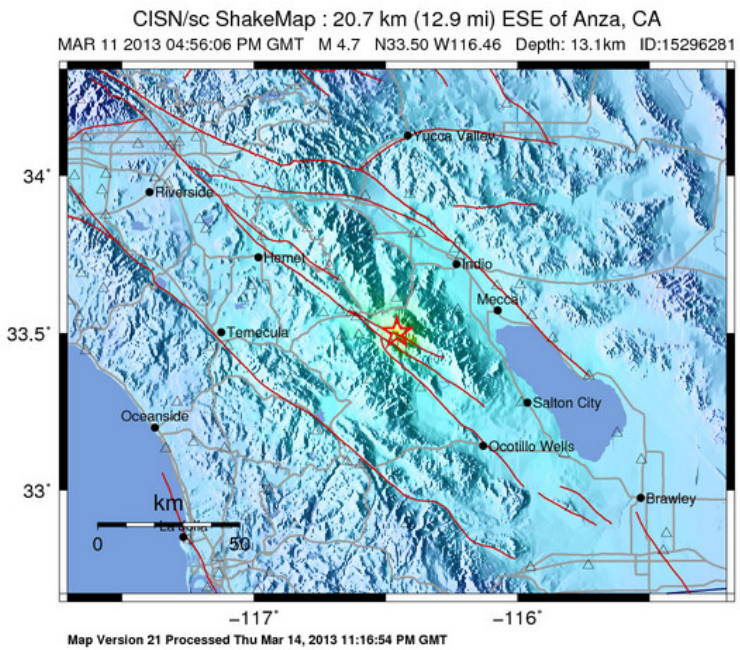
Name
1) Sunnylands Center & Gardens - Rancho Mirage
2) The Living Desert
3) Natural History Museum of LA County
4) Rancho Mirage Public Library - Emergency Information Center
5) Discovery Science Center - Santa Ana
6) Palm Springs Aerial Tramway Mountain Station
7) Founders Hall - Humboldt State University EPIcenter
8) Friends of the Desert Mountains
9) Palm Springs Aerial Tramway-Valley Station
10) Hatfield Marine Science Center Visitor Center - Newport, OR
11) Southern California Earthquake Center - Education Office [Founder]
12) HSU Natural History Museum, Arcata
13) Temescal HS - Lake Elsinore (SBCM Hub)
14) Carlo DeVito Jr
15) California State University Los Angeles - EPIcenter
17) Marquez Charter School - SBCM Hub
19) Lakeside HS - Lake Elsinore
20) Elsinore High School - Wildomar

Next 20

Join over 25 schools, from across CA and even as far away as NZ!

In April 2013, the BBC came to Marquez Charter School (Pacific Palisades) to see QCN in action!

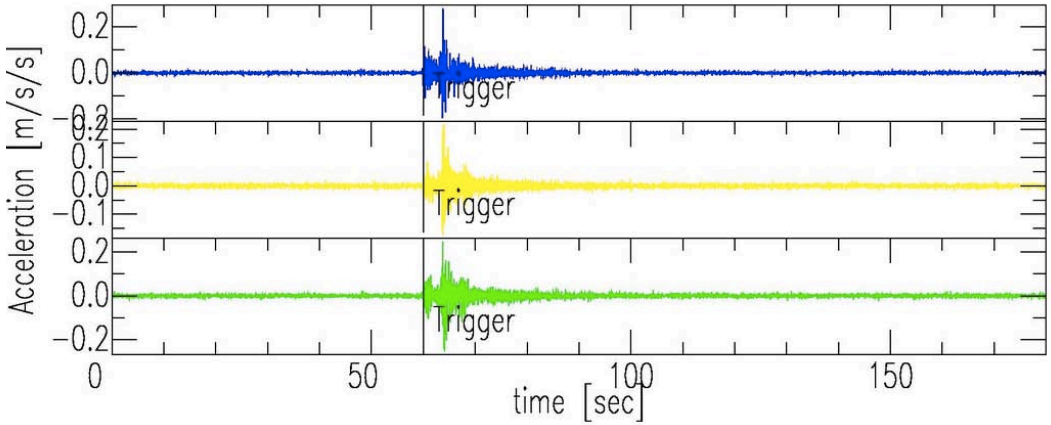
M 4.7 Anza Earthquake 3/11/13



PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	none	none	none	Very light	Light	Moderate	Mod./Heavy	Heavy	Very Heavy
PEAK ACC.(%g)	<0.05	0.3	2.8	6.2	12	22	40	75	>139
PEAK VEL.(cm/s)	*<0.02*	*0.1*	*1.4*	*4.7*	*9.6*	*20*	*41*	*86*	*>178*
INSTRUMENTAL INTENSITY	I	II–III	IV	V	VI	VII	VIII	IX	X+

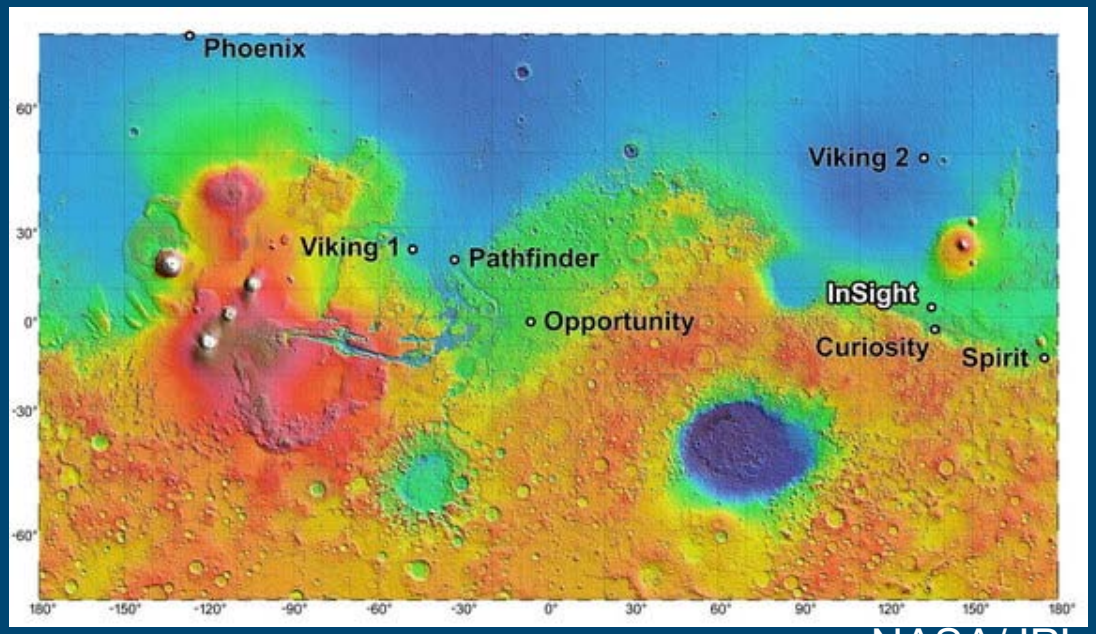
Scale based upon Worden et al. (2011)

Recorded at Rancho Mirage Public Library



NASA Insight

Interior Exploration using **Seismic Investigations**, Geodesy and Heat Transport



NASA/JPL

InSight 2013 Activities

2013 *Vital Signs of the Planet*

Educator Fellows:

- Were immersed into the science of Caltech, JPL, QCN, SCEC
- Conducted 5 days of survey-mode GPS research
- Developed 4 Research Lessons and kits using Lesson Study
- Will test teach the Research Lessons twice
- Will facilitate the installation of a QCN seismometer at their school site
- Participated in Teacher Workshop at SBCM on 8 September
- Will participate in the 2013 Great California ShakeOut Drill

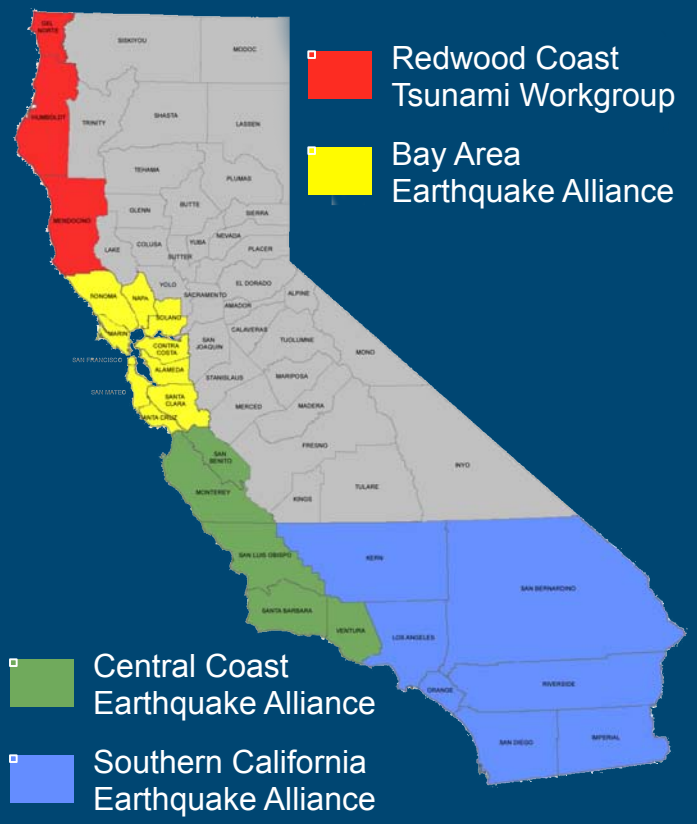
InSight

Earthquake Country Alliance

ECA is a public-private partnership of people, organizations, and regional alliances, founded in 2003 in Southern California and expanded statewide in 2009.

Each regional alliance conducts its own activities and collaborates with the others

Statewide committees determine long-range plans, sector-based needs, and develop resources



Join today: www.earthquakecountry.org/alliance

ECA Activities

The Great California ShakeOut

Register today at www.ShakeOut.org

California Tsunami Awareness week

Encourage participation

Development of consistent, statewide messaging and resources via sector-based committees

www.earthquakecountry.org

ECA EPIcenters

60+ museums, parks, libraries, etc. that have ShakeOut events and other programs

Speakers Bureau

Presentations & booths at fairs,

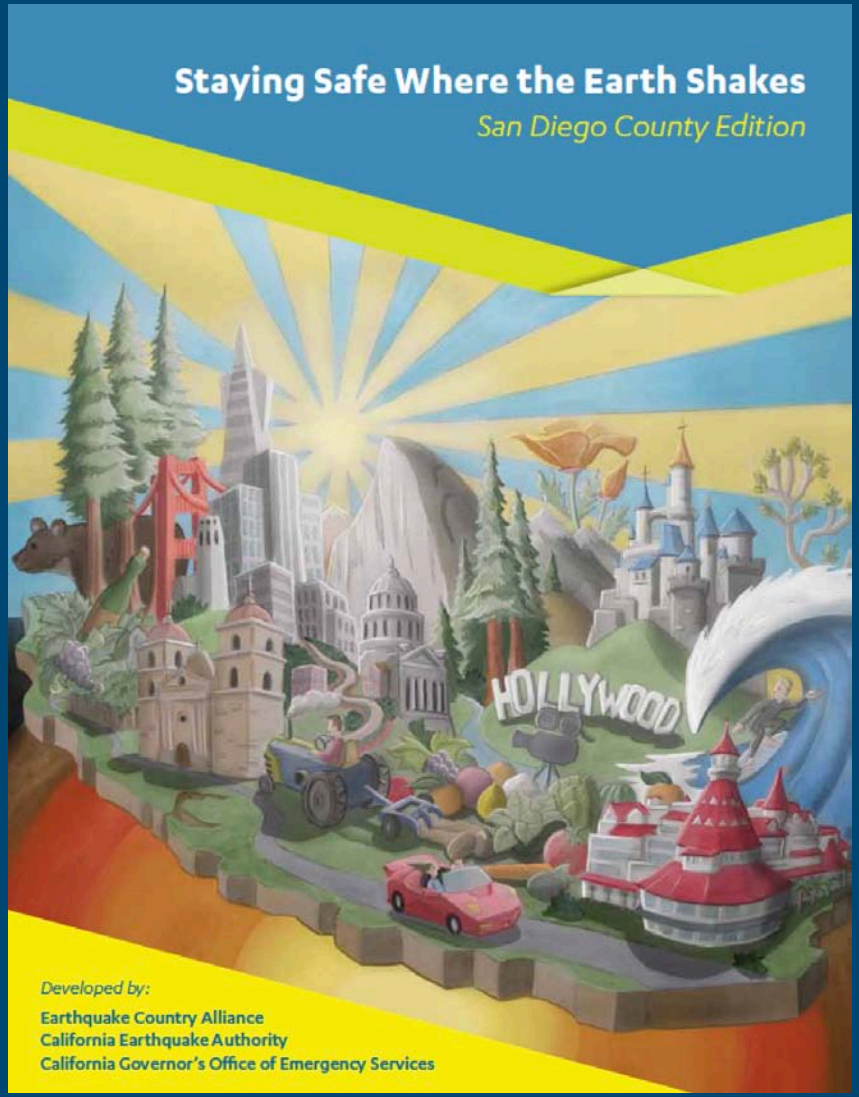
Coordination among ECA Associates

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)
- *North Coast: Living on Shaky Ground* (similar content)
- *7 Steps to an Earthquake Resiient Business*
- www.Terremotos.org

Staying Safe Where the Earth Shakes

- Project of CEA & CalEMA with input from ECA subject matter experts
- Based around updated “Seven Steps to Earthquake Safety”
- Simple, low-literacy, multi-language booklet in the family of “Putting Down Roots in Earthquake Country” and “Living on Shaky Ground” materials
- Different versions for ShakeOut Regions and for Designated Media Areas (DMAs)

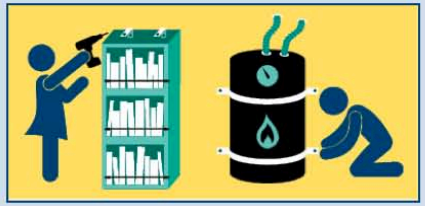


earthquakecountry.org/sevensteps

PREPARE

Before **the next big earthquake we recommend these four steps that will make you, your family, or your workplace better prepared to survive and recover quickly:**

Step 1:
Secure your space by identifying hazards and securing moveable items.



Step 2:
Plan to be safe by creating a disaster plan and deciding how you will communicate in an emergency.

Step 3:
Organize disaster supplies in convenient locations.

Step 4:
Minimize financial hardship by organizing important documents, strengthening your property, and considering insurance.

SURVIVE AND RECOVER

During **the next big earthquake, and immediately after, is when your level of preparedness will make a difference in how you and others survive and can respond to emergencies:**

Step 5:
Drop, Cover, and Hold On when the earth shakes.

Step 6:
Improve safety after earthquakes by evacuating if necessary, helping the injured, and preventing further injuries or damage.

After **the immediate threat of the earthquake has passed, your level of preparedness will determine your quality of life in the weeks and months that follow:**

Step 7:
Reconnect and Restore
Restore daily life by reconnecting with others, repairing damage, and rebuilding community.

HOME | ECA Regions | Languages | Contact Us | Search

Earthquake Country Alliance

We're all in this together.

PREPARE - Before | SURVIVE - During | RECOVER - After | Know Your Risk | Resources | News & Events | The Alliance

WELCOME TO EARTHQUAKE COUNTRY!

The Earthquake Country Alliance (ECA) is a public-private partnership of people, organizations, and regional alliances that work together to improve preparedness, mitigation and resiliency.

ECA provides information and resources to help everyone who lives, works, or travels in earthquake country get prepared to survive and recover quickly.

Our website is transitioning to this new design, so some content may not currently be available.

MAJOR ACTIVITIES

The Great California ShakeOut

Earthquake Country Alliance EPIcenter

JOIN THE CONVERSATION

Earthquake Country Alliance

Like

24 people like Earthquake Country Alliance.

RESOURCES

Drop, Cover, and Hold On!

Read our special report about why you should "drop, cover, and hold on" to protect yourself during earthquake shaking.

Putting Down Roots in Earthquake Country, *Living on Shaky Ground*, and similar publications: each includes an overview of earthquake hazards, earthquake science basic information, and the *Seven Steps to Earthquake Safety*.

NEWS

- 04/22/2013: Quake drill in Himalayan schools proves a big hit
- 04/16/2013: Earthquake specialist shares insight about California's next big one
- 04/10/2013: Traveling Red Table- Earthquake Safety
- 03/22/2013: HSU Hosts Quake Preparedness Gathering March 28
- 03/21/2013: Topanga Tim's Survival Tips—Earthquake Size Up in Public Places
- 03/14/2013: Nature's 'nudge' was a reminder
- 03/12/2013: 4.7 Magnitude Quake in California
- 03/04/2013: On deadly ground

Seniors and People with Disabilities Committee

- Earthquake Preparedness Guide for People with Disabilities and Other Access or Functional Needs
- Organized according to *Seven Steps to Eathquake Safety*

ShakeOut

Earthquake Preparedness Guide
for People with Disabilities and Other Access or Functional Needs

Think about What May Happen During and after an Earthquake or other Disaster:

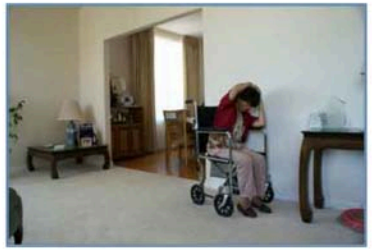
Consider your daily activities; think about how a disaster will impact your life. Take into consideration what you do independently and where you may need assistance. Keep in mind that your regular sources of assistance may not be available after a disaster. Plan now for how you will meet your needs.

- What if power, gas, and phone lines are not working?
- What if roads and sidewalks are impassible or your means of transportation is unavailable?
- How will you maintain supplies of water, food, medications, and other critical needs?
  - *Right now:* Make a list of equipment and medication you may need if you had to leave your home. Store extras, labeled with your name and contact information, in your disaster supplies kit. (See Step 3, below)

This guide follows the ***Seven Steps to Earthquake Safety***, featured in the *Putting Down Roots in Earthquake Country* series of publications at www.earthquakecountry.org/roots. The content has been specially adapted for people with disabilities and other access and functional needs.

STEP 1 – *Secure Your Space*, by identifying hazards and securing moveable items:

When you enter a room, look for safe places to "Drop, Cover, and Hold On" (see Step 5).



- Safe spaces are places where heavy or falling objects and breaking glass won't injure you, such as under tables or desks, along inside walls, etc.
- The more limitations you have, the more important it is to create safe spaces for yourself - especially if you cannot Drop, Cover, and Hold On under a desk, table, etc.
- Create safe spaces by bolting heavy furniture to wall studs, moving heavy items to low shelves, securing hanging art to walls with closed hooks, or taking other measures found at http://www.daretoprepare.org/secure_your_stuff.html
- Secure essential equipment such as oxygen tanks or other life support devices, so they won't fall and be damaged or cause injury.
- When you are in public places, be aware of your surroundings and identify your safe spaces.

Mitigation Messaging/Activities

- **Buildings at Risk Summit**
  - 2011&2012: So Cal
  - 2013: So Cal and Bay Area
- **Secure Your Space**
  - Expanded content at new earthquakecountry.org site
  - Additional ShakeOut guidance
  - Featured in every major CA ShakeOut media event (*Big Shaker* earthquake simulator
- **Beat the Quake**
  - Play at dropcoverholdon.org

BUILDINGS AT RISK

EARTHQUAKE / LOSS REDUCTION SUMMIT

A PRECURSOR TO THE GREAT CALIFORNIA SHAKEOUT

2012

SAVE THE DATE

THURS.OCT.11.2012 in LOS ANGELES, CA

The Structural Engineers Association of Southern California (SEAOSC) will be hosting our second annual earthquake loss reduction summit on October 11, 2012 at the *Westin Bonaventure* in downtown Los Angeles, California. This is a precursor to The Great California ShakeOut event that will be held on October 18th. There are many building types in Southern California that are at risk of significant damage in earthquakes. The goals for this event are to create a forum that will not only increase the awareness of seismic risk, but spur action. The sessions will stress the benefit of mitigation, highlight the role of structural engineers as well as other professionals, and encourage synergy among the structural engineering community, emergency managers, policy makers and other stakeholders. The target audience includes building officials, architects, engineers, building owners, the public, government, insurance companies, police and fire department representatives.

* Special Keynote Speaker Dr. Lucile Jones, USGS *

Agenda:

7:00a – 8:00a	Registration & Breakfast
8:00a – 8:10a	Welcome
8:10a – 10:00a	Sessions: FEMA Initiatives, Cal EMA Initiatives, Seismic Hazard, Structural Vulnerability Panel
10:00a – 10:30a	Break / Exhibits
10:30a – 12:30p	Sessions: Why Reduce Seismic Risk Panel, Seismic Mitigation Programs and Policies Panel
12:30p – 2:00p	Lunch & Keynote Speaker *Dr. Lucile Jones, USGS*, & Break/Exhibits

Earthquake Loss Mitigation Technical & Policy Tracks:

2:00p – 3:30p	Sessions: Public Building Panel - Track 1, Private Building Panel - Track 2, Risk Mitigation Tools Panel - Track 3
2:00p – 5:30p	Session: FEMA P-58 - Seismic Performance Assessment Seminar - Track 4
3:30p – 4:00p	Break / Exhibits
4:00p – 5:20p	Sessions: Public Buildings, Private Buildings, Risk Mitigation Tools Summary Panel, What, Why, How? Risk, Vulnerabilities & Program & Policy Strategies
5:20p – 5:30p	Concluding Remarks
5:30p – 6:30p	Buildings at Risk Summit Wine & Cheese Reception

Times subject to change

SEAOSC has partnered with several organizations in the planning of this event including the Southern California Earthquake Center (SCEC), the California Emergency Management Agency (Cal EMA), the Federal Emergency Management Agency (FEMA) Mitigation Directorate, the California Institute of Technology, and the Earthquake Country Alliance (ECA). FEMA will be providing their newly developed seismic performance assessment of buildings (FEMA P-58) seminar as an afternoon education track. Attendees of the summit are eligible to receive 1 professional development credit for each hour of attendance.

More information will be available soon at www.seaosc.org/events_bar.cfm

More information available at www.seaosc.org/events_bar.cfm

STRUCTURAL ENGINEERS ASSOCIATION SEA SOUTHERN CALIFORNIA

The Great California ShakeOut

FEMA QUAKESMART

Earthquake Country Alliance

SCEC

Cal EMA

5360 Workman Mill Rd., Whittier, CA 90601 T: (562) 908-6131 F:(562) 692-3425 E:seaosc@seaosc.org | www.seaosc.org

Tsunami Messaging

- Suggestions for how to organize a tsunami drill with ShakeOut, developed with California Geological Survey

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
  CalEMA MyHazards 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 and 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.

Northridge 20th Anniversary

- Virtual Exhibit
  - "Northridge Near You" set of SCEC-VDO animations of faults, ShakeMaps, and loss estimates for 25 potential earthquakes (View here at the meeting; use in your classes or as scenarios for your institution's ShakeOut drill
  - Interviews of people who experienced the earthquake, linked to the Northridge ShakeMap
  - Timeline of science, engineering, and policy developments
- Media Workshop in October
- Policy Conference
  - January 16-17
  - Joint effort with PEER, CEA, CalOES, EERI, FLASH, FEMA, SCEC, SEAOSC, USGS, RenassianceRe, and many others

Northridge 20th Anniversary

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NORTHRIDGE 20 EARTHQUAKE


Northridge Anniversary & Events | Scientific Advances & Lessons Learned | Northridge Ground Shaking Stories | A Northridge-Sized Quake Near You | Northridge Earthquake Facts | Resources: Are You Prepared?

Groundshaking Experiences: Interviews | ShakeMaps |

NORTHRIDGE: 20 YEARS LATER – A EDUCATIONAL WEB PORTAL CREATED FOR THE 20TH ANNIVERSARY OF THE NORTHRIDGE EARTHQUAKE AND BEYOND

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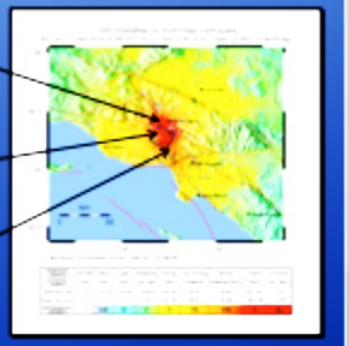
On January 17, 1994, a M6.7 earthquake jolted Northridge, California, resulting in the worst natural disaster to ever befall California as well as the costliest earthquake in U.S. history. For the 10 million people who experienced this quake, it remains powerfully in our collective consciousness. But as we commemorate this event, how best do we communicate to the generation who missed this temblor the ongoing risks offered by a southern California rife with faults and stored earthquake potential?

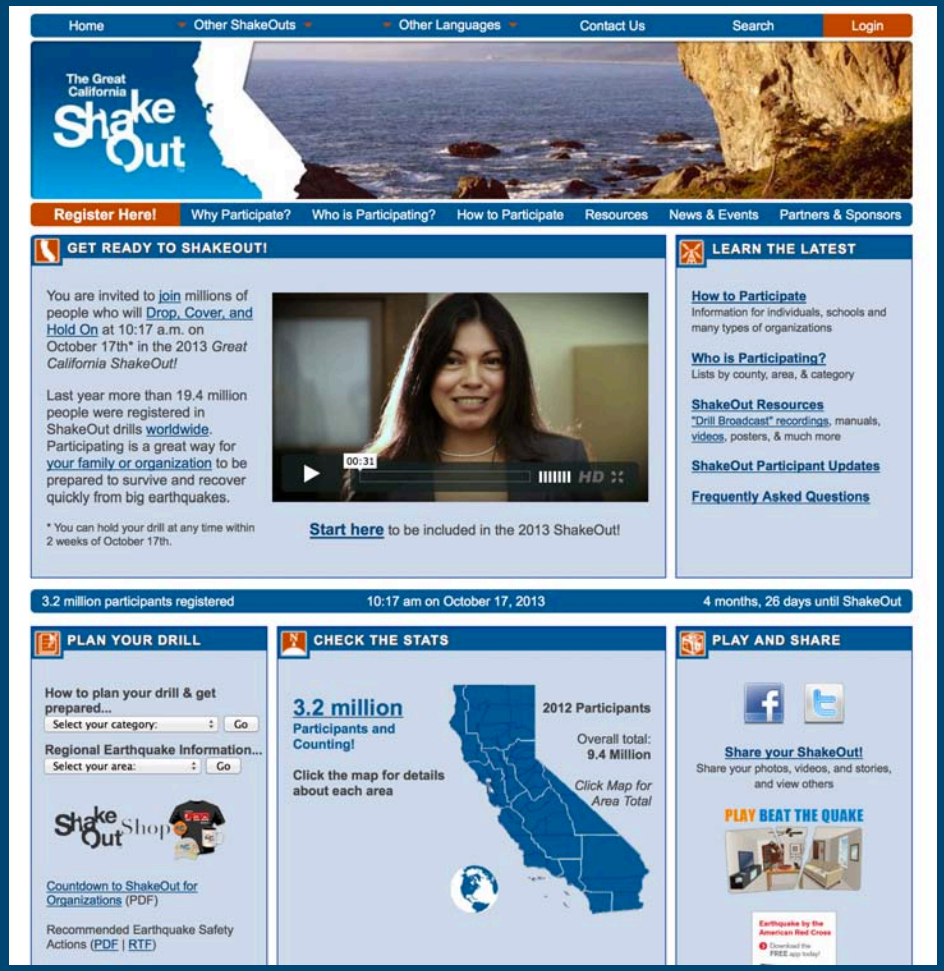
Fast forward to January 17, 2014 and beyond: an educational opportunity in the making. We have created a teachable moment for the public – to learn and reflect, to share and to act. *Northridge: 20 Years Later* is a two-decade educational timeline, a retrospective, and a vehicle for future learning. The web portal and virtual exhibit teems with content, graphics and video recounting the events of January 1994, revealing advances in earthquake science and mitigation since that quake, and relating the real experiences and lessons learned over the past two decades. The website weaves the science of the Northridge earthquake with risk communication and preparedness messaging, empowering the public so that they can make themselves safer. Video interview accounts of those who experienced the earthquake are tied to the Northridge ShakeMap and the Community Internet Intensity maps. Utilizing social media, this site seeks to organically turn into a conversation, allowing the public to share their own experiences. Science and earthquake hazards are communicated to the media and the public via engaging visualizations courtesy of SCEC and their UseIT intern program. With the premise of "*What if a Northridge sized earthquake happened near you?*" the interns created SCEC –VDO (3-D movies), incorporating GIS tools for exploring the new UCERF V3.3 data, producing visualizations of earthquake hazard in locations throughout southern California. The USGS-produced ShakeMaps of the same areas create powerful complementary graphic imagery. This content segues into the development and implementation of earthquake early warning and the ShakeAlert system. Finally, the website content will be woven into the San Bernardino County Museum's Hall of Geological Wonders, whose educational focus makes topical connections to our region; this new science-based educational product will provide tangible links between the exhibits and the natural world.



Other | Educational I | Links | Here |

Value-Based Messaging Commercial



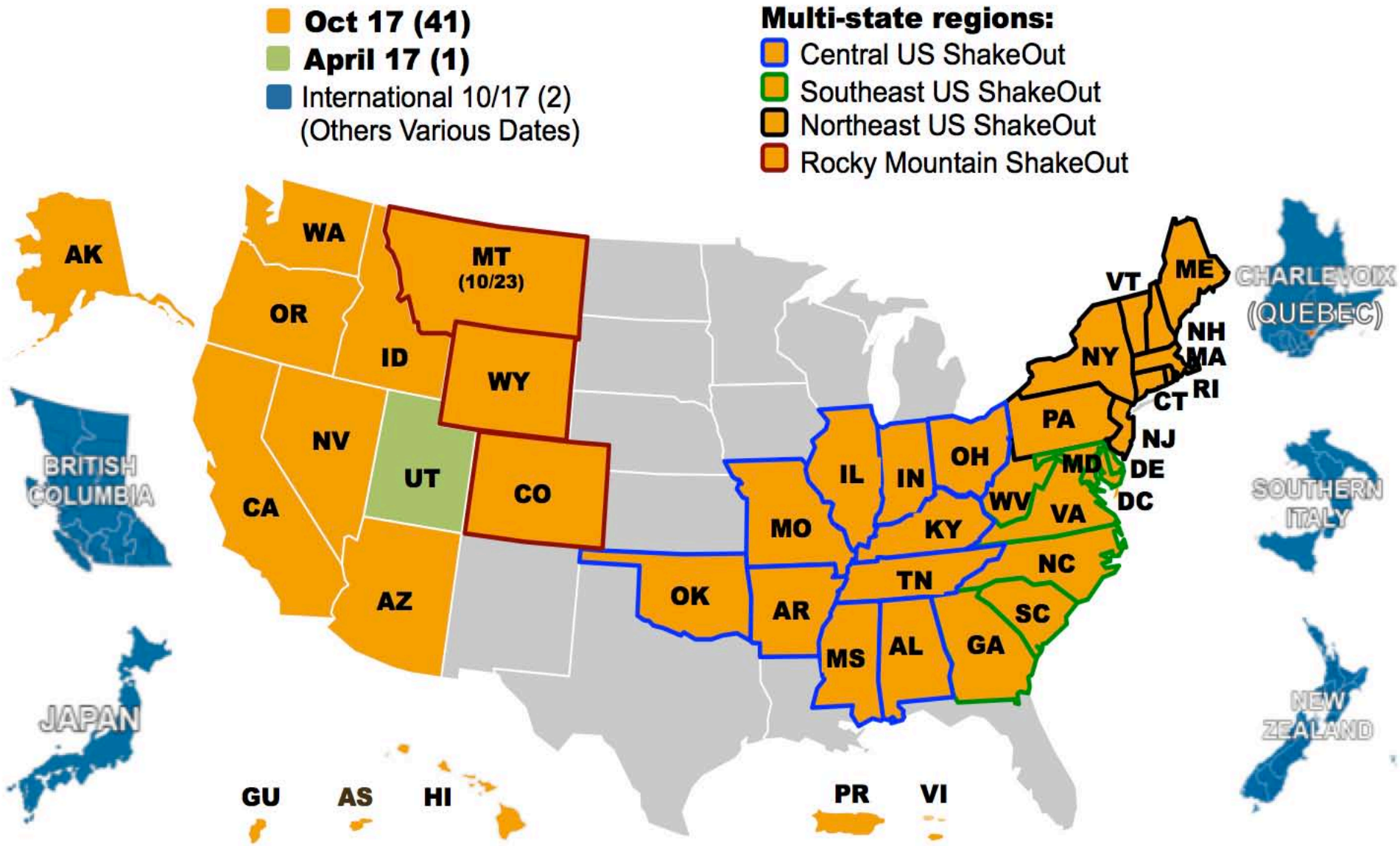
- Created as part of California Earthquake Authority Media Campaign
- Features a fire fighter, police officer, teacher, and businesswoman all encouraging participation in the ShakeOut
- Great example of use of the messaging research results

ShakeOut History

- Began in Southern California in 2008
  - Based on comprehensive “ShakeOut Scenario” created by USGS and many partners for a 7.8 magnitude earthquake
  - Became the scenario for a state-led emergency management exercise
  - ShakeOut drill created by Earthquake Country Alliance partners to involve families, schools, and organizations
  - 5.4 million Southern California participants

- More participants and additional states/countries each year
  - 2009: 6.9 million statewide in California
  - 2010: 8 million in California, Nevada, and Guam
  - 2011: 12.1 million, 15 states/territories & British Columbia
  - 2012: 19.4 million, 26 states/territories, 5 countries with official drills
  - 2013: 20+ million, 43 states/territories, expansion across Japan

Nationwide and International



www.shakeout.org/southeast

Category	Participants
Total:	**7,751,531**
Individuals/Families	5,332
Childcare and Pre-Schools	13,297
K-12 Schools and Districts	5,329,571
Colleges and Universities	1,177,929
Local Government	267,025
State Government	92,983
Federal Government (Including Military)	125,943
Tribes/Rancherias	1,503
Businesses	406,386
Healthcare	111,055
Senior Facilities/Communities	7,945
Disability/AFN Organizations	4,299
Non-Profit Organizations	19,877
Neighborhood Groups	15,034
Preparedness Organizations	2,151
Faith-based Organizations	151,984
Museums, Libraries, Parks, etc.	5,235
Volunteer/Service Clubs	375
Youth Organizations	366
Animal Shelter/Service Providers	140
Agriculture/Livestock	10
Volunteer Radio Groups	617
Science/Engineering Organizations	741
Media Organizations	11,456
Other	277

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The Great California ShakeOut

Register Here! | Why Participate? | Who is Participating? | How to Participate | Resources | News & Events | Partners & Sponsors

LOCAL GOVERNMENT AGENCIES IN CALIFORNIA

375,578 participants are registered for Great ShakeOut Earthquake Drills worldwide in 2013, by 982 local government agencies.

249,627 of these participants are registered for the 2013 California ShakeOut, by 172 local government agencies.

The local government agencies on the list below agreed to be listed when they registered. (Not listed?)

Names are linked if a website was provided during registration.

OTHER LISTS

Participants in other categories: Select a category... Go

Local government agencies in other areas: Select an area or county... Go

Participation totals: Select an area or county... Go

7.3 million registered | 2 months, 16 days until ShakeOut on 10/17

LIST

Page: 1 2 Next >

Alameda

City of Oakland, Keep Oakland Clean and Beautiful Division, *Oakland*
City of Oakland
Public Works Agency, *Oakland*
County of Alameda
Probation Department, *Oakland*
Hayward Area Recreation and Park District, *Hayward*

Colusa

Colusa County Sheriff's Office, Office of Emergency Services, *Colusa*

Contra Costa

City of Lafayette, *Lafayette*
Contra Costa County Vocational Sevices, *Concord*
County of Contra Costa
Office of the Sheriff, Emergency Services Division, *Martinez*
Moraga-Orinda Fire District, *Moraga*

Del Norte

Big Rock Community Services District, *Crescent City*
County of Del Norte
Department of Health and Human Services, Mental Health Branch, *Crescent City*
Del Norte Local Transportation Commission, *Crescent City*

Humboldt

County of Humboldt
County Administrative Office Team, County Administrative Office, *Eureka*
Department of Health and Human Services Social Services Branch, DR Collections Unit, *Eureka*
Humboldt County Public Works, Roads Division, *Eureka*
Humboldt County Public Works Department, Public Works, *Eureka*
Humboldt County Risk Management, Risk Management, *Eureka*

Imperial

County of Imperial
Imperial County Public Health Department, Imperial County EMS Agency, *El Centro*
Imperial County Medical Reserve Corps, *El Centro*
Imperial County Office of Emergency Services, *Heber*

Kern

www.shakeout.org/home.html

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ShakeOut

Great ShakeOut
Earthquake Drills

Register Here! | Why Participate? | Who is Participating? | How to Participate | Resources | News & Events | Partners & Sponsors

GET READY TO SHAKEOUT!

Millions of people worldwide will practice how to Drop, Cover, and Hold On at 10:17 a.m. on October 17* during *Great ShakeOut Earthquake Drills*!

Most people participate in Official ShakeOut Regions (see menu above).

People and organizations in other regions can also learn how to participate and register to be included.

Start here to be included in the 2013 ShakeOut!

*You can hold your drill at any time within 2 weeks of October 17th.

ESPAÑOL

LEARN THE LATEST

How to Participate
Information for individuals, schools and many types of organizations

Who is Participating?
Participation totals and lists by category

ShakeOut Resources
Audio and video broadcasts, manuals, posters, & much more

Why Drop, Cover, and Hold On?

Over 230,000 participants registered | 10:17 a.m. on October 17, 2013 | 1 month, 7 days until ShakeOut

PLAN YOUR DRILL

How to plan your drill & get prepared...
Select your category:
Go

Countdown to ShakeOut for Organizations (PDF)

New! Recommended Earthquake Safety Actions (PDF | RTF)

New! Earthquake Guide for People with Disabilities (PDF | RTF)

FAQ: Frequently Asked Questions

CHECK THE STATS

As more people and organizations register, these totals will grow larger. Please encourage others to ShakeOut!

Oct. 17, 2013 Total:	over 11.9 million
Participants in ShakeOut regions:	over 11.6 million
Participants in other areas:	over 230,000
2013 Global Total:	over 16.2 million

PLAY AND SHARE

PLAY BEAT THE QUAKE

QUAKE QUIZ

Earthquake by the American Red Cross
Download the FREE app today!

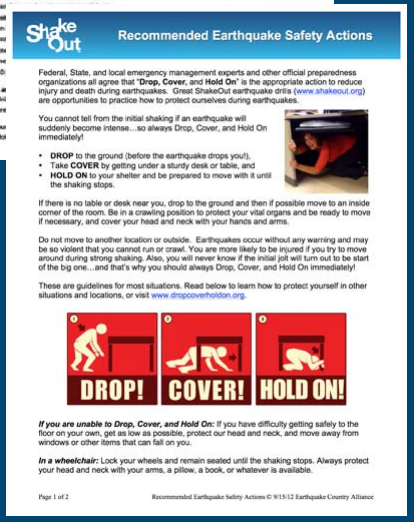
American Red Cross

nehrp | SCEC Southern California Earthquake Center | NSF | USC | USGS | Earthquake Country Alliance | FEMA

www.shakeout.org/espanol

Great Japan ShakeOut

ShakeOut Resources



ShakeOut is Social!

ShakeOut milestones, preparedness tips, and other info, with community interaction

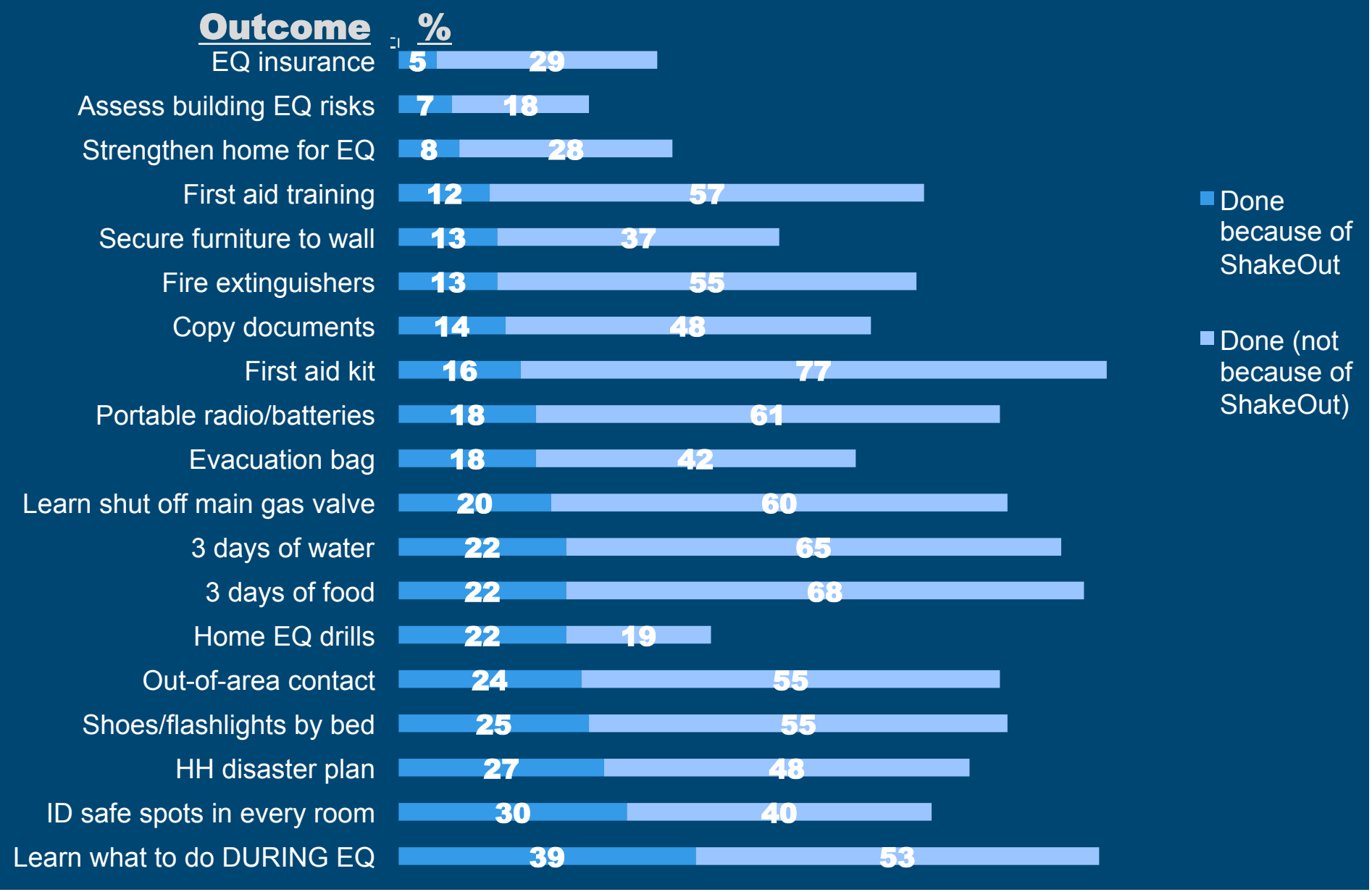
Facebook.com/greatshakeout

Twitter.com/shakeout

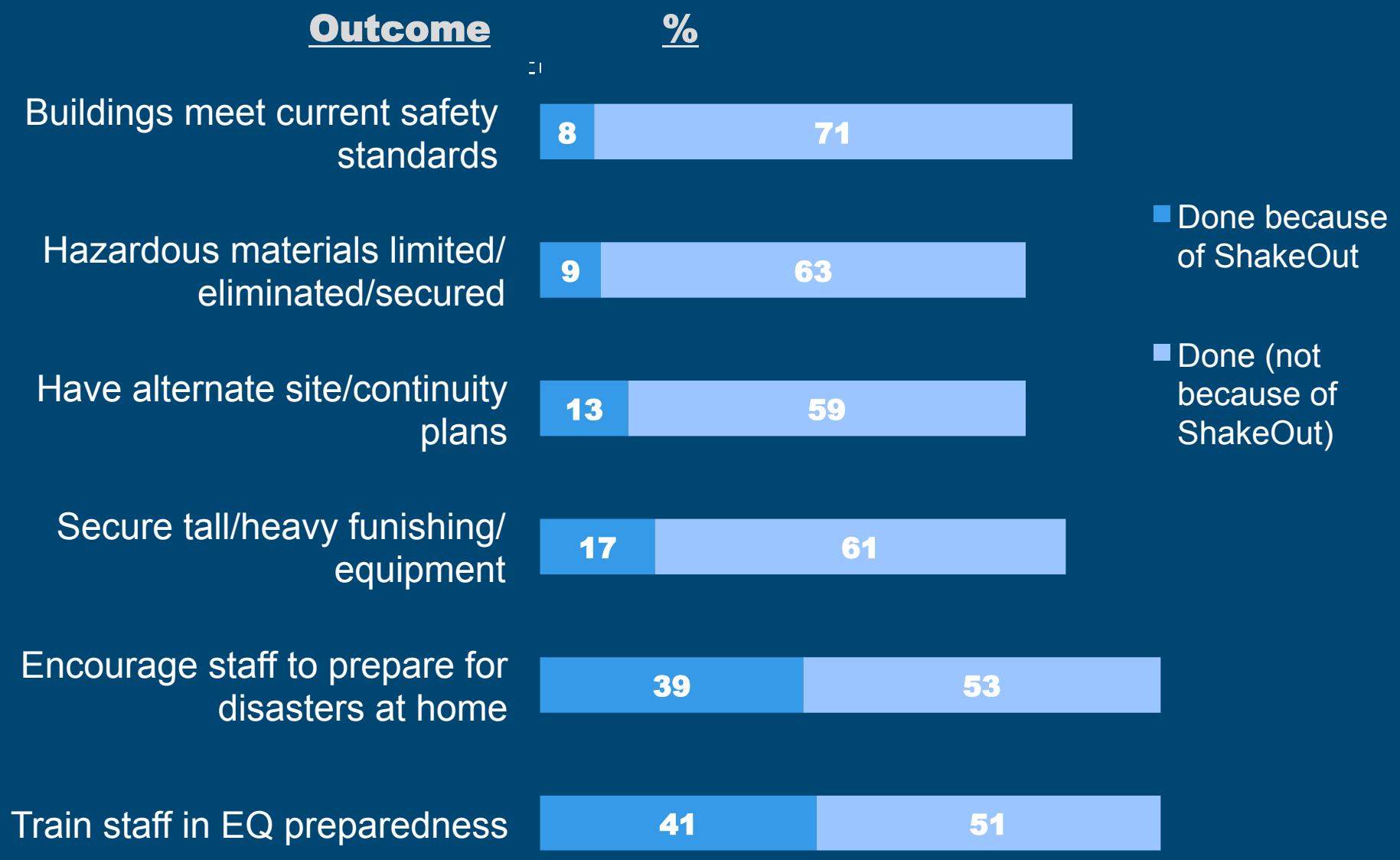
CA ShakeOut Evaluation Efforts

- 2008 (funded)
  - *Comprehensive Program Evaluation*: Davoudi Consulting, Inc., 120 participant stories
  - *Education Sector*: RiskRed/Western Washington University, online survey, *N*=378 K-12 schools, *N*=30 school districts
  - *Media Focus*: The Normal Lear Center, USC Annenberg, online survey of households, *N*=3,068
- 2009 – 2012 (in kind)
  - SCEC Research & Evaluation Committee, online survey, *N*=10,617 all participation categories

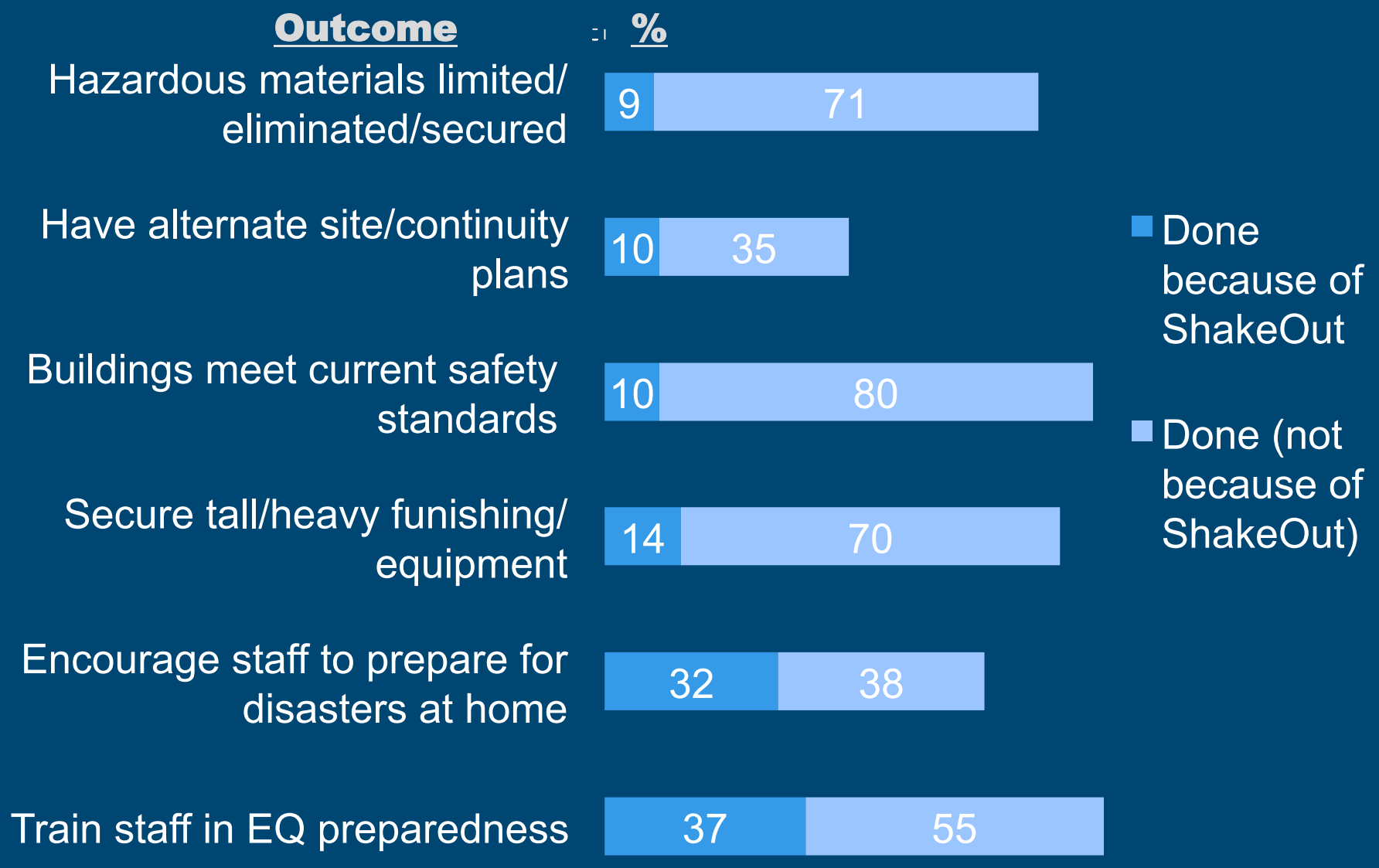
2012 CA Household Outcomes



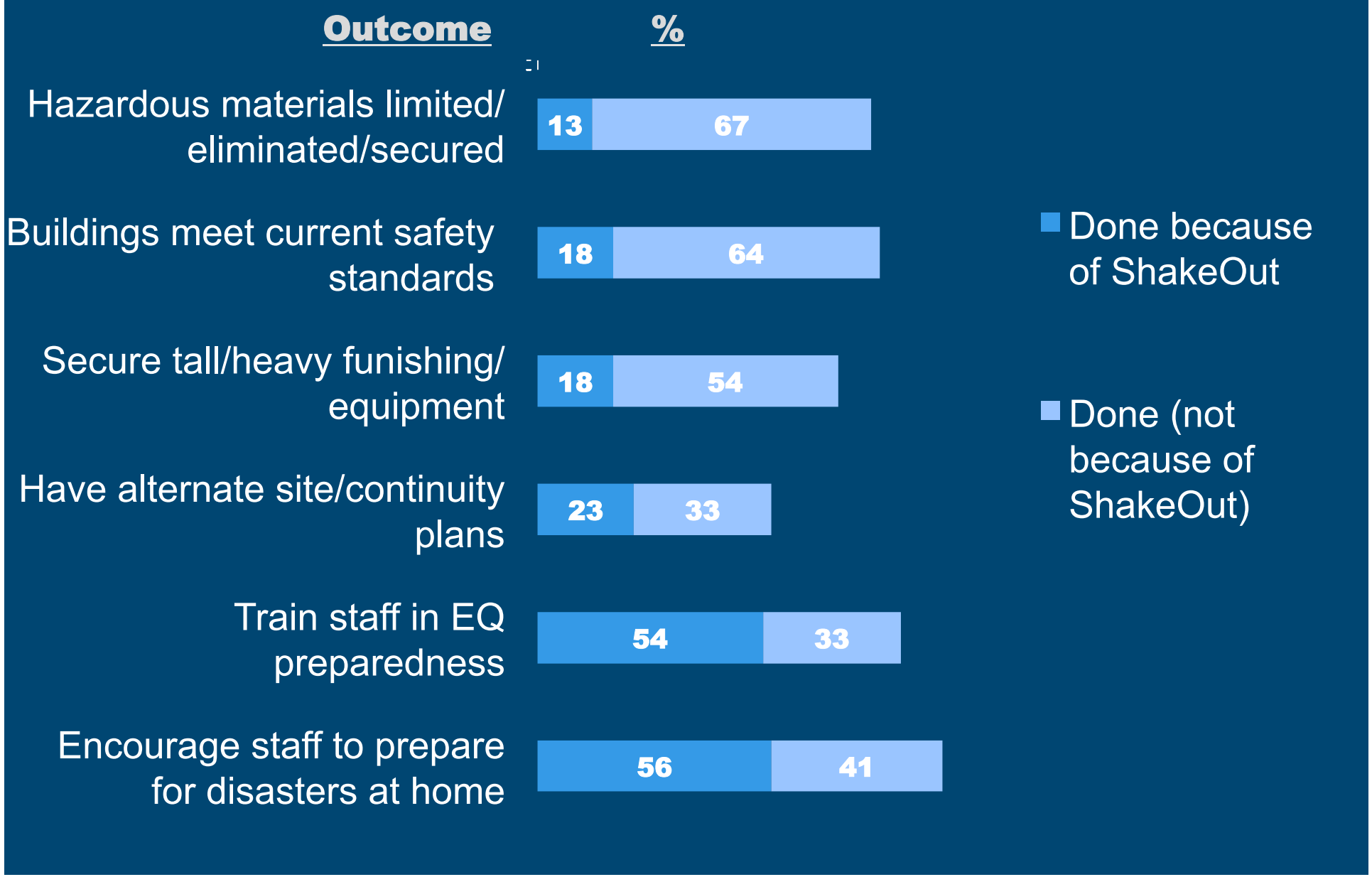
2012 CA Organization Outcomes



2012 CA School Outcomes



2012 CA Higher Ed Outcomes



Publication Plan

- Case Study (in press)
  - Book chapter on risk communication featuring the ShakeOut as a case study
- Process Evaluation (Fall 2013)
  - Descriptive paper on ShakeOut implementation and participation history
- Outcome Evaluation Papers (Spring 2014)
  - Households and Organizations
  - Schools, School Districts, Universities
  - We are collecting confidential rather than anonymous data now (since 2012) and it is now possible to track people's responses to the ShakeOut over time.

How You Can Participate

- Register to participate at Shakeout.Org
- Encourage your institution to participate (or increase participation), and perhaps organize a central event
- Invite your child's school, local businesses, etc. to register
- Needed: Additional scenarios for all ShakeOut regions, including simulations
- Distribute flyers, post signage, or promote via social media
- Add a link to ShakeOut.org on your website(s)