USGS
science for a changing world

Earthquake Shaking Yellow Alert

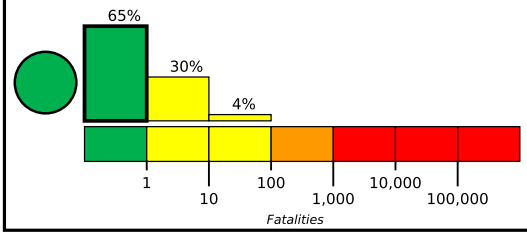
GSN ANSS USAID FROM THE AMERICAN PEOPLE

M 6.2, 38km W of Petrolia, CA

Origin Time: 2021-12-20 20:10:18 UTC (Mon 12:10:18 local)
Location: 40.2572° N 124.6805° W Depth: 23.9 km
FOR TSUNAMI INFORMATION, SEE: tsunami.gov

PAGER Version 7
Created: 4 days, 2 hours after earthquake

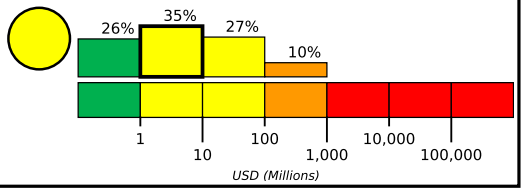
Estimated Fatalities



Yellow alert for economic losses. Some damage is possible and the impact should be relatively localized. Estimated economic losses are less than 1% of GDP of the United States. Past events with this alert level have required a local or regional level response.

Green alert for shaking-related fatalities. There is a low likelihood of casualties.

Estimated Economic Losses



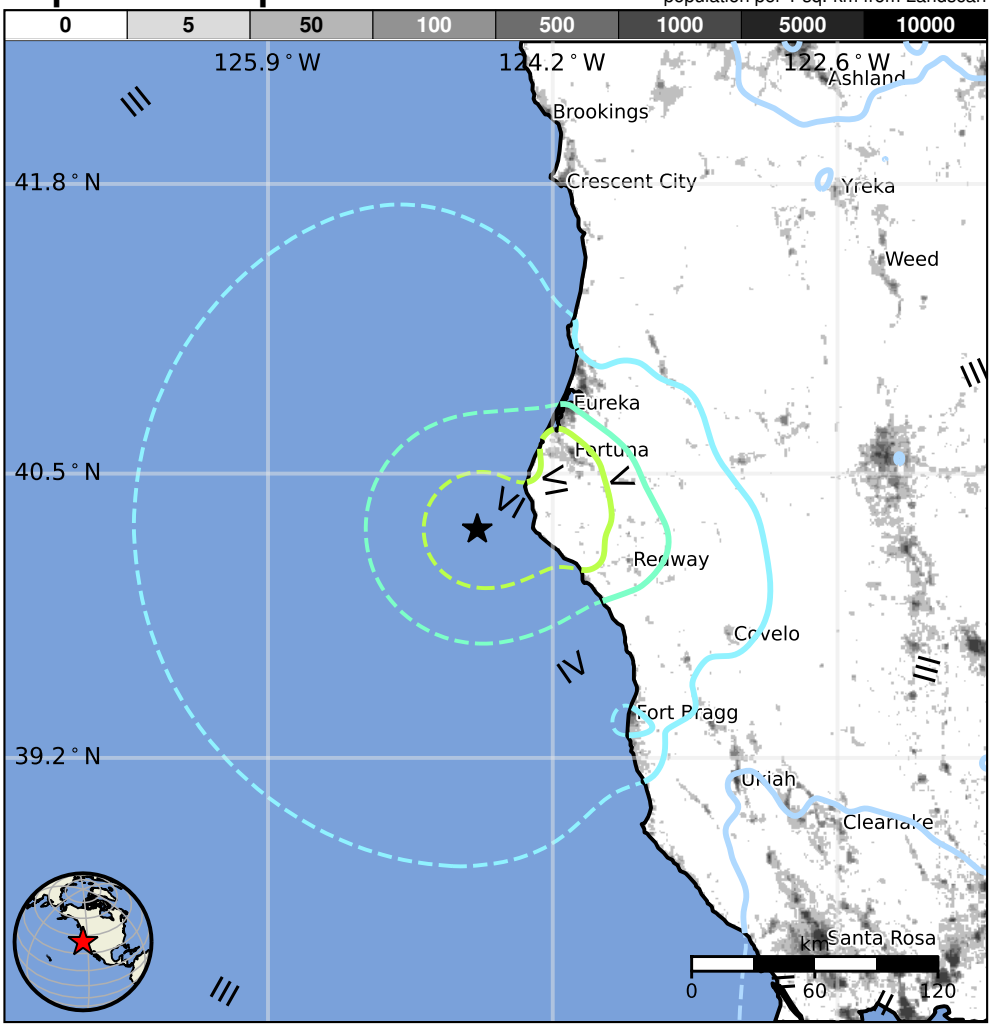
Estimated Population Exposed to Earthquake Shaking

ESTIMATED POPULATION EXPOSURE (k=x1000)		1k*	2,000k*	92k	36k	18k	8k	0	0	0
ESTIMATED MODIFIED MERCALLI INTENSITY		I	II-III	IV	V	VI	VII	VIII	IX	X+
PERCEIVED SHAKING		Not felt	Weak	Light	Moderate	Strong	Very Strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	Resistant Structures	None	None	None	V. Light	Light	Moderate	Mod./Heavy	Heavy	V. Heavy
	Vulnerable Structures	None	None	None	Light	Moderate	Mod./Heavy	Heavy	V. Heavy	V. Heavy

*Estimated exposure only includes population within the map area.

Population Exposure

population per 1 sq. km from Landscan



Structures

Overall, the population in this region resides in structures that are resistant to earthquake shaking, though vulnerable structures exist. The predominant vulnerable building types are unreinforced brick masonry and reinforced masonry construction.

Historical Earthquakes

Date (UTC)	Dist. (km)	Mag.	Max MMI(#)	Shaking Deaths
1993-09-21	319	6.0	VI(47k)	1
1980-11-08	100	7.3	IX(16k)	0
1980-01-24	381	5.8	VII(35k)	1

Recent earthquakes in this area have caused secondary hazards such as landslides and liquefaction that might have contributed to losses.

Selected City Exposure

from GeoNames.org

MMI	City	Population
VII	Rio Dell	3k
VII	Ferndale	1k
VII	Hydesville	1k
VI	**Fortuna**	**12k**
V	Humboldt Hill	3k
V	**Redway**	**1k**
III	Redding	90k
II	Vacaville	92k
II	Fairfield	105k
II	Vallejo	116k
II	**Santa Rosa**	**168k**

bold cities appear on map. (k=x1000)

PAGER content is automatically generated, and only considers losses due to structural damage. Limitations of input data, shaking estimates, and loss models may add uncertainty.

https://earthquake.usgs.gov/earthquakes/eventpage/nc73666231#pager

Event ID: nc73666231