The Great Southern California ShakeOut

November 12–16, 2008

Earth Science for 22 Million People

Lucy Jones, United States Geological Survey

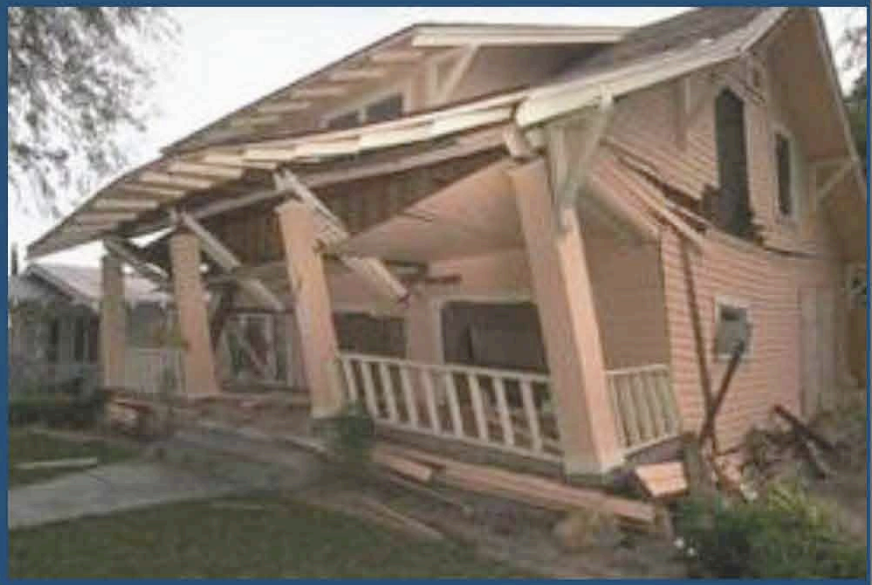
Dale Cox, Sue Perry, Ken Hudnut, Mark Benthien, John Bwarie, Margaret Vinci, Monica Buchanan, Kate Long, Sohini Sinha, Larry Collins

Earthquake Country **Alliance**

We're all in this together.

Multi Hazards Demonstration Project

- To demonstrate how hazard science can improve a community's resiliency to natural hazards
- Multi-hazard: earthquakes, tsunamis, landslides, wildfires, floods, coastal erosion
- Used stakeholder workshops to set research priorities



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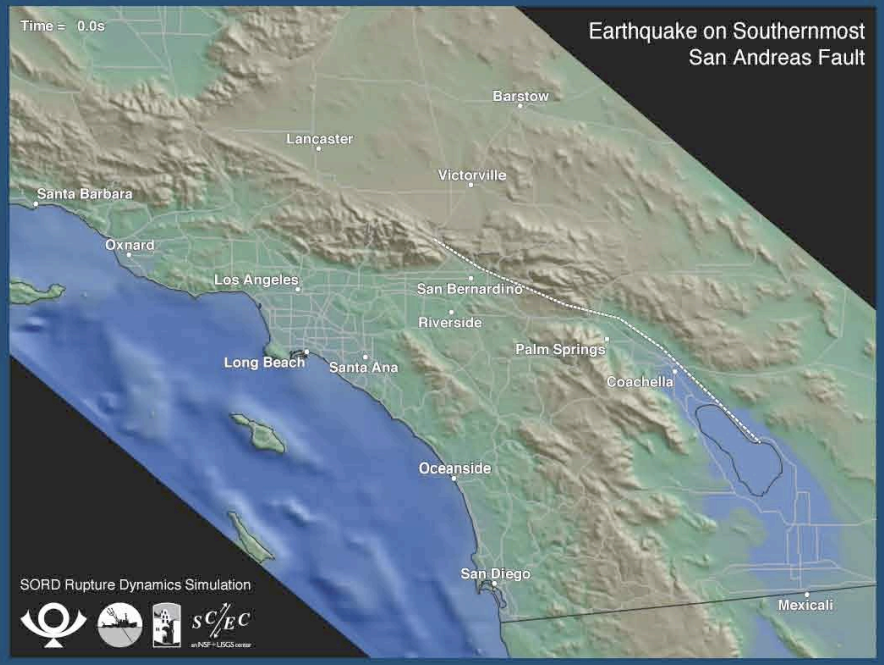
Earthquake Scenario

- Top request of stakeholders
- A plausible great earthquake
- Credible
  - A team of 300+ experts from 50+ organizations
- Accessible to non-specialists
- Comprehensive
  - from earth science through engineering to economics and disaster psychology



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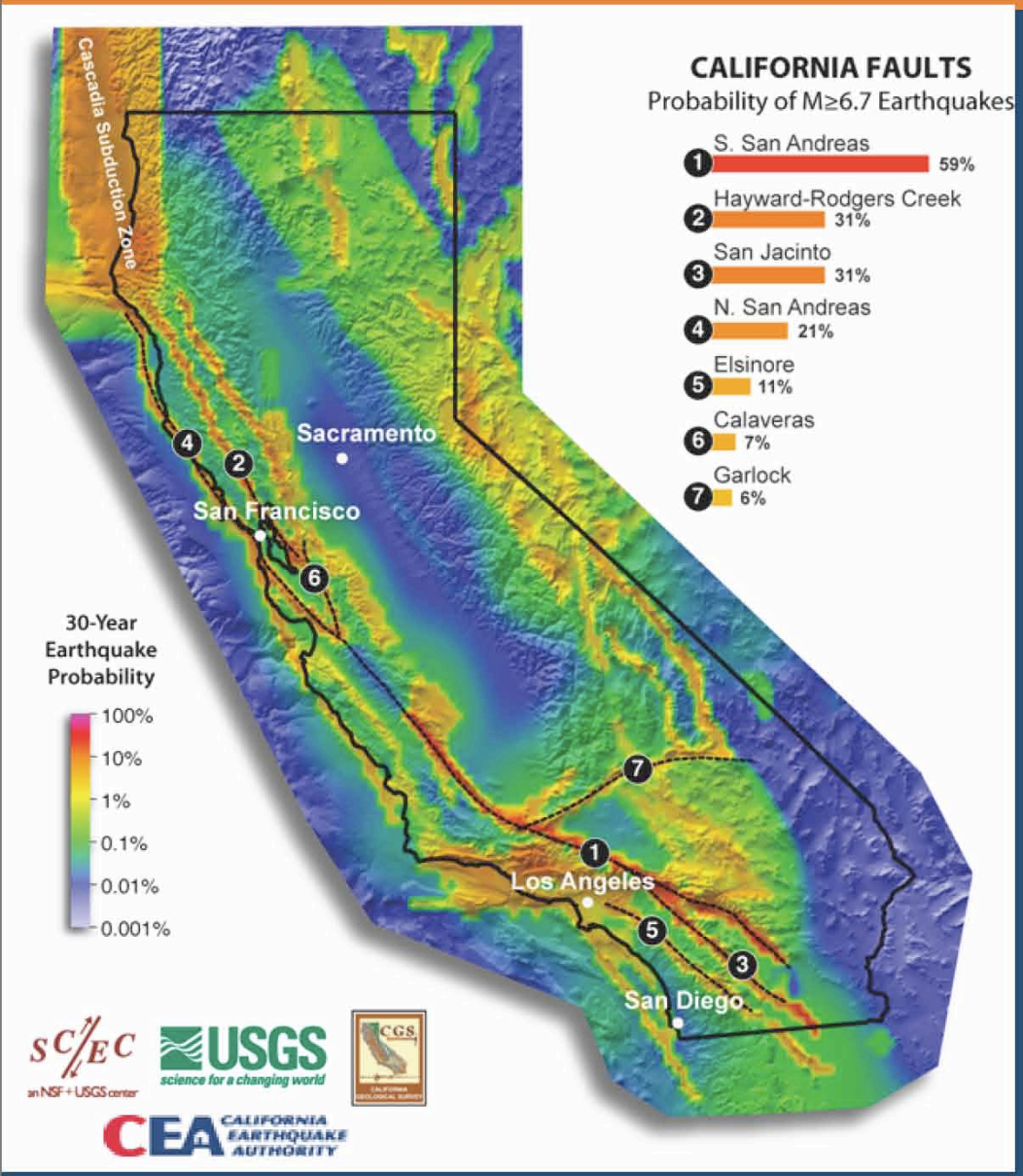
A plausible great earthquake



- Big enough to be worth studying but not worst case
- Southern San Andreas is the most likely source of a big earthquake

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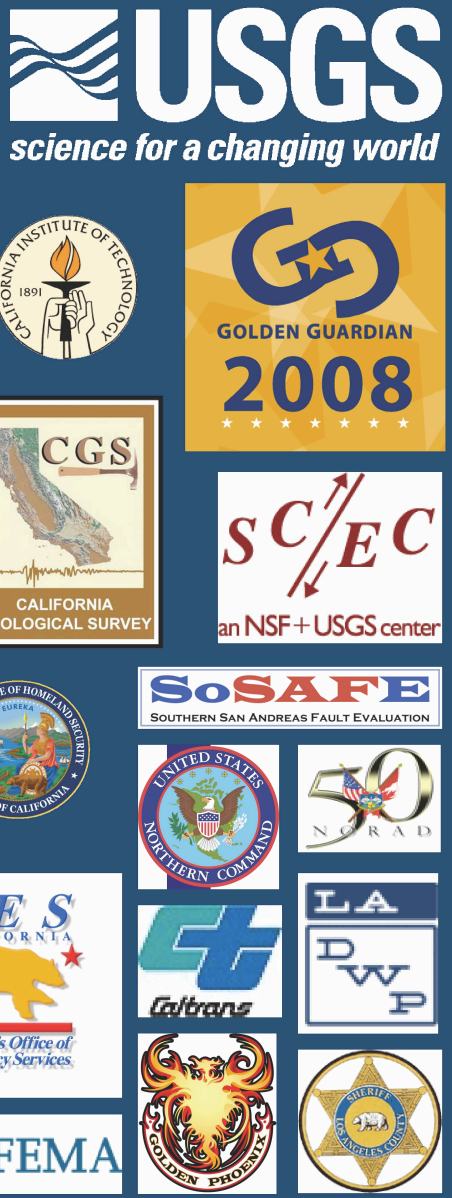
Credible



- Multi - agency
- USGS Multi-Hazards Demonstration Project (MHDP)
  - Lucy Jones, Chief Scientist
  - Dale Cox, Project Manager
  - Sue Perry, Staff Scientist

Key Partnerships and a Large Collaboration

10 Section Leaders

- Earth and Computer Science
  - Ken Hudnut and Dan Ponti, USGS
  - Mike Reichle, CGS
- Engineering
  - Keith Porter and Hope Seligson, EERI
- Public Health
  - Kim Shoaf, UCLA
- Disaster Sociology
  - Dennis Mileti, Seismic Safety Commission
  - Jim Goltz, Governor's Office of Emergency Services
- Disaster Economics
  - Anne Wein and Rich Bernknopf, USGS

Download reports at urbanearth.usgs.gov

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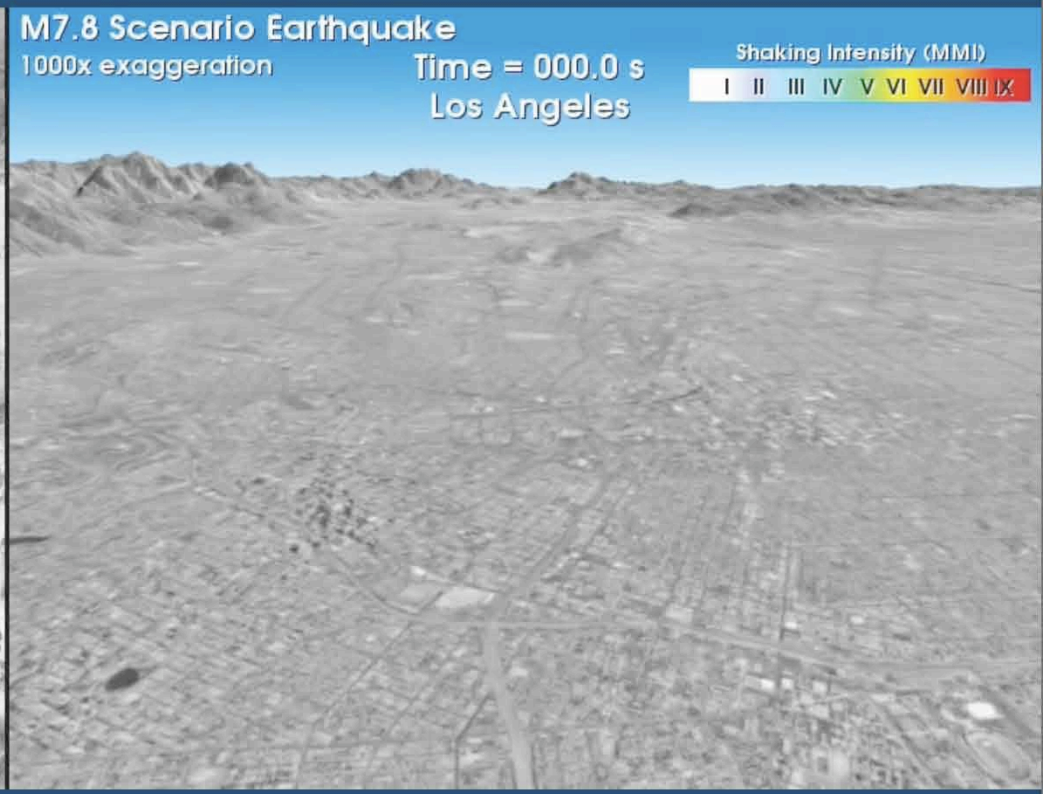
Accessible to generalists



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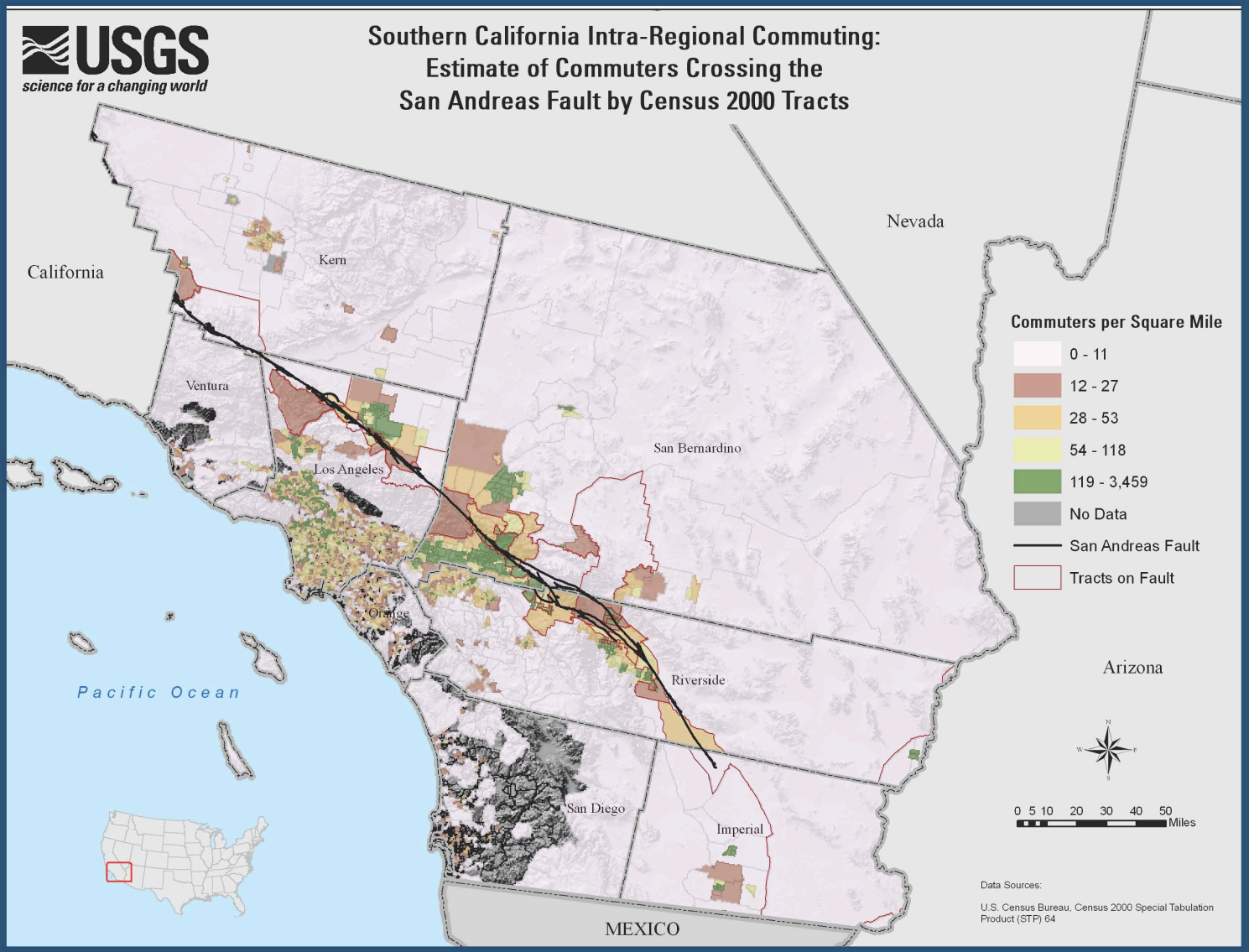
Personalize it



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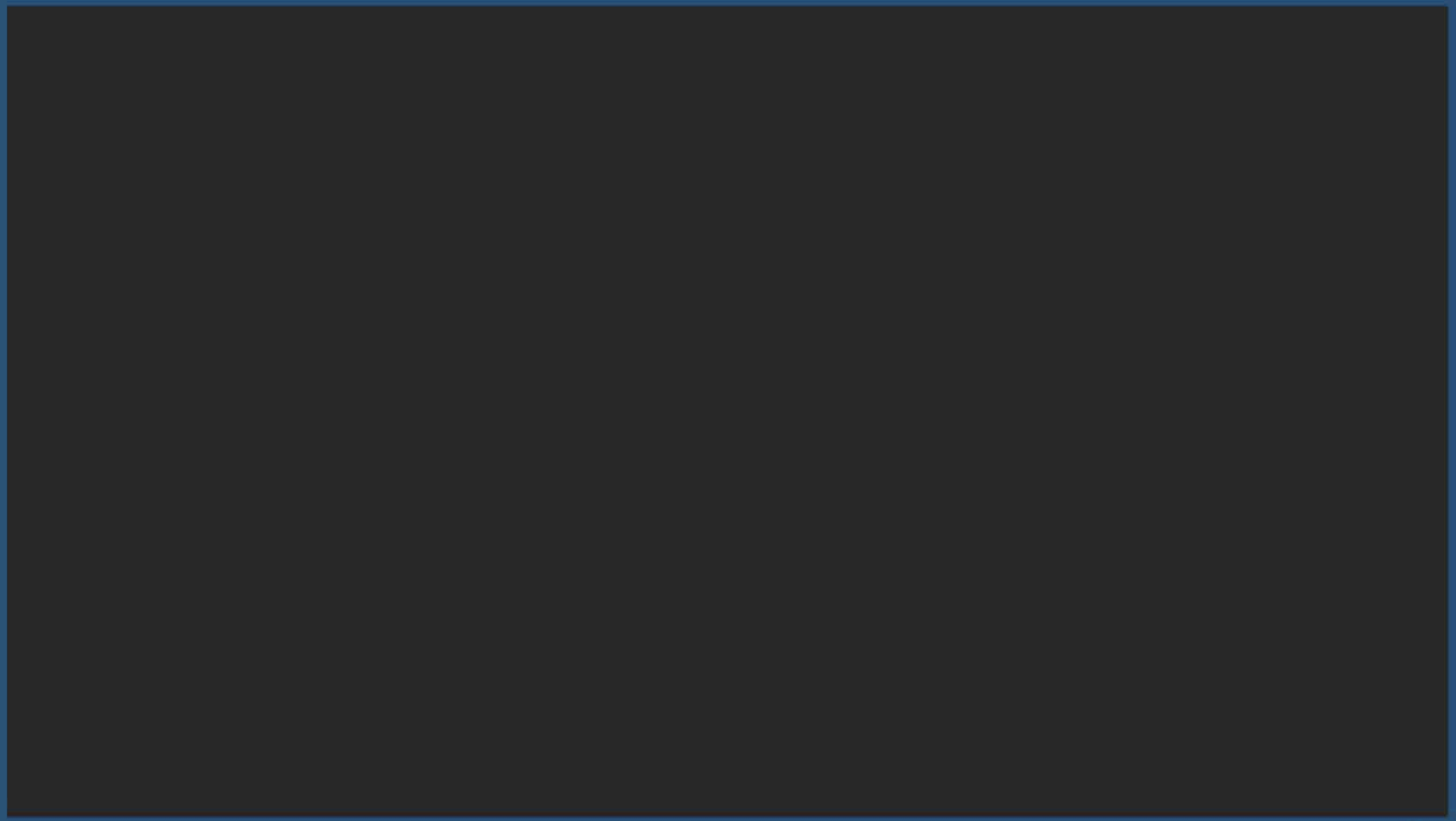
Art Center College of Design



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Fire Following Earthquake

- Earthquakes cause fire disasters
  - Numerous simultaneous ignitions
  - Degraded fire-resistive building features
  - Reduced pressure in water mains
  - Saturated communications
  - Traffic impacts
  - More fires than firefighting capabilities… *this is what leads to conflagrations*
- Earthquakes caused the two largest peacetime conflagrations
  - 1906 San Francisco
  - 1923 Tokyo

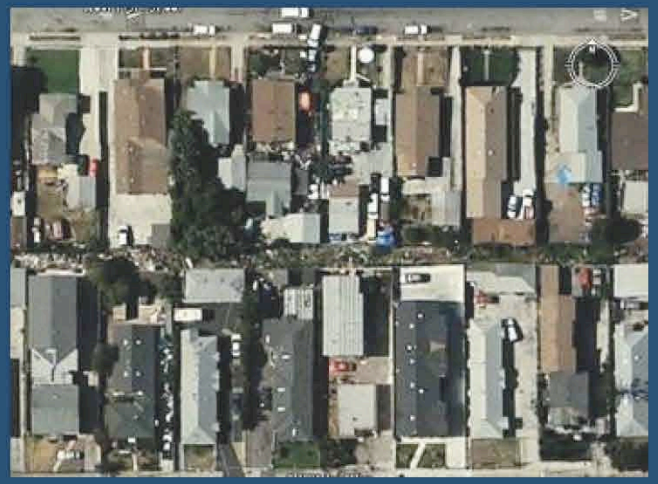
1989 Loma Prieta

1994 Northridge

Fire Following Earthquake

Study findings

- 1,600 ignitions requiring a fire engine
- 1,200 exceed capability of 1st engine
- Northern Orange County & LA Basin: dozens of large fires merge into conflagrations destroying 100s of blocks
- 200 million square feet burnt
  ≈ 133,000 single family dwellings
  ~ 1.5% of total building stock
- Property loss: $65 billion
- No Santa Ana winds, *not worst case*



Fire risk greatest in areas with strong shaking and densely-packed wood buildings; many such areas in LA Basin and northern OR Counties

Fire doubles the casualties and losses

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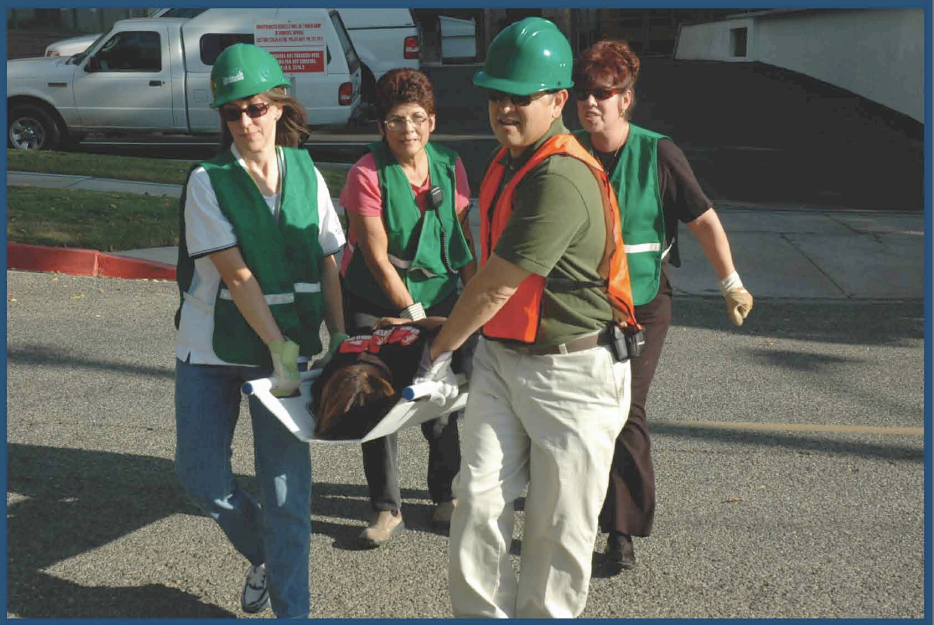
The Great Southern California ShakeOut

- A week-long series of events to inspire southern Californians to improve their earthquake resiliency
- Based on a scenario of a major southern San Andreas earthquake led by the USGS
- Put on by the Earthquake Country Alliance, a coalition of earthquake professionals



Earthquake Country **Alliance**

We're all in this together.

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ShakeOut Goals

- Participation of at least 5 million people in the ShakeOut Drill
  - School, Business, and Community Organization recruitment efforts will have several million people participate
  - Everyone is encouraged to “spread the word” to promote people participating in the ShakeOut!
- Shift the culture in southern California about earthquakes
  - We must all take greater responsibility for readiness
  - We all need to talk about earthquakes and preparedness more often
- Significant increase in earthquake readiness at all levels

Tactic 1: Consistent messaging

- Unified source through Earthquake Country Alliance
  - Science (USGS, SCEC)
  - Government (county, State and City)
  - Fire Departments
  - Corporate (Chamber of Commerce, major employers)
- Common Goal:
  - participate in “Drop, Cover, Hold On”
  - Take One More Step
- Multiple Media
  - Webpages
  - Purchased advertising
  - support from partners

Tactic 2: Visual reinforcement

- Make this a media event
  - "The Biggest Drill Ever"

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Tactic 3: Encourage milling

- "Mommy, we had an earthquake drill today"

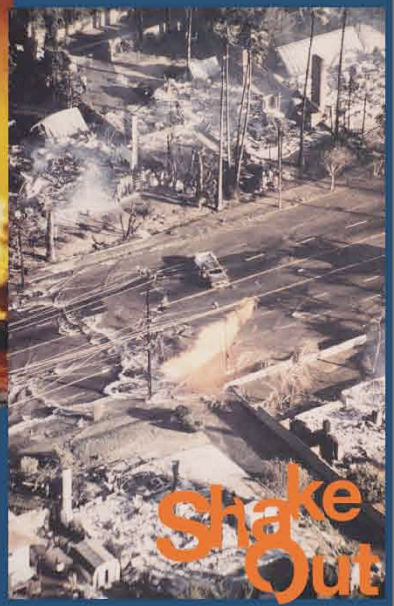
Epson West - Carson, CA
November 13, 2008

The Great Southern California ShakeOut

Tactic 4: Concrete consequences, not risk

- Perceived risk does not affect behavior
- Information on what actions to take does affect behavior

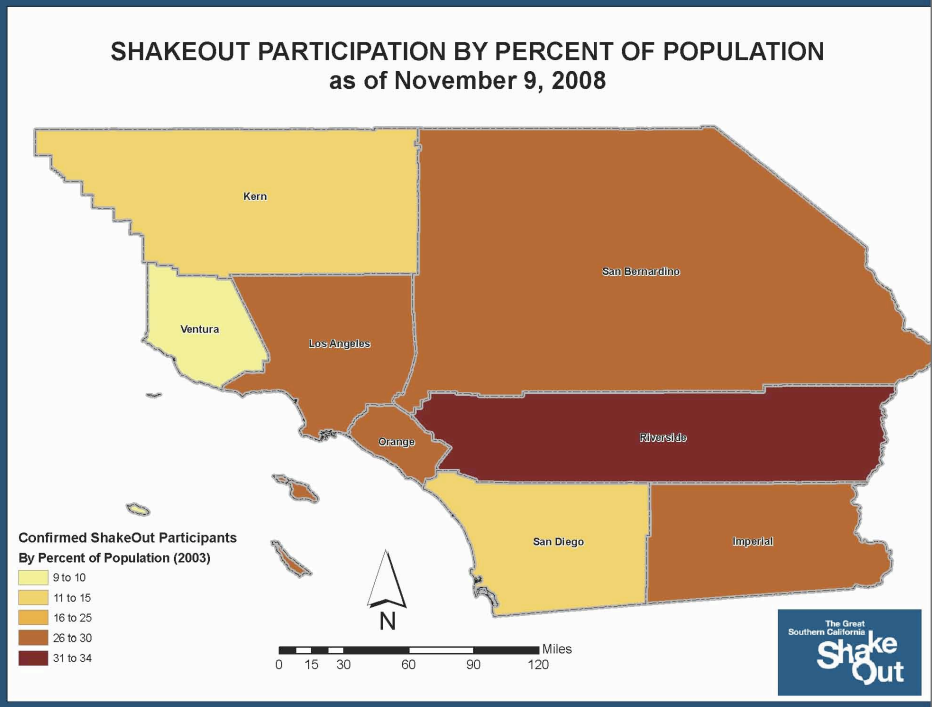
1989 Loma Prieta



1994 Northridge

ShakeOut Goal: 5 million participants

- As of 12/3…
  - Total: 5.47 million
  - Imperial: 44,407
  - Kern: 107,734
  - Los Angeles: 2.7 million
  - Orange: 896,669
  - Riverside: 590,677
  - San Bernardino: 501,677
  - San Diego: 468,878
  - Ventura: 83,472
  - Other: 59,369



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"This is the best single effort in emergency preparedness in my nearly 20 years in the business. The Golden Guardian / Great Shake Out project did more to prepare our cities than all previous efforts combined for many years past. I have never had so much participation and interest in disaster preparedness. And it continues! - Los Angeles County Emergency Manager

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What next?

- Need to keep the ball rolling
  - Evolve to annual event
- Continue interaction with utilities and first responders
- Many identified gaps
  - Data and techniques could be improved for future scenarios
  - Media, graphics, websites still in development
- Technical Issues
  - Geographic Information System (GIS) - exchange of information
    - COM - Common Operating Maps (Digital Maps throughout EOC's)
    - US National Grid (geospatial interoperability)
- Scenarios for other disasters

  Next comes winter storms!

ShakeOut


SHAKE
OUT
DON'T FREAK OUT!