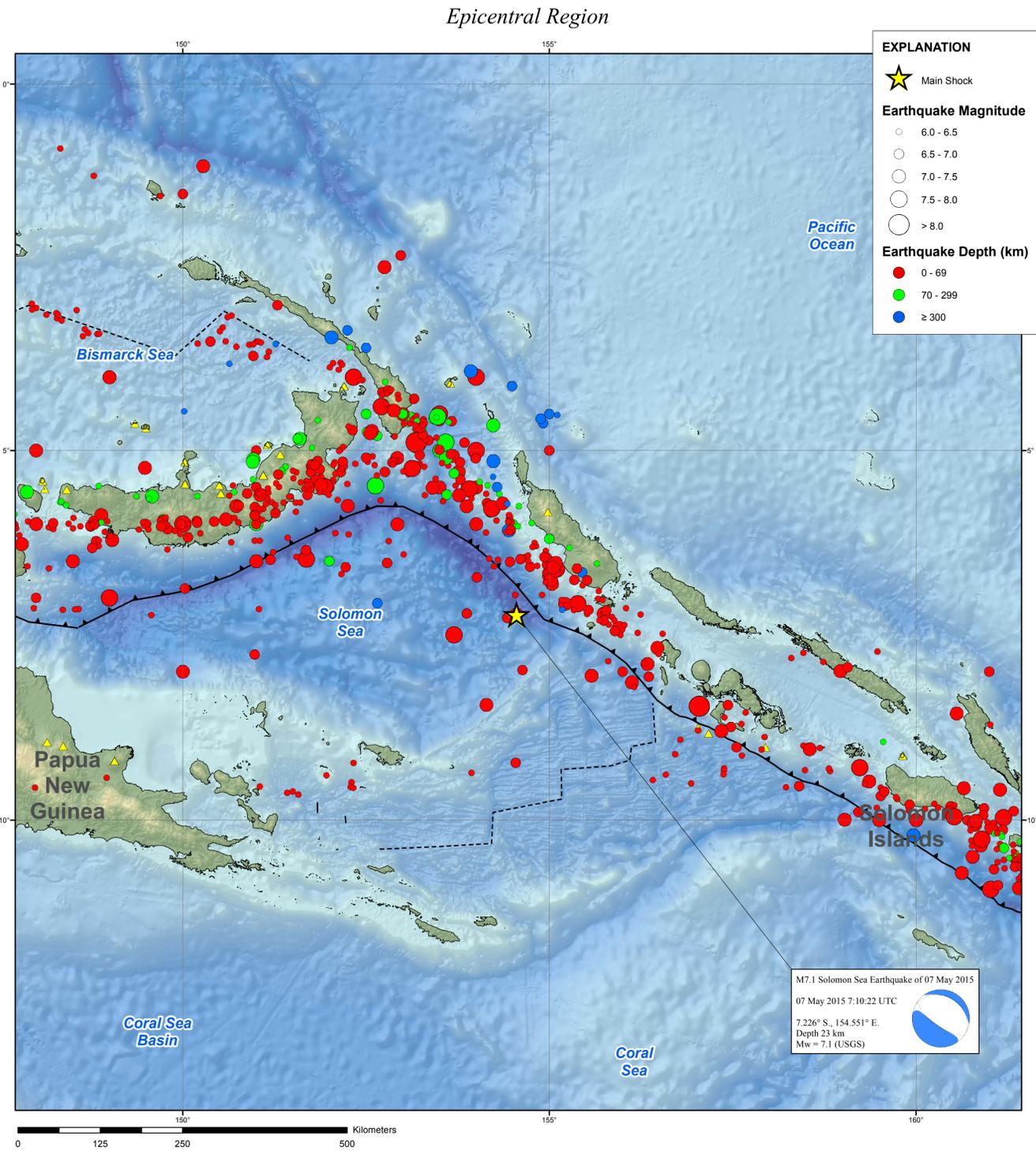
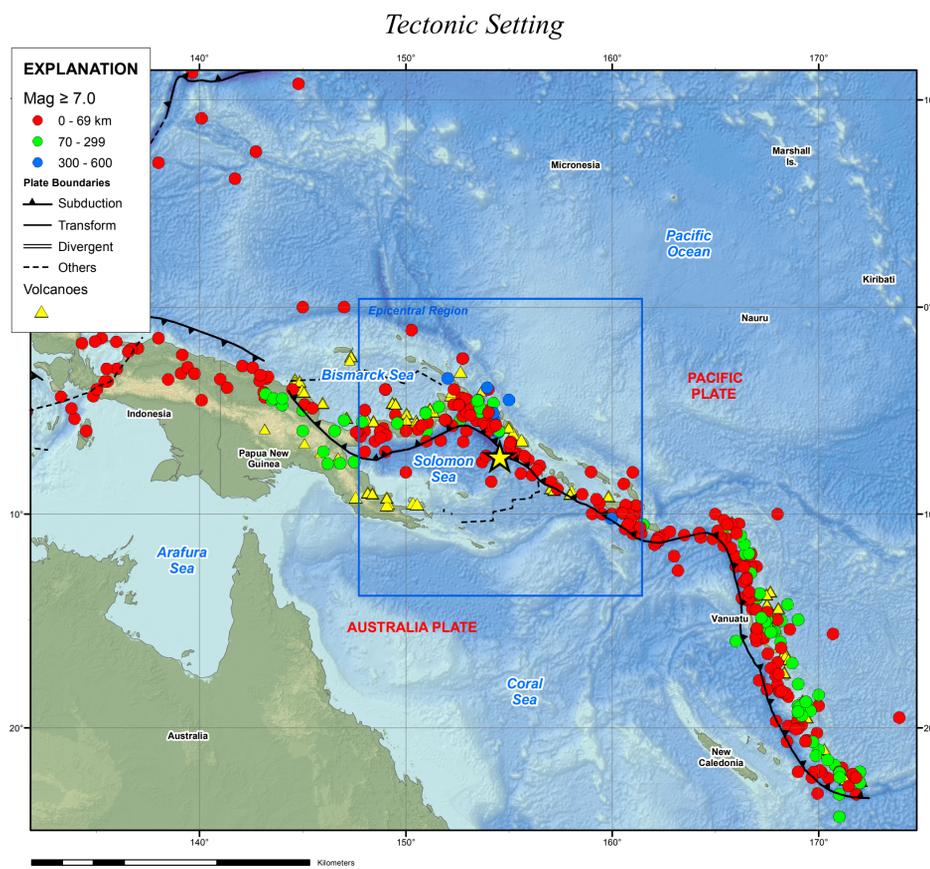


M7.1 Solomon Sea Earthquake of 07 May 2015



PAGER

USGS Earthquake Shaking **Green Alert**

M 7.1, BOUGAINVILLE REGION, PAPUA NEW GUINEA

Origin Time: Thu 2015-05-07 07:10:22 UTC (17:10:22 local)
Location: 7.22°S 154.55°E Depth: 23 km

Estimated Fatalities Green alert for shaking-related fatalities and economic losses. There is a low likelihood of casualties and damage.

Estimated Economic Losses

Estimated Population Exposed to Earthquake Shaking

ESTIMATED POPULATION EXPOSED (x1000)	I	II-III	IV	V	VI	VII	VIII	IX	X+
ESTIMATED MODIFIED MERCALLI INTENSITY	-	263k*	188k	28k	0	0	0	0	0

POTENTIAL DAMAGE

PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very Strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	Resistant Structures	none	none	none	Light	Moderate	Moderate/Heavy	Very Heavy	V. Heavy
POTENTIAL DAMAGE	Vulnerable Structures	none	none	none	Light	Moderate	Moderate/Heavy	Very Heavy	V. Heavy

Population Exposure

Estimated exposure only includes population within the map area.

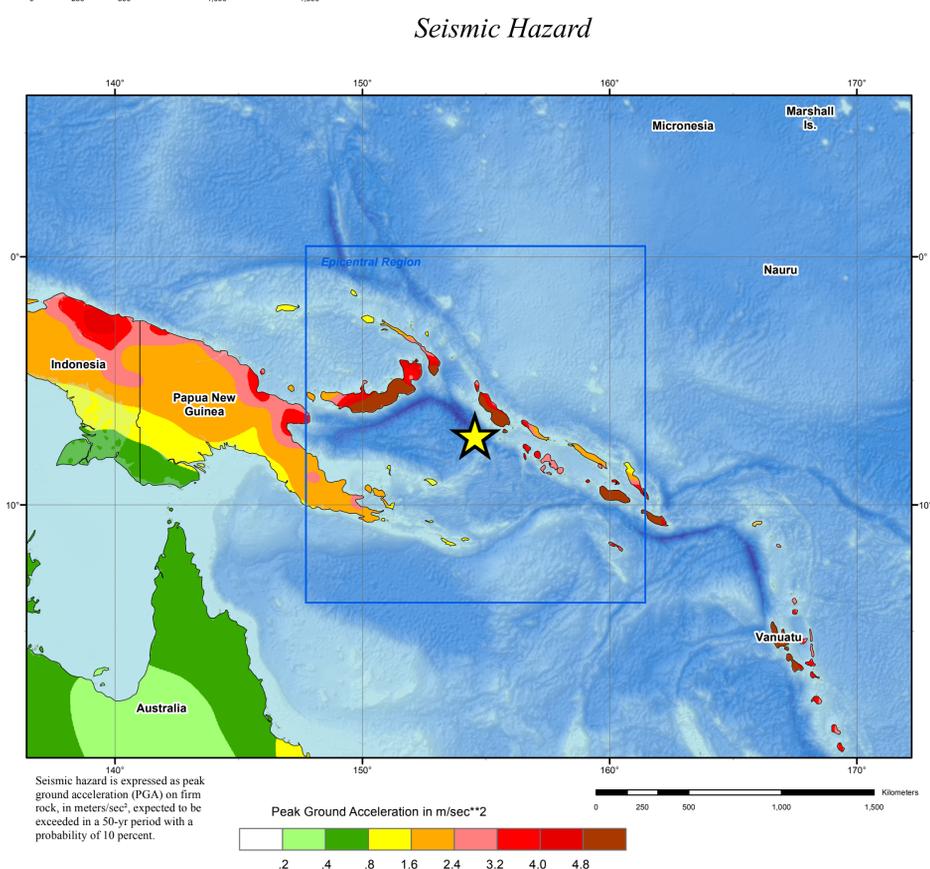
Historical Earthquakes (with MMI levels)

Date (UTC)	Dist. (km)	Mag.	Max Shaking (MMI)	Deaths
2000-08-09	324	6.3	VIII(01)	0
1996-04-29	103	7.2	VIII(01)	1
1985-12-21	355	6.2	VIII(04)	0

Selected City Exposure

MMI City	Population
IV Panguna	3k
IV Koro	4k
IV Arawa	40k
III Gizo	6k
III Kokosing	28k

bold cities appear on map (k = x1000)



ShakeMap

USGS ShakeMap: BOUGAINVILLE REGION, PAPUA NEW GUINEA
May 7, 2015 07:10:22 UTC M7.1 57.23 E154.55 Dspth: 23.2km IDus20002das

Map Version 3 Processed 2015-05-07 08:12:14 UTC

POTENTIAL DAMAGE	Not felt	Weak	Light	Moderate	Strong	Very Strong	Severe	Violent	Extreme
PERCEIVED SHAKING	none	none	none	Very light	Light	Moderate	Mod./Heavy	Heavy	Very Heavy
PEAK ACC (m/s ²)	<0.05	0.5	2.8	6.2	12	22	40	75	>150
PEAK VEL (cm/s)	<0.02	0.1	1.4	4.7	8.6	20	41	86	>176
INSTRUMENTAL INTENSITY	I	II-III	IV	V	VI	VII	VIII	IX	X+

TECTONIC SUMMARY

The May 7, 2015 M7.1 earthquake southwest of Panguna, Papua New Guinea, occurred as the result of normal faulting within the Australia plate, a few tens of kilometers to the southwest of the plate boundary where Australia begins its subduction beneath the Pacific plate at the New Britain Trench. At the location of the earthquake, the Australia plate moves towards the east-northeast at a velocity of 103 mm/yr with respect to the Pacific plate. The moment tensor and location of the event are consistent with its occurrence near what has been termed the outer rise region outboard of the subduction zone, rather than further to the north on the plate boundary (thrust) interface. Note that at the location of the earthquake, some researchers divide the edges of the Australia and Pacific plates into several microplates that take up the overall convergence between Australia and the Pacific, including the Solomon Sea microplate local to this event. The Solomon Sea plate moves slightly faster and more northeasterly with respect to the Pacific plate than does Australia due to sea-floor spreading in the Woodlark Basin a few hundred kilometers to the southeast of the May 7 earthquake, facilitating the classic subduction evident beneath New Britain and the Solomon Islands.

While commonly plotted as points on maps, earthquakes of this size are more appropriately described as slip over a larger fault area. Events of the magnitude of the May 7, 2015 earthquake are typically about 45x20 km in size (length x width).

The plate boundary between the Australia and Pacific plates in the Papua New Guinea region is very active seismically; 26 M7+ events have occurred within 250 km of the May 7, 2015 earthquake over the past century. Most occurred on the subduction zone thrust interface to the north of this event, and few are known to have caused shaking-related fatalities because of the remoteness of the region. Just one of these large nearby events was the result of normal faulting to the south of the plate boundary – a M7.0 earthquake in October 1987, 15 km to the southwest of the May 7, 2015 event.

The May 7 earthquake has also been preceded by a series of moderate-to-large earthquakes on the portion of the plate boundary several hundred kilometers to the northwest over the past 6 weeks, beginning with a M7.5 event on March 29, 2015, and continuing with another M7.5 earthquake on May 5, 2015. The May 7 earthquake is also 75 km to the southwest of a M7.5 earthquake in April of 2014, just offshore of the North Solomon Islands.

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 Villasefor, 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 Villasefor, 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

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.

Map updated by U.S. Geological Survey National Earthquake Information Center
7 May 2015
http://earthquake.usgs.gov/
Map not approved for release by Director USGS