

-Difference Hypocentral Relocation and Seismic Moment Calculation of Valle de la Trinidad Seismic Sequence, Baja California, Mexico

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Seismic events recorded by the Northwest Mexico Seismic Network are initially located through an automatic system and then manually refined by an analyst. However, this procedure is far from ideal because the considerable dispersion observed in the earthquake cluster does not allow a precise source location. To obtain higher resolution hypocentral locations and thus provide more knowledge and definition of the zone's tectonics, the double-difference algorithm (HypoDD) will be applied to a seismic sequence near the town of Valle de la Trinidad, northern Baja California. This sequence began on August 17, 2020, with an earthquake of local magnitude $M_L=5.1$, and the catalogue to be used for this study will cover until June 2022, resulting in a total of 888 seismic events. This seismicity is still active today and comprises a range of magnitudes from $1 \leq M_L \leq 5.1$. Seismic source parameters of the sequence will be calculated, with particular attention to the seismic moment (M_0), to observe the behaviour of the M_0 - M_L relationship that several authors have reported as non-linear for southern California and northern Baja California, specifically in the magnitude range $4 \leq M \leq 6.8$.

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Promotional text

Relocation techniques are essential for a more precise location of the seismic source and knowledge of its geometry. In addition, the relationship between M_0 and M_L has been proposed as an efficient discriminant between tectonic and explosive sources, like nuclear explosions.

Oral preference format

in-person

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