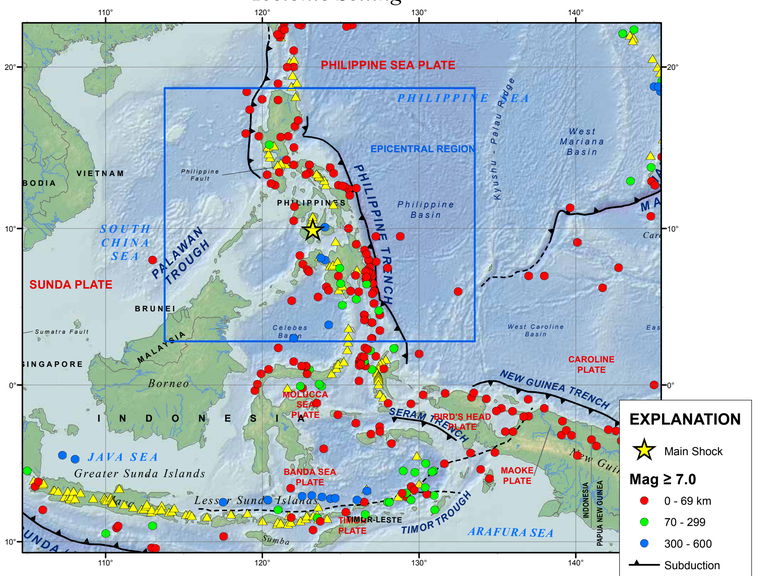
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

EARTHQUAKE SUMMARY MAP XXX

Prepared in cooperation with the Global Seismographic Network

M6.7 Negros - Cebu Region, Philippines Earthquake of 06 February 2012

Tectonic Setting



RELATIVE PLATE MOTIONS

In this region, the dominant plate motion is that between the Philippine Sea plate and the Sunda plate. The Philippine Sea plate moves west-northwest with respect to the Sunda plate at 60-110 mm/year. Complex plate motion results from the numerous micro-plates also in the region.

EXPLANATION

- Main Shock

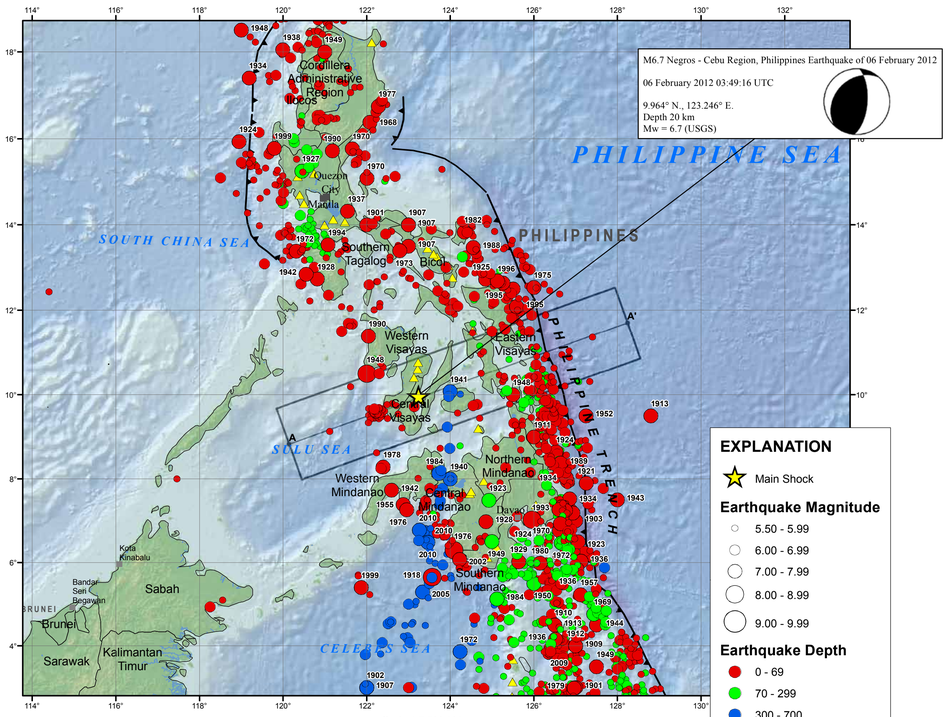
Mag ≥ 7.0

- 0 - 69 km
- 70 - 299
- 300 - 600
- Subduction
- Transform
- Divergent
- Others

Scale 1:20,000,000

0 125 250 500 750 1,000 Miles

Epicentral Region



EXPLANATION

- Main Shock

Earthquake Magnitude

- 5.50 - 5.99
- 6.00 - 6.99
- 7.00 - 7.99
- 8.00 - 8.99
- 9.00 - 9.99

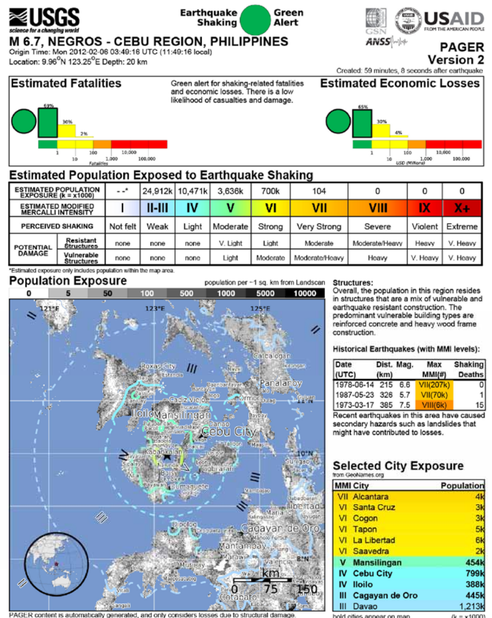
Earthquake Depth

- 0 - 69
- 70 - 299
- 300 - 700

Scale 1:7,500,000

0 80 160 320 480 640 Miles

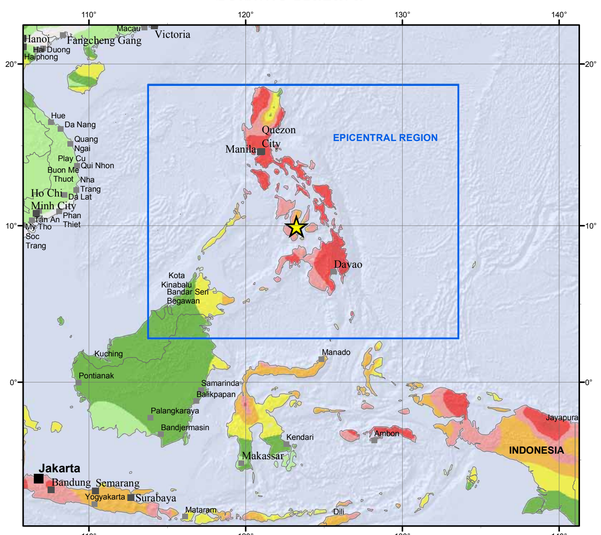
PAGER



Significant Earthquakes Mag >= 7.5

Year	Mon	Day	Time	Lat	Long	Dep	Mag
1910	12	16	1445	4.500	126.500	0	7.6
1911	07	12	0407	9.000	126.000	0	7.5
1913	03	14	0845	4.500	126.500	0	7.9
1914	10	23	0618	6.000	132.500	0	7.6
1918	08	15	1218	5.653	123.563	35	8.2
1924	04	14	1620	7.023	125.954	35	8.2
1934	02	14	0359	17.404	119.190	35	7.5
1936	04	01	0209	4.165	126.521	35	7.7
1943	05	25	2307	7.500	128.000	0	7.6
1948	01	24	1746	10.500	122.000	0	8.1
1952	03	19	1057	9.500	127.250	0	7.7
1955	03	31	1817	7.386	122.878	54.2	7.7
1957	09	24	0821	5.230	127.117	35	7.7
1968	08	01	2019	16.384	122.078	52.2	7.7
1972	06	11	1641	3.864	124.234	330	7.8
1975	10	31	0828	12.536	125.999	51.1	7.5
1976	08	16	1611	6.292	124.090	57.7	8.0
1984	11	20	0815	5.129	125.114	167	7.5
1989	12	15	1843	8.377	126.642	26.2	7.5
1990	07	16	0726	15.721	121.181	24.9	7.7
2001	01	01	0657	6.932	126.635	38.4	7.5
2010	07	23	2251	6.486	123.467	585	7.6

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.

Scale 1:20,000,000

0 130 260 520 780 1,040 Miles

Peak Ground Acceleration in m/sec**2

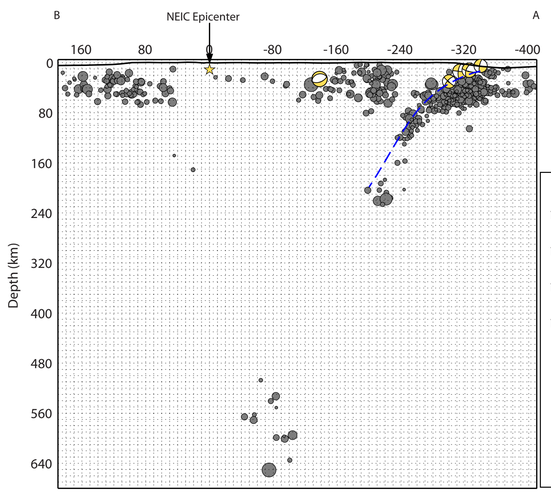
.2 .4 .8 1.6 2.4 3.2 4.0 4.8

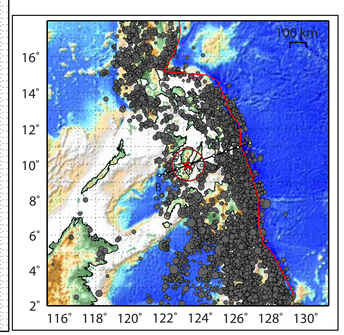
TECTONIC SUMMARY

The broad-scale tectonics of the Philippine Islands are dominated by the west-northwest convergence of the Philippine Sea plate with respect to the Sunda plate. This motion, about 10 cm/y at the latitude of the earthquake of February 6, 2012, is accommodated by subduction along the east and west sides of the Philippines Archipelago and by motion of microplates and distributed deformation within the Archipelago. The February 6 earthquake occurred as thrust-faulting within the archipelago. Several earthquakes similar in size to the February 6 earthquake occurred within the archipelago in eastern Negros, Cebu, and Bohol in the twentieth century. In 1948 a magnitude 8.1 earthquake occurred about 150 km to the west of the February 6 earthquake in a zone of shallow seismicity that is associated with subduction along the Negros Trench on west side of the Philippines Archipelago.

A secondary effect of the strong shaking from earthquakes are earthquake-induced landslides. An example from the M6.7 Negros-Cebu Region, Philippines earthquake is shown above.

Depth Profile





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)
World Slap (Hayes and Wald, 2010)

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.

The GEBCO_08 Grid, version 20090202, http://www.gebco.net

Hamilton, W.B., 1988, Plate tectonics and island arcs: GSA Bulletin, v. 100, no. 10, p. 1503-1527.

Hayes, Gavin, and Wald, David, 2010, Slab models for subduction zones: USGS, http://earthquakes.usgs.gov/research/data/slab

Landslide Image - CBS News http://www.cbsnews.com/8301-202_162-57353699/philippines-landslide-forces-gold-mines-to-close/

DISCLAIMER

Map prepared by U.S. Geological Survey
National Earthquake Information Center
06 February 2012
Map not approved for release by Director USGS