A study on the lithofacies of Daliuchong volcano in the Tengchong volcanic field, SW China

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Situated in the southeastern margin of the Tibetan plateau and adjacent to the border area between southwestern China and Myanmar, Tengchong volcanic field had experienced intense tectonic stress from the subduction of Indian plate to Eurasian plate, and had strong volcanism as well as frequent earthquakes and geothermal activities in Cenozoic. Daliuchong volcano with the highest peak of 2763m is located in the middle area of the volcanic field.

Based on the field investigations, we have roughly establised that the lithology of Daliuchong volcano consists of huge amount of dacitic lava and explosive volcaniclastic deposits, and the latter forming various eruptive pyroclastics as vitric tuff, crystal tuff, lithic tuff etc., all of which covered more than 100 km^2 in the volcanic field. A primary volcanic conduit with its diameter of the plug more than one hundred meters was determined the first time through our recent investigation works.

The study of matrix microstructure of the volcanic rocks can help us precisely distinguish the volcanic facies. We have determined the explosive eruption facies through observation of the matrix microstructure and pore shape with comparison to those of the volcanic vent facies, extrusive facies and effusive facies under microscope. We've also determined that the effusive facies lava constitutes the base of Daliuchong volcano and part of the lava is covered by the eruptive facies. The crystal fragment tuff, welded tuff and volcanic breccia together constitutes a cooling unit of pyroclastic flows. The extrusive facies is only exposed near the peak of the volcano.