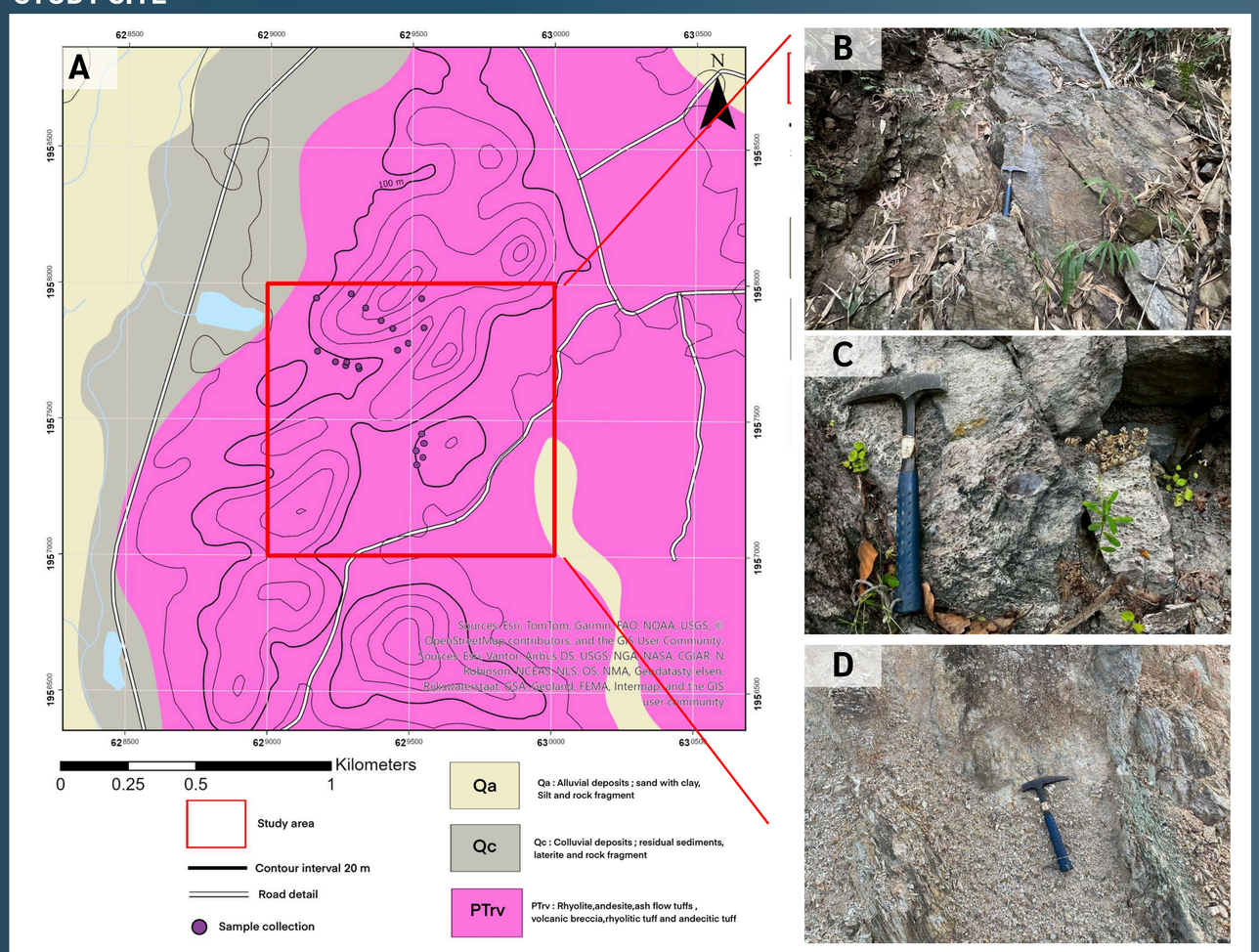
Petrography of Extrusive Rocks at Khun Fang Subdistrict, Mueang Uttaradit District, Uttaradit Province

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STUDY SITE



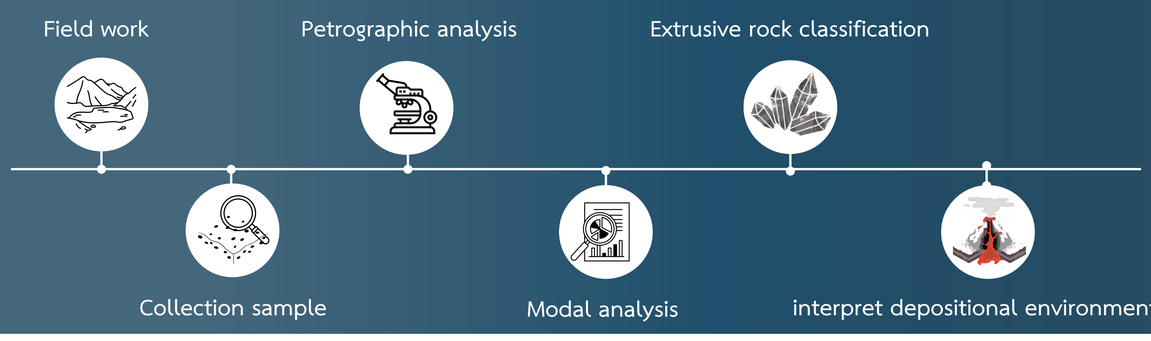
Geologic Map of Study Area, Mon Kiu Lom area in Khun Fang, Uttaradit (A). Rhyolite (Sample MKL-7) coordinate at 47Q 629279 1957964 (B), Rhyolite (Sample MKL-9) coordinate at 47Q 629434 1957836 (C) and Alter Tuff (Sample MKL-20) coordinate at 47Q 47Q 629165 1957947 (D). (Modified form Department of Mineral Resources, 2008)

INTRODUCTION

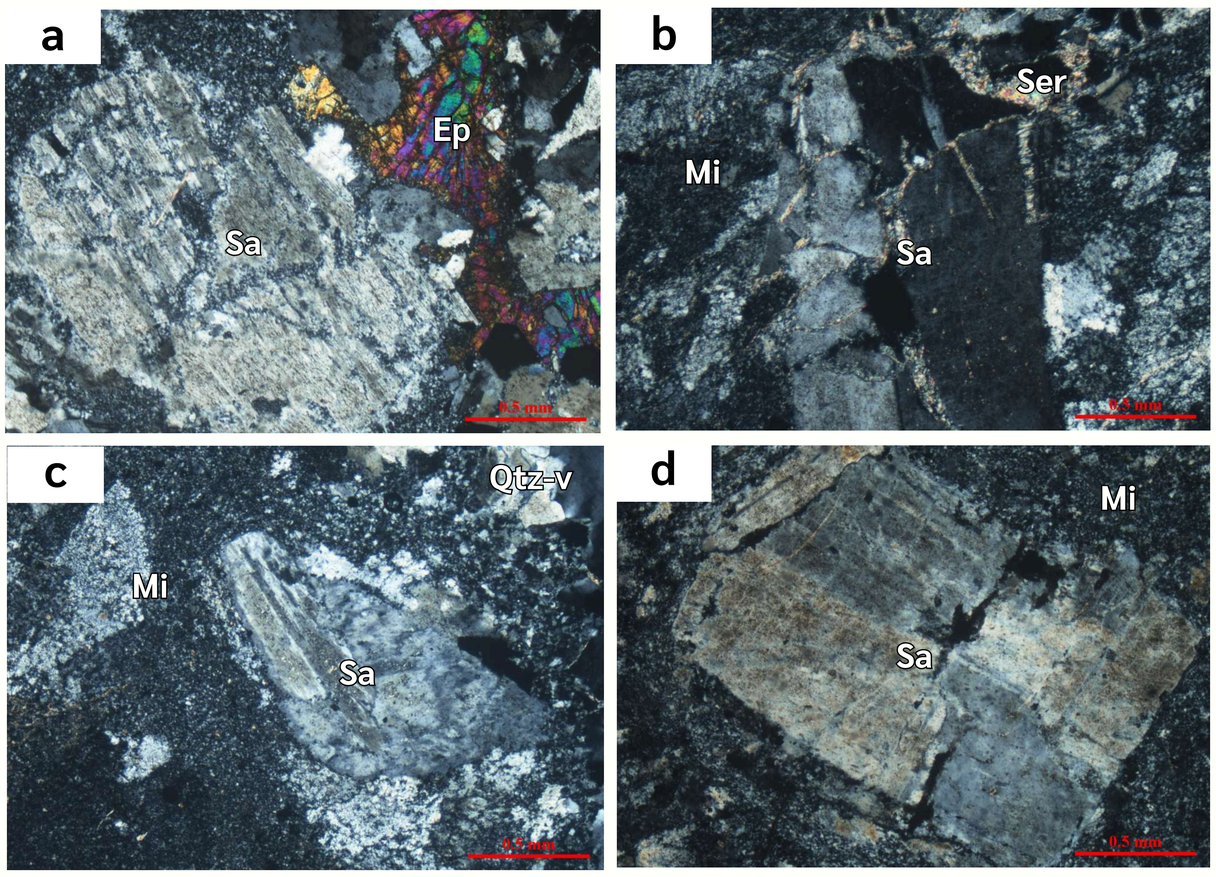
The study area is located in Khun Fang Sub-district, Mueang District, Uttaradit Province. According to the Geological Map of Uttaradit, the region consists of Permo-Triassic, which are part of the Chiang Khong-Lampang-Tak Volcanic Belt. The lithology comprises a sequence of rhyolite, andesite, rhyolitic tuff, and agglomerate deposited together. These extrusive rocks exhibit varying degrees of alteration. Notably, the extrusive rocks in the Mon Kiu Lom area have not yet been clearly categorized into specific lithofacies or rock types. This lack of detailed classification has led to this study, which involves gathering field data and collecting samples for precise laboratory analysis. The research utilizes petrography to understand the characteristics and mineral compositions of the rocks, determine the relationships between different rock units, and ultimately interpret depositional environments of the extrusive rocks within the study area.

OBJECTIVES

- To investigate the geology of volcanic and volcaniclastic rocks through field-based studies.
- To conduct petrographic analyses for the classification of rock types, textures, mineral compositions, and alteration characteristics.
- To interpret the depositional environments of the rock units within the study area.

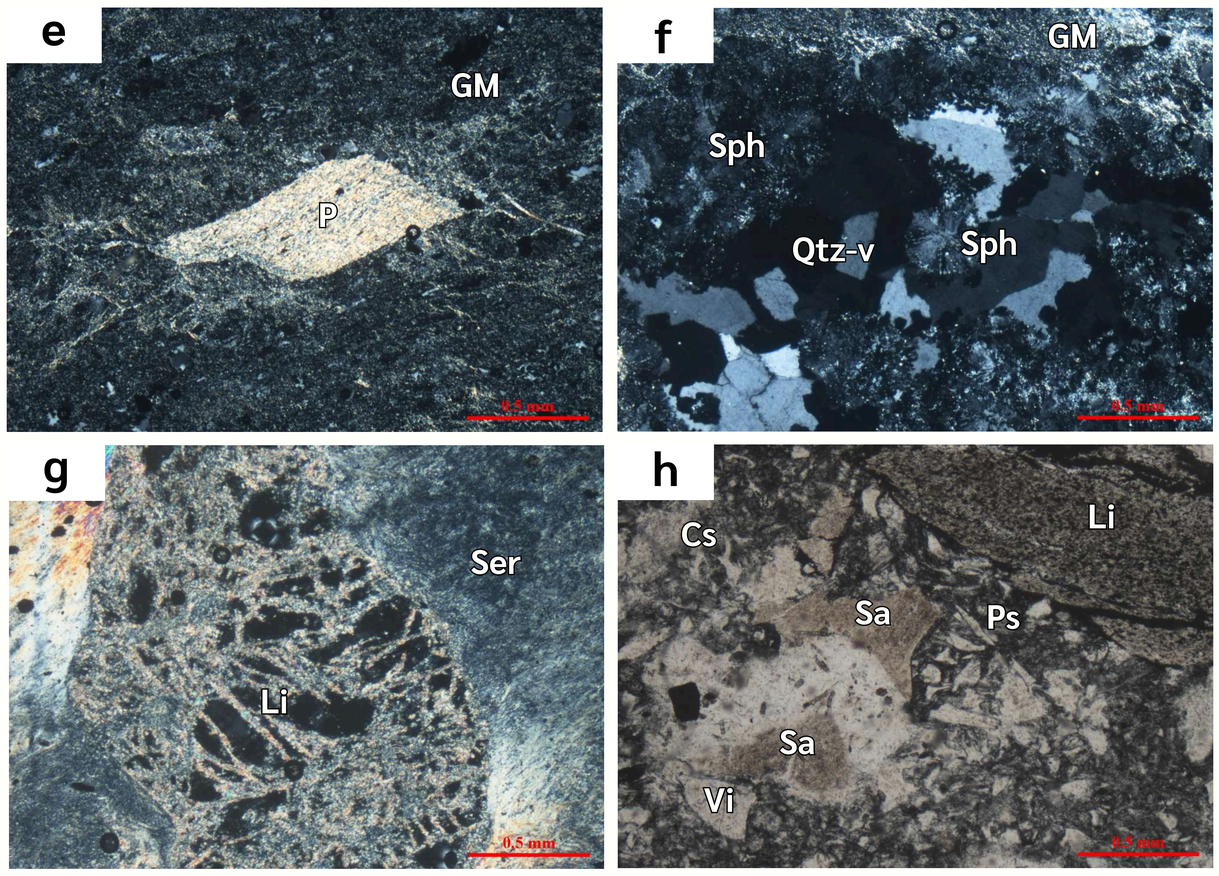


PETROGRAPHY - VOLCANIC ROCK GROUP



Thin section under polarizing microscope in cross polar light 4X Volcanic rock group - Porphyry texture (a,b,c,d) (Sa = Sanidine, Ep = Epidote, Qtz-v = Quartz vein, Ser = Sericite and Mi = Micropoiikilitic quartz)

PYROCLASTIC ROCK GROUP

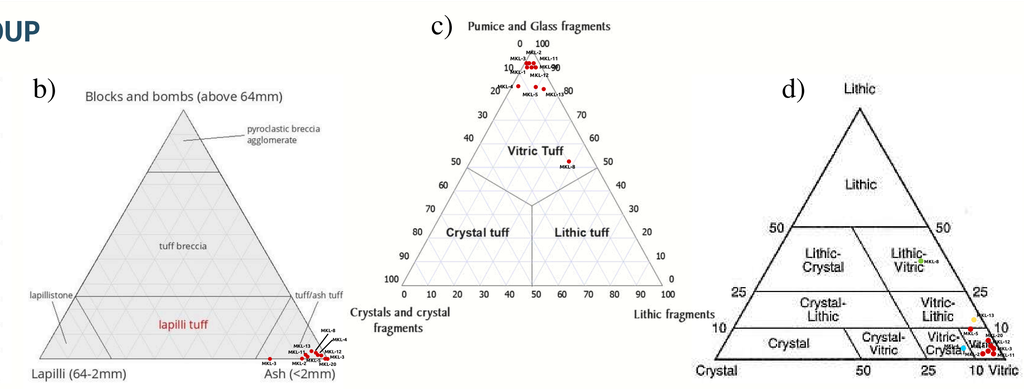


Thin section under polarizing microscope in cross polar light 4X Pyroclastic rock group - Vitric tuff (e,f,g,) in plane polar light - vitric tuff (h) (Sa = Sanidine, P = Pumice, Li = Lithic Fragment, GM = Groundmass, Sph = Spherulite, Qtz-v = Quartz vein, Ser = Sericite, Vi = Vitric fragment, Ps = Platy shards and Cs = Cuspate shards)

MODAL ANALYSIS - PYROCLASTIC ROCK GROUP

a)

หมายเลขตัวอย่าง	Fine ash	Coarse ash	Lapilli	Total
MKL-1	76.00	24.00	0.00	100.00
MKL-2	68.00	23.00	9.00	100.00
MKL-3	65.00	15.00	20.00	100.00
MKL-4	64.00	33.00	3.00	100.00
MKL-5	81.50	11.50	7.00	100.00
MKL-8	55.67	40.39	3.94	100.00
MKL-11	52.19	40.35	7.46	100.00
MKL-12	85.43	13.11	1.46	100.00
MKL-13	69.86	25.11	5.03	100.00
MKL-14	92.31	7.69	0.00	100.00



a) - Clast size classification of Pyroclastic rock group in 10 samples by percentage (Modified from Fisher., 1961 and Schmid., 1981)

b) - Classifications of pyroclastic rock base on proportional abundance of pyroclasts of different size (Fisher., 1966)

c) - Classifications and nomenclature of tuffs and ashes base on their fragmental composition (Schmid., 1981)

d) - Classifications and nomenclature of tuffs and ashes base on their fragmental composition (Cook., 1965)

CONCLUSION

The samples are classified into volcanic rocks and pyroclastic rocks (10 samples each). The volcanic group consists of porphyritic rhyolite with sanidine, plagioclase, and quartz phenocrysts. Its micropoikilitic and spherulitic groundmass indicates a coherent lava flow environment. The pyroclastic group comprises volcanic tuff containing crystal fragments (quartz, sanidine, plagioclase), devitrified glass, and rhyolitic lithics, with secondary alteration to sericite, clay, and epidote. Both welded and non-welded textures are present, signifying explosive subaerial eruptions and pyroclastic flows. These extrusive rocks likely originated in a continental volcanic arc or post-collisional tectonic setting.

REFERENCE

Department of Mineral Resources, 2008. Geological Map of Thailand, Scale 1:50,000, Sheet 5044 III, Uttaradit Province. Department of Mineral Resources, Bangkok. Fisher.,1961 and Schmid., 1981 Clast size classification of Pyroclastic rock group.Schmid, 1981. Classifications and nomenclature of tuffs and ashes base on their fragmental composition. Cook, 1965. Classifications and nomenclature of tuffs and ashes base on their fragmental composition.