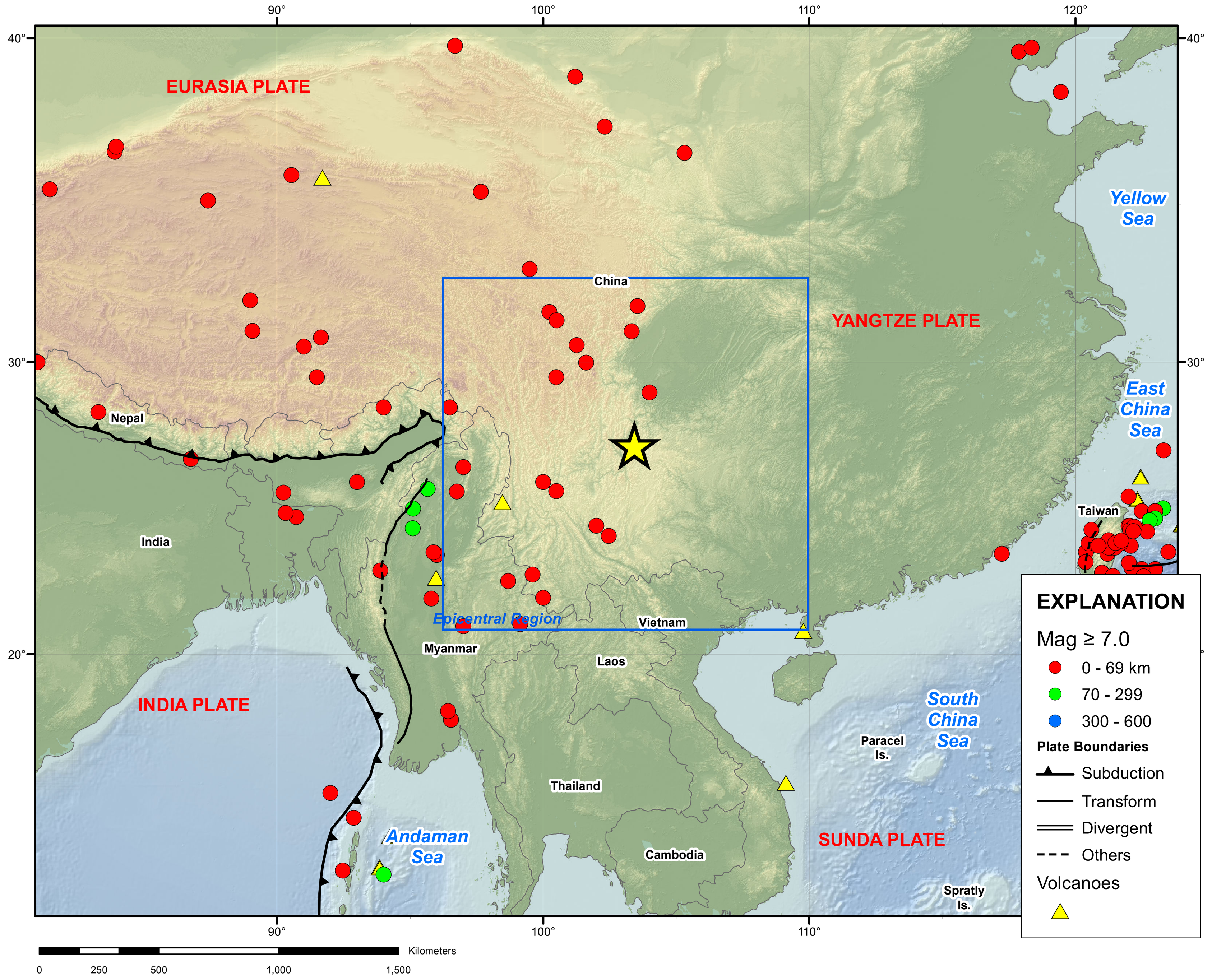
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

EARTHQUAKE SUMMARY MAP

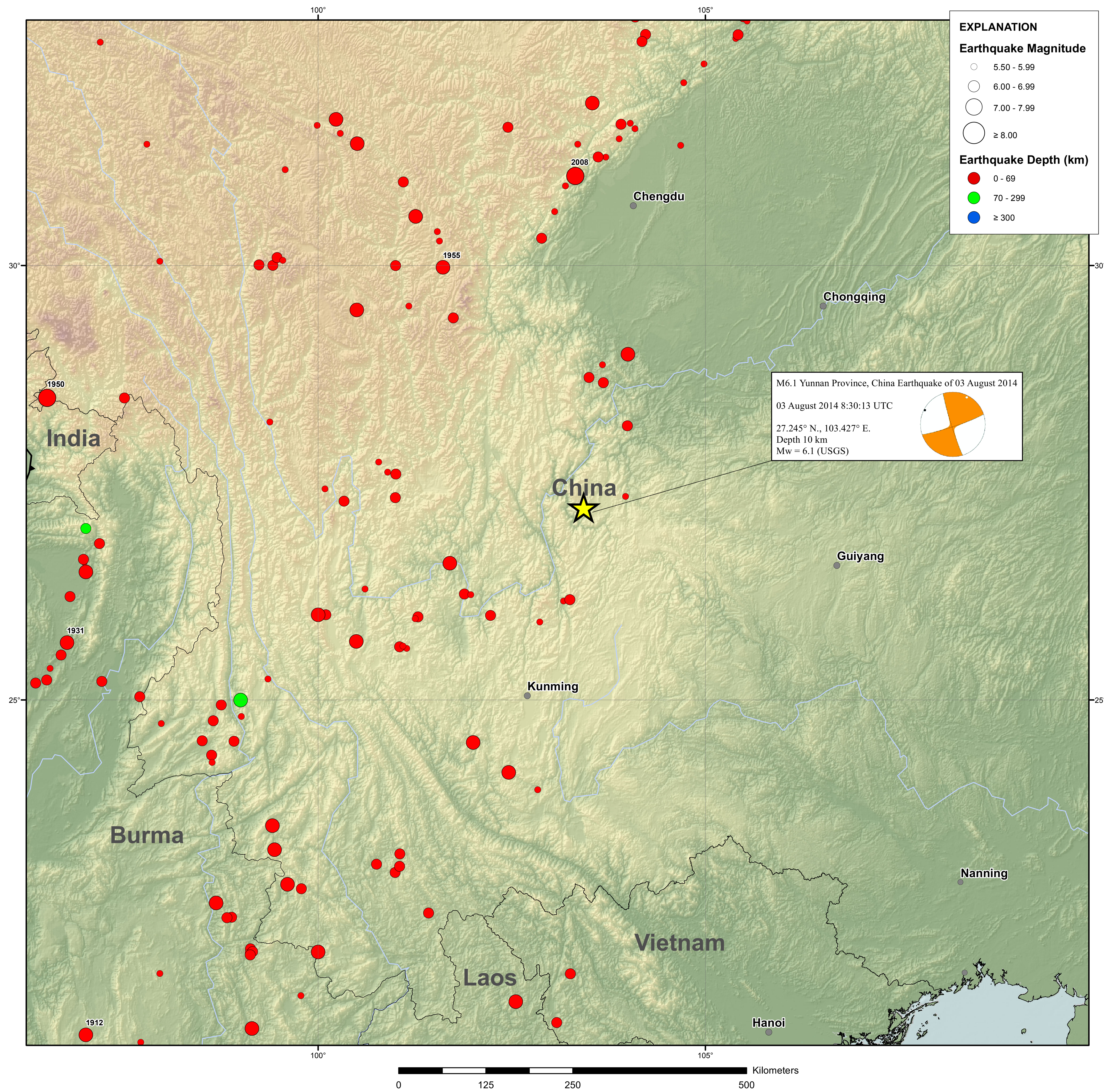
Prepared in cooperation with the Global Seismographic Network

M6.1 Yunnan Province, China Earthquake of 03 August 2014

Tectonic Setting



Epicentral Region



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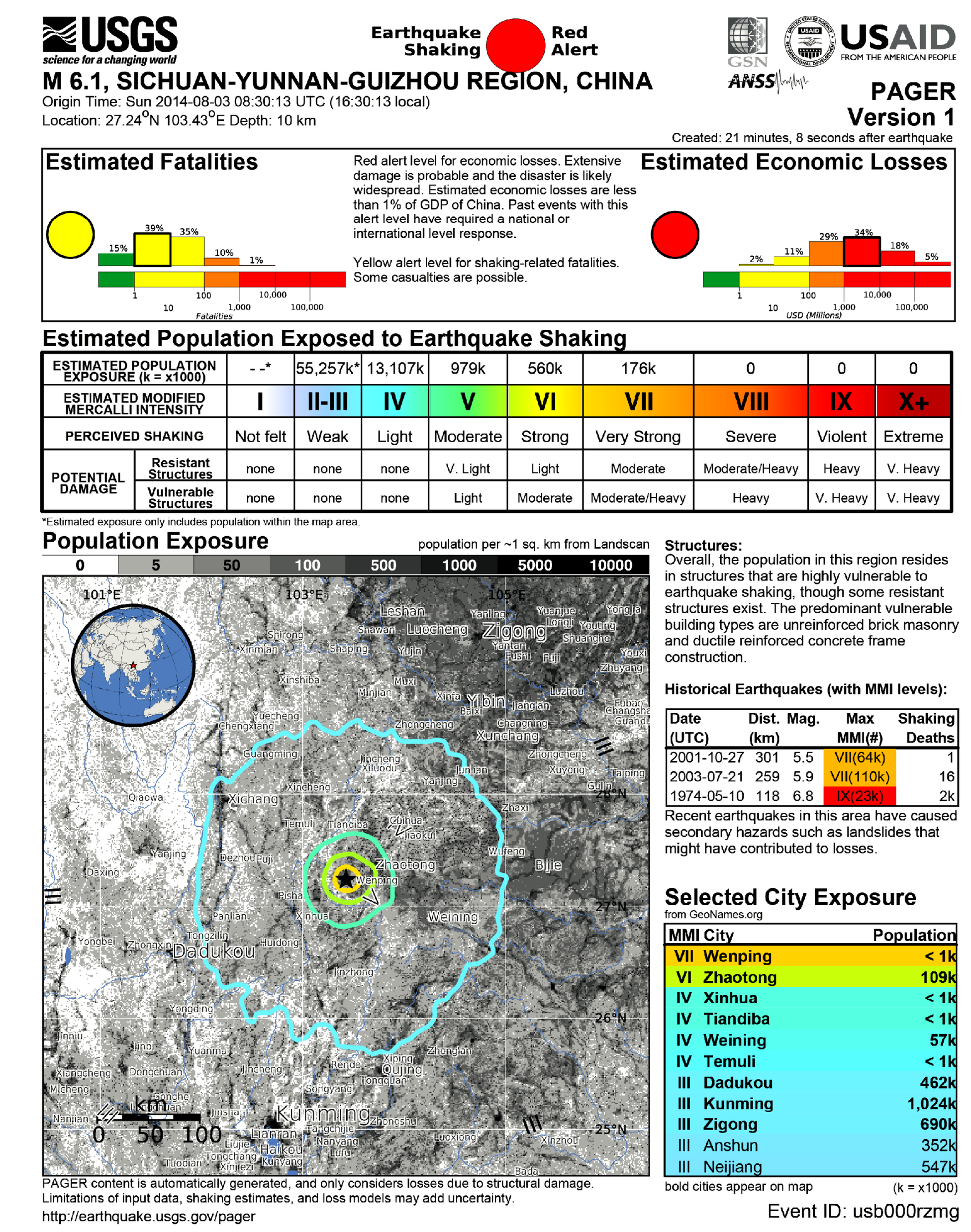
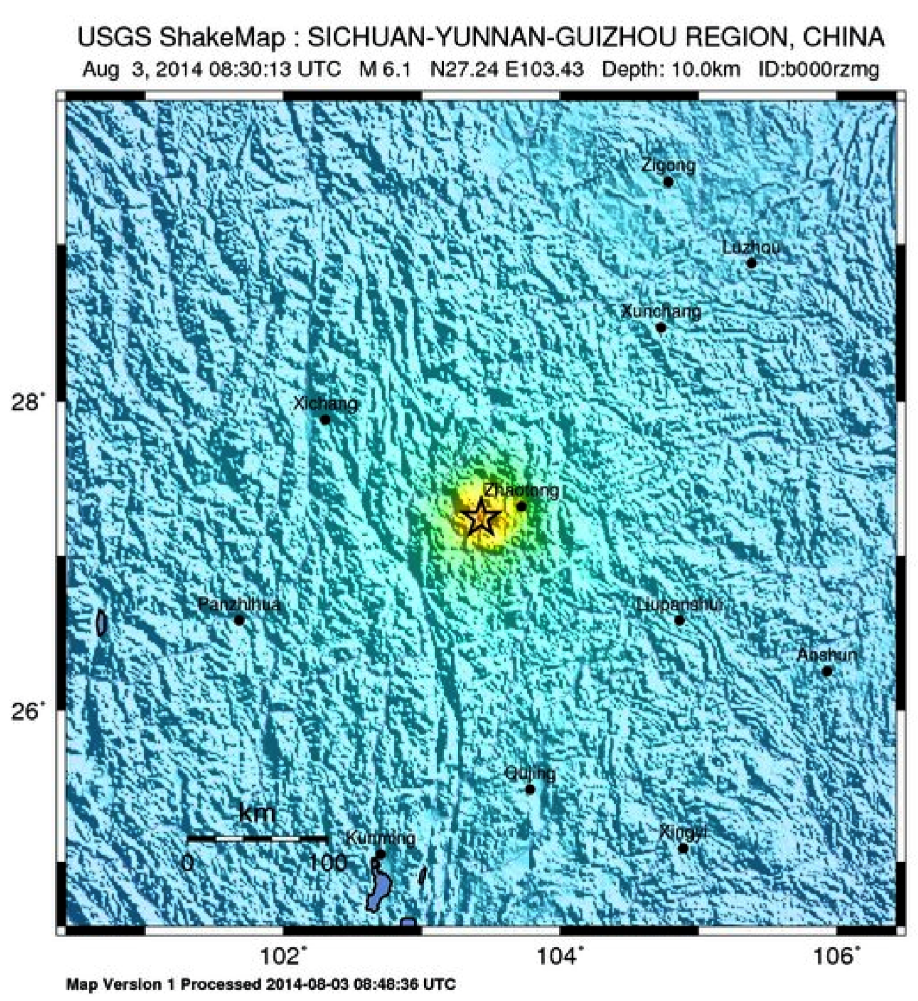


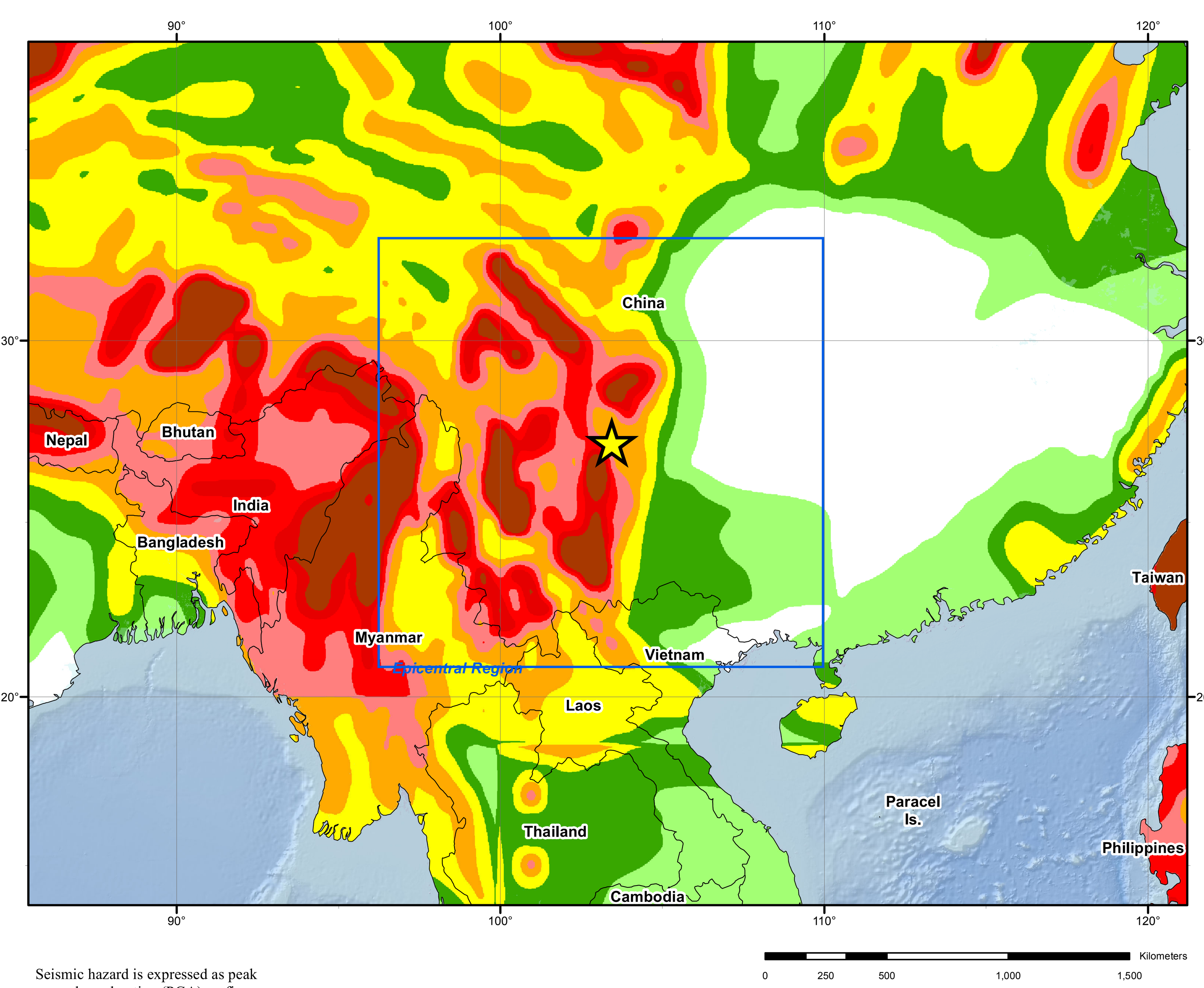
ShakeMap



PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	none	none	none	Very light	Light	Moderate	Mod./Heavy	Heavy	Very Heavy
PEAK ACC.(%g)	<0.05	0.3	2.8	6.2	12	22	40	75	>139
PEAK VEL.(cm/s)	<0.02	0.1	1.4	4.7	9.6	20	41	86	>178
INSTRUMENTAL INTENSITY	I	II-III	IV	V	VI	VII	VIII	IX	X+

Scale based upon Worden et al. (2012)

Seismic Hazard



Seismic hazard is expressed as peak ground acceleration (PGA) on firm rock, in meters/sec², expected to be exceeded in a 50-yr period with a probability of 10 percent.

Peak Ground Acceleration in m/sec**2

.2 .4 .8 1.6 2.4 3.2 4.0 4.8

TECTONIC SUMMARY

The August 3, 2014 earthquake northwest of Wenping, in Yunnan Province, China, occurred as a result of shallow strike-slip faulting within the crust of the Eurasia plate. Tectonics here are broadly controlled by the convergence of the India plate with Eurasia, which has driven the uplift of the Himalayas to the west of this earthquake, and has caused the formation of numerous intraplate continental transform structures in the surrounding region, including the left-lateral Xiaojiang fault system. Local deformation rates in the region of this earthquake indicate as much as 10 mm/yr of left-lateral shear. At the latitude of the August 3 event, India moves northwestward with respect to Eurasia at a rate of approximately 51 mm/yr.

Strong earthquakes are reasonably common in the Yunnan, and bordering Sichuan provinces; the area within 500 km of the August 3 earthquake has hosted 27 other earthquakes of M 6 or above over the past century. Earthquakes here are also often damaging and deadly, as a result of the high vulnerability of most residential structures in this dominantly agricultural province. Nearby earthquakes in the M5-6 range in April 1985, October 1995, November 2003, August 2004, and August 2006, all caused fatalities – the largest (October 1995, M 6.2) resulted in approximately 50 deaths. In May 1974, a M 6.8 earthquake 115 km to the northeast of the August 2014 quake caused approximately 1,540 fatalities and a similar number of injuries. As of 30 hours after the 2014 earthquake, news reports indicate this M 6.1 event has caused close to 400 fatalities, 1,800 injuries and the destruction of at least 12,000 houses, some due to landslides that have resulted from the earthquake and heavy regional rainfall.

Significant Earthquakes Mag >= 6.5

Year	Mon	Day	Time	Lat	Long	Dep	Mag
1901	02	15	0000	26.000	100.100	0	6.5
1904	08	30	1142	30.000	101.000	0	6.8
1906	08	31	1457	27.000	97.000	100	6.7
1908	02	09	1813	26.000	100.000	60	7.3
1908	12	12	1254	26.500	97.000	0	7.0
1911	07	00	0000	28.500	97.500	0	6.5
1912	05	23	0224	21.000	97.000	0	7.7
1913	12	21	1537	24.500	102.000	0	7.2
1914	03	28	1044	25.000	99.000	100	6.9
1917	07	30	2354	29.000	104.000	0	7.3
1923	03	24	1240	30.553	101.258	25	7.2
1923	06	22	0644	22.589	98.681	25	7.2
1925	03	16	1442	25.688	100.494	25	7.0
1931	01	27	2009	25.675	96.755	35	7.6
1933	08	25	0750	31.810	103.541	25	7.3
1935	11	01	1622	21.148	103.082	15	6.8
1936	04	26	2359	28.733	103.497	25	6.8
1936	05	16	0705	28.675	103.684	25	6.8
1941	05	16	0714	23.514	99.408	25	6.9
1941	12	26	1448	21.076	99.145	25	7.0
1948	05	25	0711	29.500	100.500	0	7.2
1950	02	02	2333	22.000	100.000	0	7.1
1950	08	15	1409	28.500	96.500	0	8.6
1955	04	14	0129	29.981	101.613	10	7.5
1955	09	23	1506	26.600	101.700	0	6.9
1958	02	07	2323	31.577	103.912	14.2	6.8
1967	08	30	0422	31.631	100.232	8.1	7.0
1970	01	04	1700	24.147	102.462	14	7.2
1973	02	06	1037	31.361	100.504	6.6	7.4
1974	05	10	1925	28.184	103.995	9	6.8
1976	05	29	1223	24.514	98.915	6	6.7
1976	05	29	1400	24.520	98.504	8.2	6.7
1981	01	23	2113	30.936	101.101	5.5	6.5
1983	06	24	0907	21.402	102.551	15	6.9
1988	11	06	1303	22.814	99.605	18	7.0
1988	11	06	1315	23.228	99.436	9.5	6.9
1989	04	15	2034	30.007	99.237	13	6.5
1995	07	11	2146	21.965	99.122	9.4	6.8
1996	02	03	1114	27.317	100.333	11	6.6
2008	05	12	0628	31.002	103.322	19	7.9
2013	04	20	0002	30.308	102.888	14	6.6

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)
EHB catalog (Engdahl et al., 1998)
HDF (unpublished earthquake catalog, Engdahl, 2003)
Global Seismic Hazard Assessment Program

PLATE TECTONICS AND FAULT MODEL
PB2002 (Bird, 2003)
Ji, C., D.J. Wald, and D.V. Helmberger, Source description of the 1999 Hector Mine, California earthquake; Part I: Wavelet domain inversion theory and resolution analysis, Bull. Seism. Soc. Am., Vol 92, No. 4. pp. 1192-1207, 2002.
DeMets, C., Gordon, R.G., Argus, D.F., 2010. Geologically current plate motions, Geophys. J. Int. 181, 1-80.

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 Villasenor, 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.

DISCLAIMER

Map updated by U.S. Geological Survey National Earthquake Information Center
04 August 2014
http://earthquake.usgs.gov/
Map not approved for release by Director USGS