
Study of Microearthquake Activity in Four Geothermal Areas of Taiwan

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Detailed microearthquake surveys were conducted in four geothermal areas of Taiwan, namely, Tatun volcanic region, Chingshui-Tuchang geothermal area, Lushan hot spring area, and Hungyeh hot spring area, during the past few years. It was found that most of them have microearthquake activity. Based on the microearthquake data, fracture zones permitting deep circulation of water are inferred. Microearthquakes in the

Tatun volcanic region are concentrated in a 1.9 mi (3 km) wide and 4.3 mi (7 km) long, northeast-striking elongated zone, where conspicuous geothermal manifestations are present. The focal depths of these events are mostly less than 0.6 mi (1 km). The occurrence of these microearthquakes may be related to the minor normal faults in that region. In the Chingshui-Tuchang geothermal area, microearthquakes are located in a northeast-striking zone, 25 mi (40 km) long and 4.3 mi (7 km) wide. The foci clearly define a northwest-dipping fracture zone with a thickness of about 1.9 mi (3 km). Three composite fault plane solutions are all of the normal fault type. No microearthquake activity was found within a 3 mi (5 km) radial range around the Lushan hot spring area, during a 34-day recording period. A highly active microearthquake zone was found in a region 1.25 mi (2 km) to the west of the Hungyeh hot spring area and the foci define an east dipping fracture zone. However, the causative faults of these events are of the thrust fault type.
