

## **Spatiotemporal characteristics of tectonic tremors in a collisional orogen**

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Since 2019, continuous seismological data of Central Weather Bureau (CWB) Seismographic Network (CWBSN) have been available for public. We used the data of CWBSN and Broadband Array in Taiwan for Seismology (BATS) to better monitor the tectonic tremors in Taiwan. In this study, we applied the envelope correlation method of Mizuno and Ide (2019) using continuous horizontal velocity seismograms from all available CWBSN and BATS stations from 2012 to 2022. With a large number of seismic stations used in this study and removal of short-lasting events ( $< 10$  s), we successfully detected about 7000 events with waveforms characteristics similar to the tectonic tremors worldwide. Except for the tremor zone previously observed at southern Central Range, we report the new tremor “hotspots” across the mountain range of the island, over a distance of 200 km. The newly catalogued tremors are clustered into five separate zones at the depth range of 20 to 50 km where no earthquakes are present. They are aligned along the eastern flank of the Central Range and at the northern end of the Hsuehshan Range, indicating a strong connection between tremor generation mechanism and mountain building process. Different from the fluid-rich environment previously established for tremors in southern Central Range, the new tremor zones in northern Taiwan however, are characterized by low  $V_p/V_s$  and high  $Q_p/Q_s$ . In addition, the five tremor zones are found to coincide with the spots with high geothermal heat flux, indicating that the temperature effect may be the common mechanism for tremor generation in a mountain belt of Taiwan.

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