

The 2024 Hualien earthquake occurred at 07:58 local time (UTC+8) on April 3, with an epicenter located at 23.88°N, 121.57°E and a focal depth of 19.7 km. The event, situated near the eastern coast of Hualien County—approximately 13.6 km southwest of Hualien City—had a local magnitude (ML) of 7.1 and reached a maximum intensity of 6 Upper on the Central Weather Administration (CWA) intensity scale. The earthquake caused severe damage across eastern Taiwan, including the collapse of multiple buildings, resulting in at least 18 deaths and over 1,000 injuries.

Coseismic displacements derived from GNSS observations show significant ground motion over a broad region. The largest horizontal displacement was recorded at station YENL (23.9035°N, 121.6018°E) with approximately 230 mm of southeastward motion, while the greatest vertical uplift occurred at station HUAL (23.9754°N, 121.6135°E), reaching about 455 mm. The overall deformation pattern is characterized by widespread displacements extending across northern Taiwan and even into the western part of the island. Horizontal displacements show a broad radial pattern centered near the epicentral area, with displacements observed across much of northern and even western Taiwan. Vertical displacements are more localized, featuring pronounced uplift along the eastern coastline near Hualien and minor subsidence further west.

