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Geothermal activity dominance in Tatun Volcanic Group, Taiwan

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Tatun volcanic group (TGV) is located at northern Taiwan. More than 20 volcanic domes and cones have been created around the area bounded by Chinshan Fault in the north and Kanchiao Fault in the south. Most volcanoes have been created before 0.3 M (Wang and Chen, 1990), and no historical record of eruption at TVG. However, eruptions in 18 ka BP (Chen and Lin, 2002) and 6 ka BP (Belousov et al., 2010) have been identified. Yang et al.(1999) found magmatic contribution in fumarolic gas. Kagiya(2008) proposed that volcanism has a wide range of diversity represented by two typical end members controlled by the easiness of magma storage beneath volcano; 'Eruption dominant (ED) volcanism' in difficult condition and 'Geothermal activity dominant (GD) volcanism' in easier condition. According to the previous paper on VLF-MT, TVG has wide high conductivity area, and this result indicates geothermal activity of TVG might be comparable with that of Beppu geothermal area in Japan. Feature of lava flow indicates viscosity of magma is significantly high than normal viscosity expected by SiO₂ content.

These evidences suggest TVG has extruded low temperature magma or degassed magma, and may be consistent with the cause of Geothermal activity dominance.

Keywords: Tatun Volcanic Group, Geothermal activity, Eruption