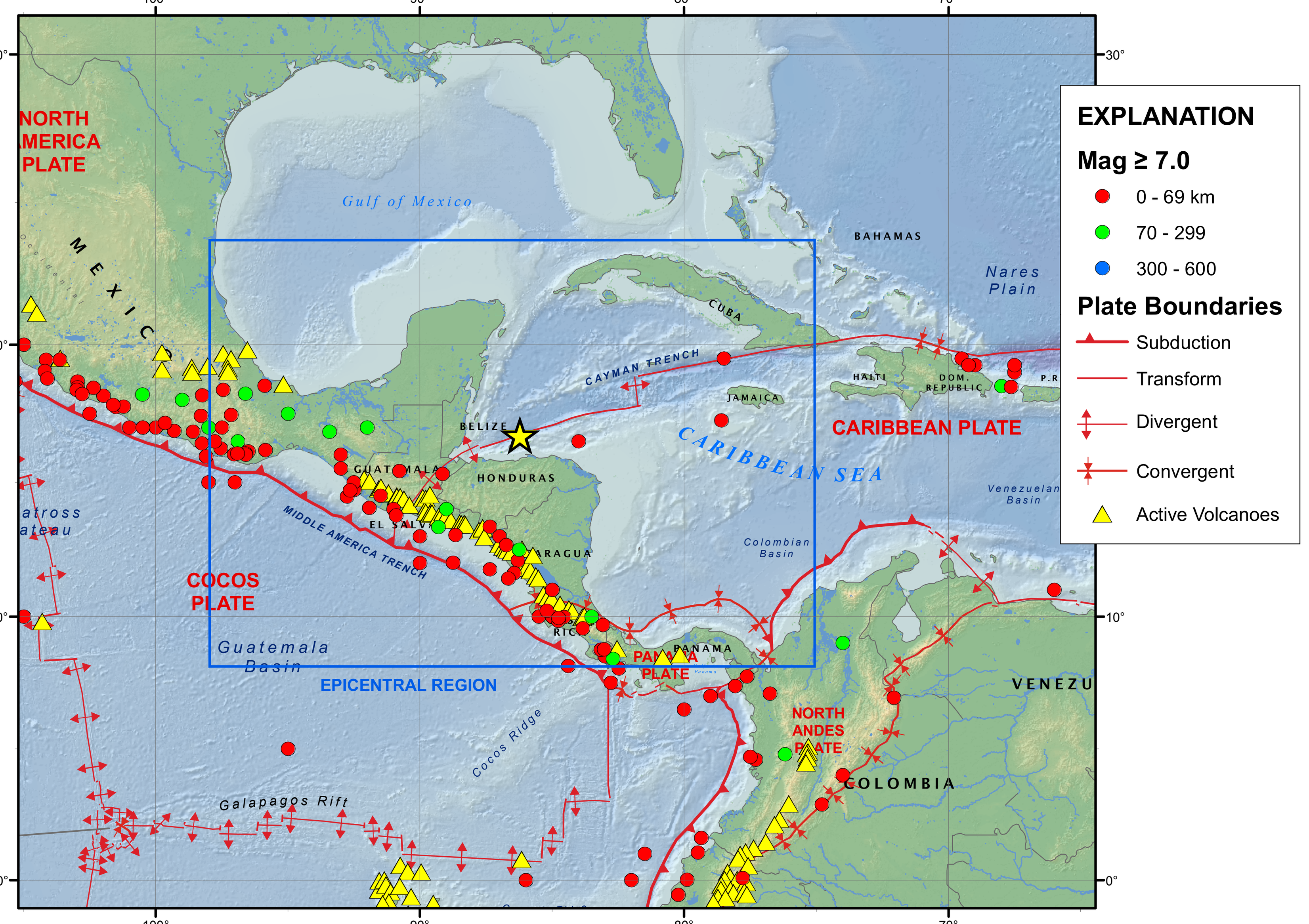
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

EARTHQUAKE SUMMARY MAP

Prepared in cooperation with the Global Seismographic Network

M7.3 Honduras Earthquake of 28 May 2009

Tectonic Setting



RELATIVE PLATE MOTIONS

Overwelming the tectonics in this area is the convergence of the Cocos and Caribbean Plates, with the Cocus plate subducting under the crustal Caribbean Plate at about 75 mm/yr. In the region of this earthquake, earthquakes define the boundary between the North American and Caribbean Plates, which move past each other at about 20 mm/yr.

Epicentral Region

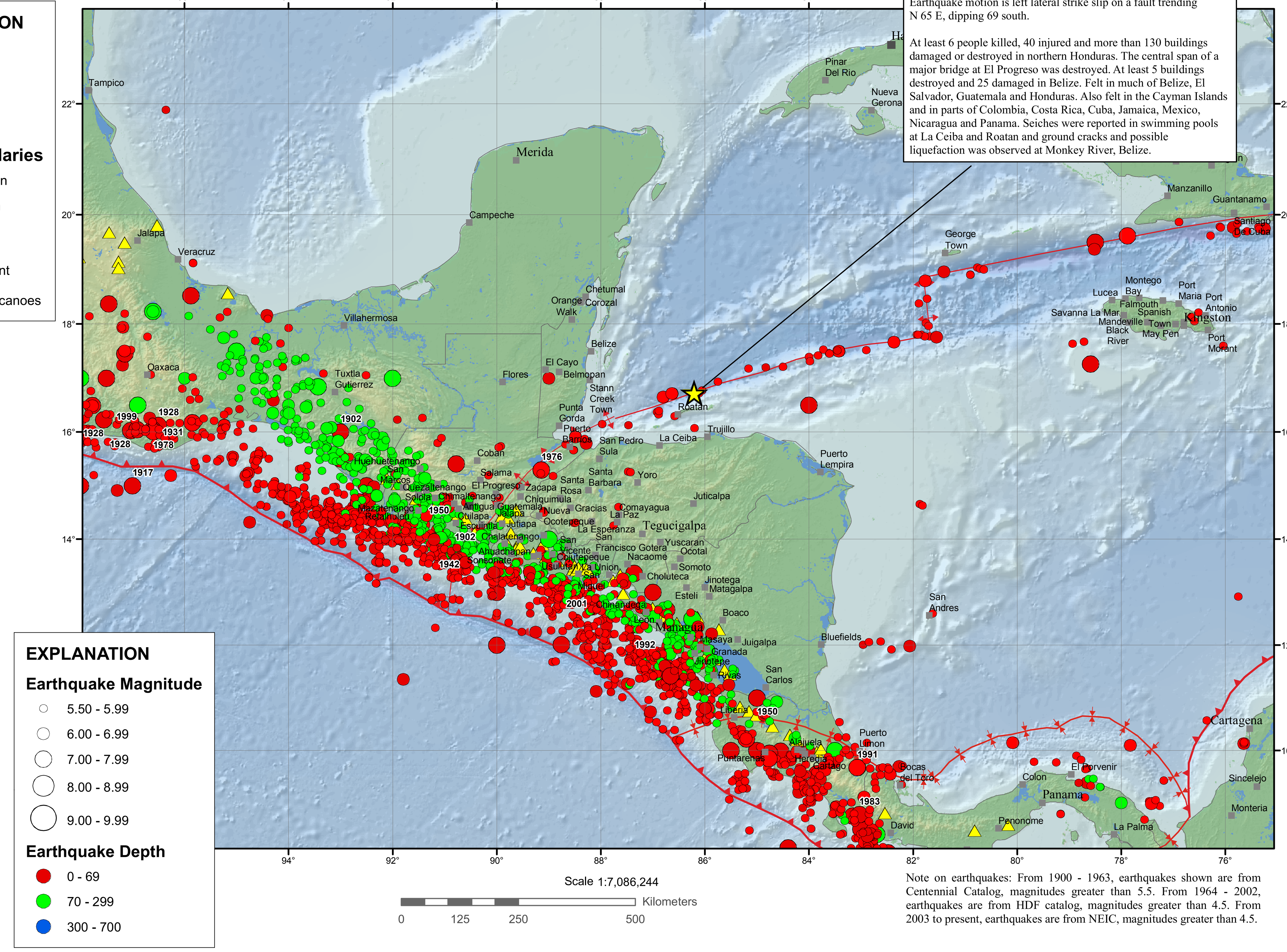
Offshore Honduras

28 May 2009 8:24:45 UTC

16.73° N., 86.209° W.
Depth 10 km
Mw = 7.3 (USGS)

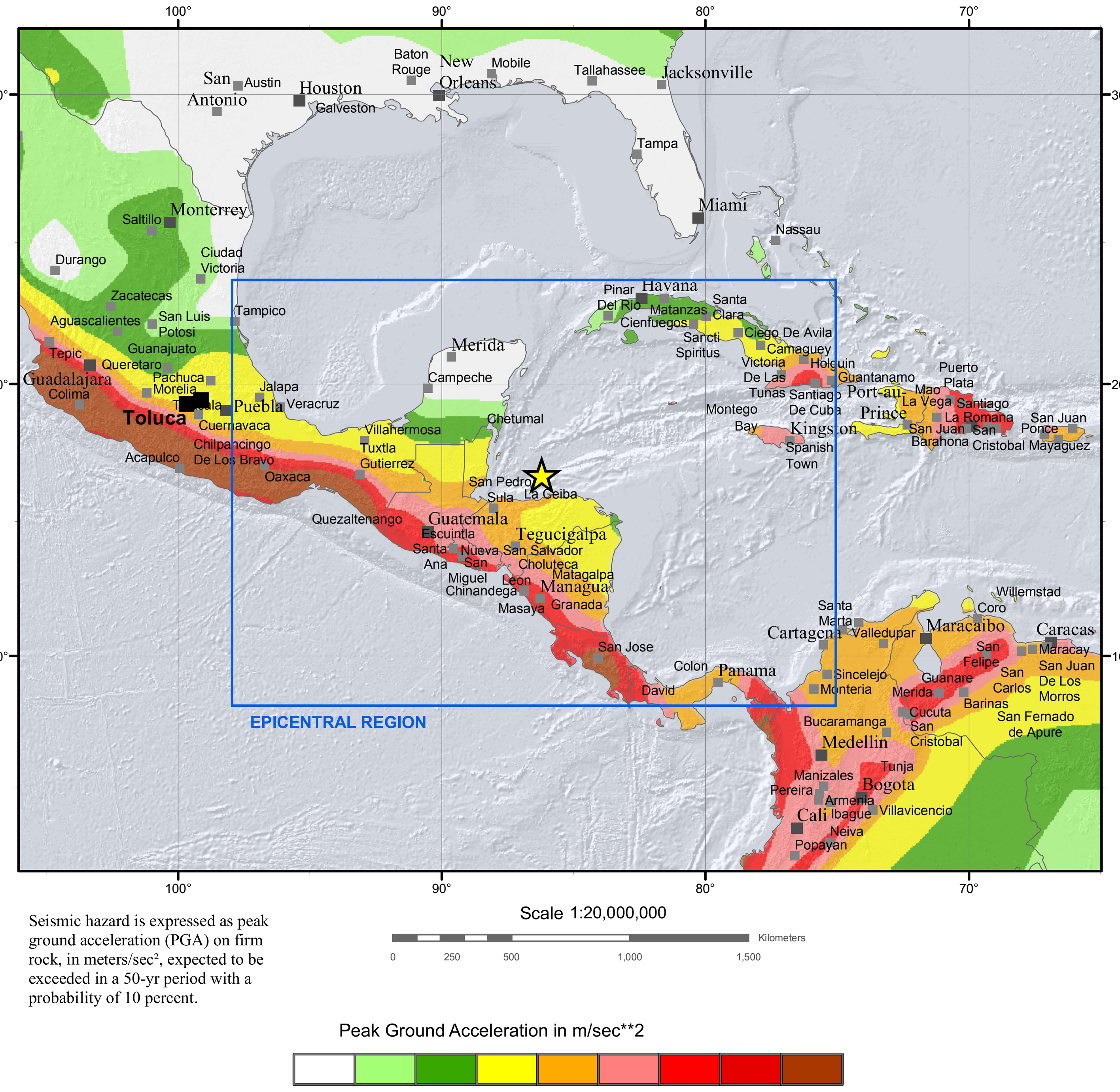
Earthquake motion is left lateral strike slip on a fault trending N 65 E, dipping 69 south.

At least 6 people killed, 40 injured and more than 130 buildings damaged or destroyed in northern Honduras. The central span of a major bridge at El Progreso was destroyed. At least 5 buildings destroyed and 25 damaged in Belize. Felt in much of Belize, El Salvador, Guatemala and Honduras. Also felt in the Cayman Islands and in parts of Colombia, Costa Rica, Cuba, Jamaica, Mexico, Nicaragua and Panama. Seiches were reported in swimming pools at La Ceiba and Roatan and ground cracks and possible liquefaction was observed at Monkey River, Belize.



Note on earthquakes: From 1900 - 1963, earthquakes shown are from Centennial Catalog, magnitudes greater than 5.5. From 1964 - 2002, earthquakes are from HDF catalog, magnitudes greater than 4.5. From 2003 to present, earthquakes are from NEIC, magnitudes greater than 4.5.

Seismic Hazard



Seismic hazard is expressed as peak ground acceleration (PGA) on firm rock, in meters/sec^2, expected to be exceeded in a 50-yr period with a probability of 10 percent.

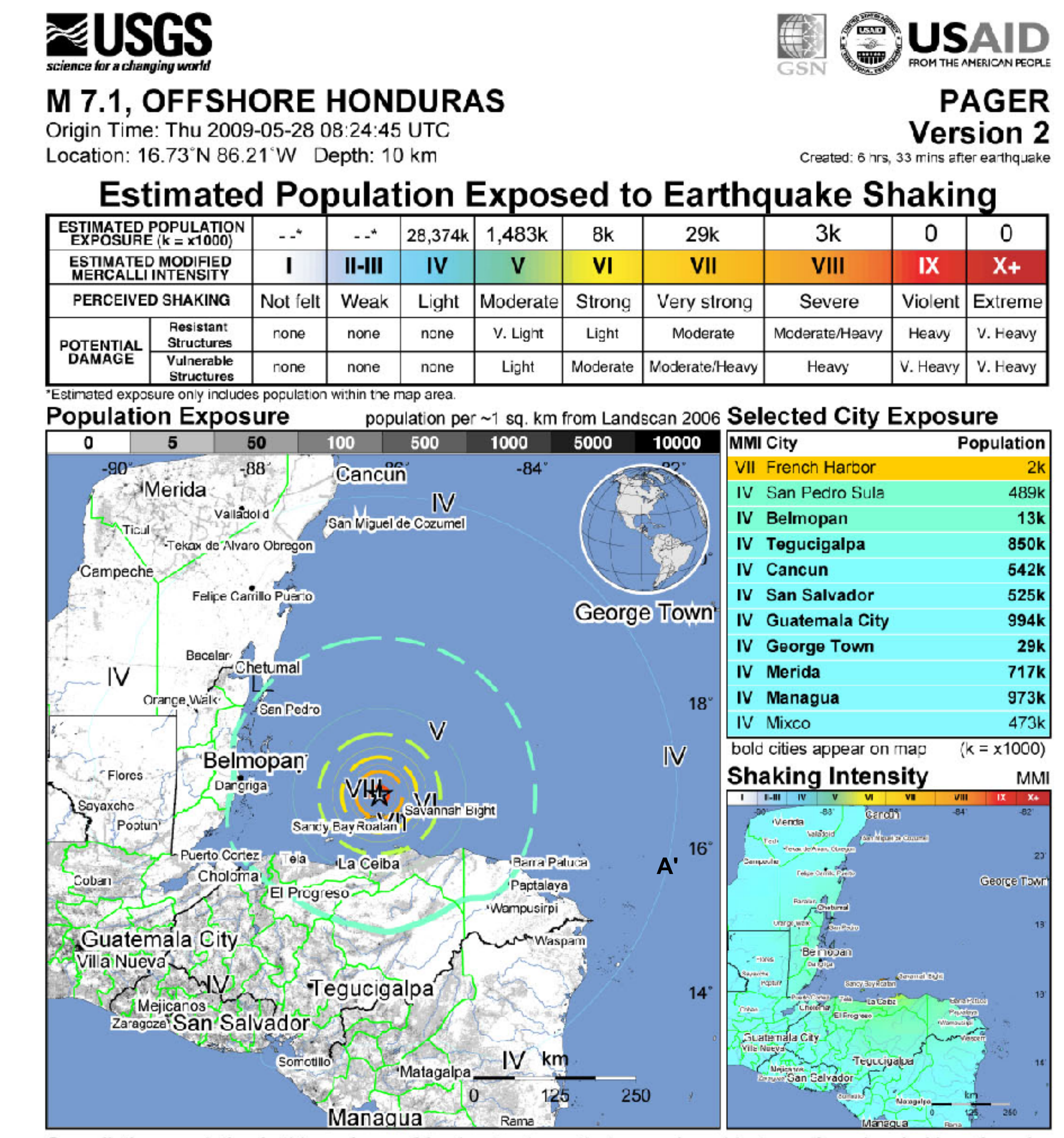
TECTONIC SUMMARY

The location and focal mechanism of the Honduras earthquake of May 28, 2009, imply that the shock occurred as the result of left-lateral strike-slip faulting on the Swan Islands Transform Fault, a segment of the boundary between the North America and Caribbean plates. In this region the plate boundary accommodates about 20 mm/y slip.

Previous strong earthquakes along the North America/Caribbean plate boundary include the destructive Guatemala earthquake of February 4, 1976, M 7.5, which produced more than 23,000 fatalities. The 1976 earthquake occurred on the Motagua fault, a segment of the plate boundary that lies in southern Guatemala, several hundred kilometers southwest of the plate boundary that ruptured in the May 28, 2009 shock.

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.



Overall, the population in this region resides in structures that are vulnerable to earthquake shaking, though some resistant structures exist. A magnitude 7.5 earthquake occurred near the Guatemala, region 358 km southwest of the location of this earthquake on February 4, 1976 (UTC), with estimated population exposures of 80,000 at intensity IX or greater and 1,017,000 at intensity VIII, resulting in an estimated 22,778 fatalities.

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

http://earthquake.usgs.gov/pager Event ID: us2009heak

Significant Earthquakes Mag >= 7.1

Year	Mon	Day	Time	Lat	Long	Dep	Mag
1900	06	21	2052	10.000	-85.500	0	7.2
1902	04	19	0223	14.000	-91.000	0	7.5
1902	09	23	2018	16.000	-93.000	0	7.8
1904	12	20	0544	8.500	-83.000	0	7.2
1907	12	30	0526	12.100	-86.300	0	7.2
1914	03	30	0041	17.000	-92.000	150	7.2
1915	09	07	0120	14.000	-89.000	80	7.4
1916	02	27	2020	12.000	-90.000	0	7.3
1916	04	24	0802	11.000	-85.000	0	7.2
1917	02	20	1929	19.500	-78.500	0	7.2
1917	12	29	2250	15.000	-97.000	0	7.7
1921	02	04	0822	15.411	-90.780	35	7.4
1921	03	28	0749	13.356	-87.361	35	7.2
1928	03	22	0417	16.127	-96.505	35	7.5
1928	06	17	0319	16.028	-97.036	35	7.7
1928	10	09	0301	16.229	-97.550	35	7.5
1931	01	15	0150	16.053	-96.614	35	7.8
1935	12	14	2205	14.718	-92.484	35	7.2
1937	07	26	0347	18.523	-95.878	35	7.2
1939	12	21	2054	9.986	-84.546	35	7.2
1941	12	05	2047	8.752	-83.158	35	7.3
1942	08	06	2337	13.780	-90.913	35	7.7
1950	10	05	1609	11.000	-85.000	0	7.8
1950	10	23	1613	14.500	-91.500	0	7.5
1950	12	14	1415	17.000	-97.500	0	7.3
1956	10	24	1442	11.619	-86.436	35	7.2
1965	08	23	1946	16.178	-95.846	10.5	7.4
1968	08	02	1406	16.494	-97.771	49.8	7.3
1970	04	29	1401	14.461	-92.760	50.9	7.3
1973	08	28	0950	18.233	-96.608	80.7	7.3
1976	02	04	0901	15.297	-89.145	12.1	7.5
1978	11	29	1952	16.012	-96.602	24.5	7.8
1982	06	19	0621	13.337	-89.312	73.1	7.3
1983	04	03	0250	8.777	-83.032	25	7.5
1990	03	25	1322	9.948	-84.757	22	7.3
1991	04	22	2156	9.675	-83.072	12.3	7.6
1992	09	02	0016	11.766	-87.352	45	7.7
1993	09	10	1912	14.702	-92.656	34	7.2
1995	10	21	0238	16.842	-93.434	159	7.2
1999	09	30	1631	16.046	-96.912	40	7.5
2001	01	13	1733	13.038	-88.661	38	7.7
2009	05	28	0824	16.729	-86.212	10	7.1

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
PB2002 (Bird, 2003)
Finite 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

REFERENCES

Bird, P., 2003, An updated digital model of plate boundaries: Geochem. 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 Academeic 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
28 May 2009
Map not approved for release by Director USGS