

Preliminary ambient seismic noise study in the Tatun Volcano Group of Taiwan

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The Tatun Volcano Group (TVG) is located in the northern tip of Taiwan and also beside Taipei metropolis. TVG is one of the potentially active volcano regions on the Taiwan Island and was predominantly active in the Quaternary. Besides, an active fault (named Shanchiao Fault) transits the center of the TVG along the northeastern orientation. Since the major geothermal activities expose on the surfaces along the hanging wall of the Shanchiao Fault, it is thought to be a passage for gas, fluid, and magma. But the magma chamber and detailed velocity structures below the TVG are not well resolved.

Studying continuously ambient seismic noise to obtain S-wave velocity structure beneath a densely seismic array is well performed around the world in the past decade. Seismic activity at TVG has been monitored by a dense seismic array with around 20 permanent broadband stations operated by Taiwan Volcano Observatory at Tatun (TVO). Since 2014, there are 20 more temporal broadband stations widely and evenly installed at TVG, supported by Central Geological Survey (CGS) of Taiwan. It is a good opportunity to study ambient seismic noise to investigate more detailed S-wave velocity structure in the shallow crust and searching for possible candidates of magma chamber beneath TGV. In the meanwhile, we can also relocate seismic events and compare seismicity with the newly velocity structure derived from ambient seismic noise. Furthermore, it is a possibility to search any velocity variances relate to large seismic events like Shilin earthquake happened on February 12, 2014.

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