



DESCRIPTION OF MAP UNITS

W Areas covered by or reworked by water. Data from June 1980 aerial photographs.

PYROCLASTIC-FLOW DEPOSITS

- ac** Ash-cloud deposits—Deposits from ash clouds of the pyroclastic flows of May 18, 1980. Unconsolidated ash and lapilli, predominantly vitric, well-sorted, and <0.5 mm diameter (Rowley and others, 1981; Glicken and others, 1989). Shown only where covering debris-avalanche deposit and thick enough (> approximately 3 m) to conceal hummocks of the debris-avalanche deposit.
- pf** Pyroclastic-flow deposits—Deposits of the basal parts of the pumiceous pyroclastic flows of May 18, May 25, June 12, July 22, August 7, and October 16-18, 1980. Generally poorly-sorted unconsolidated ash and lapilli with rare larger clasts (Rowley and others, 1981).
- pfv** Pyroclastic-flow veneer deposits—Veneer of pumiceous pyroclastic flows of 1980 on the north flank of Mount St. Helens. Generally less than 2 m thick.

LAHAR DEPOSITS

- dh** Lahar deposits—Deposits of volcanic mudflow, debris flow, and subordinate flood deposits of May 18, 1980. Unsorted, generally unstratified, unconsolidated lapilli and brown ash with larger clasts. Contains all rock types from the old mountain and, locally, the "blast" dacite. Deposits have flat or wavy surfaces and are ponded between hummocks. The screen pattern with no "b" indicates where lahar deposit covers debris-avalanche deposit. In patterned areas, isolated hummocks not covered by lahars are not delineated.

BLAST DEPOSITS

- b** Blast deposits—Deposits of pyroclastic currents generated from explosions of 08:32 PDT to about 08:44 PDT, May 18, 1980. Unconsolidated lapilli and olive-gray ash with rare larger clasts; generally unsorted and unstratified where shown on map. Contains all rock types from the old mountain and the gray, semi-vesiculated, juvenile "blast" dacite. Deposits have wavy, undulating surfaces and are thicker in depressions than on tops of hummocks. Pattern with no "b" indicates where blast deposit, generated from the crater after the rockslide-debris avalanche, rests on top of debris-avalanche deposit; shown where it covered the debris-avalanche deposit before erosion.

DEBRIS-AVALANCHE DEPOSIT

- Distal unit**
 - dd** Distal unit—Jumbled masses of broken trees, wood debris, and organic-rich soil mixed with volcanic material from Mount St. Helens, in proportions up to 50%. Masses form hummocks up to 9 m high.
 - dph** Proximal hummocks unit—Hummocks of debris avalanche material in crater and on north flank of Mount St. Helens.
 - dps** Proximal scattered unit—Small (generally <5 m across), isolated, scattered hummocks of material resting on pre-1980 deposits. Hummocks cover less than 1% of mapped area.
 - dn** North Fork unit—Hummocky, cratered mass of material in North Fork Toutle River between levees that does not show evidence for interaction with Johnston Ridge or Spirit Lake.
 - dnl** Debris avalanche levees on the margins of the North Fork unit.
 - dj** Johnston Ridge unit—Debris-avalanche deposit that shows evidence for interaction with Johnston Ridge. Material forms terraces, ridges, hummocks, and craters.
 - ds** Spirit Lake unit—The portion of the debris avalanche that moved to the northeast and into Spirit Lake. Forms islands in the lake, conical hummocks, topped by flat-lying broken trees, and hummocks covered by reworked sediment.
 - dm** Marginal unit—Material on the valley wall side of the levees of the debris-avalanche deposit. Generally forms lobes, but hummocks resembling those of North Fork unit also present.
- CONTACT—Dashed where approximately located
- BOUNDARY OF AREA UNDERLAIN BY DEBRIS-AVALANCHE DEPOSIT—excluding proximal units
- ▲▲ THRUST FAULTS IN DEBRIS-AVALANCHE DEPOSIT
- RIM OF CRATER FORMED MAY 18, 1980 (SOURCE AREA OF DEBRIS-AVALANCHE DEPOSIT)

Hypsography compiled from Aerial Photographs taken 1980
Vertical Datum: National Geodetic Vertical Datum of 1929
Horizontal Datum: 1927 North American Datum
Digital Hypsography by Infotec Development, Inc.

**MORPHOLOGIC MAP OF DEBRIS-AVALANCHE DEPOSIT
MAY 18, 1980, MOUNT ST. HELENS, WASHINGTON**

Geology mapped by Harry Glicken. Fieldwork 1980-80 using June 1980 aerial photographs. Geology shown before fluvial modification.