

CORRELATION OF MAP UNITS

SEDIMENTARY DEPOSITS

VOLCANIC ROCKS

ABBREVIATED GEOLOGIC UNIT DESCRIPTION

SEDIMENTARY DEPOSITS

Qal ALLUVIUM (MIOCENE)—Unconsolidated stream deposits

Qg GLACIAL (MIOCENE)—Presently active ice bodies

Qgm GLACIAL MORAINES (MIOCENE AND PLEISTOCENE)—Dissected and poorly indurated glacial deposits

VOLCANIC ROCKS

Qh LAVA OF MOUNT BOO (MIOCENE AND PLEISTOCENE)—Differentiated andesite flows and dacitic pyroclastic rocks of Mount Hood volcano

Qap ANDESITE OF CLOUD CAP (PLEISTOCENE)—Medium- to dark-gray andesite flow from vent at Cloud Cap

Qobv ANDESITE OF THE PINNACLE (PLEISTOCENE)—Medium- to dark-gray andesite flow from vent at The Pinnacle

Qa ANDESITE AND BASALT OF VISTA RIDGE (PLEISTOCENE)—Medium- to dark-gray andesite flow from several vents along Vista Ridge. Dark-gray to black andesite basalt from Vista Ridge including red scoriae basalts from the cinder cone at Red Hill

Qa1 UNDIFFERENTIATED ANDESITES FROM SATELLITE VENTS (PLEISTOCENE)—Medium- to dark-gray microporphyrific andesite flows

Qa2 ANTE CLASIER VOLCANO (PLEISTOCENE)—Black to dark-gray andesite basalt flows, pyroxene and hornblende andesite flows, and interbedded tuffs and breccias forming a partly exposed and dissected cone on the west side of Mount Hood

Qa3 UPPER ANDESITE FLOWS (MIOCENE)—Medium-gray microporphyrific andesite flows

Qa4 LOWER ANDESITE FLOWS (MIOCENE)—Light- to medium-gray andesite flows with interbedded tuffs and breccias, characterized in places by coarse porphyritic hypersthene andesite

Qa5 INTENSIVE ROCKS (MIOCENE)—Medium-gray andesite plugs

Qa6 QUARTZ DIORITE OF LAUREL HILL (MIOCENE)—Medium-grained quartz diorite and quartz monzonite intrusion

Qa7 RHODODENDRON FORMATION (MIOCENE)—Varicolored volcanoclastic rocks and andesite lava flow

CONTACT—Approximately located

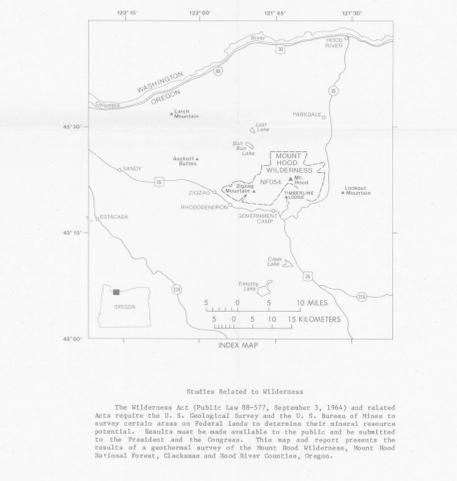
Fault showing dip—Dashed where approximately located, dotted where concealed, quartered where uncertain. Ball and bar on downthrown side

STRIKE AND DIP OF LAVA FLOWS AND BEDDING IN VOLCANICLASTIC LAYERS

BOUNDARY OF MOUNT HOOD WILDERNESS

BOUNDARY OF MOUNT HOOD WILDERNESS RESOURCES AREA (MORA)

Geothermal test well locality—Numbers refer to table 1



References

- Barger, K. E., 1980a, Lithologic log of drill outtings for DOGAMI heat flow hole DO-8, Mount Hood, Oregon. Oregon Department of Geology and Mineral Industries Open-File Report 80-21, 1 p.
- , 1980b, Lithologic log of drill outtings for Northwest Geothermal Corporation drill hole at Mt. Hood, Oregon. Northwest Geothermal Corporation Open-File Report 80-106, 17 p.
- Beeson, M. H., and Meyer, R. J., 1979, Stratigraphy and structure of the Columbia River Basin Group in the Cascade Range, Oregon. In Bull, D. A., and Riccio, J. F., eds., Geothermal resource assessment of Mount Hood. U.S. Department of Energy Contract Number A096-77-EP-28386, report RD-100-01, U.S. Government Printing Office, Washington, D.C., 2-77, 2 p.
- Blackwell, D. W., and Riccio, J. F., eds., 1979, Heat flow modeling of the Mount Hood volcano, Oregon. In Bull, D. A., and Riccio, J. F., eds., Geothermal resource assessment of Mount Hood. U.S. Department of Energy Contract Number A096-77-EP-28386, report RD-100-01, U.S. Government Printing Office, Washington, D.C., p. 19-24.
- Krook, C. A., Marler, R. M., Mabey, D. R., Wasson, J. R., Gifford, W., and Huffer, L. J., 1973, Subterranean convection systems with reservoir temperatures 200°C. In Huffer, L. J., ed., Assessment of geothermal resources of the United States, 1978. U.S. Geological Survey Circular 790, p. 18-25.
- Cover, W. F., and Meyer, R. J., 1979, Geothermal observations near Mt. Hood, Oregon. U.S. Department of Energy Contract Number A096-77-EP-28386, report RD-100-01, U.S. Government Printing Office, Washington, D.C., 38 p.
- Crandell, D. R., 1980, Recent eruptive history of Mount Hood, Oregon, and potential hazards from future eruptions. U.S. Geological Survey Bulletin 1492, 81 p.
- Friedman, J. D., and Frank, David, 1977, Structural and heat-flow implications of inferred anomalies at Mt. Hood, Oregon. U.S. Geological Survey Open-File Report 77-59, 29 p.
- Hull, D. A., and Blackwell, D. W., 1978, Geothermal gradient data, Oregon Department of Geology and Mineral Industries Open-File Report 78-2, 134 p.
- Hull, D. A., and Blackwell, D. W., 1979, Geothermal gradient data, Oregon Department of Geology and Mineral Industries Open-File Report 79-2, 134 p.
- Hull, D. A., and Riccio, J. F., eds., 1979, Geothermal resource assessment of Mount Hood. U.S. Department of Energy Contract Number A096-77-EP-28386, report RD-100-01, U.S. Government Printing Office, Washington, D.C., 273 p.
- Meyer, R. J., Northwest Geothermal Corporation, 1981, written communication.
- Mehring, R. L., Hollenberg, R. A., and Johnston, D. A., 1981, Gas analysis of fumaroles from Mt. Hood, Oregon. U.S. Geological Survey Open-File Report 81-236, 9 p.
- Newton, T. C., Jr., and Bull, D. A., 1978, Geothermal energy in 1977. The Geol. Soc. Am., vol. 1, p. 8-14.
- Oregon Department of Geology and Mineral Industries, 1980, Old Field Flat 7A. Oregon Department of Geology and Mineral Industries Open-File Report 80-11, 139 p.
- Riccio, J. F., 1978, Preliminary geothermal resource map of Oregon. Oregon Department of Geology and Mineral Industries, ODP-11, scale 1:500,000.
- Riccio, J. F., and Gifford, W. E., 1980, Geothermal exploration in Oregon in 1978. Oregon Geology, v. 41, no. 3, p. 39-46.
- Riccio, J. F., and Gifford, W. E., 1981, Geothermal exploration in Oregon in 1979. Oregon Geology, v. 42, no. 4, p. 59-68.
- Robison, J. H., Riccio, J. F., and Gifford, W. E., 1981, Data from geothermal test wells near Mount Hood, Oregon. U.S. Geological Survey Open-File Report 81-100, 24 p.
- Waring, G. A., 1977, Thermal springs in the United States. U.S. Geological Survey Bulletin 1490, 208 p.
- White, C. H., 1980, Geology and geochronology of Mt. Hood volcano. Oregon Department of Geology and Mineral Industries Special Report 8, 25 p.
- William, R. L., and Bull, D. A., 1979, A multi-faceted investigation of the Mt. Hood volcanoes [sic]. Transactions of the American Geophysical Union, v. 60, no. 4, p. 550.
- Hollenberg, R. A., Beeson, M. H., Meyer, R. J., and Strainor, Beverly, 1979, Geothermal studies of rocks, water, and gases at Mt. Hood, Oregon. Oregon Department of Geology and Mineral Industries Open-File Report 79-2, 57 p.

Table 1. Geothermal test holes and wells in the vicinity of Mount Hood Wilderness, Oregon
(DOGAMI, U.S. Geological Survey; DOGAMI, Oregon Department of Geology and Mineral Industries; USFS, U.S. Forest Service; NWG, Northwest Geothermal Corporation; DHR, U.S. Department of Energy; —, data not available or not calculable)

Map Number	Location ¹	Latitude	Longitude	Name of drill site	Date drilled	Drilling organization	Altitude (ft)	Thermal data			Reference		
								Total depth (ft)	Maximum temperature (°C)	Gradient ² (°C/100 ft)		Thermal conductivity ³	
1	Sec. 28Ab, T. 1 S., R. 9 E.	45°27.6'	121°38.0'	Eliot Branch	1980	DOGAMI	860	220	10.3	217	—	19	
2	Sec. 28Ab, T. 1 S., R. 9 E.	45°26.5'	121°43.0'	Clear Branch	1980	DOGAMI	1,250	311	10.9	311	—	19	
3	Sec. 28Ab, T. 1 S., R. 10 E.	45°29.8'	121°33.8'	Fairdale	1978	DOGAMI	560	152	24	55	—	X 4	
4	Sec. 28Ad, T. 1 S., R. 10 E.	45°27.1'	121°34.8'	Bustown Park	1978	DOGAMI	725	152	7.5	80	—	X 4	
5	Sec. 7B, T. 2 S., R. 7 E.	45°24.8'	121°22.2'	Achaff Butte	1977	DOGAMI	890	35	5.6	15	—	9	
6	Sec. 34 Bbd, T. 2 S., R. 8 E.	45°21.5'	121°56.1'	Clear Creek ⁴	—	USFS	442	91	12.8	90	47	35-85	X 4, 10
7	Sec. 10cd, T. 2 S., R. 8 E.	45°25.1'	121°46.1'	Hedge Creek	1979, 1980	DOGAMI	915	610	60.0	605	85	190-605	—
8	Sec. 4Bb, T. 2 S., R. 8 E.	45°24.5'	121°49.5'	Last Chance Mountain	1979	DOGAMI	890	151	13	150	68	75-150	—
9	Sec. 15cc, T. 2 S., R. 8 E.	45°23.8'	121°46.3'	Old Field Flat 7A	1980	DOGAMI	811	1,837	515	1,837	—	—	X 15
10	Sec. 15de, T. 2 S., R. 8 E.	45°23.5'	121°46.5'	Old Field Flat 1, 2	1977, 1978	DOGAMI	838	1,220	82	1,220	55	1,000-1,200	X 3, 4, 6, 15
11	Sec. 17cb, T. 2 S., R. 8 E.	45°23.3'	121°51.6'	Clear Fork	1978	DOGAMI	658	402	23.2	265	63	30-262	X 4, 6, 17
12	Sec. 28Ab, T. 2 S., R. 9 E.	45°22.4'	121°49.3'	Last Creek	1979	DOGAMI	811	131	10.8	131	76	75-131	—
13	Sec. 18bb, T. 3 S., R. 8 E.	45°18.9'	121°42.7'	Zigzag River	1979	DOGAMI	951	287	12	287	19.8	130-287	—
14	Sec. 18cd, T. 3 S., R. 8 E.	45°18.4'	121°46.9'	Laurel Hill	1977	DOGAMI	762	125	10.2	125	34.0	50-120	X 4, 9
15	Sec. 28Ab, T. 3 S., R. 8 E.	45°18.3'	121°45.8'	Thunderbald Lodge	1980	DOGAMI	1,158	530	26.5	530	35	460-530	—
16	Sec. 24Bb, T. 3 S., R. 8 E.	45°18.1'	121°46.5'	Ski Bowl ⁵	—	Private	1,107	60	8.4	60	13	10-60	X 4, 9
17	Sec. 28Ad, T. 3 S., R. 8 E.	45°16.5'	121°54.5'	Still Creek	1978	DOGAMI	722	152	17.6	150	28.2	80-140	X 4, 18
18	Sec. 25cc, T. 3 S., R. 8-12 E.	45°17.2'	121°43.7'	Snow Bunny	1977	DOGAMI	1,168	82.5	7.2	82	—	—	X 1, 4, 9
19	Sec. 25cc	45°17.0'	121°44.2'	Summit Meadows	1979	DOGAMI	1,112	400	21.0	315	54	200-315	—
20	Sec. 30ca, T. 3 S., R. 9 E.	45°20.0'	121°39.6'	Mount Hood Meadows	1980	DOGAMI	1,665	355	11.6	350	—	—	12, 18
21	Sec. 66d, T. 3 S., R. 9 E.	45°19.9'	121°42.3'	Timberline 1	1976	DOGAMI	1,799	115	5	40	—	—	X 4, 16
22	Sec. 7ac, T. 3 S., R. 9 E.	45°19.7'	121°42.6'	Timberline 3	1978	DOGAMI	1,762	821	11	230	—	—	X 4, 16
23	Sec. 7ab, T. 3 S., R. 9 E.	45°19.3'	121°42.8'	Pucci Chairlift	1979, 1980	DOGAMI	1,628	1,220	565.5	1,052	58	950-1052	—
24	Sec. 18cd, T. 3 S., R. 9 E.	45°18.4'	121°46.6'	White River Pit	1979	DOGAMI	1,430	305	15.8	270	—	—	19
25	Sec. 30cd, T. 3 S., R. 9 E.	45°16.9'	121°42.6'	Highway 26 and 35 Junction	1979	DOGAMI	1,107	294	15.3	288	45	175-288	—

¹See Figure 2.
²Where temperature profiles are not linear, gradients are neither calculable nor useful for heat-flow analysis.
³Data available.
⁴Intermittent well.
⁵Not stabilized at time of measurement; true value probably higher.

MAP SHOWING GEOTHERMAL INVESTIGATIONS IN THE VICINITY OF THE MOUNT HOOD WILDERNESS, CLACKAMAS AND HOOD RIVER COUNTIES, OREGON

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1982



Figure 1.—Generalized heat flow map of western Oregon showing physiographic provinces (after Blackwell and Riccio, 1979). Dashed lines are heat flow contours labeled in heat flow units (HFU).



Figure 2.—Explanation of quarter section designation used in table 1. A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, AA, AB, AC, AD, AE, AF, AG, AH, AI, AJ, AK, AL, AM, AN, AO, AP, AQ, AR, AS, AT, AU, AV, AW, AX, AY, AZ, BA, BB, BC, BD, BE, BF, BG, BH, BI, BJ, BK, BL, BM, BN, BO, BP, BQ, BR, BS, BT, BU, BV, BW, BX, BY, BZ, CA, CB, CC, CD, CE, CF, CG, CH, CI, CJ, CK, CL, CM, CN, CO, CP, CQ, CR, CS, CT, CU, CV, CW, CX, CY, CZ, DA, DB, DC, DD, DE, DF, DG, DH, DI, DJ, DK, DL, DM, DN, DO, DP, DQ, DR, DS, DT, DU, DV, DW, DX, DY, DZ, EA, EB, EC, ED, EE, EF, EG, EH, EI, EJ, EK, EL, EM, EN, EO, EP, EQ, ER, ES, ET, EU, EV, EW, EX, EY, EZ, FA, FB, FC, FD, FE, FF, FG, FH, FI, FJ, FK, FL, FM, FN, FO, FP, FQ, FR, FS, FT, FU, FV, FW, FX, FY, FZ, GA, GB, GC, GD, GE, GF, GG, GH, GI, GJ, GK, GL, GM, GN, GO, GP, GQ, GR, GS, GT, GU, GV, GW, GX, GY, GZ, HA, HB, HC, HD, HE, HF, HG, HH, HI, HJ, HK, HL, HM, HN, HO, HP, HQ, HR, HS, HT, HU, HV, HW, HX, HY, HZ, IA, IB, IC, ID, IE, IF, IG, IH, II, IJ, IK, IL, IM, IN, IO, IP, IQ, IR, IS, IT, IU, IV, IW, IX, IY, IZ, JA, JB, JC, JD, JE, JF, JG, JH, JI, JJ, JK, JL, JM, JN, JO, JP, JQ, JR, JS, JT, JU, JV, JW, JX, JY, JZ, KA, KB, KC, KD, KE, KF, KG, KH, KI, KJ, KK, KL, KM, KN, KO, KP, KQ, KR, KS, KT, KU, KV, KW, KX, KY, KZ, LA, LB, LC, LD, LE, LF, LG, LH, LI, LJ, LK, LL, LM, LN, LO, LP, LQ, LR, LS, LT, LU, LV, LW, LX, LY, LZ, MA, MB, MC, MD, ME, MF, MG, MH, MI, MJ, MK, ML, MM, MN, MO, MP, MQ, MR, MS, MT, MU, MV, MW, MX, MY, MZ, NA, NB, NC, ND, NE, NF, NG, NH, NI, NJ, NK, NL, NM, NN, NO, NP, NQ, NR, NS, NT, NU, NV, NW, NX, NY, NZ, OA, OB, OC, OD, OE, OF, OG, OH, OI, OJ, OK, OL, OM, ON, OO, OP, OQ, OR, OS, OT, OU, OV, OW, OX, OY, OZ, PA, PB, PC, PD, PE, PF, PG, PH, PI, PJ, PK, PL, PM, PN, PO, PP, PQ, PR, PS, PT, PU, PV, PW, PX, PY, PZ, QA, QB, QC, QD, QE, QF, QG, QH, QI, QJ, QK, QL, QM, QN, QO, QP, QQ, QR, QS, QT, QU, QV, QW, QX, QY, QZ, RA, RB, RC, RD, RE, RF, RG, RH, RI, RJ, RK, RL, RM, RN, RO, RP, RQ, RR, RS, RT, RU, RV, RW, RX, RY, RZ, SA, SB, SC, SD, SE, SF, SG, SH, SI, SJ, SK, SL, SM, SN, SO, SP, SQ, SR, SS, ST, SU, SV, SW, SX, SY, SZ, TA, TB, TC, TD, TE, TF, TG, TH, TI, TJ, TK, TL, TM, TN, TO, TP, TQ, TR, TS, TT, TU, TV, TW, TX, TY, TZ, UA, UB, UC, UD, UE, UF, UG, UH, UI, UJ, UK, UL, UM, UN, UO, UP, UQ, UR, US, UT, UY, UZ, VA, VB, VC, VD, VE, VF, VG, VH, VI, VJ, VK, VL, VM, VN, VO, VP, VQ, VR, VS, VT, VU, VV, VW, VX, VY, VZ, WA, WB, WC, WD, WE, WF, WG, WH, WI, WJ, WK, WL, WM, WN, WO, WP, WQ, WR, WS, WT, WU, WV, WW, WX, WY, WZ, XA, XB, XC, XD, XE, XF, XG, XH, XI, XJ, XK, XL, XM, XN, XO, XP, XQ, XR, XS, XT, XU, XV, XW, XX, XY, XZ, YA, YB, YC, YD, YE, YF, YG, YH, YI, YJ, YK, YL, YM, YN, YO, YP, YQ, YR, YS, YT, YU, YV, YW, YX, YY, YZ, ZA, ZB, ZC, ZD, ZE, ZF, ZG, ZH, ZI, ZJ, ZK, ZL, ZM, ZN, ZO, ZP, ZQ, ZR, ZS, ZT, ZU, ZV, ZW, ZX, ZY, ZZ.