U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

OPEN-FILE REPORT 97-513
PLATE 1
Pamphlet accompanies map

121° 30′ 121° 00′ 44° 00′ 43° 30′

Bend
Pilot Butte
Tumalo Mtn.
Badlands
Bessie Butte
Lava Butte
Wanoga Butte
Sunriver
Klawhop Butte
Fuzztail Butte
Millican
Valley
Horse Ridge
GEO N-3
Pistol Butte
Pilpil Butte
Kawak Butte
Pine Mountain
Draw
Tepee
Stearns
Paulina Prairie
McKay Butte
Pringle Butte
Paulina Lake
East Lake
Central Pumice Cone
Newberry Crater
The Dome
Big Obsidian Flow vent
Paulina Peak
Devils Horn
China Hat
GEO N-1
La Pine
Finley Butte
DESCHUTES CO
LAKE CO
KLAMATH CO
CROOK CO
Indian Butte
Arnota Butte
Little River
Moffitt Butte
Hoodigan Hill
Flat Top
Big Hole
Hole in the Ground
Fort Rock Valley
Walker
Rim

DESCRIPTION OF VOLCANO-HAZARD ZONES

This map shows areas that could be affected in the future by various kinds of eruptions and related events. Although we show sharp boundaries between hazard zones, the degree of hazard does not change abruptly at these boundaries but decreases gradually as distance from the volcano increases. Areas immediately beyond hazard zones should not be regarded as hazard free, because the boundaries can only be approximately located. See accompanying pamphlet for methodology used to define hazard zones and to locate boundaries.

Hazard zone for explosive pyroclastic eruptions of small to moderate volume in or near caldera —Subject to tephra falls, pyroclastic flows and surges, and ballistic projectiles from eruptions of caldera or near −caldera vents. Can also be affected by lava flows and domes. Probability of tephra-fall hazard resulting from explosive eruptions at Newberry and other volcanoes in region is depicted in pamphlet (fig. 4)

Hazard zone for lahars or floods on Paulina Creek —Subject to lahars and flooding in event of volcanically induced surges of water from Paulina Lake. Shown only as far north as confluence of Little Deschutes and Deschutes Rivers; farther north, zone is thought to coincide with 100 − year floodplain of Deschutes River

Area of upper west flank where Paulina Creek canyon might not contain peak flows during an exceptionally large flood event (see pamphlet)

Hazard zone for volcanic gases —During volcanic unrest and periods of increased gas emission, hazard lies chiefly in small topographic depressions, caves, and artificially created enclosures such as manholes, excavations, tents, or snowcaves where atmospheric circulation is inadequate to disperse gas

Hazard zones for lava flows from flank eruptions —Also includes areas subject to near −vent deposits of cinder cones and fissure vents. Divided on basis of likelihood of future eruption into:

Lava −flow hazard zone LA —Area of Newberry volcano more likely to have future eruptions or to be covered by lava flows. Includes area of hazard zone for pyroclastic eruptions

Lava −flow hazard zone LB —Area on lower flanks of Newberry volcano and surrounding region less likely to have future eruptions or be covered by lava from vents in zone LA or elsewhere in Cascade Range or Basin and Range

GEO N-1 Drill hole —Showing location and name of two holes on north and south flank used to estimate probability of coverage by future lava flows

Map References Cited

MacLeod, N.S., and Sherrod, D.R., 1992, Reconnaissance geologic map of the west half of the Crescent 1⁰ by 2⁰ quadrangle, central Oregon: U.S. Geological Survey Miscellaneous Investigations Map I −2215, scale 1:250,000.

MacLeod, N.S., Sherrod, D.R., Chitwood, L.A., and Jensen, R.A., 1995, Geologic map of Newberry volcano, Deschutes, Klamath, and Lake Counties, Oregon: U.S. Geological Survey Miscellaneous Investigations Map I −2455, scales 1:62,500 and 1:24,000.

Walker, G.W., Peterson, N.V., and Greene, R.C., 1967, Reconnaissance geologic map of the east half of the Crescent quadrangle, Lake, Deschutes, and Crook Counties, Oregon: U.S. Geological Survey Miscellaneous Geologic Investigations Map I −493, scale 1:250,000.

SCALE 1:100,000

0 5 10 MILES

0 5 10 KILOMETERS

CONTOUR INTERVAL 50 METERS; 40 METERS ALONG NORTH MARGIN;
20 METERS ALONG EAST AND SOUTH MARGIN

OREGON

AREA OF MAP

N

Base composited in digital form by Steven P. Schilling from U.S. Geological Survey, Bend (1980), La Pine (1986), Brothers (unpub.), Crescent (1979), Christmas Valley (1986), and Prineville (1981) 1:100,000 scale maps. Data for hydrography, culture, transportation, and boundaries from U.S. Geological Survey (EROS Data Center) Digital Line Graph files. Digital Line Graph hypsography (topographic contours) created from U.S. Geological Survey blackline clear-films by Pacer Infotec, Inc., Portland, Oregon.

Universal Transverse Mercator projection, zone 10

1927 North American Datum

Hazard zones interpreted from geologic maps by Walker and others (1967), MacLeod and Sherrod (1992), and MacLeod and others (1995). See accompanying pamplet for rationale

Volcano hazards at Newberry volcano, Oregon

By

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