

# **Long-term Seismic Monitoring of the Tatun Volcano Group, Northern Taiwan**

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## **Abstract**

The Tatun Volcano Group (TVG) is located at the northern tip of Taiwan, near the capital Taipei and close to two nuclear power plants. Because of lack of any activity in historical times it has been classified as an extinct volcano, even though more recent studies suggest that TVG might have been active during the last 20 ka. In May 2003 a seismic monitoring project at the TVG area was initiated by deploying eight three-component seismic stations some of them equipped with both short-period and broadband sensors. During the three years observation period local seismicity mainly consisted of high frequency earthquakes either occurring as isolated events, or as a continuous sequence in the form of spasmodic bursts with local magnitudes typically smaller than 2. Mixed and low frequency events were also present during the same period, even though they occurred only rarely. In late April 2006 a larger earthquake (ML 3.5) occurred in the Tatun area, was also felt in parts of Taipei and was followed by a number of aftershocks. These observations, that are similar to those reported in other dormant Quaternary volcanoes, indicate that a magma chamber may still exist beneath TVG and that a future eruption or period of unrest should not be considered unlikely. A long-term monitoring effort that combines geophysical, geodetic and geochemical techniques is currently under way and will hopefully allow a more thorough evaluation of the volcanic hazards posed by TVG.

**Keywords:** Taiwan, Tatun, seismicity, dormant volcano