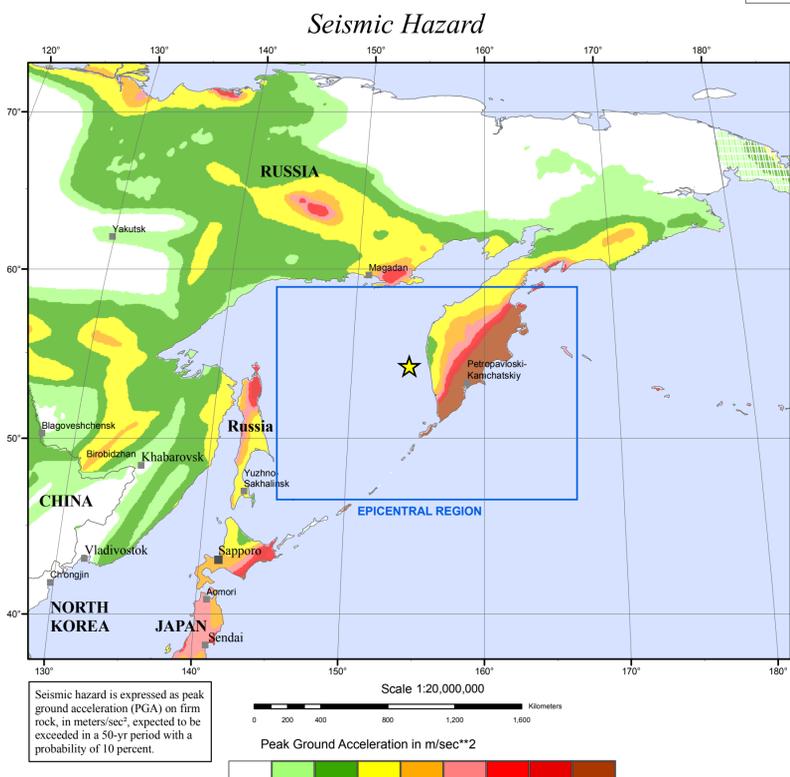
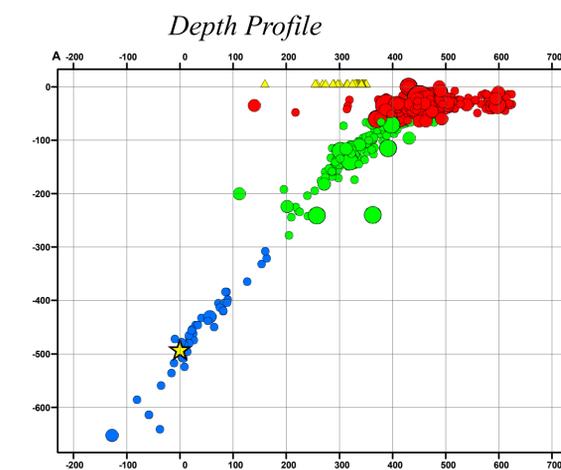
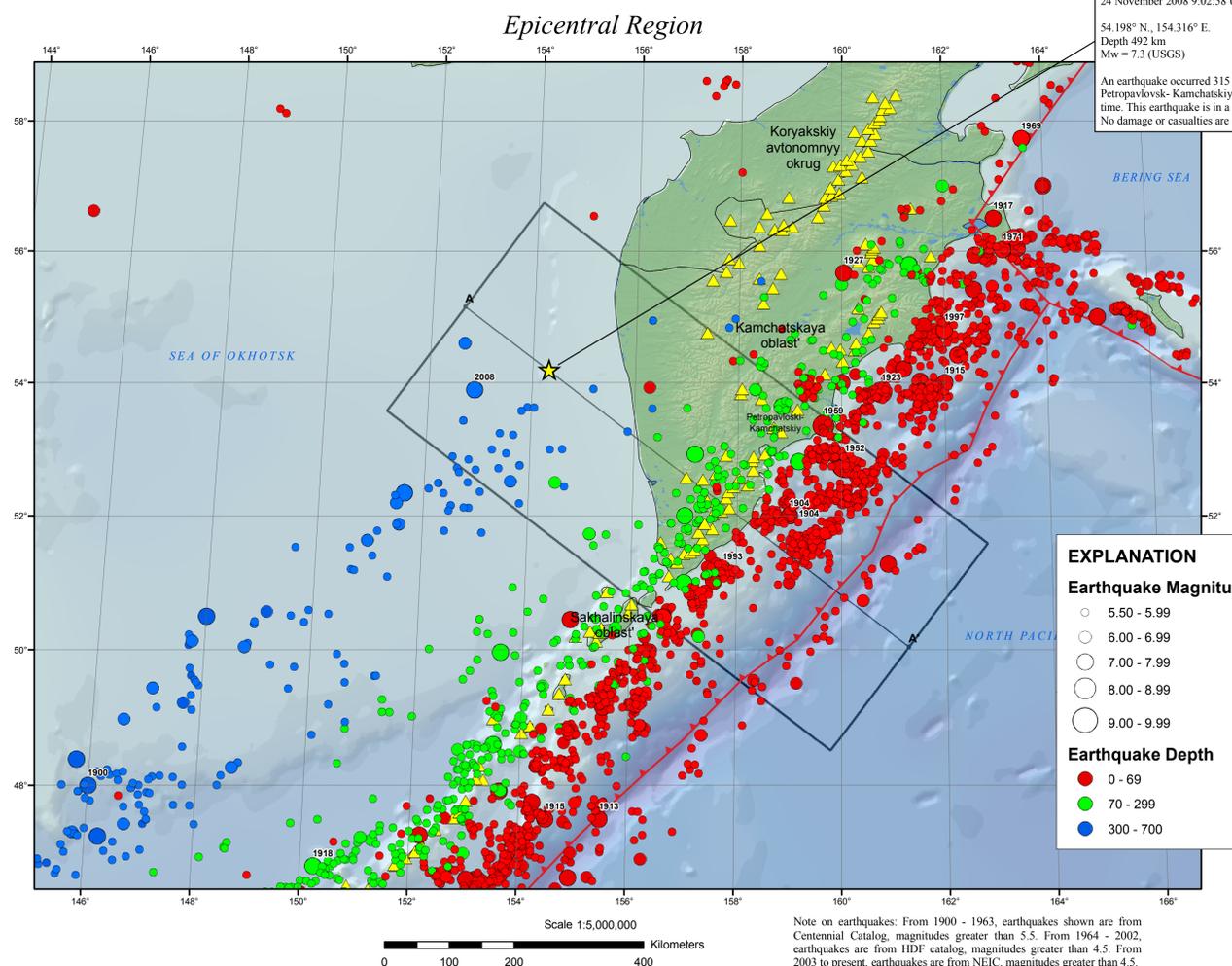
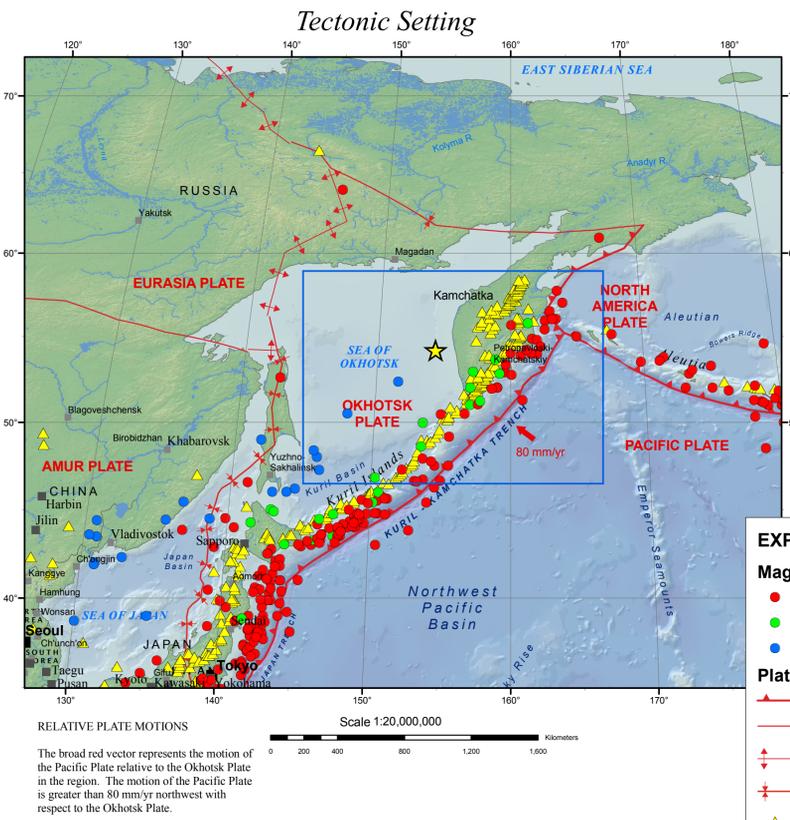


M7.3 Sea of Okhotsk Earthquake of 24 November 2008



TECTONIC SUMMARY

The Sea of Okhotsk earthquake of 24 November 2008 occurred in the inclined seismic zone that dips to the west-northwest beneath Kamchatka and the Kurile Islands. In the region of Kamchatka, the Pacific plate moves to the west-northwest with respect to the Okhotsk plate with a velocity of about 80 mm/y. The Pacific plate thrusts under the Okhotsk plate at the Kuril-Kamchatka trench and is subducted into the mantle. The earthquake occurred within the Pacific plate, in response to stresses generated by the plate's slow distortion, rather than the thrust fault that constitutes the interface between the Okhotsk and Pacific plates and which is seismically active near the earth's surface. The Pacific plate is active to depths of about 650 km in the region of the earthquake. The magnitude 7.7 Sea of Okhotsk earthquake of 5 July occurred about one-hundred km to the west-southwest and more than one-hundred km deeper than the 24 November shock.

Earthquakes that have focal-depths greater than 300 km are commonly termed "deep-focus" earthquakes. Deep-focus earthquakes cause less damage on the ground surface above their foci than is the case with similar magnitude shallow-focus earthquakes, but large deep-focus earthquakes may be felt at great distance from their epicenters. The largest recorded deep-focus earthquake had a magnitude of 8.2.

Significant Earthquakes Mag ≥ 7.5

Year	Mon	Day	Time	Lat	Long	Dep	Mag
1900	01	31	1922	48.000	146.000	450	7.5
1904	06	25	1445	52.000	159.000	0	7.5
1904	06	25	2100	52.000	159.000	0	7.6
1913	08	01	1710	47.500	155.500	0	7.7
1915	05	01	0500	47.500	154.500	35	7.9
1915	07	31	0131	54.000	162.000	0	7.5
1917	01	30	0245	56.500	163.000	0	7.7
1918	09	07	1715	46.812	150.253	242	7.6
1923	02	03	1601	53.853	160.761	35	8.5
1927	12	28	1820	55.663	160.039	35	7.5
1952	11	04	1658	52.755	160.057	22.2	9.0
1959	05	04	0715	53.351	159.645	35	8.0
1969	11	22	2309	57.729	163.595	9.1	7.8
1971	12	15	0829	56.023	163.170	9	7.8
1993	06	08	1303	51.203	157.736	71	7.5
1997	12	05	1126	54.799	162.003	36.1	7.8
2008	07	05	0212	53.892	-52.884	633	7.7

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.

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 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.