

Magnitude 6.5 NEVADA

Friday, May 15, 2020 at 11:03:27 UTC

A magnitude 6.5 earthquake occurred 56 km (34.7 miles) west of Tonopah, Nevada, near the California-Nevada border, about 193 km (120 miles) southeast of Carson City at a depth of 2.8 km (1.7 miles).

Shaking was felt as far away as Sacramento and Reno. People also reported feeling shaking in Las Vegas, about 330 km (200 miles) southeast of the earthquake's epicenter.

This is the strongest earthquake to shake Nevada in 65 years. There are no reports of injuries.

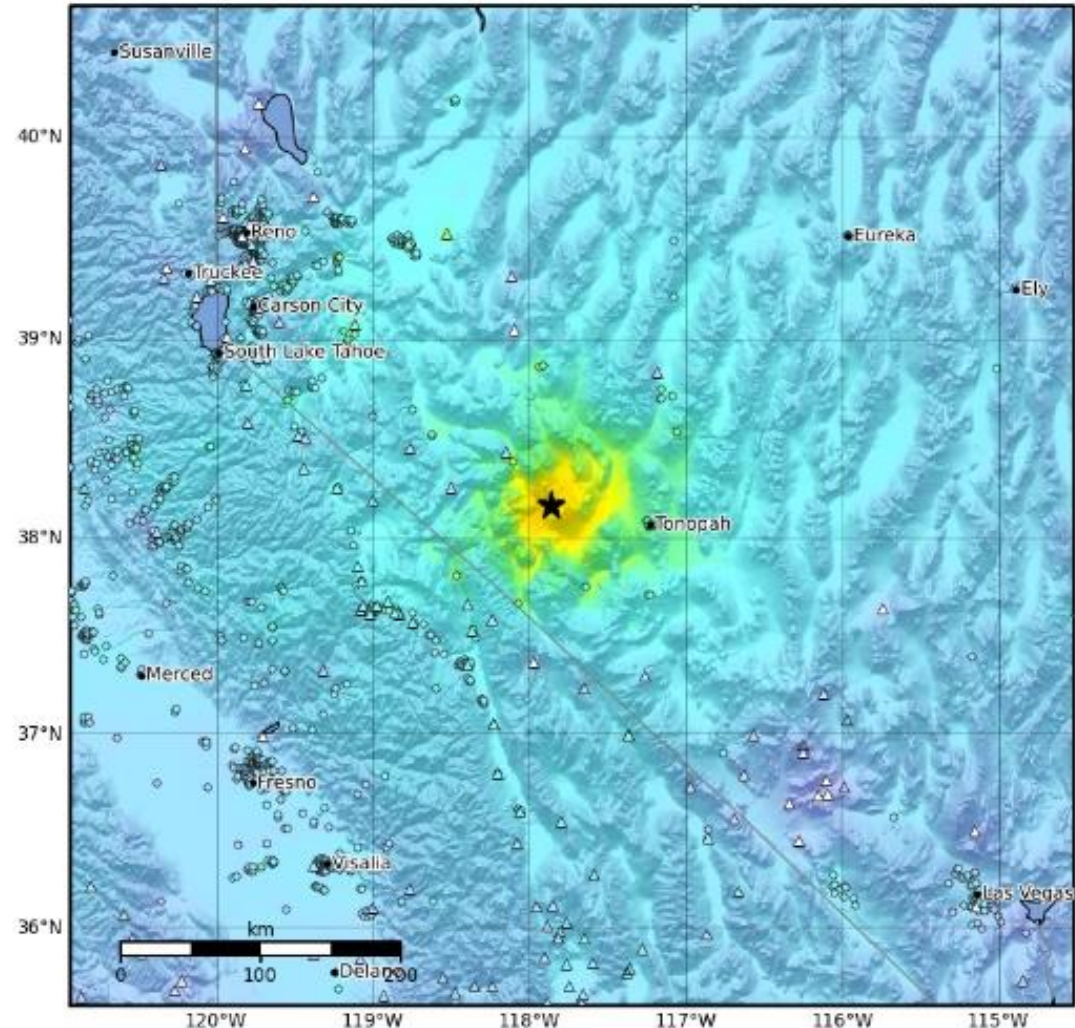


This photo provided by the Nevada Highway Patrol shows earthquake damage that has U.S. Highway 95 closed for repairs after a magnitude 6.5 earthquake. There are no reported injuries following the 4 a.m. temblor. Crews were working to reopen the main highway between Las Vegas and Reno. (AP)

The Modified-Mercalli Intensity scale is a twelve-stage scale, from I to XII, that indicates the severity of ground shaking. Intensity is dependent on the magnitude, depth, local geology, and location.

The area closest to the earthquake felt strong shaking.

Modified Mercalli Intensity	Perceived Shaking
X	Extreme
IX	Violent
VIII	Severe
VII	Very Strong
VI	Strong
V	Moderate
IV	Light
II-III	Weak
I	Not Felt



USGS Estimated shaking intensity from M 6.5 Earthquake

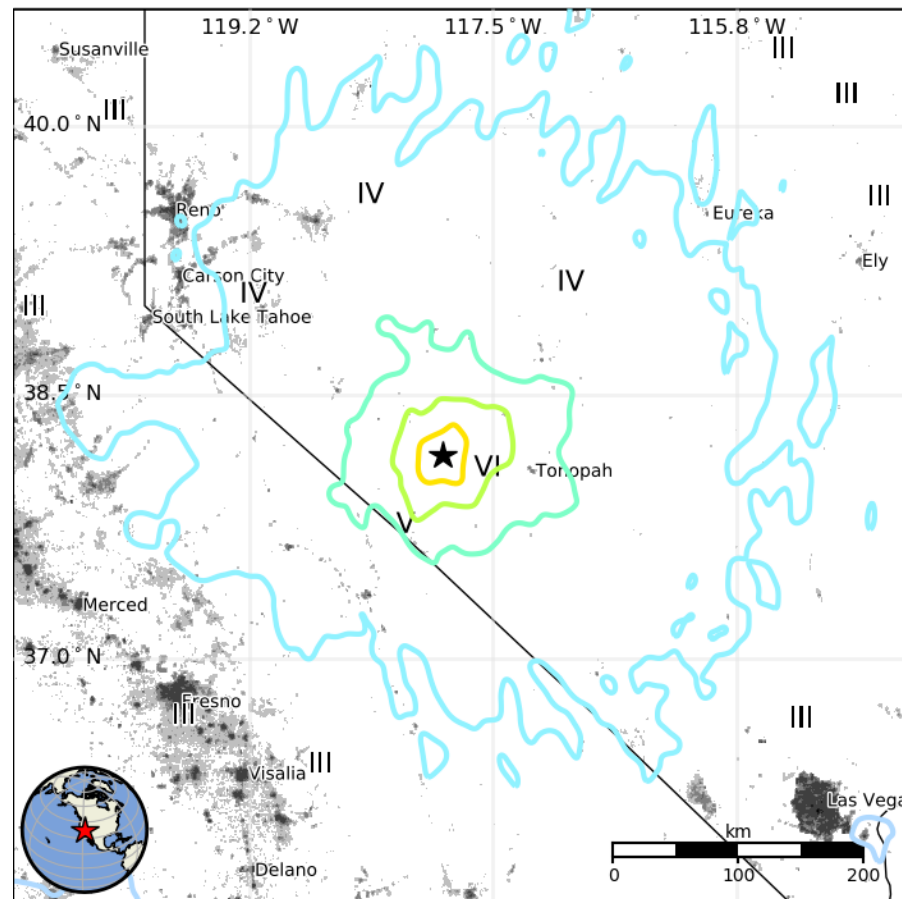
The USGS PAGER map shows the population exposed to different Modified Mercalli Intensity (MMI) levels.

The USGS estimates that 4000 people felt moderate shaking from this earthquake while over five million people felt weak shaking.

MMI	Shaking	Population
I	Not Felt	0 k*
II-III	Weak	5,470 k*
IV	Light	349 k
V	Moderate	4 k
VI	Strong	0 k
VII	Very Strong	0 k
VIII	Severe	0 k
IX	Violent	0 k
X	Extreme	0 k

USGS PAGER

Population Exposed to Earthquake Shaking



The color-coded contour lines outline regions of MMI intensity. The total population exposure to a given MMI value is obtained by summing the population between the contour lines. The estimated population exposure to each MMI Intensity is shown in the table.

Image courtesy of the US Geological Survey

According to the USGS, this earthquake (red star) occurred in the Walker Lane of Nevada, a geologic feature associated with the eastern California shear zone that roughly parallels the California-Nevada border. The image shows a generalized fault map of the Western United States highlighting Walker Lane, the Eastern California Shear Zone (ECSZ) and the San Andreas fault system.

Tectonically, the Walker Lane accommodates up to 25% of the North American - Pacific Plate motion, with the remainder mostly accommodated on the San Andreas fault system.

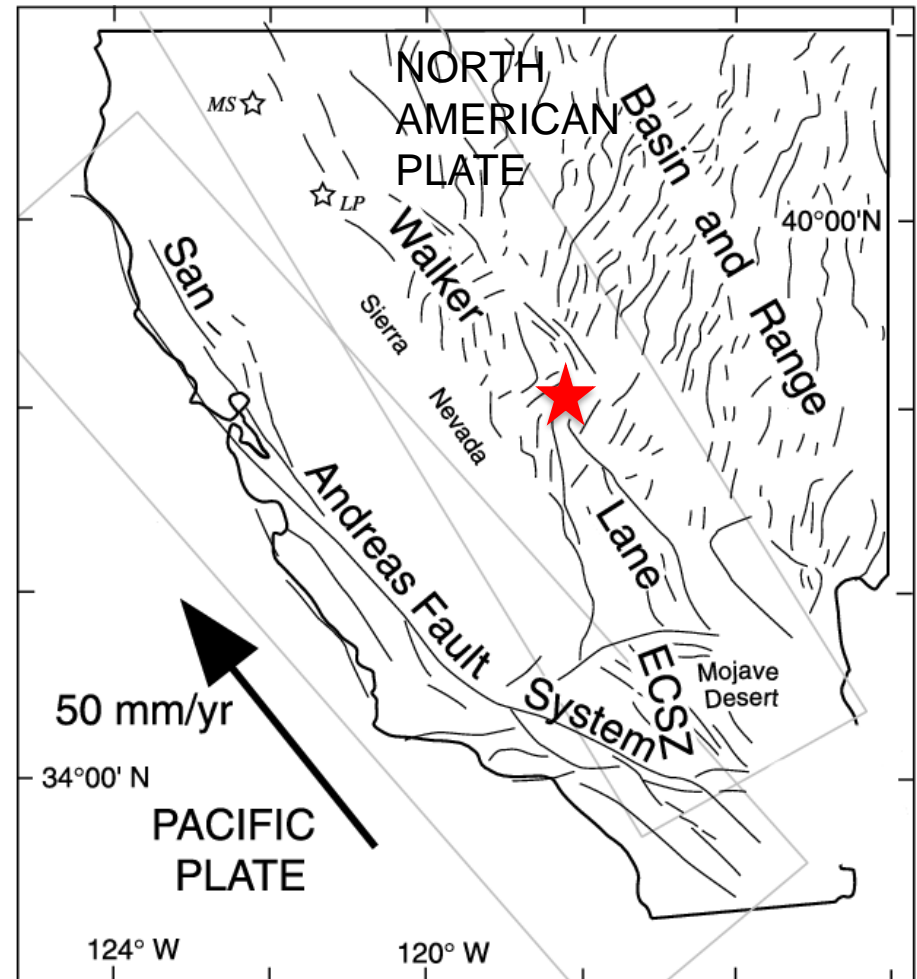


Image Citation:

Wesnousky, S.G. (2005). The San Andreas and Walker Lane fault systems, western North America: transpression, transtension, cumulative slip and the structural evolution of a major transform plate boundary. *Journal of Structural Geology* 27 (8), 1505-1512

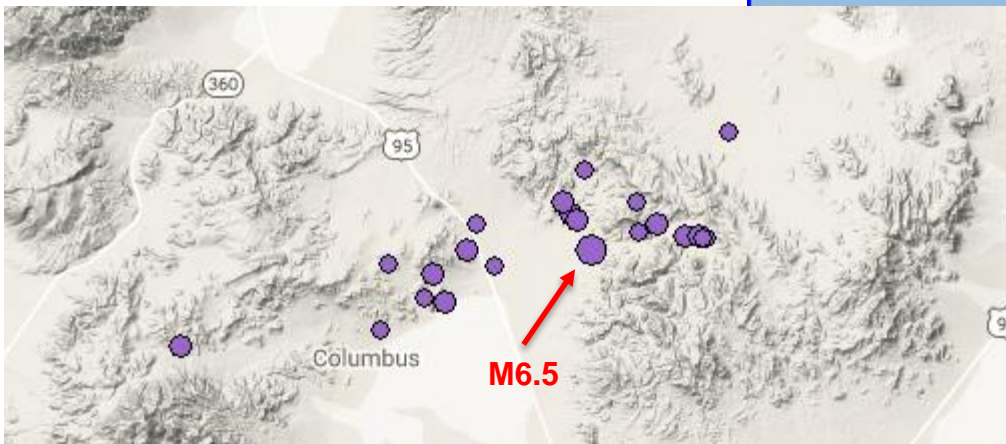
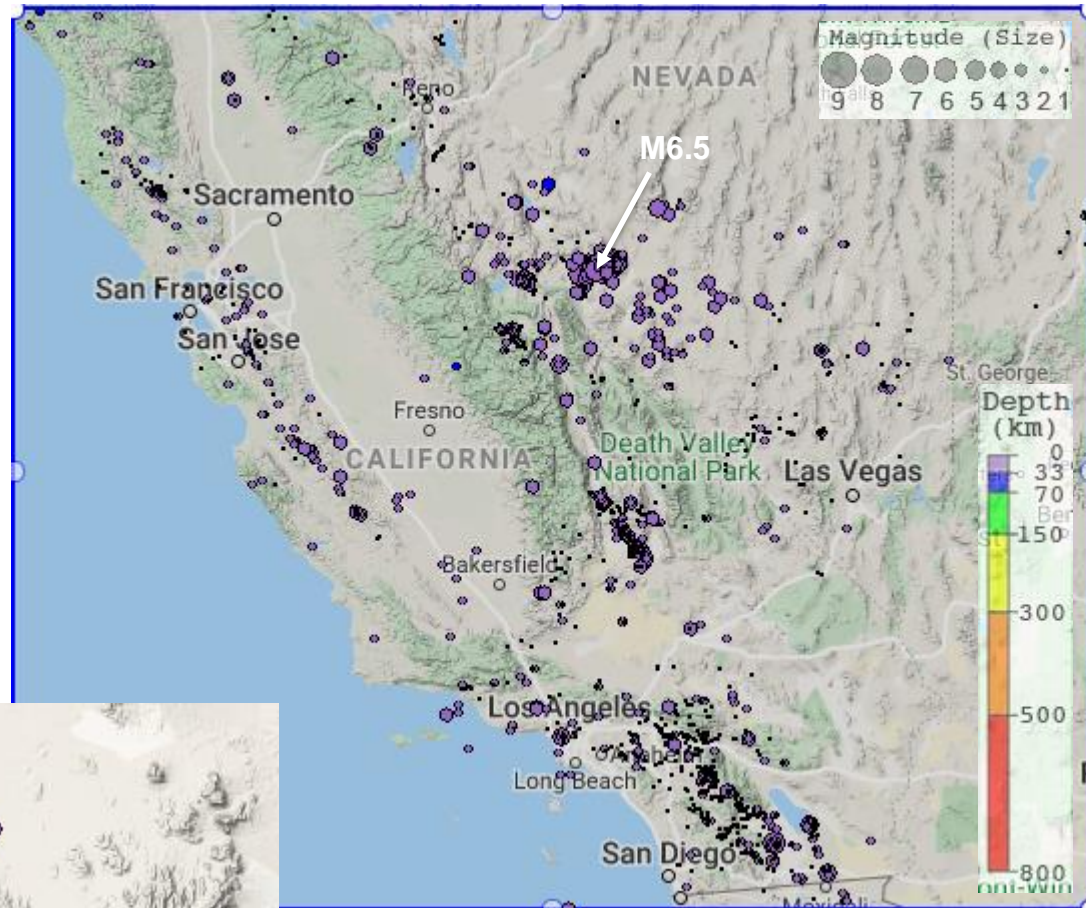
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This map shows regional historical seismicity.

The most recent 4000 earthquakes are plotted along with this M6.5 that occurred as the result of strike slip faulting in the shallow crust of the North America Plate.

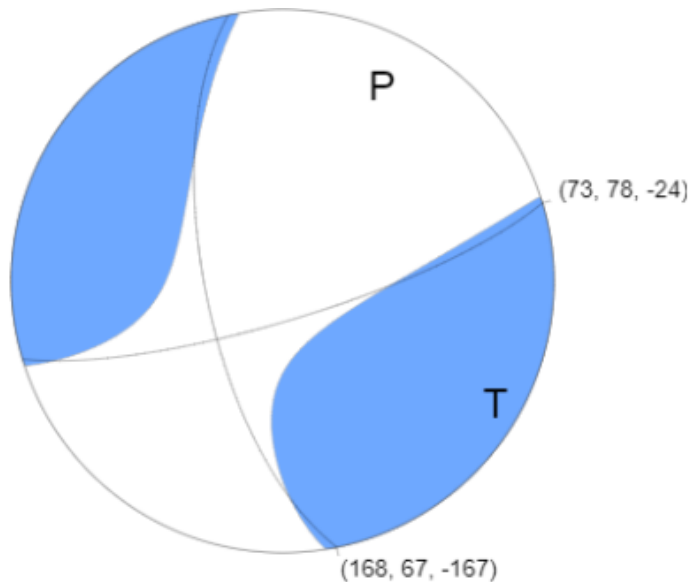
Zooming in allows us to plot the main shock, and 21 aftershocks larger than M4.0+ that have occurred thus far.



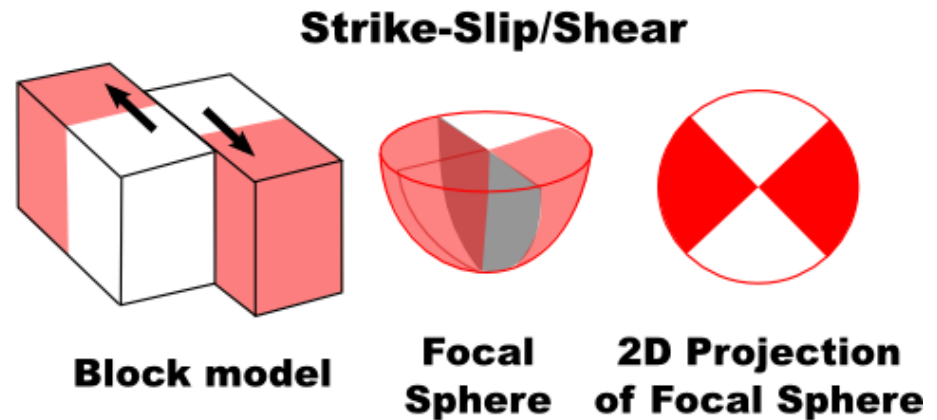
Map created using the
IRIS Earthquake Browser:
www.iris.edu/ieb

The focal mechanism is how seismologists plot the 3-D stress orientations of an earthquake. Because an earthquake occurs as slip on a fault, it generates primary waves in quadrants where the first pulse is compressional (shaded) and quadrants where the first pulse is extensional (white). The orientation of these quadrants determined from recorded seismic waves identifies the type of fault that produced the earthquake.

This earthquake occurred as a result of strike-slip faulting in the shallow crust of the North American Plate.



W-phase Moment Tensor Solution

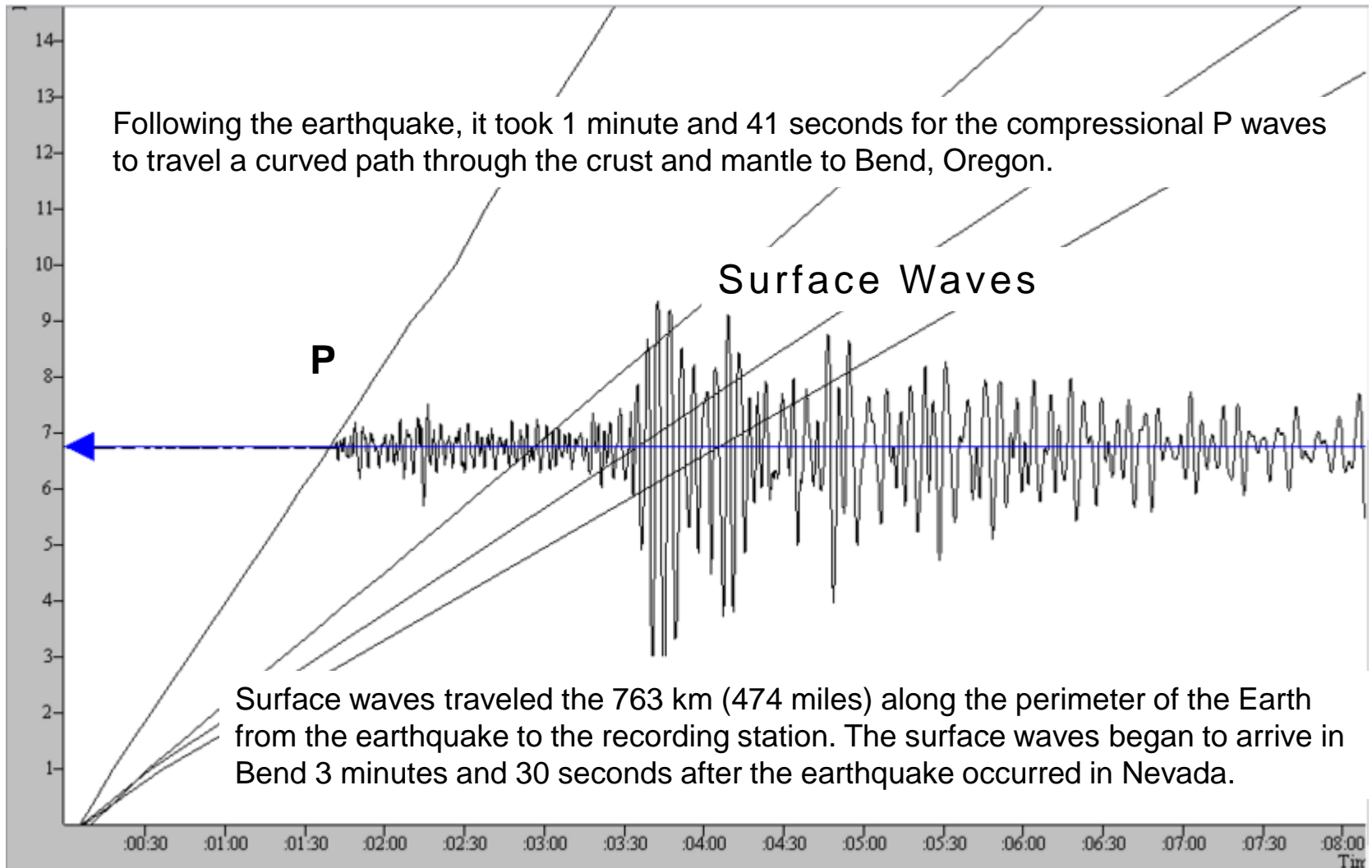


The tension axis (T) reflects the minimum compressive stress direction. The pressure axis (P) reflects the maximum compressive stress direction.

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The record of the earthquake in Bend, Oregon (BNOR) is illustrated below. Bend is 763 km (474 miles, 6.88°) from the location of this earthquake.



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