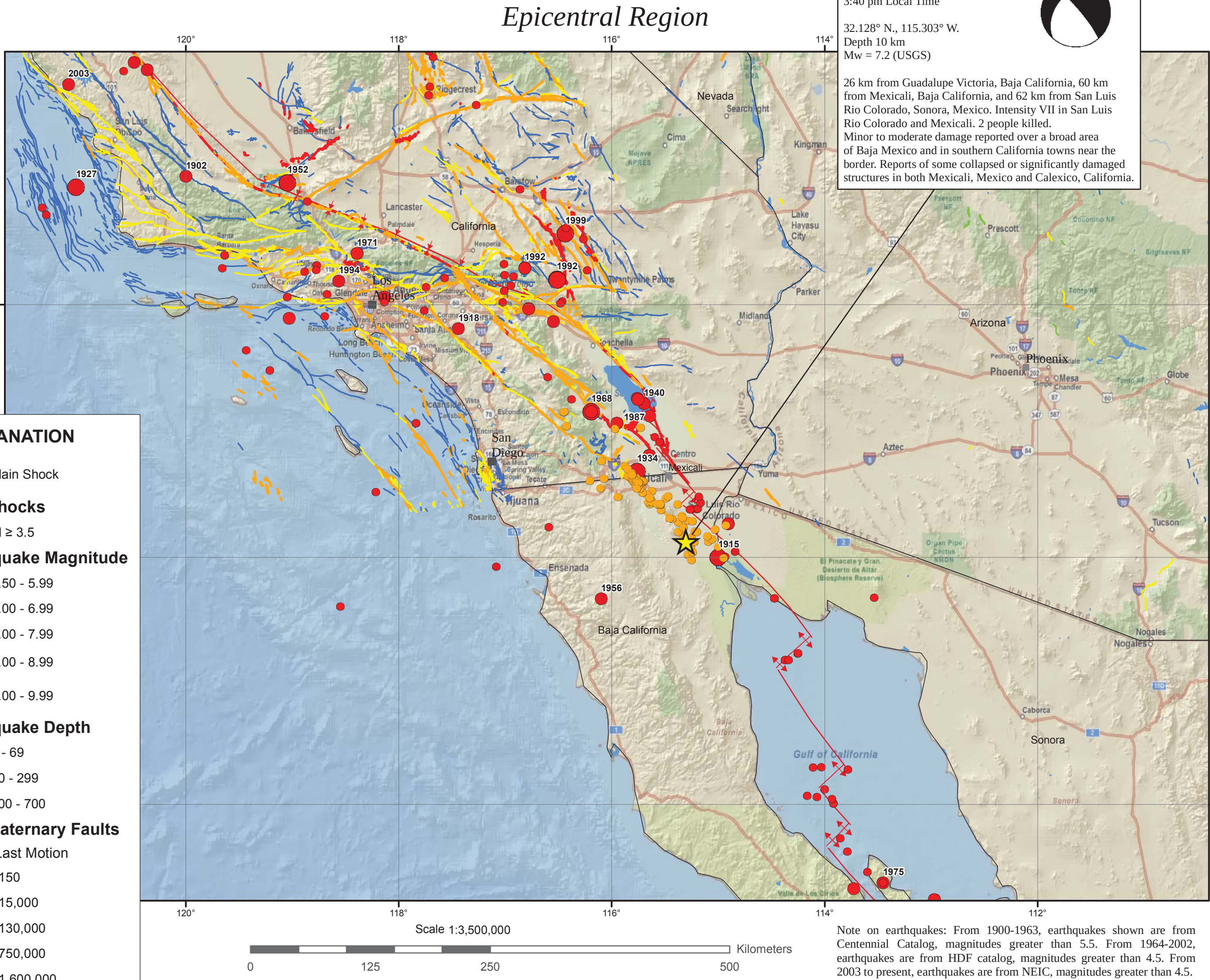
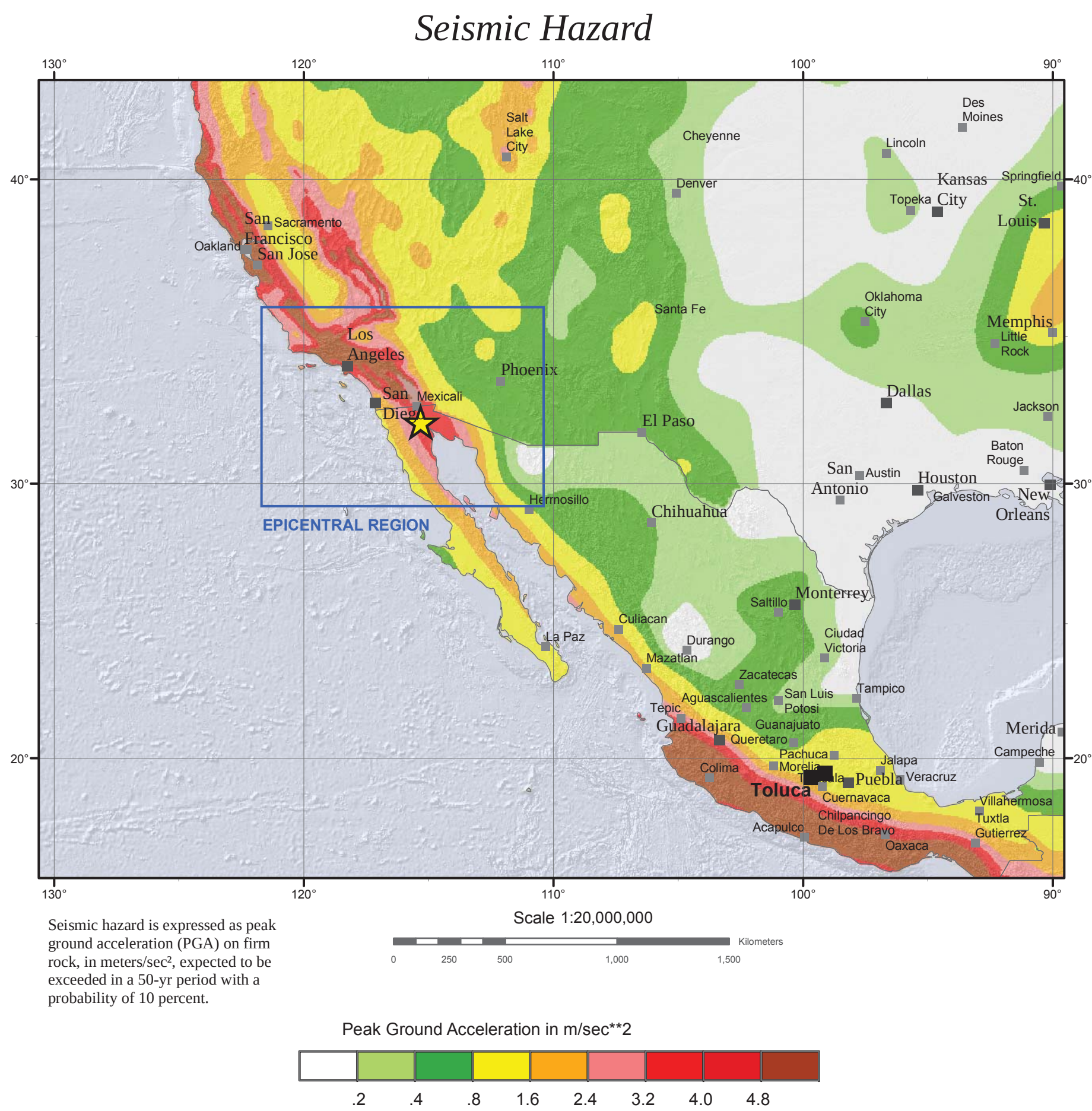
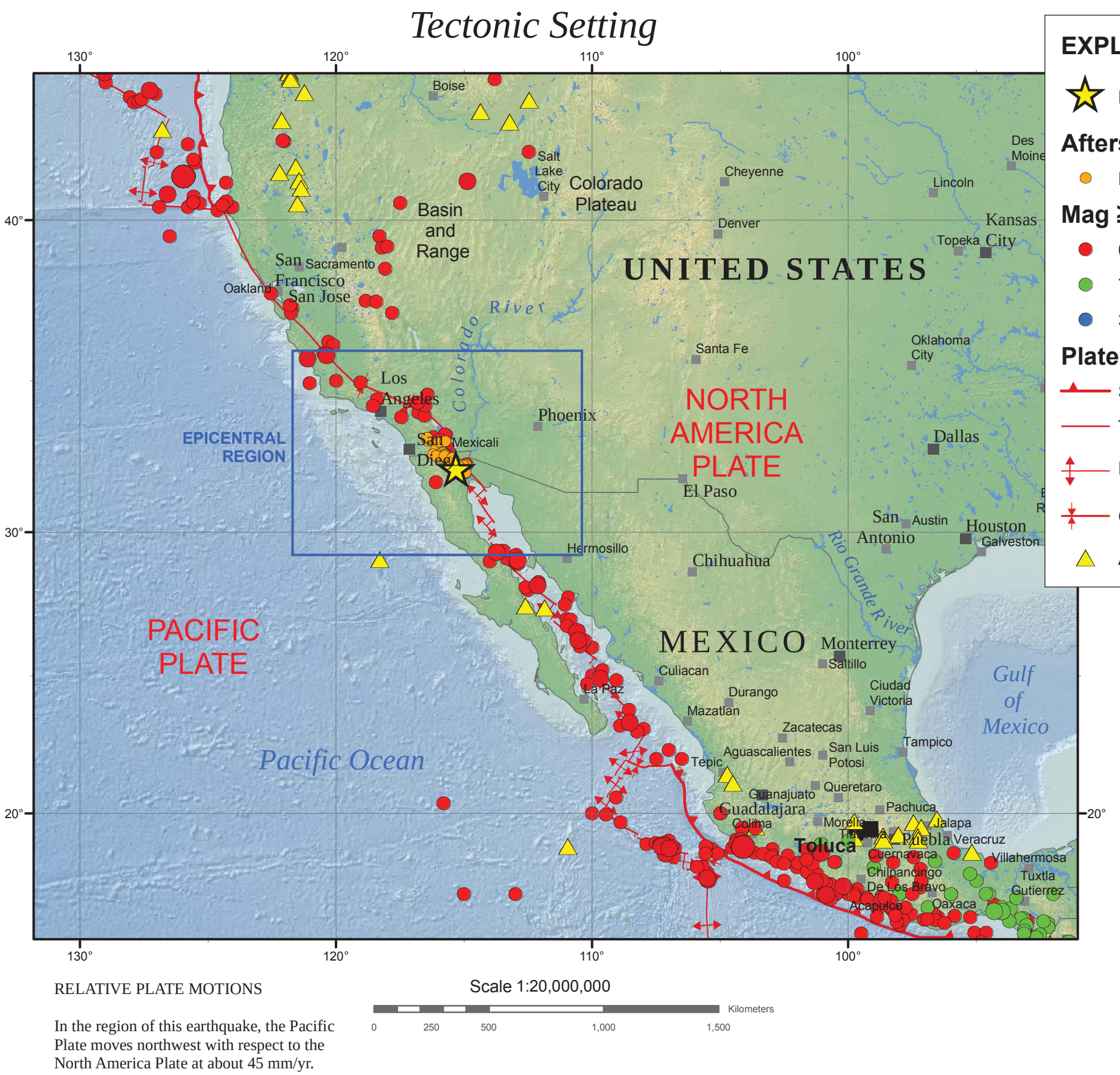




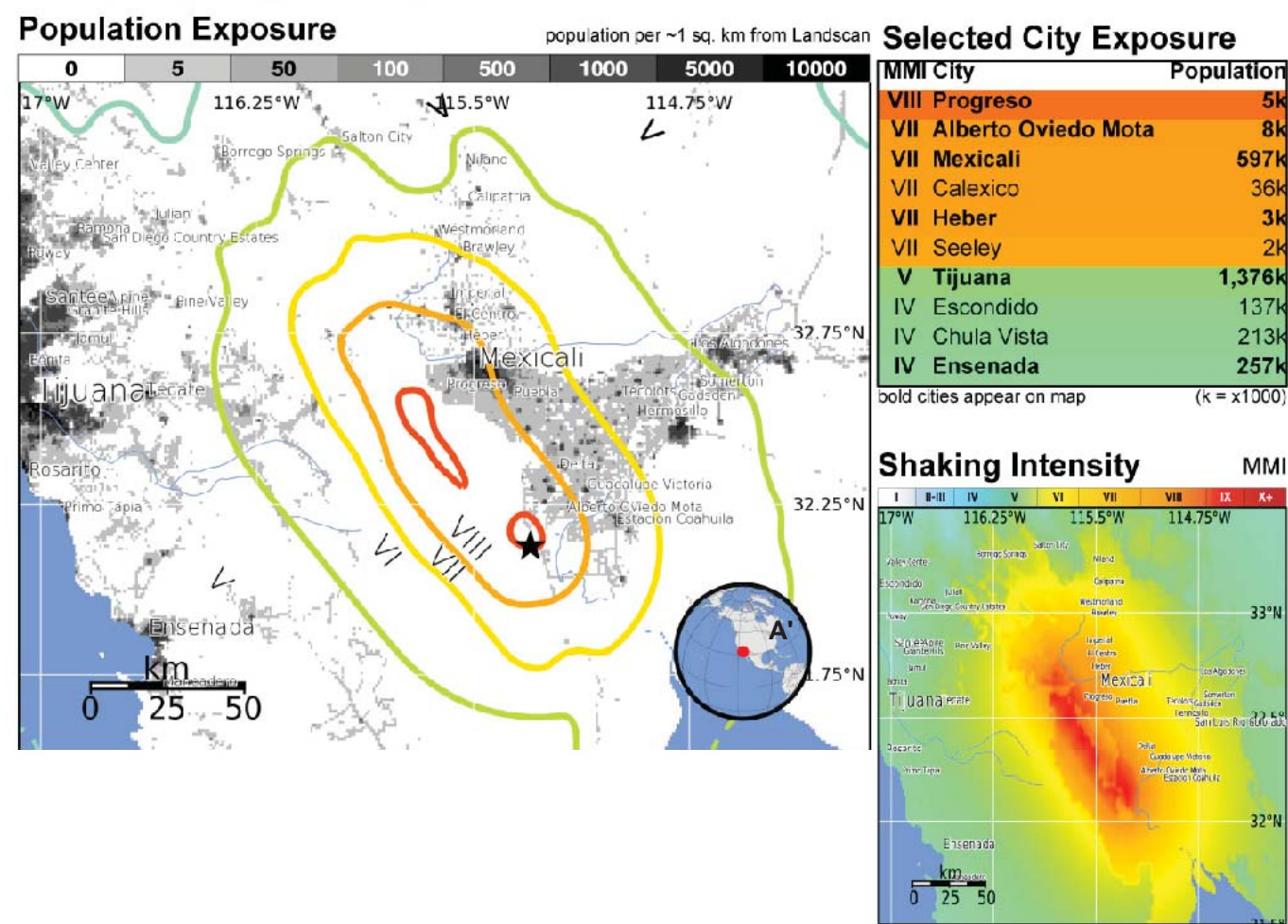
M7.2 Baja, Mexico, Earthquake of 4 April 2010



Estimated Population Exposed to Earthquake Shaking

ESTIMATED POPULATION EXPOSURE (N = 1000)	I	II-III	IV	V	VI	VII	VIII	IX	X+
PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very Strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	Resistant Structures none	none	none	V. Light	Light	Moderate	Moderate/Heavy	Heavy	V. Heavy
	Vulnerable Structures none	none	none	Light	Moderate	Moderate/Heavy	Heavy	V. Heavy	V. Heavy

Estimated exposure only includes population within the map area.



Overall, the population in this region resides in structures that are a mix of vulnerable and earthquake resistant construction. A magnitude 6.5 earthquake 88 km Northwest of this one struck Imperial Valley, California on October 15, 1979 (UTC), with estimated population exposures of 3,000 at intensity IX and 291,000 at intensity VIII, resulting in 0 fatalities. 91 injuries, and an estimated 30 Million US Dollars in damage. Recent earthquakes in this area have caused landslides and liquefaction that may have contributed to losses.

This information was automatically generated and has not been reviewed by a seismologist.

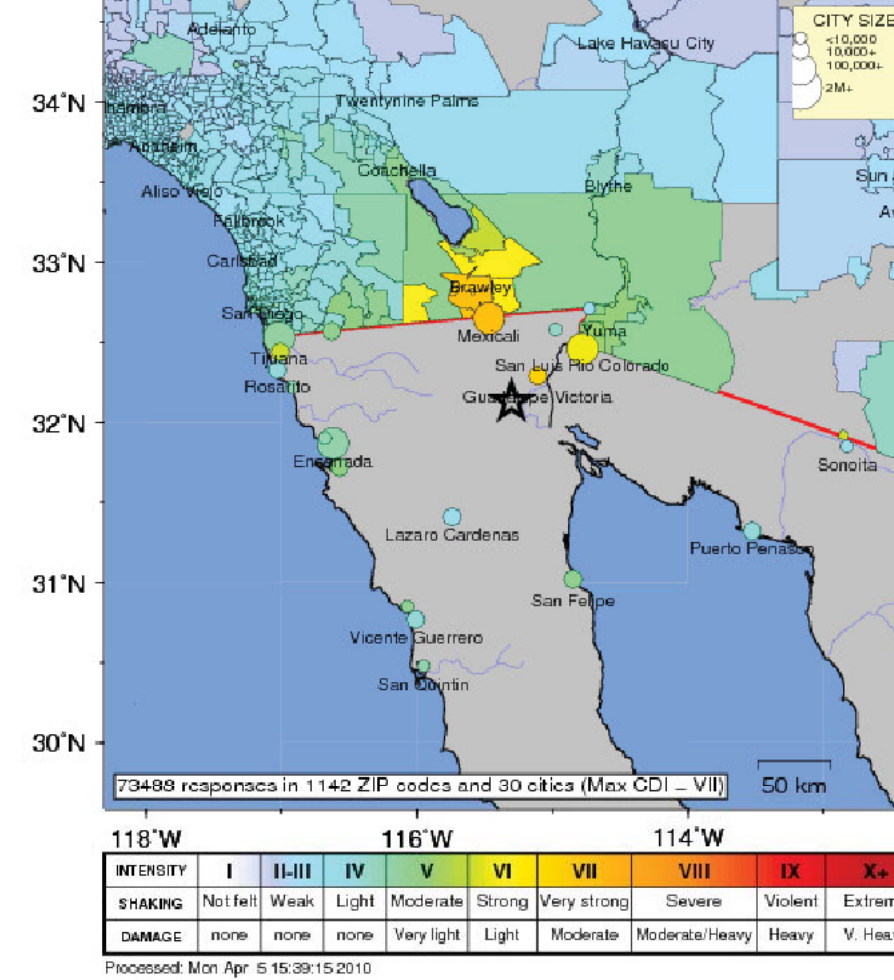
<http://earthquake.usgs.gov/pager>

Event ID: ci14607652

USGS Community Internet Intensity Map

BAJA CALIFORNIA, MEXICO

Apr 4 2010 15:40:41 local 32.128N 115.303W M7.2 Depth: 10 km ID:ci14607652



DATA SOURCES

EARTHQUAKES AND SEISMIC HAZARD
USGS, National Earthquake Information Center
NOAA, National Geophysical Data Center
IASPEI, Centennial Catalog (1900 - 1999) and extensions (Engdahl and Villaseñor, 2002)
HDF (unpublished earthquake catalog) (Engdahl, 2003)
Global Seismic Hazard Assessment Program

PLATE TECTONICS AND FAULT MODEL

PR2002 (Bird, 2003)
Plate Fault Model, Chen Ji, UC Santa Barbara (2007)

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

REFERENCES

Bird, P., 2003, An updated digital model of plate boundaries: Geochron. Geophys. Geosyst., v. 4, no. 3, pp. 1027-80.

Engdahl, E.R. and Villaseñor, A., 2002, Global Seismicity: 1900 - 1999, chap. 41 of Lee, W.H.K., and others, eds., International Earthquake and Engineering Seismology, Part A: New York, N.Y., Elsevier Academic Press, 932 p.

Engdahl, E.R., Van der Hilst, R.D., and Buland, R.P., 1998, Global teleseismic earthquake relocation with improved travel times and procedures for depth determination: Bull. Seism. Soc. Amer., v. 88, p. 722-743.

Map prepared by U.S. Geological Survey
National Earthquake Information Center
4 April 2010
Map not approved for release by Director USGS

TECTONIC SUMMARY

The magnitude 7.2 Sierra El Mayor earthquake of Sunday April 4th 2010, occurred in northern Baja California, approximately 40 miles south of the Mexico-USA border at shallow depth along the principal plate boundary between the North American and Pacific plates. This is an area with a high level of historical seismicity, and also it has recently been seismically active, though this is the largest event to strike in this area since 1892. The 4 April earthquake appears to have been larger than the M 6.9 earthquake in 1940 or any of the early 20th century events (e.g., 1915 and 1934) in this region of northern Baja California.

At the latitude of the earthquake, the Pacific plate moves northwest with respect to the North America plate at about 1.8 inches per year. The principal plate boundary in northern Baja California consists of a series of northwest-trending strike-slip (transform) faults that are separated by pull-apart basins. The faults are distinct from, but parallel to, strands of the San Andreas fault system. The April 4 main-shock occurred along a strike-slip segment of the plate boundary that coincides with the southeastern part of the Laguna Salada fault system. It is a complex event that may have begun with east-down motion along faults on the eastern edge of the Sierra El Mayor, then progressed to the northwest with oblique slip, that is, a combination of lateral shift to the right and also east-down motion. Overall, the location and focal-mechanism of the earthquake are consistent with the shock having occurred on this fault system.

We have received initial measurements from field geologists from the Centro de Investigación Científica y de Educación Superior de Ensenada, BC. (CICESE) who have observed surface rupture associated with the 2010 event at 32.578621° N.; -115.725814° W. Highway 2 was offset at this location by a total of about 1.2

meters across a zone of fractures that offset the road towards the right, and with the east side also dropping downwards. Aftershocks appear to extend in both directions along this fault system from the epicenter of the 4 April 2010 event. The aftershock zone extends from near the northern tip of the Gulf of California to 6 miles northwest of the Mexico-USA border.

Earthquakes having magnitudes as high as 7 have been historically recorded from the section of the Pacific/North American plate boundary on which the 4 April 2010 earthquake occurred. The 1892 earthquake occurred along the Laguna Salada fault system, but surface offsets associated with the 1892 event lie farther northwest than the 4 April 2010 mainshock's epicenter. The 2010 event's aftershock zone extends to the northwest, overlapping with the portion of the fault system that is thought to have ruptured in 1892. The 1940 Imperial Valley earthquake approached magnitude 7, though it occurred farther to the north and on the Imperial fault. Both the 1892 and 1940 earthquakes were associated with extensive surface faulting. An event of M 7.0 or 7.1 occurred in this region in 1915, and then a M 7.0 to 7.2 in 1934 broke the Cerro Prieto fault with up to several meters of surface slip.

In the vicinity of the 4 April 2010 earthquake, there are several active faults and it has not yet been determined specifically which fault the earthquake occurred on. Within the transition from the ridge-transform boundary in the Gulf of California to the continental transform boundary in the Salton Trough, faulting is complex. Most of the major active faults are northwest-southeast oriented right-lateral strike-slip faults that are common in mechanism to the San Andreas fault and parallel Elsinore and San Jacinto faults, that run north of the Mexico-USA border.

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.