

**SAMPLE NUMBER: MAC-10: 399.1m: 396710**

**SUMMARY:**

**This is a strongly altered formerly glassy and perlitically-cracked plagioclase+sparingly augite-phyric silicic andesite. It suffered strong silica (+minor pyrite) alteration and later calcite overprinting.**

**THIN SECTION DESCRIPTION:**

This is a strongly carbonate-altered formerly glassy andesitic to dacitic lava characterized by common albite phenocrysts and less abundant altered augite phenocrysts set in an even-textured perlitic cracked groundmass. The plagioclase phenocrysts are equidimensional blocky, to rather elongate prismatic crystals, often intergrown in two and three-crystal clots. They make up about 10-15 modal% of the sample, and are invariably partially replaced by very pale green chlorite and sericite mixtures. Long apatite needles and prisms are quite common inclusions in the plagioclase phenocrysts. Former augite phenocrysts make up much less of this rock than albite phenocrysts, but the original modal abundance of augite is much more difficult to judge due to the alteration. They appear to be replaced by pale green chlorite and secondary quartz, and also contain common small apatite needles. Augite and plagioclase phenocrysts were intergrown in a number of tiny gabbroic inclusions together with equigranular FeTi oxide grains that are marginally altered to leucoxene.

The groundmass of this sample, where best preserved, retains excellent curved perlitic cracks picked out by very fine-grained secondary silica, that also forms much thicker and more angular fracture fillings. The groundmass of this rock was clearly originally glassy, but was probably strongly silica-altered prior to being strongly overprinted by dirty brown fine-grained calcite. Some of the thicker zones of very fine-grained silica alteration and veining contain disseminated and quite common well-formed small pyrite grains.

The relative abundance of both plagioclase and augite phenocrysts in this rock, plus the abundance of apatite, suggest to me that it was more andesitic than dacitic, although the extensive silicification and calcite overprinting would preclude a judgement one way or the other from major element compositions. I haven't seen very many perlitically-cracked andesites from the MRV, but the Ti/Zr ratio of this unit is clearly greater than the unambiguously dacitic unit (eg 396705) somewhat higher in the hole, and supports the contention that it was probably a silicic andesite.