

## A use of the Mizusawa old seismograms for resolving the mechanism of the Mw=9.5 1960 Chile earthquake.

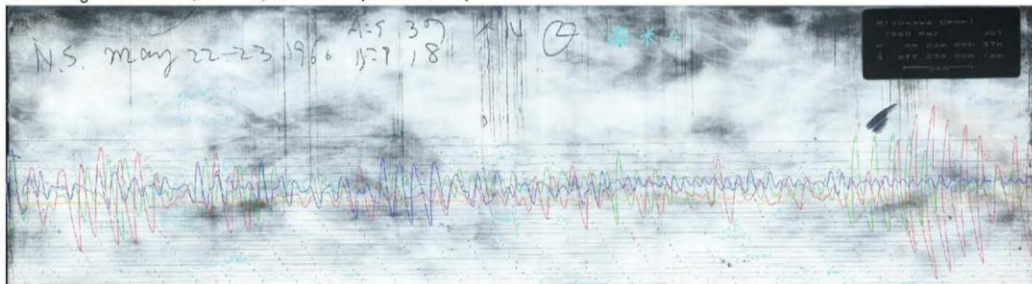
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The 1960 Chile earthquake is generally believed to be the largest earthquake in the last century. However, the quality and quantity of the data available for this event were very limited, and the magnitude and the mechanism remain uncertain. We were recently able to calibrate the Benioff strainmeter record. This record is by far better than any other records available for this event. Detailed analyses of this record and other records suggest that the 1960 Chilean earthquake was not a simple thrust earthquake. A preferred mechanism is an oblique fault with nearly equal amounts of strike slip and dip slip components (i.e., rake=140°). However, uncertainty still remains and verification with another record is desirable. The Omori seismograms recorded at Mizusawa Observatory provided unique opportunity for verification. We have digitized 8,000 sec long record (below), and compared the amplitude ratio of Rayleigh to Love waves on the whole record. The oblique mechanism (rake=140°) is more consistent with the observation than the pure thrust (rake=90°) mechanism. With this mechanism, Mw=9.5; if only the thrust component is considered, Mw=9.2.

1960 Chilean Earthquake, Mizusawa Omori seismograms

( $\Delta=153^\circ$ ,  $\phi=282^\circ$ ,  $\phi_B=98^\circ$ ) almost naturally rotated

NS:  $T_0=33.2$  sec,  $V=20$ ,  $h=0.02$  (assumed)



(30 min across)

EW:  $T_0=8.7$  sec,  $V=100$ ,  $h=0.02$  (assumed)

