

A study on volcanic minerals and hosted melt inclusions in newly-erupted Tengchong volcanic rocks, Yunnan Province

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Tengchong volcanic clusters are located at the border area of western Yunnan Province and Myanmar. They consist of Heikong Mountain, Dakong Mountain, Xiaokong Mountain, Daying Mountain and Ma'an Mountain, etc., which are famous Quaternary volcanic clusters in our country and are divided by oldly- and newly-erupted volcanoes. Previous work testified Daying, Ma'an and Heikong Mountains are newly erupted ones, which had eruption activities in late Pleistocene and Holocene epochs [1].

The phenocrysts in these volcanic rocks are pyroxene, olivines and feldspars. The melt inclusions are found in hosted phenocrysts which have different shapes, randomly distributed and have some variations after entrapment. The compositional variation of melt inclusion in newly erupted volcanic rocks is larger than that of matrix glass. The chemical compositions of melt inclusion and matrix glass have covered basaltic trachyandesite, trachyandesite, trachyte and rhyolite etc., which are consistent with those of late Pleistocene and Holocene volcanic rocks in Tengchong. According to EMP analyses of melt inclusions in hosted phenocrysts, microcrystals and matrix glass, the content of volatile chlorine doesn't show large variations in melt inclusions and matrix glass, but those of volatile fluorine and SO₃ do have more variations in melt inclusions than in matrix glass.

In general, the degassing rate of newly-erupted Tengchong volcanic rocks was low and they didn't emitted more gas to the atmosphere, thus had small effect on the climate and environment by speculation. Nevertheless, future disaster shouldn't be ignored.

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[1] Fan *et al.* (1999) *Geological Review* **45(supp.)**, 895–904.

A type of high Sr/Yb granite in North Qinling: The melting product of a pre-existing source of arc environment

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Located in the North Qinling, the Wuguan intrusive rocks intruded into the Danfeng Group. It's rich in LILE and depleted in HFSE, with a high LILE/HFSE ratio. Moreover, the Wuguan intrusive rocks are rich in sodium and aluminum, having a high Sr/Yb and high CaO/Na₂O ratio, with no obvious negative Eu anomaly. These geochemistry features suggest that there are formed by the remelting of the basaltic rocks with amphibole as a stable residual phase. The result of REE analogue calculation suggests that, plagioclase amphibolite which is formed in an island-arc environment in the Danfeng Group could form the Wuguan intrusive rock via partial melting. Besides, the residual mineral assemblage mainly is hornblende and also includes a small amount of plagioclase and clinopyroxene. The Zircon U-Pb isotopic age is later than the period of the subduction of Shangdan Ocean, but its chemical characters is closely related to the island-arc environments. The geochemical characters reflected in the Wuguan intrusive rocks may be some inherited chemical features of its sources in an arc-environment. However, the Wuguan intrusive rocks is formed in a collision orogenic process.

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