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U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

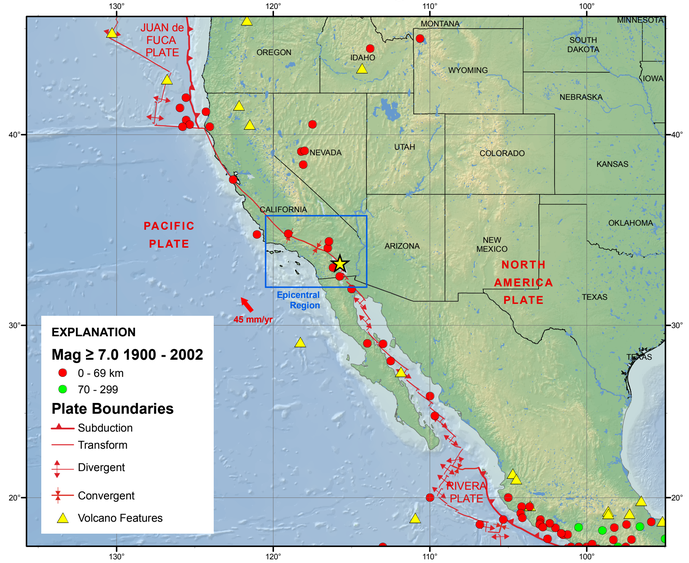
EARTHQUAKE SUMMARY MAP XXX

Prepared in cooperation with:

ANSS
CISN California Integrated Seismic Network

M7.8 San Andreas ShakeOut Scenario Earthquake of 13 November 2008

Tectonic Setting

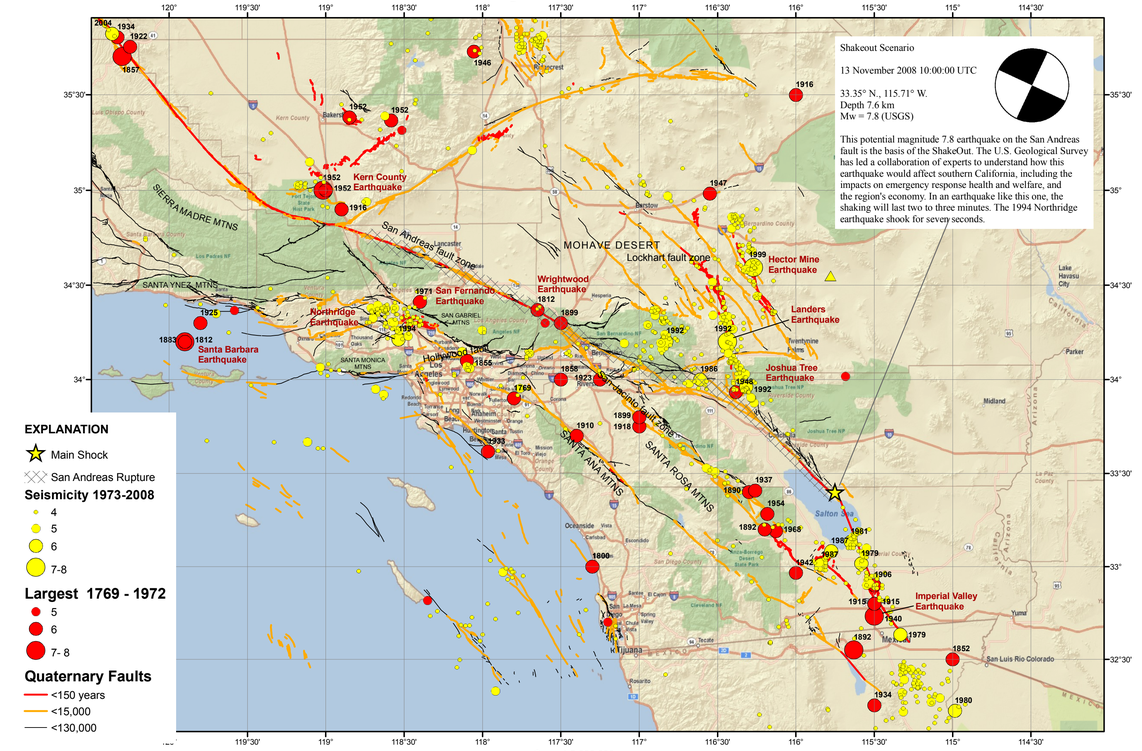


RELATIVE PLATE MOTIONS

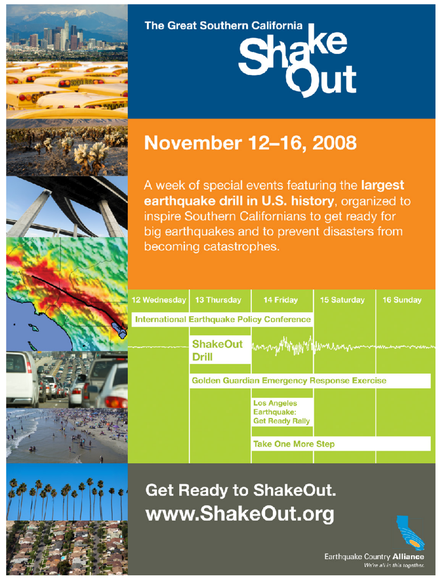
The broad red vector represents the motion of the Pacific Plate relative to the North America Plate in the region. The motion of the Pacific Plate is generally 45 mm/yr northwestward with respect to the North America Plate.

Scale 1:20,000,000
0 250 500 1,000 1,500 2,000 Kilometers

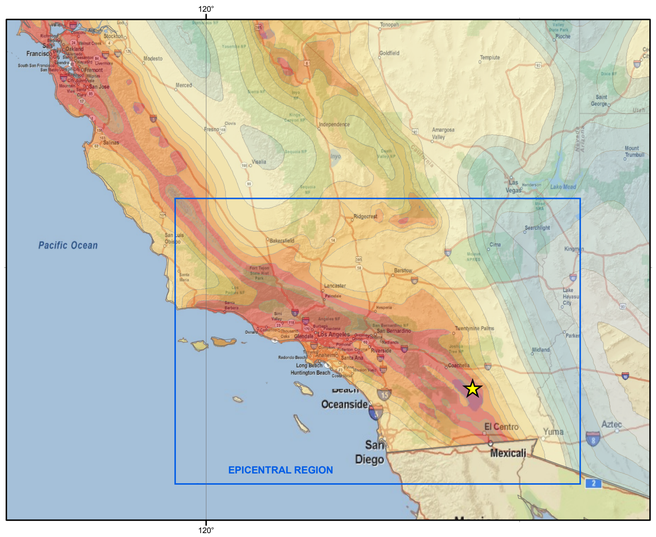
Epicentral Region



Scale 1:2,000,000
Projection Mercator, Datum WGS84
0 50 100 150 Kilometers



Seismic Hazard



Seismic hazard is expressed as percent g on firm rock, expected to be exceeded in a 50-yr period with a probability of 10 percent.

Scale 1:5,000,000
0 250 500 1,000 1,500 Kilometers

Seismic Hazard 10% in 50 years

Main Shock
> 100% g
80-100
60-80
40-60
30-40
25-30
20-25
15-20
10-15
9-10
8-9
7-8
6-7
5-6
4-5
3-4

Science That Boosts Preparedness: Millions Participate in The Great Southern California ShakeOut

With 22 million people living and working in southern California, a major earthquake in the region could cause an unprecedented catastrophe. Because damaging earthquakes are an inevitable part of southern California's future, the U.S. Geological Survey created the ShakeOut Earthquake Scenario, the foundation for the biggest earthquake preparedness event in U.S. history, the Great Southern California ShakeOut. The ShakeOut message is simple and direct: What we do now, before a big earthquake, will determine what our lives will be like after.

The ShakeOut Scenario is a realistic portrayal of what could happen in a major earthquake, large enough to devastate the entire region. Created by over 300 experts in a wide range of disciplines, led by Dr. Lucile Jones of the U.S. Geological Survey, the scenario explores a hypothetical 7.8 magnitude earthquake originating near the Salton Sea, on the southern end of the San Andreas Fault.

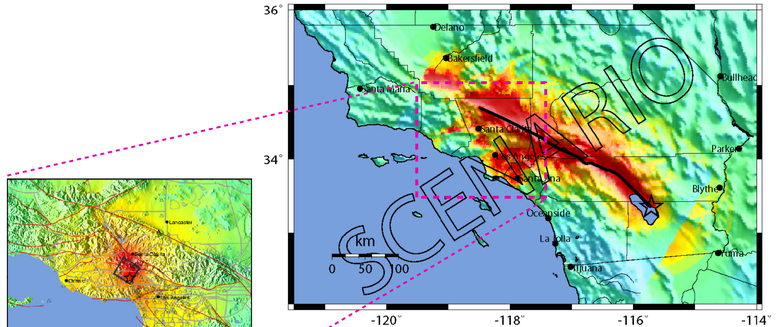
The Great Southern California ShakeOut is a week of special events, featuring a massive earthquake drill starting at 10 AM on November 13, 2008, when millions of southern Californians joined in pretending that the ShakeOut earthquake was happening. Also part of the ShakeOut are the Golden Guardian statewide emergency response drill, an international earthquake policy conference hosted by the City of Los Angeles, a preparedness rally put on by the Art Center College of Design, and hundreds to thousands of events created by the ShakeOut participants themselves. All are based on the ShakeOut Scenario earthquake.

The ShakeOut has exceeded its goal of 5 million participants, although making the final tally will take time. Already, requests are coming in from local governments, agencies, emergency responders, and residents, to help them keep going, and keep improving earthquake preparedness after the ShakeOut concludes.

For information about the ShakeOut, visit www.ShakeOut.org.

-- Earthquake Planning Scenario --
ShakeMap for Shakeout2 Full Scenario

Scenario Date: NOV 13 2008 10:00:00 AM M 7.8 N33.35 W115.71 Depth: 7.6km



PLANNING SCENARIO ONLY -- Map Version 1 Processed Tue Apr 1, 2008 02:08:50 PM MDT

Comparison with 1994 Northridge Earthquake

The ShakeOut Scenario earthquake will have aftershocks that are bigger and more damaging than the 1994 M6.7 Northridge earthquake, which caused 57 deaths (per the coroner) and $40 billion in damages. The inset map shows intensity in the Northridge earthquake. The map look-and-feel has changed over the years but the intensity color schemes are the same. Those in the zones of severe shaking during Northridge will not experience stronger shaking in a bigger earthquake, but there were millions fewer people and structures "in the red" during Northridge.

PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	none	none	none	Very light	Light	Moderate	Moderate/Heavy	Heavy	Very Heavy
PEAK ACC.(%g)	<.17	.17-1.4	1.4-3.9	3.9-9.2	9.2-18	18-34	34-65	65-124	>124
PEAK VEL.(cm/s)	<0.1	0.1-1.1	1.1-3.4	3.4-8.1	8.1-16	16-31	31-60	60-116	>116
INSTRUMENTAL INTENSITY	I	II-III	IV	V	VI	VII	VIII	IX	X+

Significant Earthquakes Mag ≥ 6.0 1769 - 2008

Year	Mon	Day	Time	Lat	Long	Dep	Mag	Location/Name
1769	07	28	0000	33.9	-117.8		6	LA Basin
1812	12	08	1500	34.37	-117.65		6.9	Wrightwood
1812	12	21	1900	34.2	-119.9		7.1	Santa Barbara
1855	07	11	0415	34.1	-118.1		6	Los Angeles Region
1858	12	16	1000	34	-117.5		6	San Bernadino
1899	07	22	2032	34.3	-117.5		6.5	Cajon Pass
1899	12	25	1225	33.8	-117		6.7	San Jacinto
1906	04	19	0030	32.900	-115.500	0	6.3	Imperial Valley
1910	05	15	1547	33.700	-117.400	0	6.0	
1915	06	23	0359	32.800	-115.500	0	6.2	
1915	06	23	0456	32.800	-115.500	0	6.2	
1916	10	23	0244	34.900	-118.900	0	6.0	
1916	11	10	0911	35.500	-116.000	0	6.1	
1918	04	21	2232	33.750	-117.000	0	6.8	San Jacinto
1922	03	10	1121	35.750	-120.250	0	6.5	Parkfield
1923	07	23	0730	34.000	-117.250	0	6.2	
1925	06	29	1442	34.300	-119.800	0	6.8	Santa Barbara
1933	03	11	0154	33.616	-117.966	16	6.3	
1934	06	08	0447	35.800	-120.330	16	6.0	
1934	12	30	1352	32.250	-115.500	0	6.5	Parkfield
1937	03	25	1649	33.408	-116.261	10	6.0	
1940	05	19	0436	32.733	-115.500	16	7.1	Imperial Valley
1942	10	21	1622	32.966	-116.000	16	6.6	Fish Creek Mountains
1946	03	15	1349	35.725	-118.055	22	6.3	
1947	04	10	1558	34.983	-116.550	16	6.5	
1948	12	04	2343	33.933	-116.383	16	6.5	Desert Hot Springs
1952	07	21	1152	35.000	-119.017	16	7.5	Kern County
1952	07	21	1205	35.000	-119.000	16	6.4	
1952	07	23	0038	35.366	-118.583	16	6.1	
1952	07	29	0703	35.383	-118.850	16	6.3	
1954	03	19	0954	33.283	-116.183	16	6.4	
1968	04	09	0228	33.190	-116.128	11	6.5	
1971	02	09	1400	34.412	-118.400	8	6.6	San Fernando
1979	10	15	2316	32.633	-115.324	10	6.4	Imperial Valley
1979	10	16	0658	33.016	-115.583	5	6.1	
1980	06	09	0328	32.220	-114.985	5	6.1	
1981	04	26	1209	33.098	-115.618	2	6.0	
1986	07	08	0920	33.999	-116.606	12	6.2	
1987	11	24	0154	33.082	-115.775	5	6.2	
1987	11	24	1315	33.010	-115.840	2	6.7	Superstition Hills
1992	04	23	0450	33.961	-116.318	12	6.1	
1992	06	28	1157	34.201	-116.436	1	7.3	Landers
1992	06	28	1505	34.203	-116.827	5	6.5	Big Bear
1994	01	17	1230	34.213	-118.537	18	6.7	Northridge
1999	10	16	0946	34.594	-116.271	0	7.2	Hector Mine
2004	09	28	1715	35.819	-120.364	8	6.0	Parkfield

DATA SOURCES

EARTHQUAKES AND SEISMIC HAZARD
USGS, National Earthquake Information Center
USGS National Seismic Hazard Maps

PLATE TECTONICS AND FAULT MODEL
PB2002 (Bird, P., 2003, An updated digital model of plate boundaries: Geochem. Geophys. Geosyst., v. 4, no. 3, pp. 1027- 80.)
Bryant, W.A., and Sanders, E.F., 2008, California Geological Survey, National Quaternary Fault and Fold Compilation for the State of California

BASE MAP
NIMA and ESRI, Digital Chart of the World
ESRI Online Services
USGS, EROS Data Center
NOAA GEBCO and GLOBE Elevation Models

DISCLAIMER

Base map data, such as place names and political boundaries, are the best available but may not be current or may contain inaccuracies and therefore should not be regarded as having official significance.

Map prepared by U.S. Geological Survey
National Earthquake Information Center
17 October 2008
Map not approved for release by Director USGS
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http://earthquake.usgs.gov/eqcenter/eqarchives/poster/