

## FA CLAIMS: PETROGRAPHY

### FA1

This rock is a microgranite, most likely an alkali-feldspar granite. Cobaltinitrite staining of the feldspars would be needed for a certain identification.

It has subhedral plagioclase phenocrysts mostly to 0.7mm long, although there are a few 2mm 'megacrysts'. Albite and carlsbad-albite twinning is common, but few twins are particularly 'sharp'. Michel-Levy extinction angles indicate a composition of about 5% An (R.I. < quartz), indicating an alkali-feldspar granite. Orthoclase is of similar size and is anhedral, but quantitative identification difficult. Quartz is interstitial and occupies 15-20% of the volume of the rock. Biotite is the only ferromagnesian present in flakes to 1.5mm long. It is a golden brown with a greenish tint i.e., indicating a not particularly reduced magma. No zircon is included in the mica. A few pyrite crystals are included in the biotite.

Accessory minerals are very occasional zircon, included in quartz or feldspar and rarer apatite. One grain of epidote was noted and one patch of myrrmekite < 2mm across. No monazite was noted.

This is likely to be a fairly fractionated granite at the apex of a batholith, but it is not obviously of high fluorine content (hence zircon has crystallized: the magma was above the saturation temperature). It could be the subvolcanic intrusion related to the rhyolites.

Future collection of fresh rock and chemical analysis could be instructive.

Photomicrographs:

FA1-2,5xp Shows the general texture: hypidiomorphic granular

FA1-2,5xp2 Shows a large plagioclase phenocryst

FA1-10pp Shows slight chlorite alteration of biotite

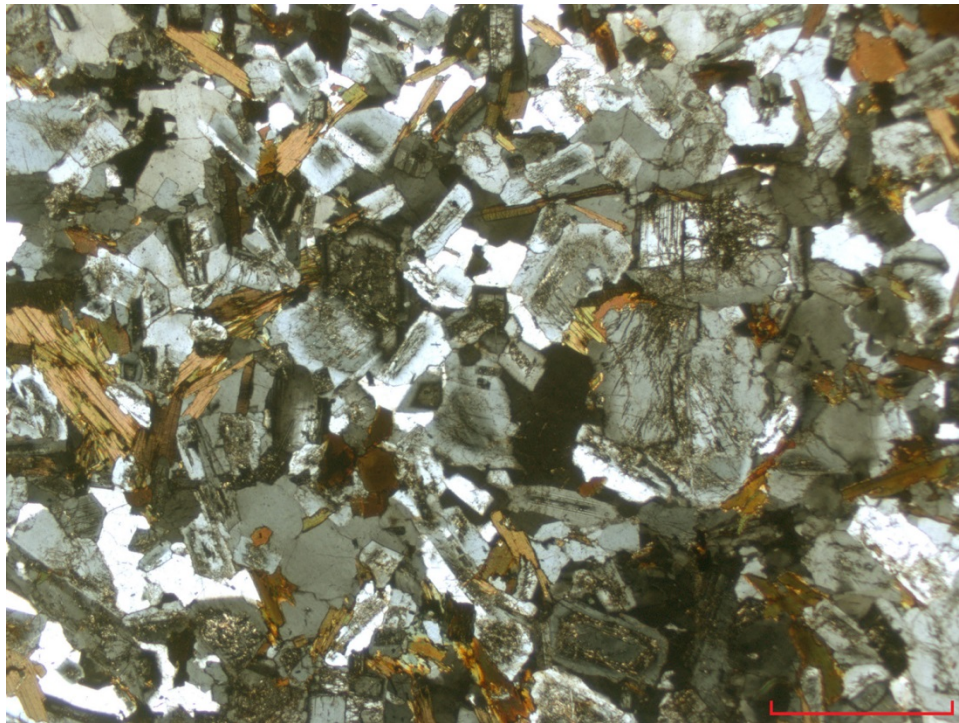
FA1-20xp Shows a zircon in quartz

FA1-20xp2 Shows apatite in quartz

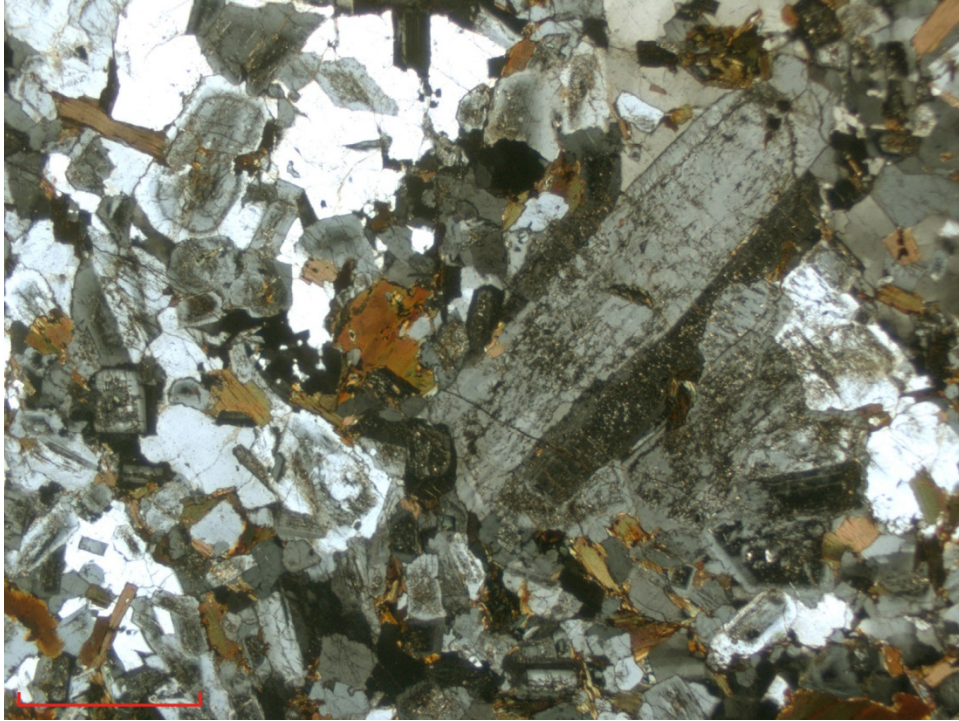
FA1-20pp Shows two zircons in quartz as well as apatite 'needles'

FA1-20pp2 Shows epidote

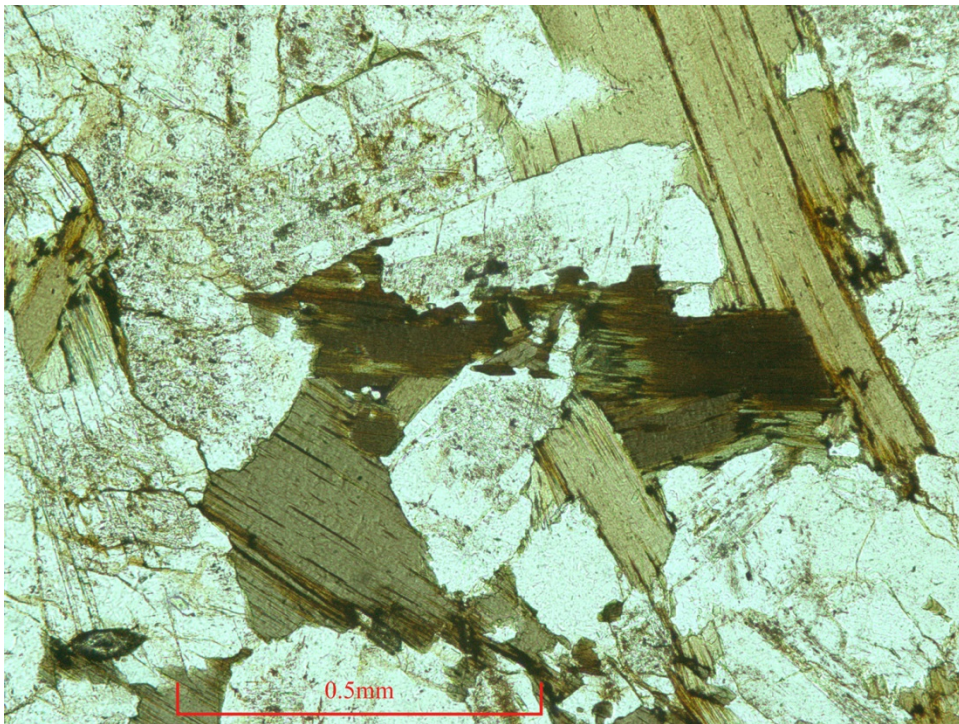
FA1-20pp3 Shows biotite with a pyrite inclusion, apatite crystals alongside



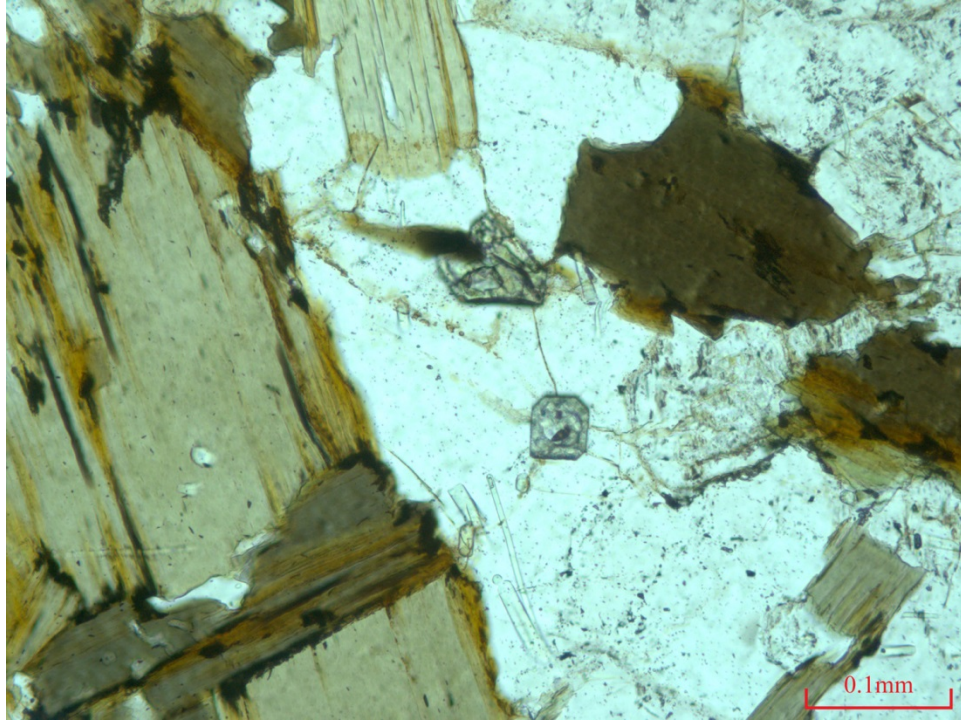
**FA1-2,5xp**



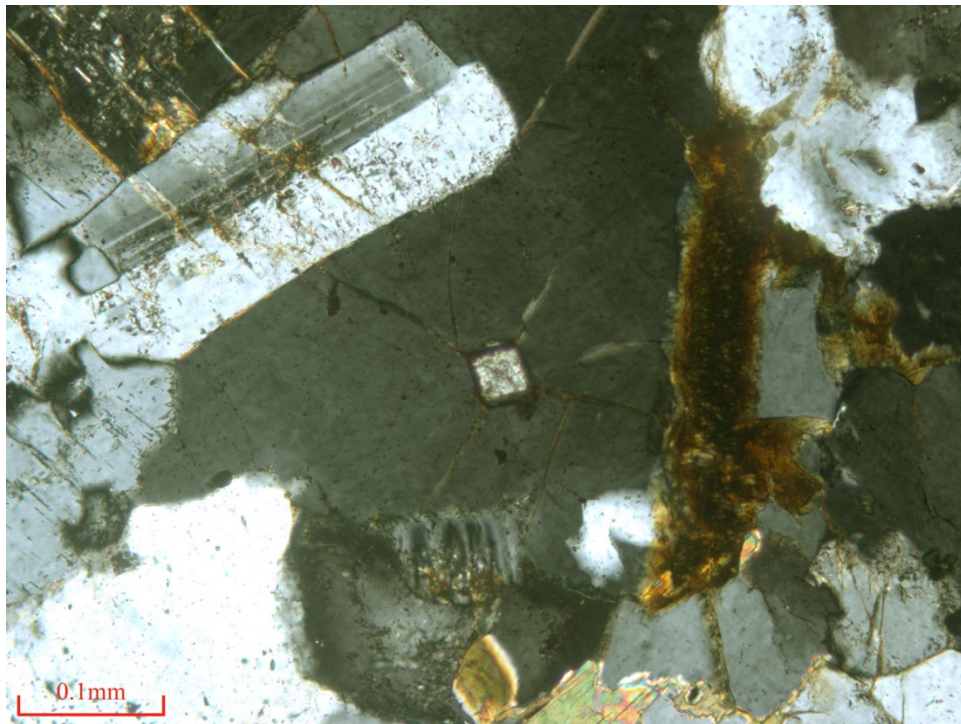
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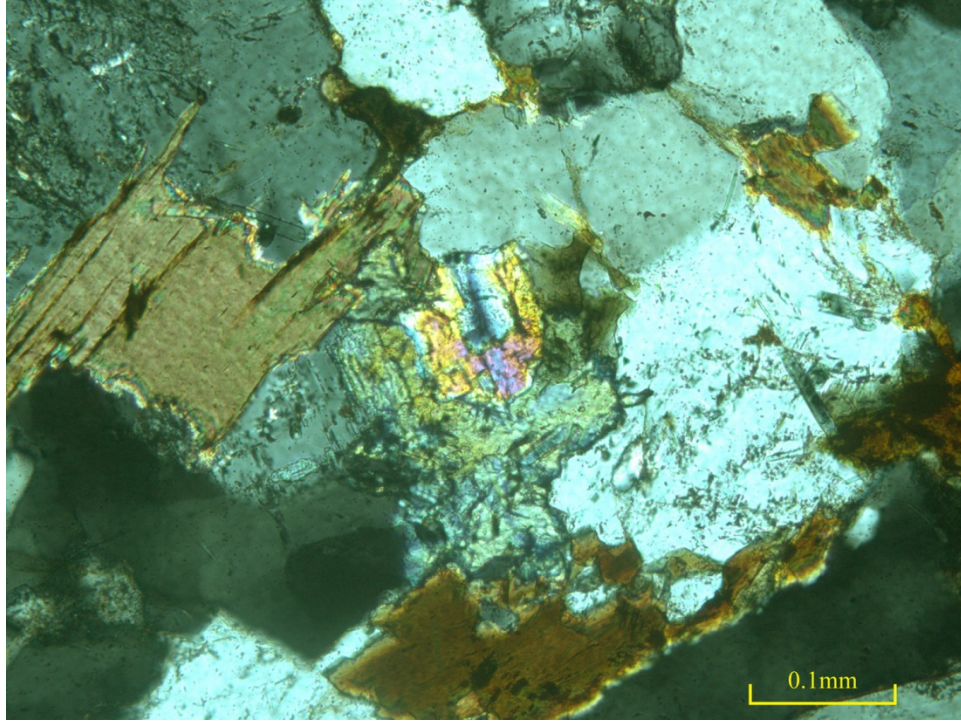
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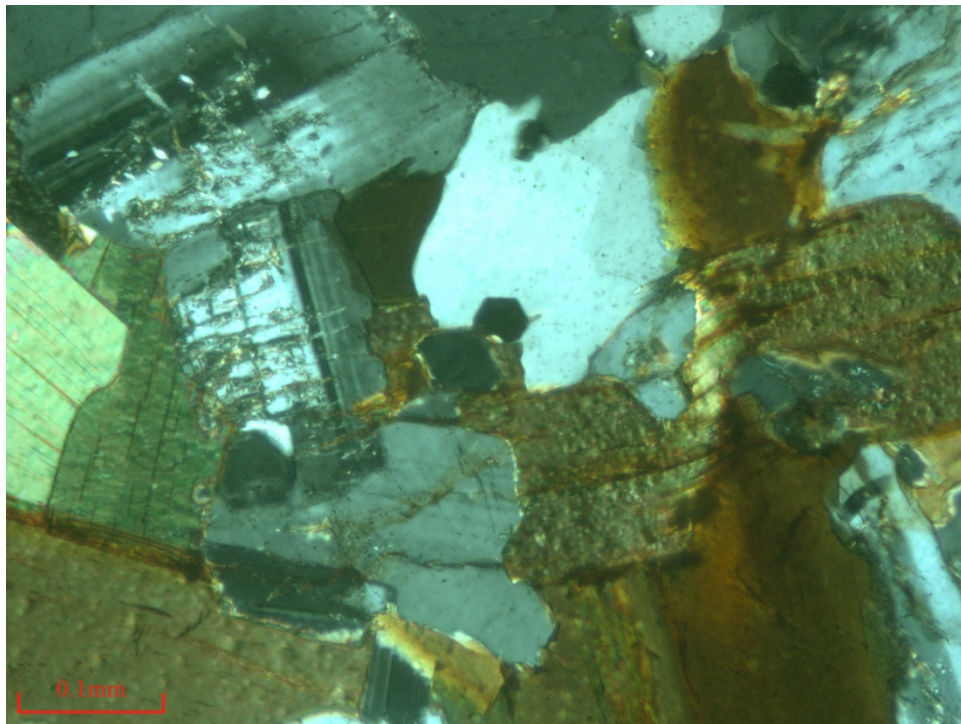
**FA1-20pp**



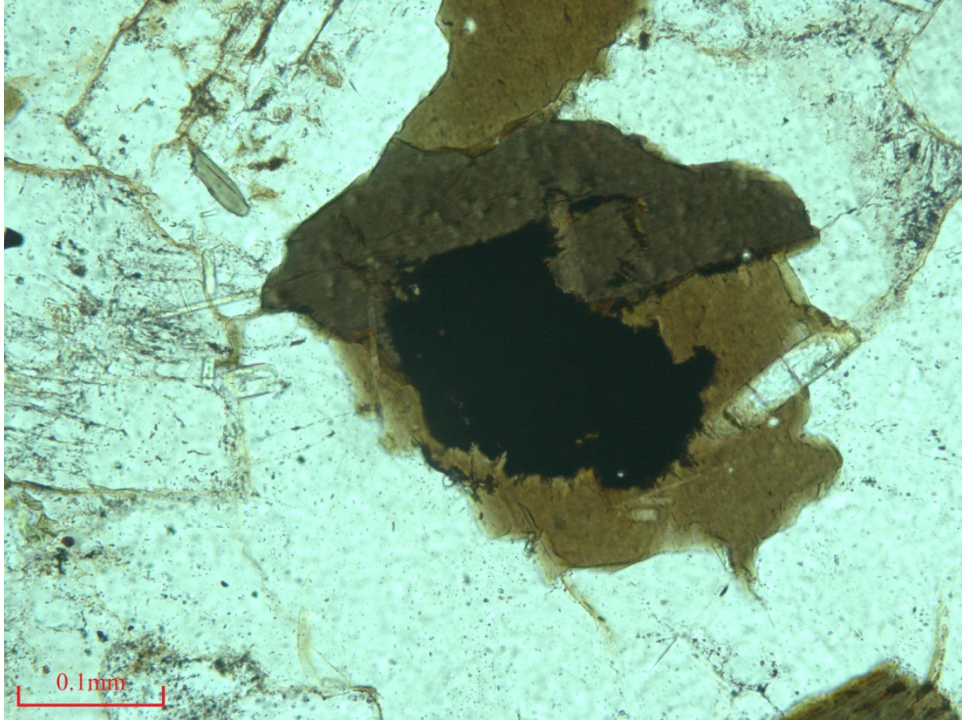
**FA1-20xp**



**FA1-20pp2**



**FA1-20xp2**



**FA1-20pp3**