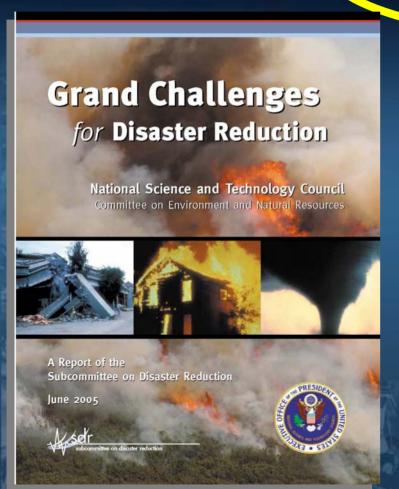


Earthquakes Hurricanes Landslides **Tsunamis** Floods Volcanoes Wildfires **Grand Challenge #1 David Applegate U.S. Geological Survey** applegate@usgs.gov U.S. Department of the Interior U.S. Geological Survey

The Grand Challenges for Disaster Reduction

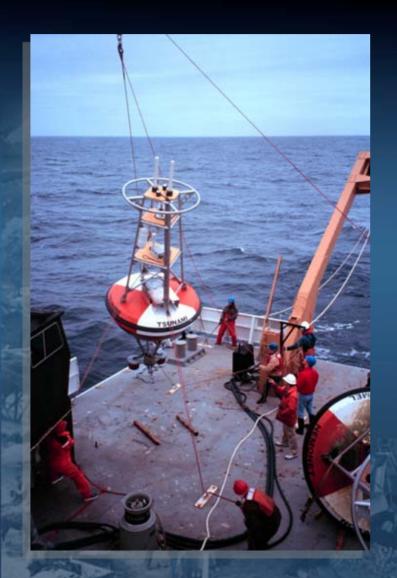
(Published June 2005)



- 1. Provide hazard and disaster information where and when it is needed.
- 2. Understand the natural processes that produce hazards.
- 3. Develop hazard mitigation strategies and technologies.
- 4. Recognize and reduce vulnerability of interdependent critical infrastructure.
- 5. Assess disaster resilience using standard methods.
- 6. Promote risk-wise behavior.

http://www.sdr.gov

Grand Challenge 1. Provide hazard and disaster information where and when it is needed.



"To identify and anticipate the hazards that threaten communities, a mechanism for real-time data collection and interpretation must be readily available to and usable by scientists, emergency managers, first responders, citizens, and policy makers.

Developing and improving observation tools is essential to provide pertinent, comprehensive, and timely information for planning and response."

"Warn the right people in the right place at the right time."

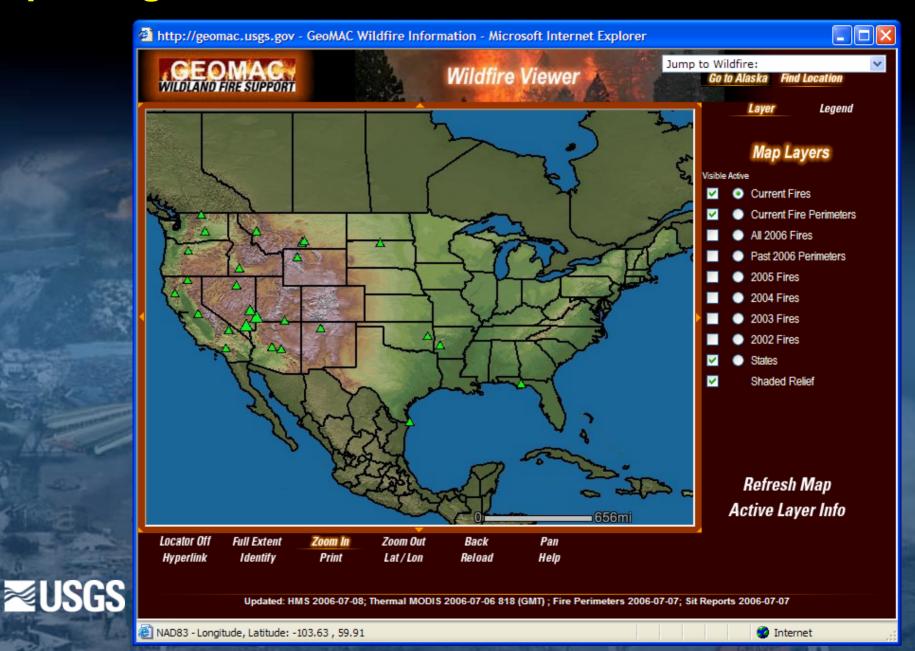


Seismic is the start...

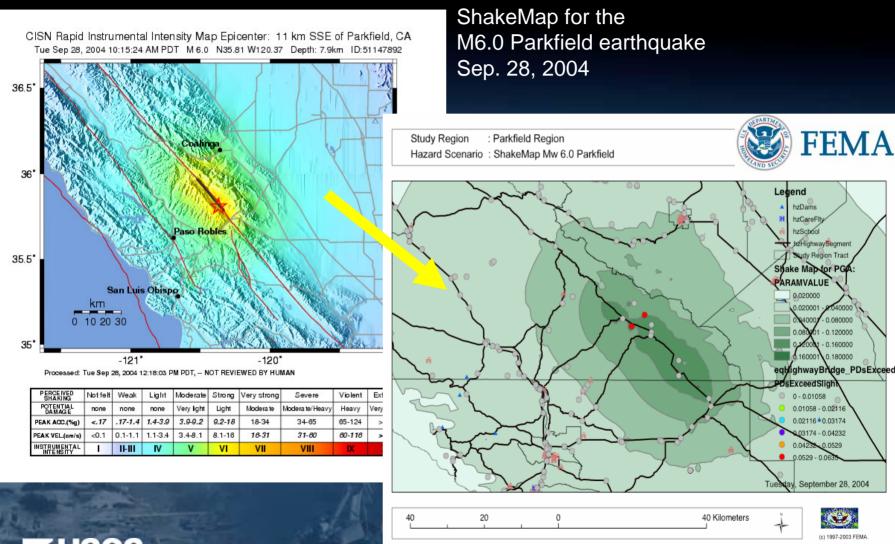
The beach is the finish



Improving situational awareness

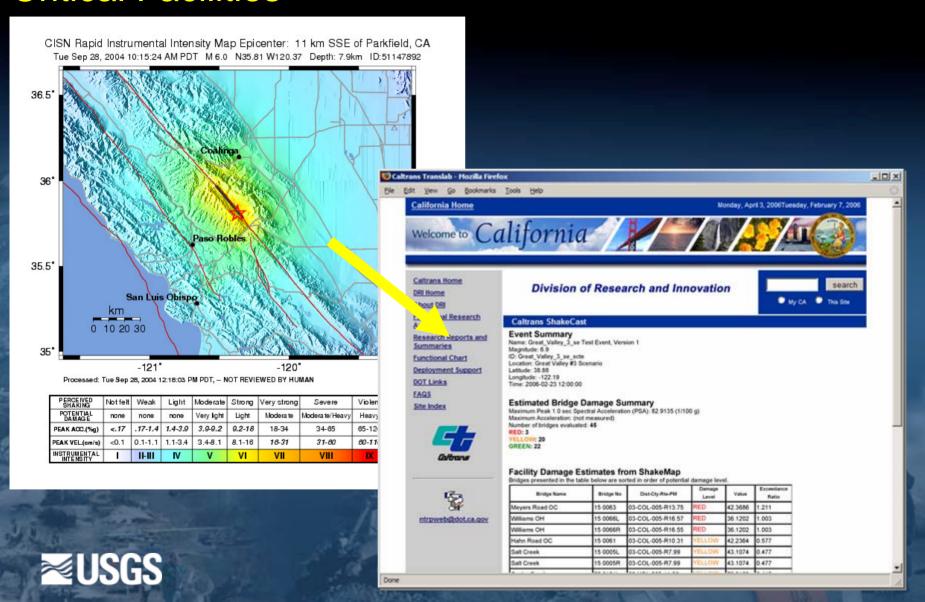


ShakeMap supports targeted response and rapid loss estimation

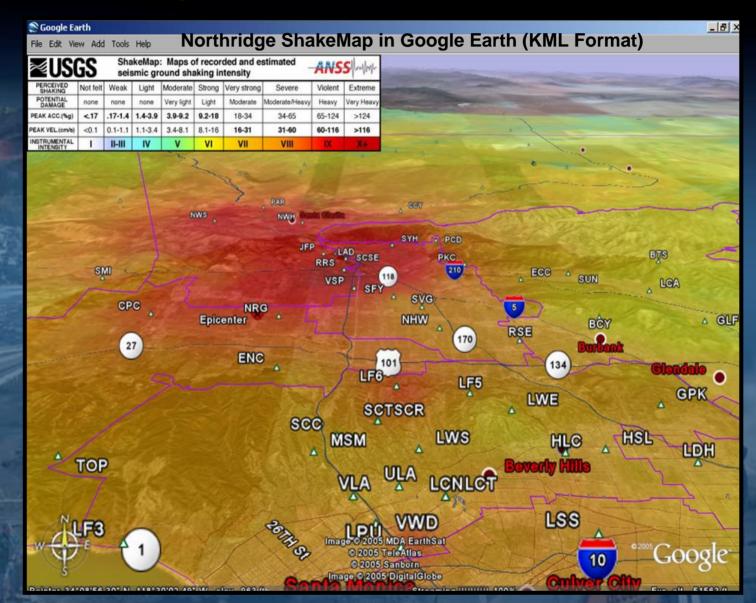




ShakeCast: Automatic Damage Assessment for Critical Facilities



ShakeMap now available to users as Google Earth transparent overlay





Situational awareness for humanitarian



≥USGS



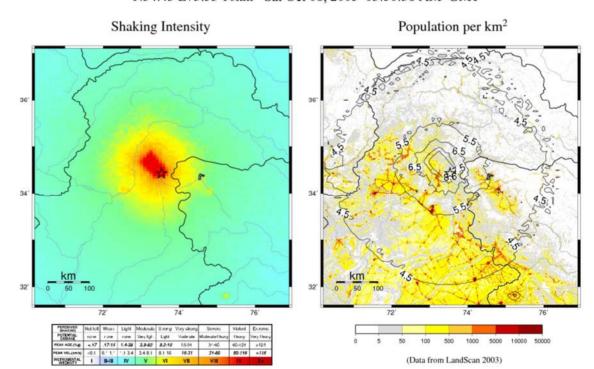


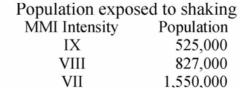




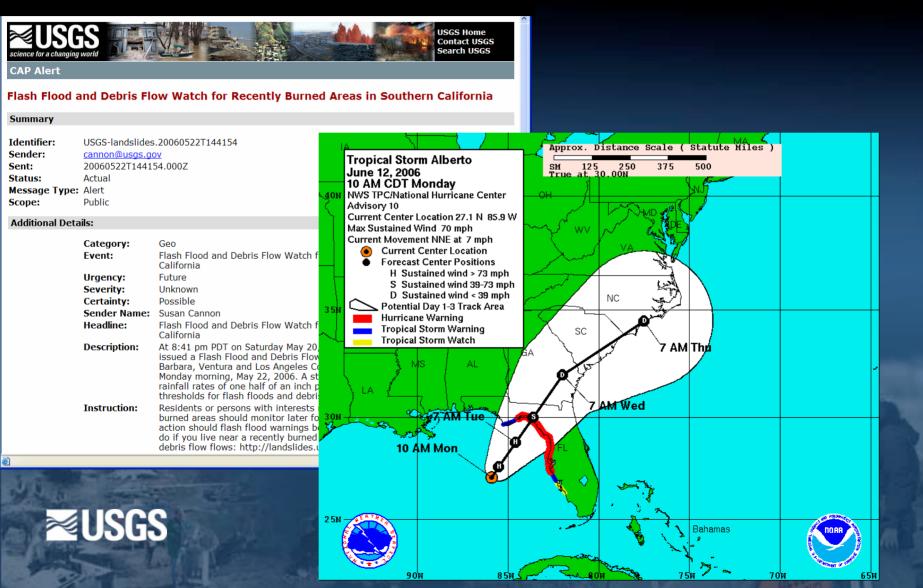
Prompt Assessment of Global Earthquakes (PAGER)

M7.6 PAKISTAN N34.43 E73.53 10km Sat Oct 08, 2005 03:50:38 AM GMT

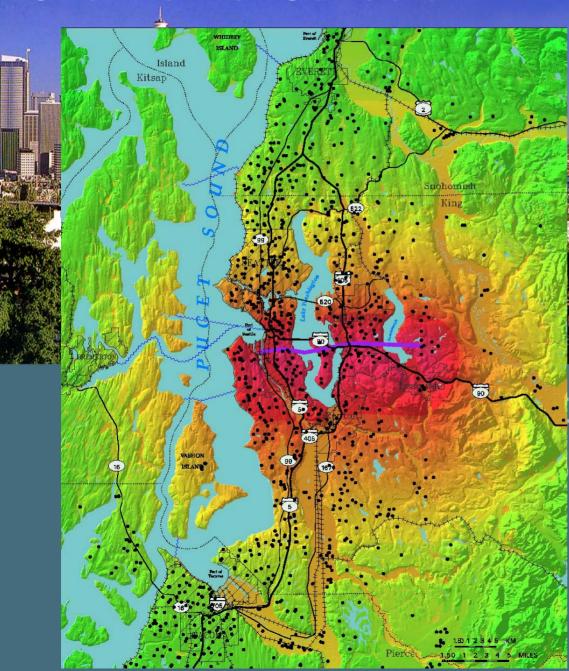




Greater specificity and lead time for warnings



Overview of Schools



- Over 1,200 schools and campuses in region
- Wide range of construction materials and age
- Some level of upgrade completed but not well documented as a region







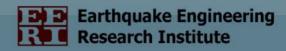




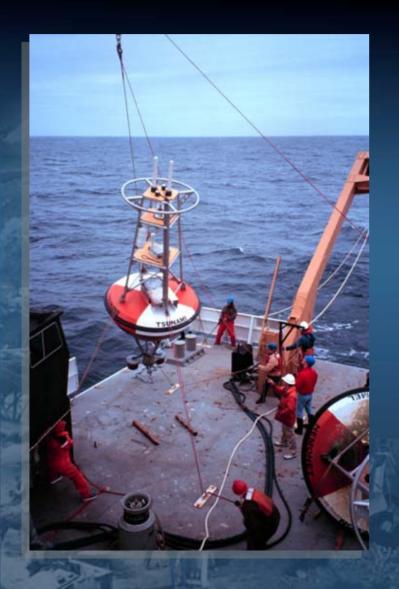








Grand Challenge 1. Provide hazard and disaster information where and when it is needed.



Challenges:

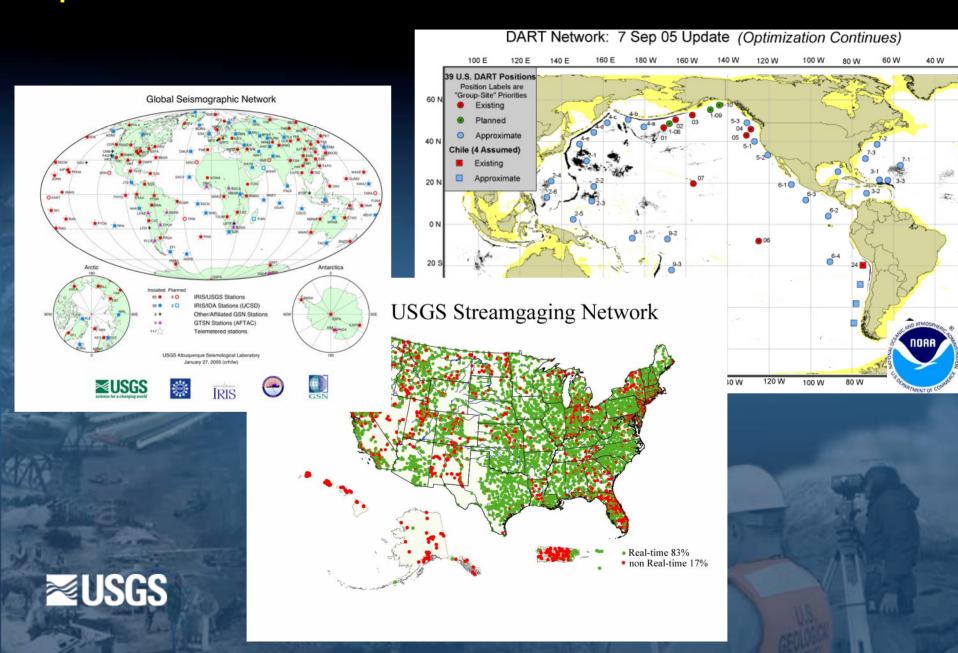
- Improve data collection to increase understanding of the ways in which hazards evolve.
- Create standards for sharing, storing and analyzing data.

National Volcano Early Warning Sytem: Closing the monitoring gap



NVEWSTARCETS	MONITORING
NVEWSTARGETS	GAP
Kilauea, HI	1 ERUPTION
St. Helens, W.A.	1 ERUPTION
Rainier, W A	3 3
Hood, OR	3
Shasta, CA South Sister, OR	3
Lassen, CA	3
Mauna Loa, HI	2
Redoubt, AK	2
Makushin. AK	2
Glacier Peak, W A	4
Akutan, AK	2
Baker, W A	3
	2
Spurr, AK Newberry	۷
Volcano,OR	3
Augustine, AK	2
Crater Lake, OR	4
Inyo Craters., CA	3
Adams, WA,	2
Veniam inof, AK	1 ERUPTION
W rangell, AK	2
Mono Craters, CA	3
Hualalai, HI	2
Medicine Lake, CA	3
Pagan, CNMI	3
Churchill, AK	3
Anatahan, CNMI	2 ERUPTION
Clear Lake, CA	3
Alamagan, CNMI	3
Kaguyak, AK	2
Dutton, AK	2
Hayes, AK	3
Emmons Lake, AK	2
Seguam , AK	3
Chiginagak, AK	3

Expansion of real-time in situ networks



A new generation of satellites and other remote-sensing capabilities **⊠USGS**