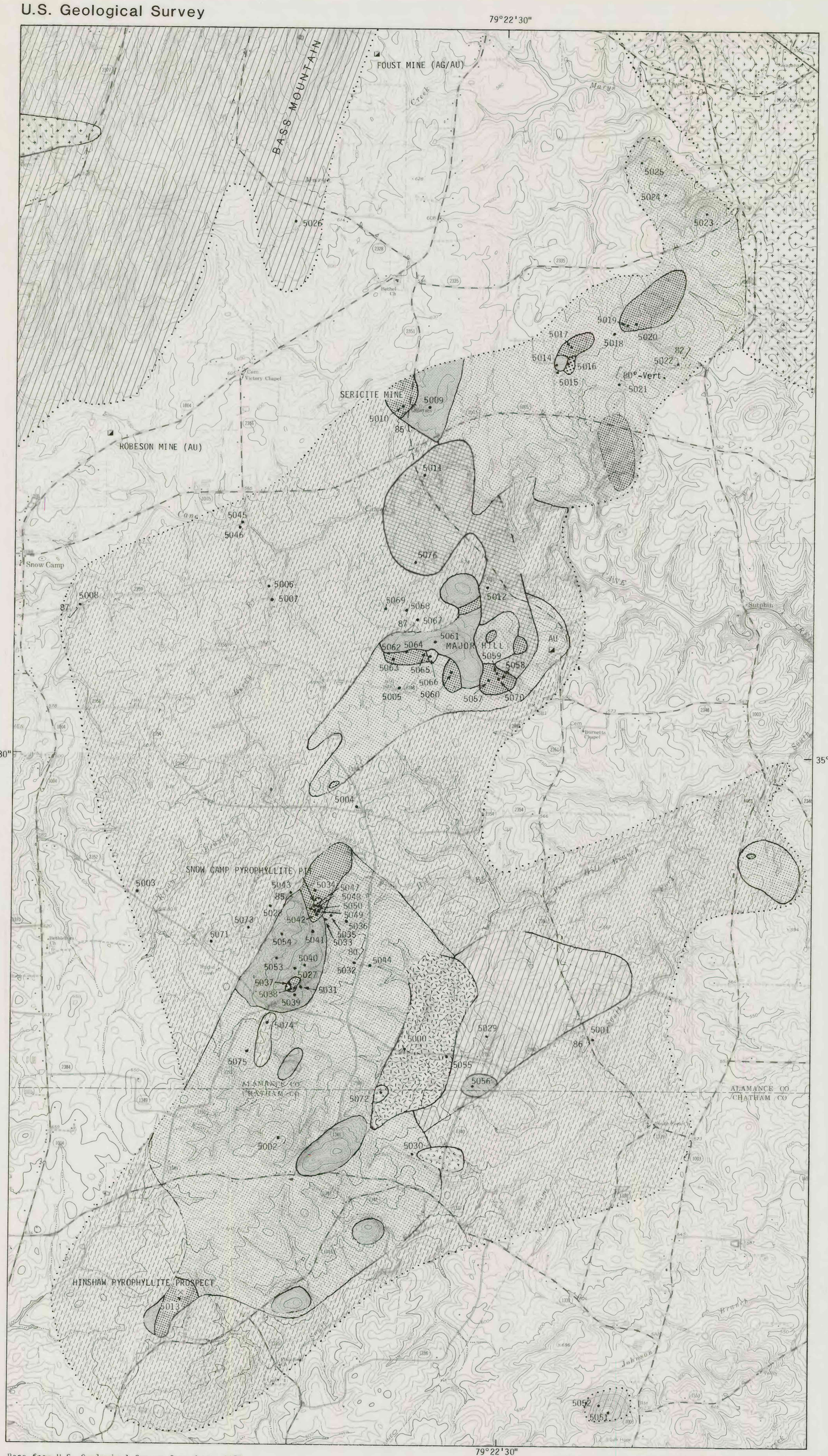
Department of the Interior
U.S. Geological Survey

Open-File Report 87-180
Plate 1



Base from U.S. Geological Survey Snow Camp, 1978, Saxapahaw, 1977, Crutchfield Crossroads, 1974, and Silk Hope, 1974, maps

Geologic mapping by Elizabeth H. Hughes, with additional map data provided by Robert G. Schmidt, Alba Payás, Carmen Antón-Pacheco, and Pablo Gumiel

SCALE 1:24 000

1 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETRE

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

EXPLANATION

Unaltered Metavolcanic Rocks

Light-gray rhyodacitic to dacitic crystal and crystal-lithic tuffs; local flows and shallow subvolcanic intrusions. Albite and quartz crystals in a quartz-albite-sericite matrix, with minor pyrite and hematite and some disseminated magnetite. Lithic fragments up to 4 cm abundant in parts of unit, fragments dominantly black rhyolite, K-feldspar rich. Rocks described as shallow intrusions look like crystal tuffs in the field but do not contain lithic fragments, and in thin section they do not have any pyroclastic textures and may contain interlocking feldspars. Local interlayers of andesitic volcanic rocks are present.

Green fine-grained crystal tuffs and flows of intermediate composition containing quartz, albite, sericite, chlorite, epidote +/- magnetite and pyrite. Some outcrops have blocky columnar joints. Rocks of intermediate composition are also interbedded with felsic volcanic units.

Black fine-grained rhyolitic crystal-rich tuffs and flows consisting of a quartz-K-feldspar matrix and containing some quartz, albite (some epidotized), and K-feldspar phenocrysts, along with varying amounts of sericite, +/- magnetite, pyrite, and hematite. Matrix cut by epidote veinlets on hill south of Bass Mountain. Parts of the unit show distinct flow banding, especially around Major Hill. Spherulites present in outcrop of rhyolite on hill in the northwest section of the Silk Hope quadrangle just west of S.R. 1003 and south of S.R. 1337.

Intrusive rocks

Black fine-grained porphyritic felsic rock which has a quartz-sericite-chlorite-iddingsite matrix and about 5% albite phenocrysts. Some feldspars are replaced by chlorite and may have been propylitically altered. Interlocking feldspars give a subvolcanic appearance.

Hornblende-bearing equigranular diorite, extensively sausseritized and epidotized.

Complex felsic plutons consisting of a wide array of quartz dioritic plutonic rocks and subvolcanic porphyries of dacitic to rhyolitic compositions. Marginal chilling present in some porphyry outcrop areas.

Hydrothermally Altered Rocks

Presumed to have formed by alteration of the three types of volcanic rocks described above.

Dense siliceous cryptocrystalline rock, in places weathered to a sugary white rock. Interpreted to represent the most altered zone and may mark the conduit for the hydrothermal fluids. Parts of this unit are very pyritic; in some places hematite has replaced the pyrite. Extensive brecciated zones are present in which fragments are white and the matrix, although also mostly quartz, is almost black from minor amounts of hematite or magnetite.

Quartz-pyrophyllite rocks, +/- kaolinite, andalusite, chloritoid, sericite, paragonite, and iron oxides.

Quartz-sericite rocks, +/- paragonite, K-feldspar and iron oxides. Some rocks in this unit are not intensely altered but are crystal tuffs with a quartz-sericite matrix and sericite veinlets crosscutting the feldspars.

Quartz-chloritoid-chlorite rocks, +/- sericite and hematite.

Geologic contacts, approximately located

75 Strike and dip of cleavage

Edge of geologic mapping

• 5060 Field data points

Location of study area

This map is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards and stratigraphic nomenclature.

Geology and hydrothermal alteration of the Snow Camp Mine-Major Hill area, Alamance and Chatham Counties, North Carolina