

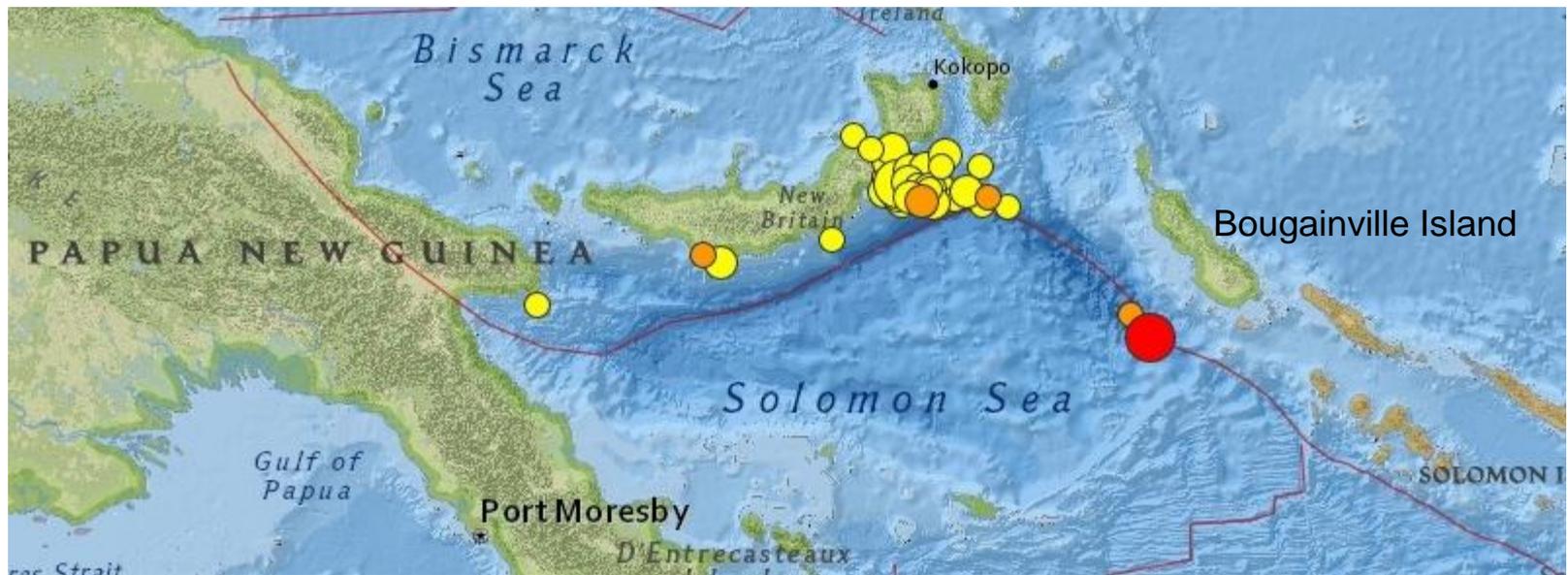
Magnitude 7.1 BOUGAINVILLE REGION, PAPUA NEW GUINEA

Thursday, May 7, 2015 at 07:10:22 UTC

A major magnitude 7.1 earthquake hit off the western coast of Bougainville Island on Thursday, approximately 144 km (89 mi) southwest of Panguna. There were no immediate reports of damages or casualties.



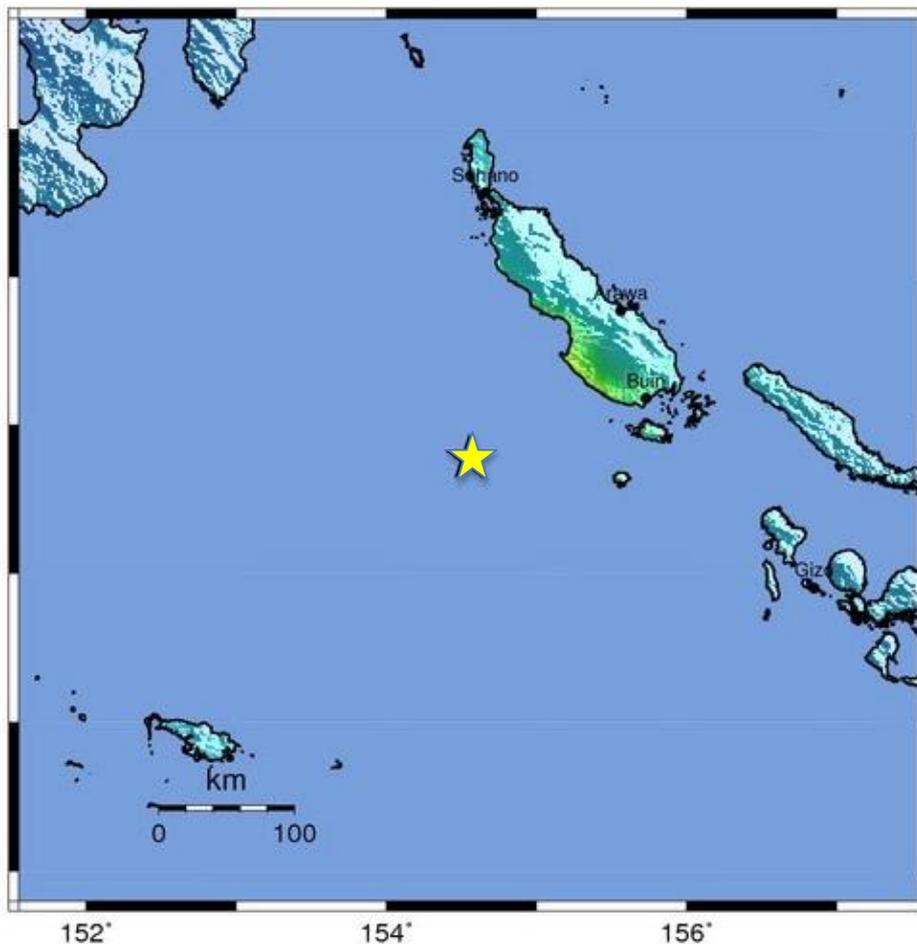
According to the USGS, the characteristics of the earthquake are consistent with its occurrence near what has been termed the outer rise region outboard of the subduction zone, rather than further to the north on the plate boundary (thrust) interface.



The Modified-Mercalli Intensity scale is a twelve-stage scale, from I to XII, that indicates the severity of ground shaking.

The nearest islands experienced moderate shaking from this earthquake.

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

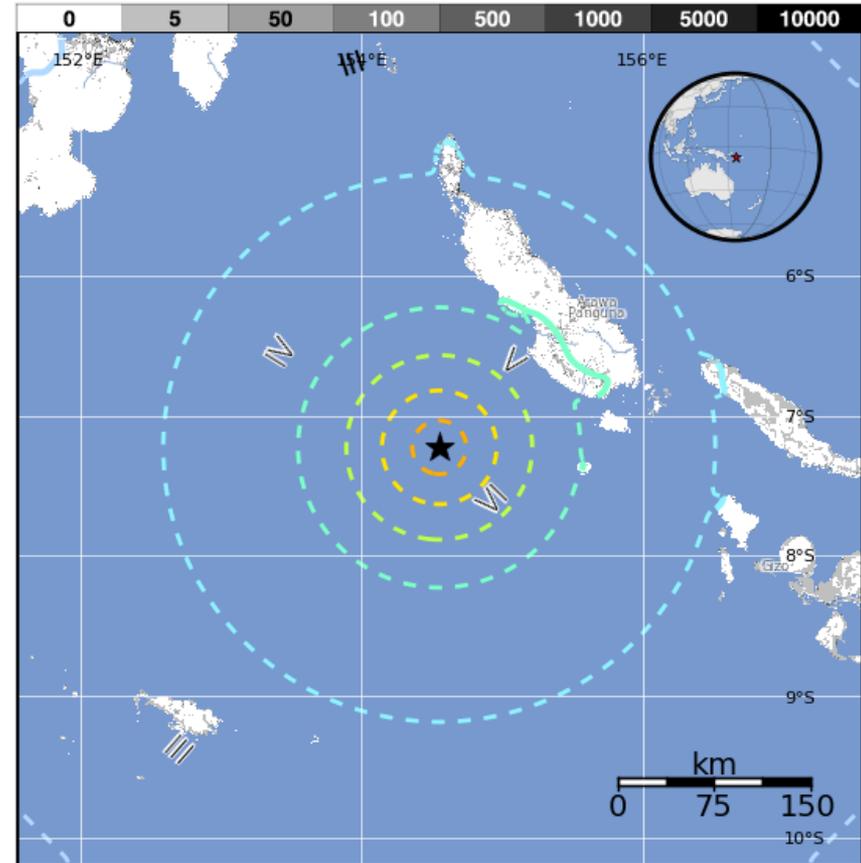


USGS Estimated shaking Intensity from M 7.1 Earthquake

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

29,000 people experienced moderate shaking from this earthquake.

MMI	Shaking	Pop.
I	Not Felt	--*
II-III	Weak	263k*
IV	Light	189k
V	Moderate	29k
VI	Strong	0k
VII	Very Strong	0k
VIII	Severe	0k
IX	Violent	0k

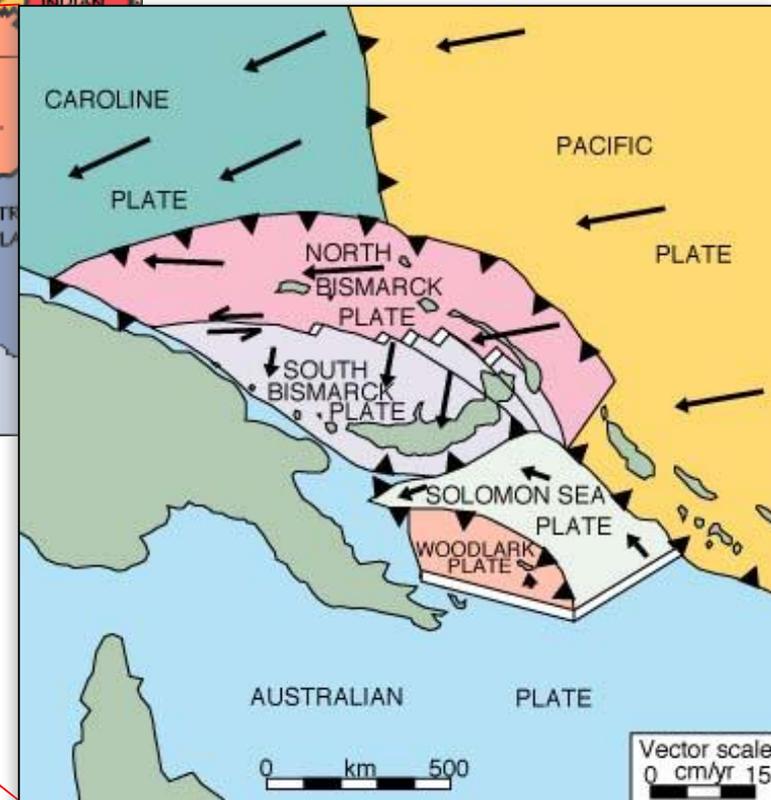
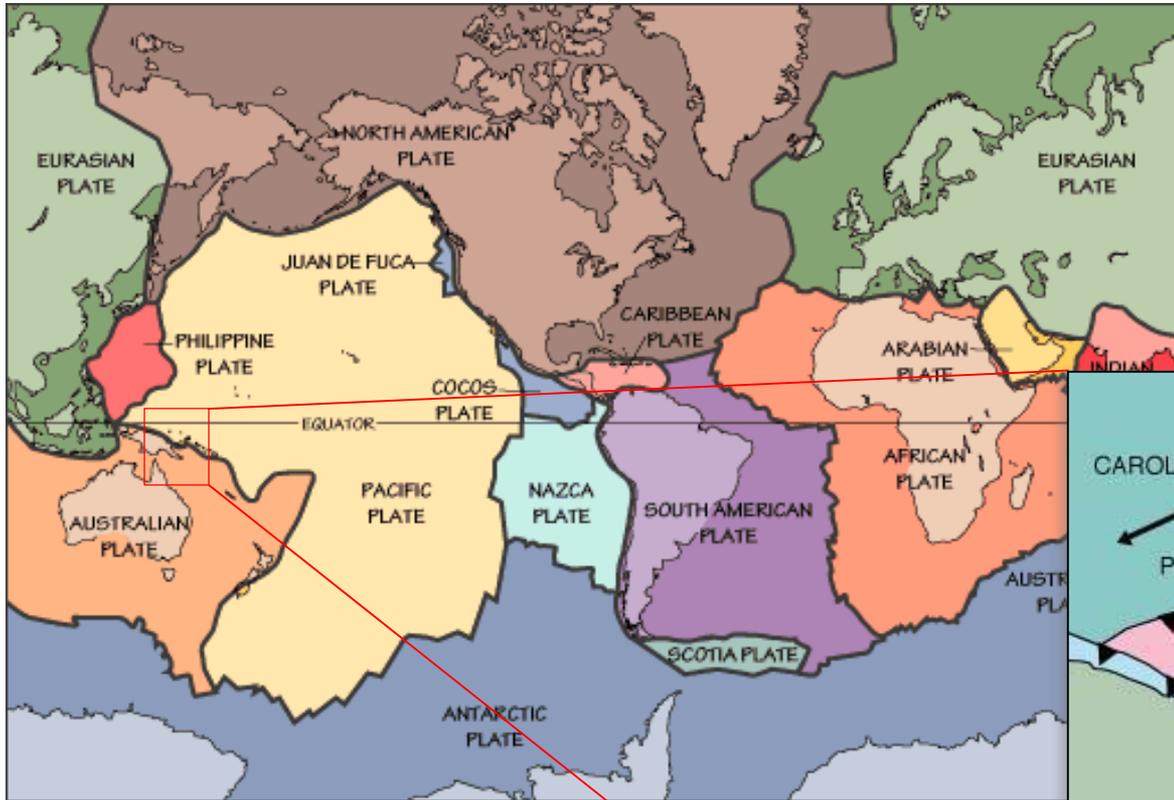


The color coded contour lines outline regions of MMI intensity. The total population exposure to a given MMI value is obtained by summing the population between the contour lines. The estimated population exposure to each MMI Intensity is shown in the table.

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The NE portion of the Australian Plate is broken into microplates that accommodate the Australian plate's convergence with the Pacific Plate. In detail, there are numerous microplates (fragments of larger plates).

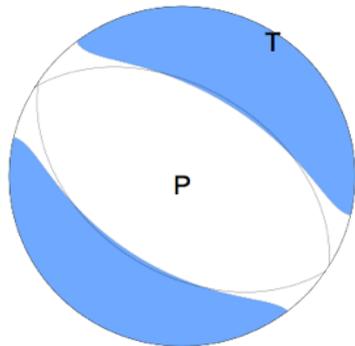


Arrows show net plate motion relative to the Australian Plate. The Solomon Sea micro plate moves faster) 86 mm/yr (3.4 in/yr) northeasterly with respect to the Pacific than does the Australia Plate due to sea-floor Plate spreading in the Woodlark Basin.

Image courtesy OSU; simplified from Hamilton (1979)

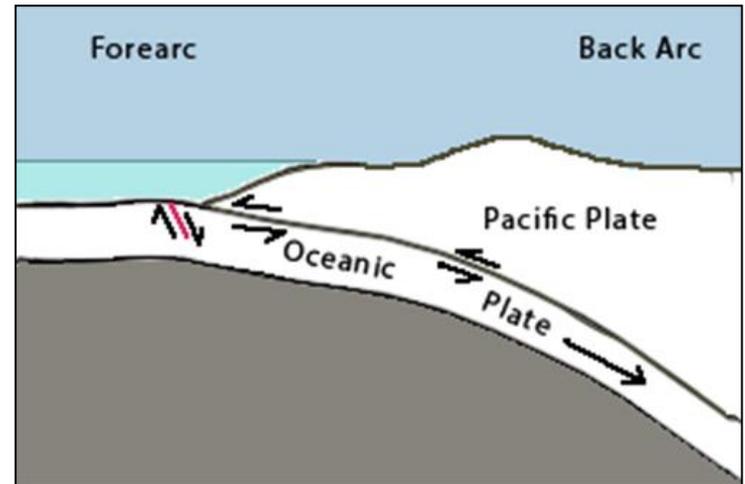
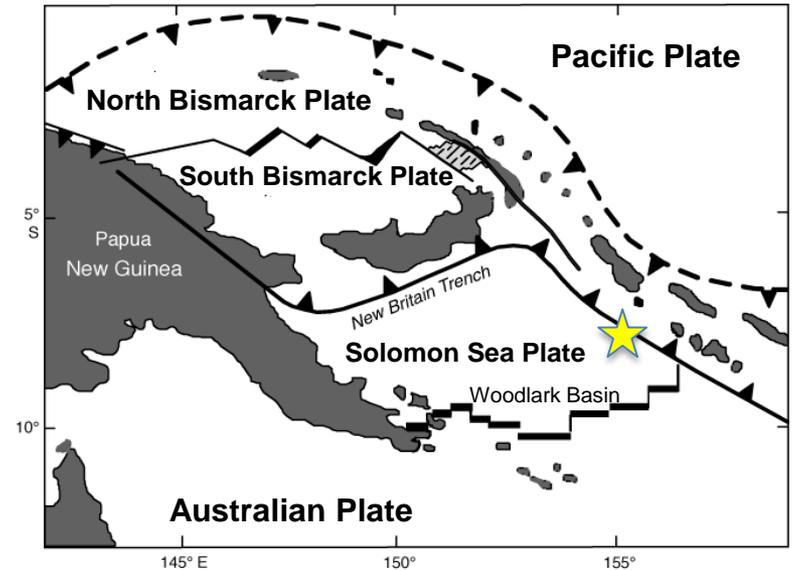
This earthquake occurred as the result of normal faulting within the Solomon Sea (micro)Plate where it bends into the New Britain Trench to begin its descent beneath the Solomon Islands.

The bending of the plate is associated with tension in the upper 20 km, and that tension causes shallow extensional earthquakes.



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

Centroid Moment Tensor Solution

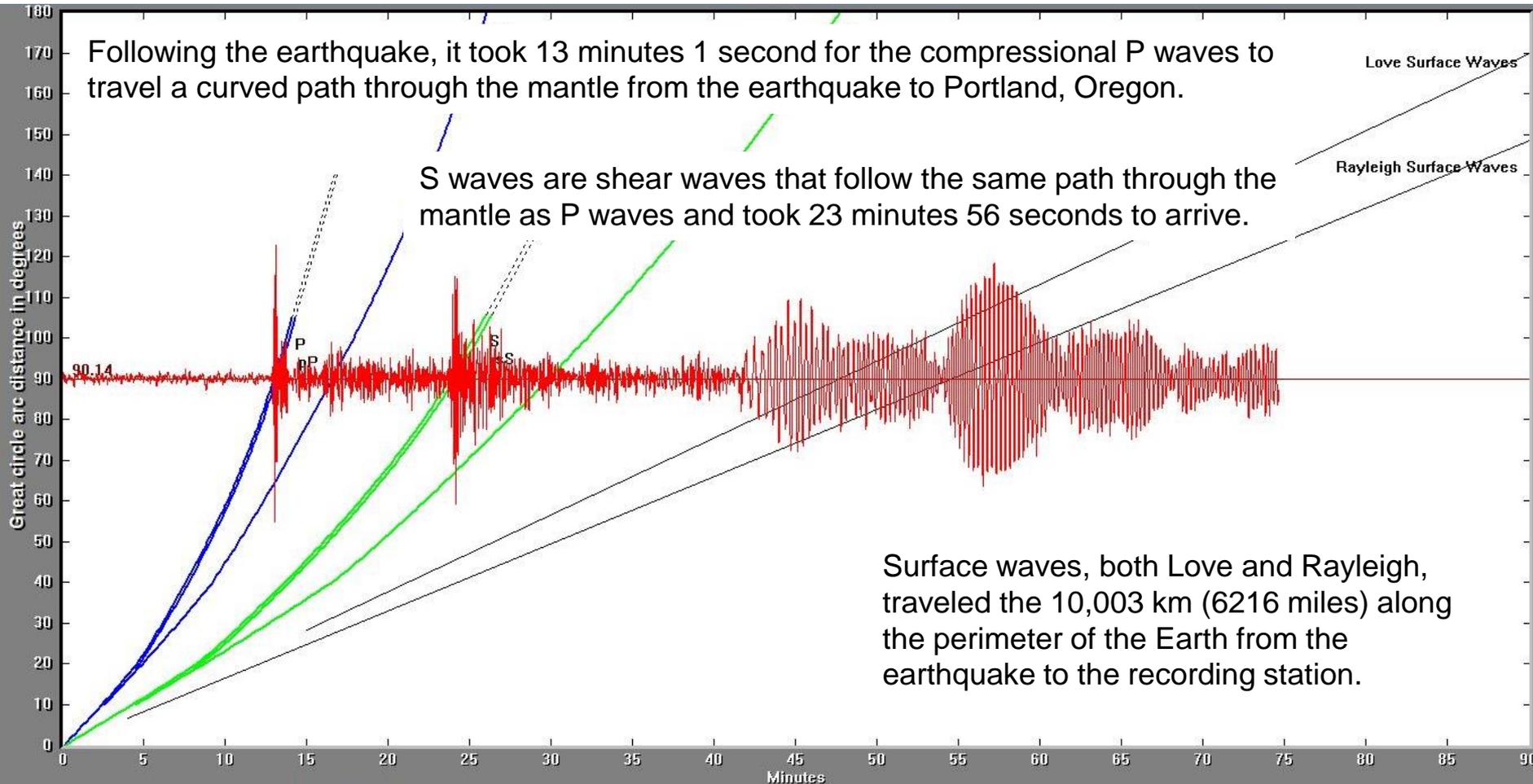


Normal faults produced by bending stress within oceanic plates prior to subduction are called "outer-rise" normal faults.

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The record of the earthquake on the University of Portland seismometer (UPOR) is illustrated below. Portland is 10,003 km (6216 miles, 90.1°) from the location of this earthquake.



Teachable Moments are a service of

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