Open file 79-668
(Plate 1 of 2)

GEOLOGIC MAP OF THE HOT CREEK RHYOLITE FLOW, LONG VALLEY, CALIFORNIA

By
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The rhyolite of the Hot Creek flow is sparsely porphyritic and contains sanidine, sodic plagioclase, biotite, pyroxene, and magnetite. The groundmass textures reflect variations in cooling conditions. The map is based on these textural variations; each zone represents the dominant texture within the area mapped. A float counterpart for each zone is designated by (f) after the main symbol.

Qp(f)	Pumiceous Zone- variable in color: tan to gray predominant with subordinate reds, yellows and browns; banded, often includes layers of obsidian; commonly has a silky sheen; tends to outcrop at flow ridge-tops and waste into intervening swales as boulders, cobbles and sand-sized fractions which break up into glass shards and crystals; most of the Hot Creek flow is covered with Qp(f). The other types of float occur in a matrix of pumiceous glass sand.
Qc(f)	Obsidian Zone- black obsidian, usually outcropping as moderate to thick accumulations of float; generally weathers from banded pumice-obsidian; the thickest accumulations probably represent massive, discontinuous, subsurface layers less than two meters thick; grades into or is interlayered with spherulitic or completely devitrified glass bands; commonly perlitized (see below). Very thin accumulations are designated Qof.
Qos(f)	Spherulitic obsidian Zone- rock contains sanidine-cristobalite spherulites ranging in size from microscopic to 5 centimeters in diameter; spherulites grew singly or in clusters; some grew within folia, others cut across folia; the spherulites are more resistant to fracture and weathering than the obsidian and dominate the Qosf.
Qf(f)	Felsite Zone- pink to tan; oxidized to varying degrees; may be vesicular; thin beds of obsidian, usually spherulitic and partially perlitized occur in the felsite zone; lineations and folds best developed in this zone; the felsite is the most resistant textural type and commonly weathers into tabular or angular fragments.
Qbf(f)	Fused breccia Zone- highly variable in color and texture; consists of pumice and obsidian fragments ranging in size from microscopic to boulders; in extremely fused samples it is difficult to distinguish from obsidian.
Qpt(f)	Perlite- part of the obsidian zone; gray-green to gray-blue; usually brittle and granular; gradational into pumice, vesicles are commonly preserved although highly attenuated; intimately associated with other zones although it may occur as massive unfoliated portions of the obsidian zone.
Qsw	Slope wash-rhyolite colluvium; undifferentiated
Qsc	Tuffaceous sandstone and conglomerate
Qal	Alluvium

normal faults

0 1/4 1/2
miles

SCALE 1:7900
CONTOUR INTERVAL 10 FEET

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