



# Earthquakes in Texas

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 Earthquake Hazards Program

## The USGS role in the National Earthquake Hazard Reduction Program Partnership

- Provide earthquake monitoring and notifications,
- Assess seismic hazards,
- Conduct targeted research needed to reduce the risk from earthquake hazards nationwide, and
- Work with NEHRP agencies and many other partners to support public awareness of earthquake hazards and impacts.



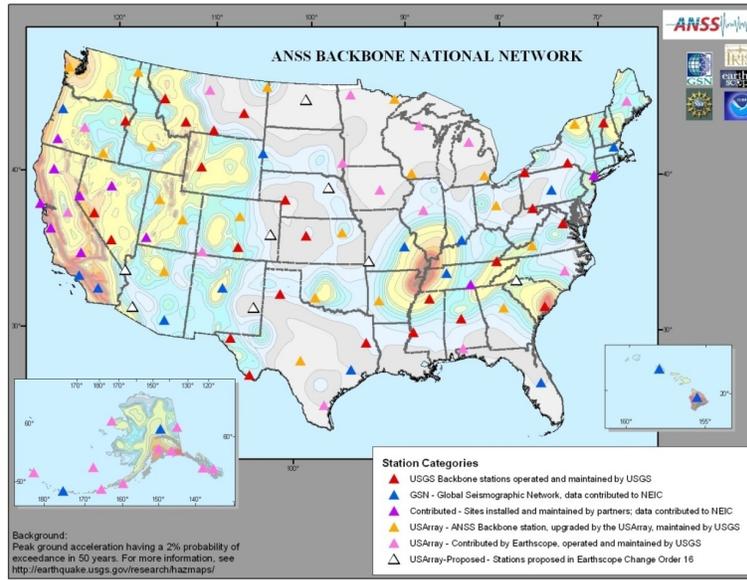




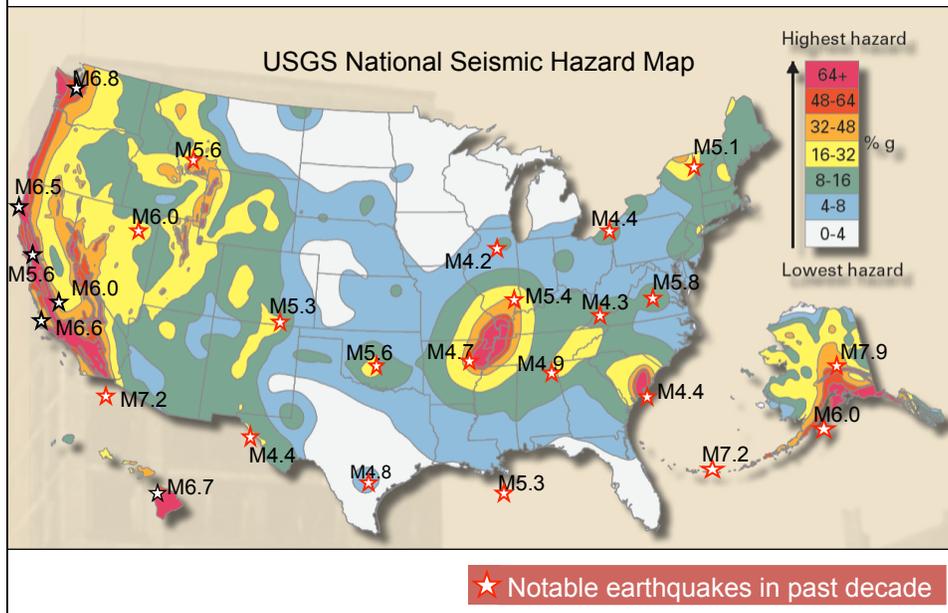


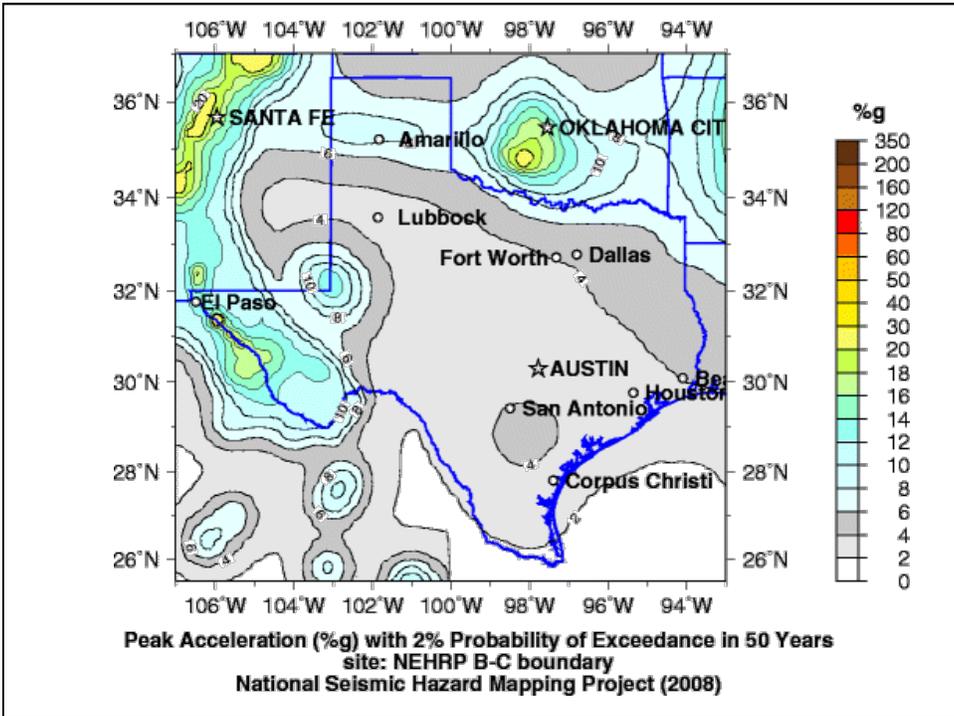
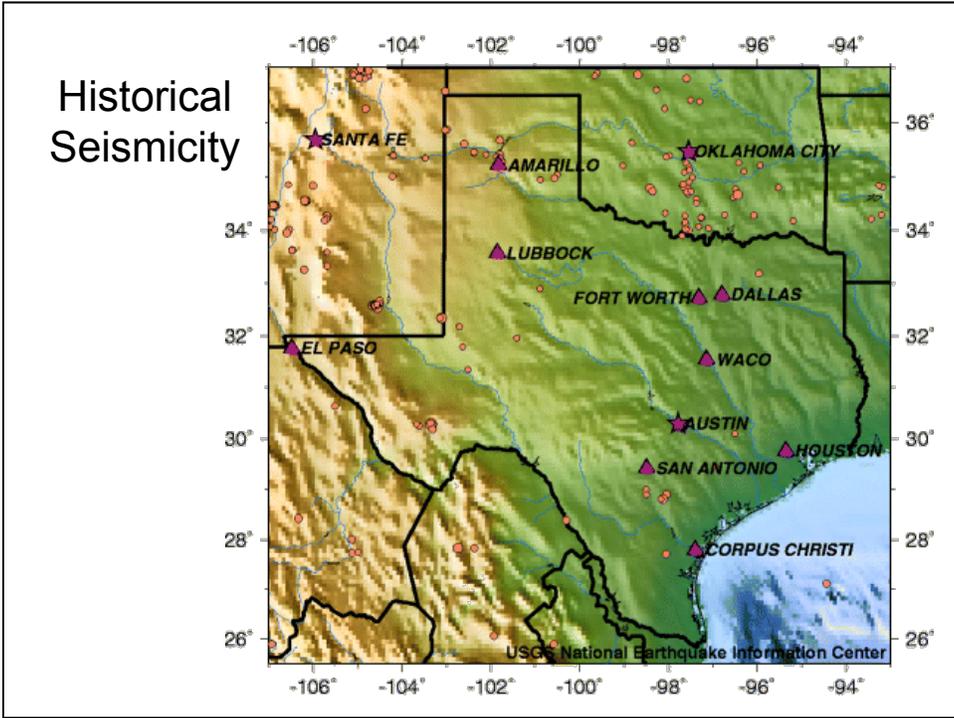
national earthquake hazards reduction program

## National Seismic Network of the USGS Advanced National Seismic System



## Earthquakes are a National Hazard





## NEIC: Earthquake Search Results

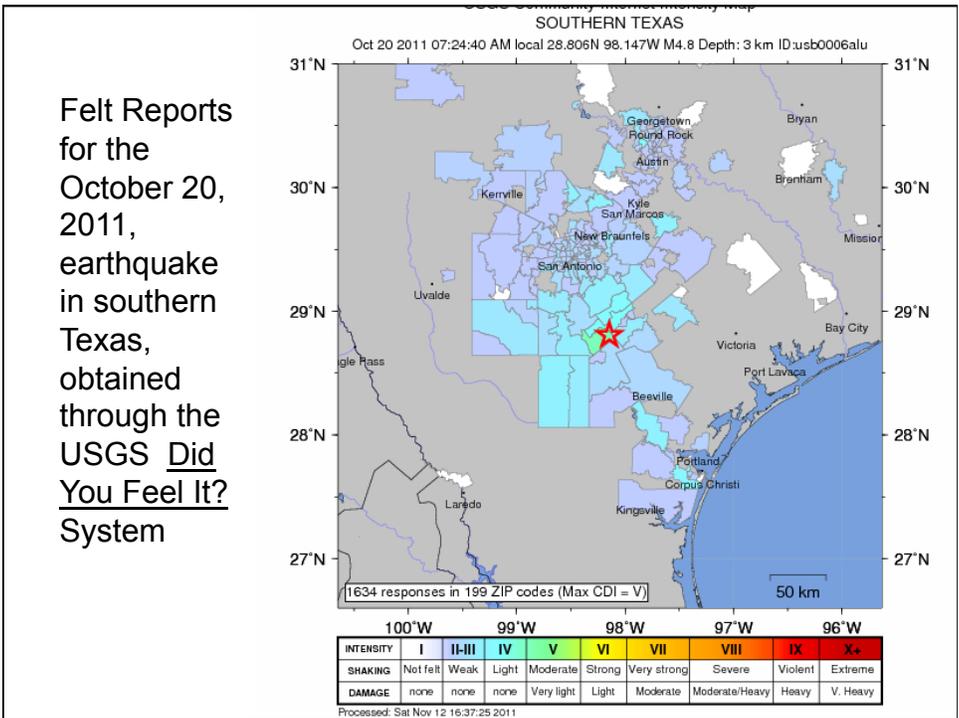
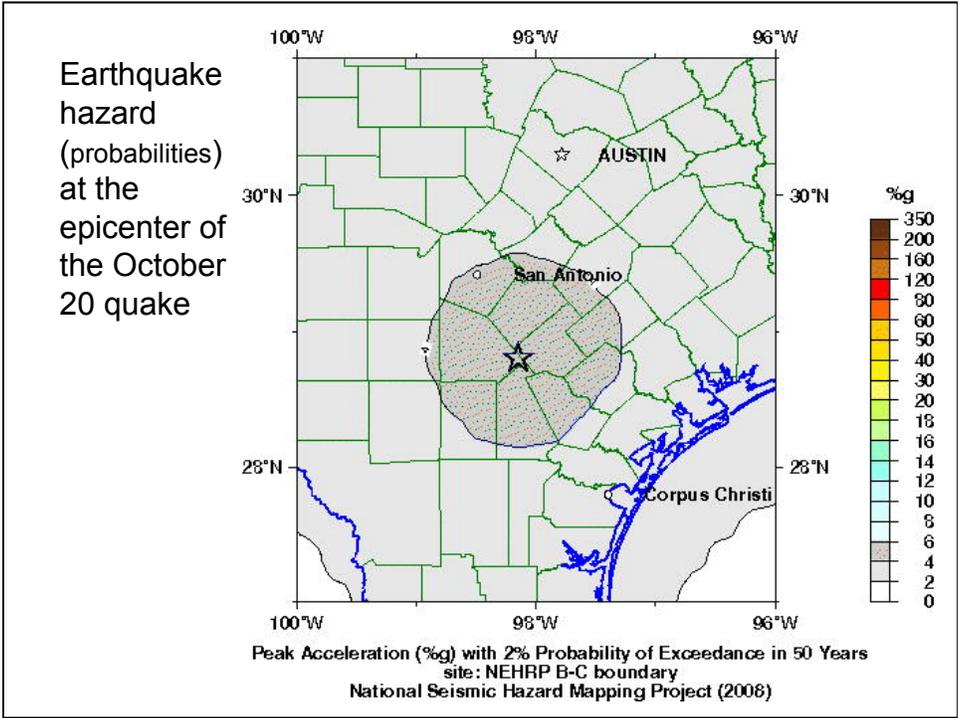
U. S. GEOLOGICAL SURVEY  
EARTHQUAKE DATA BASE

FILE CREATED: Thu Oct 20 15:47:10 2011  
Geographic Grid Search Earthquakes= 14  
Latitude: 30.000N - 28.000N  
Longitude: 97.500W - 99.500W  
Catalog Used: PDE  
Data Selection: Historical & Preliminary Data

CAT	YEAR	MO	DA	ORIG TIME	LAT	LONG	DEP	MAGNITUDE	IEM	DISVNWG	DIST
										NFO	km
										TF	
PDE	1982	03	28	232432.87	29.85	-98.46	5	3.0	LgGS	...	.....
PDE	1983	07	23	152438.22	28.74	-98.13	5	3.4	LgTUL	4F.	.....
PDE	1984	03	03	010326.57	28.85	-98.46	5	3.9	LgTUL	5F.	.....
PDE	1984	08	08	013127.37	29.13	-98.36	5	3.1	LgTUL	.F.	.....
PDE	1991	07	20	233819.21	28.91	-98.04	10	3.6	LgGS	4F.	.....
PDE	1992	08	10	015746.97	29.00	-98.50	5	2.8	LgGS	.F.	.....
PDE	1993	04	09	122919.17	28.81	-98.12	5	4.3	LgGS	5D.	.....
PDE	1993	05	16	153019.39	28.81	-98.17	5	3.0	LgGS	4F.	.....
PDE	2000	01	19	122933.45	28.90	-98.50	5	2.6	LgGS	.F.	.....
PDE	2008	04	07	095112.98	28.92	-98.04	5	3.9	MwSLM	3FM	.....
PDE	2009	04	11	221420.12	28.88	-98.53	5	2.8	LgGS	.F.	.....
PDE-W	2010	03	08	234728.12	28.95	-98.04	5	3.0	LgGS	.F.	.....
PDE-W	2010	12	21	135318.04	28.64	-98.04	5	3.0	LgGS	...	.....
PDE-W	2011	01	10	011422.19	29.07	-97.89	5	2.6	LgGS	3F.	.....

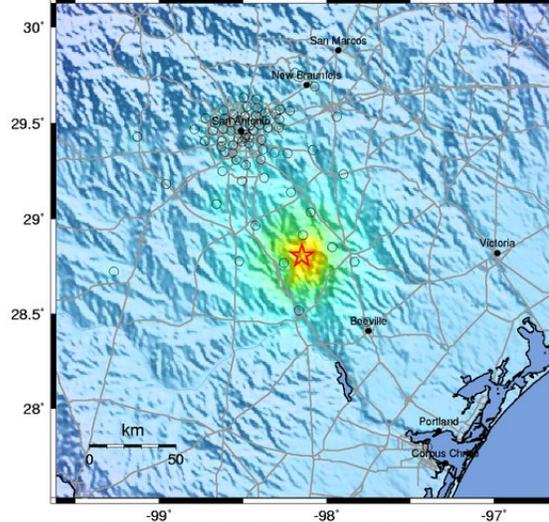
## Largest earthquake in Texas

- Near Valentine, Western Texas, August 16, **1931**, est. magnitude **5.8**
- Maximum Intensity **VIII** ("very strong")
- The most severe damage was reported at Valentine, where all buildings except wood-frame houses were damaged severely and all brick chimneys toppled or were damaged. The schoolhouse, which consisted of one section of concrete blocks and another section of bricks, was damaged so badly that it had to be rebuilt. Small cracks formed in the schoolhouse yard. Some walls collapsed in adobe buildings, and ceilings and partitions were damaged in wood-frame structures. Some concrete and brick walls were cracked severely. One low wall, reinforced with concrete, was broken and thrown down. Tombstones in a local cemetery were rotated. Damage to property was reported from widely scattered points in Brewster, Jeff Davis, Culberson, and Presidio Counties.
- Landslides occurred in the Van Horn Mountains, southwest of Lobo; in the Chisos Mountains, in the area of Big Bend; and farther northwest, near Pilares and Porvenir. Landslides also occurred in the Guadalupe Mountains, near Carlsbad, New Mexico, and slides of rock and dirt were reported near Picacho, New Mexico.
- Well water and springs were muddied throughout the area. Also felt in parts of Oklahoma, New Mexico, and in Chihuahua and Coahuila, Mexico.



**ShakeMap:**  
Intensity of ground shaking, based on earthquake location, magnitude and depth, and incorporating felt reports

USGS ShakeMap : SOUTHERN TEXAS  
Thu Oct 20, 2011 12:24:40 GMT M 4.8 N28.81 W98.15 Depth: 3.0km ID:b0006alu



Map Version 2 Processed Thu Oct 20, 2011 08:35:07 AM MDT -- NOT REVIEWED BY HUMAN

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.(%)	<.17	.17-1.4	1.4-3.0	3.0-9.2	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+

00006ALU - Hypocenters - Reflects Hydro v1.7.3 Build 5 - P14.8 - SOUTHERN TEXAS

DT: 12:24:40 2011/10/20 Lat: 28.803° Lon: -98.154° Depth: 5.0 km Mag: 4.8 Region: SOUTHERN TEXAS

Preferred: 4.8 Mw | -- Mw | 4.8 Mwr | -- km Mw | 4.6 Mw | 4.6 mb | 5.4 mb\_BB | 4.4 Ms\_VX | -- Ms\_20 | 4.9 Ms\_BB | 5.4 ML | 4.6 mb\_Lg | -- Md | -- Mw | Composite

Summary | Solutions Plot | Mw Details | Parameters | Contributor

Region: SOUTHERN TEXAS

Origin Time: 12/24/01 20:00:00 Lat: 28.803° Lon: -98.154° Depth: 5.0 km Pref Mag: 4.8 Mw

Elapsed: 4.8 Mwr 22(2) 4.8 0.000

Moment Summary: 1.790 E 23 (dyne-cm)

Automatic: USGS, NEIS, Golden, Colorado (and predecessors) Analyst: Harley Benz

Station	Amplitude	Dist	Weight
JCT.BHZ.US50	Am: 193.74°	Dist: 3.20°	Weight: 1.000
WHTX.BHZ.TA...	Am: 19.07°	Dist: 3.23°	Weight: 1.000
ADTX.BHZ.TA...	Am: 34.78°	Dist: 4.02°	Weight: 1.000
WMOK.BHZ.US...	Am: 35.01°	Dist: 5.81°	Weight: 1.000
MSTX.BHZ.TA...	Am: 32.73°	Dist: 6.49°	Weight: 1.000
WLAN.HHZ.AG...	Am: 40.28°	Dist: 6.61°	Weight: 1.000
MNTX.BHZ.US...	Am: 29.58°	Dist: 6.89°	Weight: 1.000

Event Status: Fully Processed

