= 2011 Guerrero earthquake =

The 2011 Guerrero earthquake struck with a moment magnitude of 5 @.@ 7 in southern Mexico at 08 : 24 local time on Thursday , 5 May . It was positioned west of Ometepec , Guerrero , with a focal depth of 24 km (14 @.@ 9 mi) , and was lightly felt in many adjacent areas .

Buildings swayed with the tremor in Mexico City , prompting evacuations and causing panic among many . Following the quake , police patrolled city streets for safety reasons and damage assessments were carried out across the affected region . There were no casualties , though two local police stations suffered slight damage . A number of light aftershocks succeeded the main event , of which the strongest measured a magnitude of 4 @.@ 1 (ML) .

= = Geology = =

The magnitude 5 @.@ 7 (Mw) earthquake occurred inland near the southern coast of Mexico at a depth of 24 km (14 @.@ 9 mi) , with a duration of nearly one minute and an epicenter about 55 km (34 mi) west of Ometepec , Guerrero . In the region , the Cocos , North American , and Caribbean Plates converge and create a tectonic zone of continuous seismic activity . The quake struck near the eastern periphery of the Guerrero seismic gap , which extends from Acapulco to Ixtapa ? Zihuatanejo and contains enough seismic energy to generate an earthquake of up to magnitude 7 @.@ 5 , but it did not cause the gap to rupture . Initial estimates from the USGS placed its intensity at a magnitude of 5 @.@ 8 (Mw) ; the National Seismological Service registered the earthquake at magnitude 5 @.@ 5 (ML) .

Owing to the moderate magnitude of the quake , significant shaking was felt only in localized parts of Costa Chica , registering strongest at VI (strong) on the Mercalli scale in Azoyú and V (moderate) in populous areas around the epicenter . Lighter ground motions (MM IV ? III) were perceived in much of Guerrero , including Acapulco and Chilpancingo , with weak tremors (MM II) reported as far away as in Mexico City , about 300 km (187 mi) from the epicenter . The capital city rests on a former lakebed of largely unconsolidated sedimentary layers , so earthquake shaking in its vicinity is generally amplified .

= = Aftershocks = =

By 6 May , a total of five light aftershocks had occurred near the earthquake 's epicenter . Of the five , the first registered a magnitude of 3 @.@ 7 (ML) and struck about 15 minutes after the main shock , and was succeeded by a magnitude 3 @.@ 9 (ML) tremor at 10 : 09 local time . Two similar quakes of minor intensity struck the region the next day ; however , the strongest and final aftershock registered a magnitude of 4 @.@ 1 (ML) and occurred at 04 : 00 in the morning .

= = Impact and response = =

Despite relatively strong ground motions , damage to the area was very limited ; structures around the epicenter were a mix of fairly vulnerable and resistant to earthquake shaking . Buildings swayed with the tremor in Mexico City , causing panic among many citizens and prompting some to evacuate . Several schools in Guerrero were evacuated as a safety precaution . The earthquake and its aftershock sequence contributed to intermittent power outages in Acapulco ; more than 40 @,@ 000 residences in some 40 districts remained without power by the next day . There were no reports of major losses or fatalities in the wake of the tremor , though two police stations located in Acapulco and Marquelia suffered light damage . Elsewhere , some fallen roof tiles and small landslides occurred east of the epicenter in Cuautepec .

Prior to the arrival of seismic waves in Mexico City , seven of twelve earthquake sensors near the coast of Guerrero detected a " potentially significant quake " . Alert systems were subsequently activated in the area , giving locals at least 50 seconds to secure themselves . Shortly after impact , authorities dispatched five helicopters to ascertain any damage in the wake of the quake . SSP

officials , along with over 3 @,@ 000 police officers , patrolled the city streets as a safety measure . In response to the earthquake 's occurrence , the Federal District announced the installation of 50 @,@ 000 seismic alarms in local schools , hospitals , and offices . Reassessments of structural conditions ? particularly in earthquake @-@ prone parts of the state ? were scheduled , and about 1 @,@ 817 @,@ 000 government workers partook in an earthquake simulation exercise the following day .

= = = Scientific reaction = = =

Although the intensity of the quake was fairly significant , specialists reported that earthquakes of such magnitude do not release nearly enough seismic energy to prevent a major earthquake from occurring in the region . In reality , roughly 900 earthquakes of similar intensities to that of the Guerrero earthquake are required per year to total the energy unleashed by a magnitude 7 @.@ 5 event . Many locals perceived an apparent increase in recent earthquake occurrences , though at the time seismologists registered normal levels of seismic activity in the area . In 2009 , a similar magnitude 5 @.@ 8 Mw earthquake struck Guerrero near Acapulco at a depth of 35 km (22 mi) , killing at least two people .