

AVERY CREEK, OREG.
N4337.5—W11737.5/7.5

Funded jointly by the Oregon Department of Geology and Mineral Industries, the Oregon State Lottery, and the U. S. Geological Survey COGEMAP Program.

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OPEN-FILE REPORT O-92-16
PRELIMINARY GEOLOGIC MAP OF THE
AVERY CREEK QUADRANGLE
MALHEUR COUNTY, OREGON

By Howard C. Brooks

1992

This unpublished Open-File Report has not been reviewed and may not meet all Oregon Department of Geology and Mineral Industries' standards.

Field work conducted in 1991
Map Scale: 1:24,000

Funding Statement: Funded jointly by the Oregon Department of Geology and Mineral Industries, the Oregon State Lottery, and the U. S. Geological Survey COGEOMAP Program as part of a cooperative effort to map the west half of the 1⁰ by 2⁰ Boise sheet, eastern, Oregon.

GEOLOGY AND MINERAL RESOURCES MAP OF THE AVERY CREEK
QUADRANGLE, MALHEUR COUNTY, OREGON

By Howard C. Brooks, Oregon Department of Geology and Mineral Industries. Field work conducted in 1991. Funded jointly by the Oregon Department of Geology and Mineral Industries, the Oregon State Lottery and the U. S. Geological Survey COGEO MAP program as part of a cooperative effort to map the west half of the Boise 1 degree by 2 degree quadrangle.

EXPLANATION

Qal Alluvium (Holocene and Pleistocene)--Unconsolidated and unsorted to well-sorted deposits of gravel, sand, and silt in existing flood plains.

Qls Landslide deposits (Holocene and Pleistocene)--Unconsolidated mix of bedrock, soil and colluvium formed as a result of bedrock failure. The large landslides in the southern part of the quadrangle were caused by failure of incompetent soft sedimentary strata (Tdss) beneath basalt flows (Tsb).

Qtfc Colluvial and alluvial fan deposits (Holocene, Pleistocene, and Pliocene?)-- Mainly alluvial fan and slope deposits consisting of unconsolidated gravel, sand, and silt. Scree, talus, and small slump deposits are common along the margins of tablelands and other steep slopes but are mapped as Qtfc only where underlying strata are indeterminable. Includes wind-blown silt and sand deposits on tablelands benches and ridge tops and in broad valleys. Unmapped accumulations of wind-blown silt and sand locally cover extensive areas of basalt underlying the tablelands in the southern and eastern parts of the quadrangle. Most of the Qtfc deposits along the margins of Cottonwood Creek valley are the remnants of a floodplain that is somewhat older than Qal.

Qtg Terrace gravels (Pleistocene and Pliocene ?)--Unconsolidated, poorly sorted deposits of gravel, sand, and silt exposed on benches and ridge tops above the level of modern flood plains. Qtg deposits have a more tabular pattern of exposure than Qtfc and are an important source of detritus in Qtfc deposits.

Tsb Shumway Ranch Basalt (upper Miocene)--Mostly Dark gray to black, commonly diktytaxitic, olivine basalt flows which form an extensive tableland in the southern part of the quadrangle and northern part of

the adjacent Rufino Butte quadrangle. Thin tuffaceous sedimentary deposits occur locally between flows. Correlative with the Shumurray (sic) Ranch Basalt of Kittleman and others (1965, 1967) a sample of which gave a K/Ar date of 12.4 ma (Fiebelkorn and others, 1983) Varies from 1 to 4 flows from 10 to 40? ft thick.

Tbi Mafic intrusive rocks (Middle Miocene)--Black to dark gray olivine basalt sills, dikes, and irregular shaped bodies intruded into the lower part of unit Tds. Hyaloophitic and subophitic textures. Exposure surfaces typically largely covered by disintegrated basalt. A few exposures are columnar jointed e.g. SW 1\4 Sec. 4, T. 22 S., R. 41 E. An exposure adjacent to Cottonwood Creek in SE 1\4 Sec. 6, T. 22 S., R. 41 E. includes two horizontal layers more than 10 ft thick which may represent different magma injections. A horizontally layered body adjacent to Cottonwood Creek in SE 1\4 Sec. 6, T. 22 S., R. 41 E. may represent two or more magma injections. Unit includes small pendants of silicified country rock. Country rock along margins of the larger Tbi bodies commonly is penetrated and altered by tongues of the basalt.

Tbc Bully Creek Formation (upper Miocene)--Chiefly light gray to white interbedded tuff and tuffaceous diatomite. Includes a few discontinuous ash flow tuff (Tbt) layers up to 20 ft. thick. An ash flow containing rip-up clasts of the underlying tuff beds is exposed in SE 1\4, NE 1\4 sec. 31, T. 21 S., R. 41 E.

Tdmv Mafic volcanic rocks (middle Miocene)--Gray aphyric and porphyritic basalt and basaltic andesite flows.

Drip Springs Formation (Miocene)--here divided into the following units.

Tdsb Small isolated exposures of basalt interlayered with Tdss deposits. Typically aphyric, locally highly vesicular.

Tdss Light gray to white interbedded tuffaceous sedimentary rocks and tuff, arkosic sandstone, and rhyolite and obsidian clast conglomerate, pumice lapilli tuff breccia, and diatomaceous tuff. The section along the Crowley road in sec. 10, T. 21 S., R. 41 E. is more than 300 ft thick. Rhyolite and obsidian clast conglomerate deposits form the upper part of the unit and stratigraphically overlap

basalt flows of Tdmv.

Tdst Pyroclastic breccia: 90-95 percent gray, weakly agglutinated tuff, fine cinders, and glass fragments and 5-10 percent accidental basalt fragments up to 4 ft. across.

Tds Chiefly tuffaceous siltstone and fine sandstone and silicic tuff. Unit typically is mantled by yellowish soil containing abundant chips of dense, iron stained, white to light gray silicic tuff.

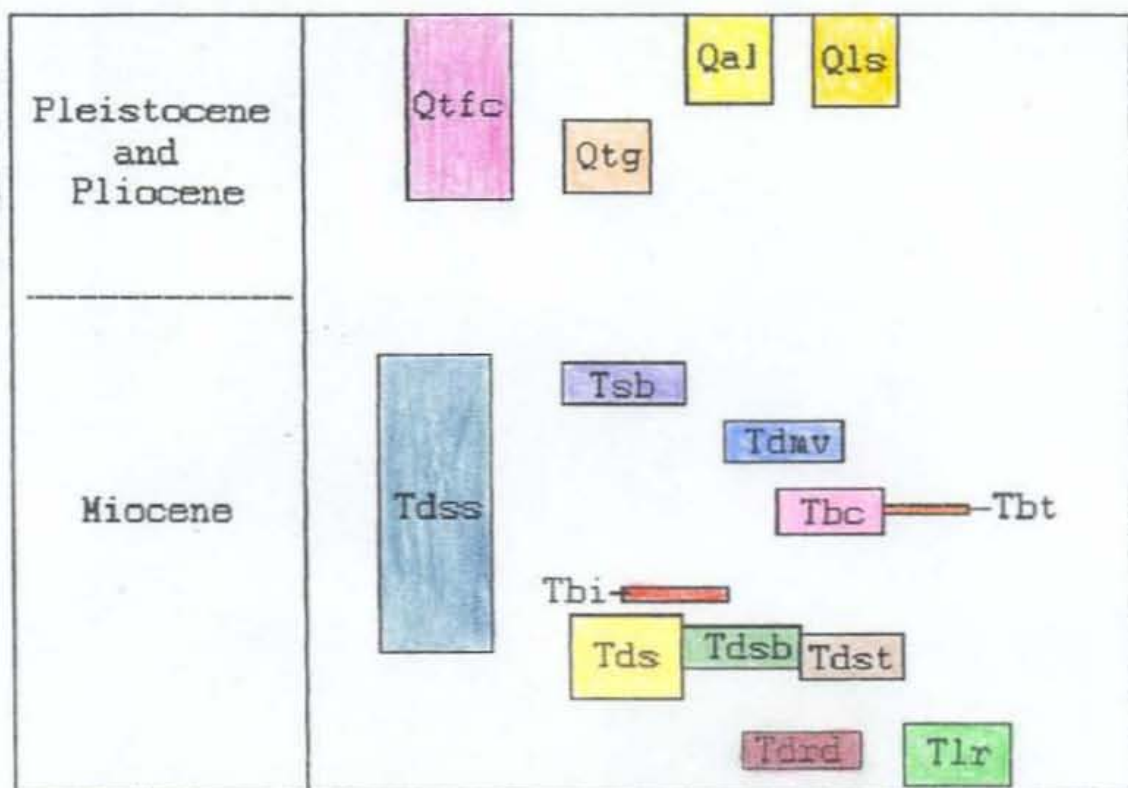
Tdrd Rhyodacite of the Dry Creek igneous complex (Miocene) Chiefly plagioclase and pyroxene phyric rhyodacite (Sample F, Table 1). Part of basalt and rhyolite igneous complex mapped to the south in the Rufino Butte quadrangle (Brooks, 19923).

Tlr Littlefield Rhyolite (Miocene)--Chiefly lithoidal rhyolite flows and flow breccias. Includes vitrophyre locally.

*Chemical analyses of samples from several units are shown in the accompanying tables.

REFERENCES

Brooks, H.C., 1992, Preliminary geologic map of the Rufino Butte quadrangle, Malheur County, Oregon: Oregon Department of Geology and Mineral Industries Open-File Map O-92-17.



Correlation chart, Avery Creek quadrangle

MAP SYMBOLS

Contact -- approximately located



Fault contact -- dashed where approximately located, dotted where concealed. Ball and bar on down throw side



Strike and dip of beds



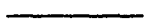
Location of whole rock sample analyzed in Table 1

TABLE 1. WHOLE ROCK ANALYSES, AVERY CREEK QUADRANGLE, MALHEUR COUNTY, OREGON

Map no.	Laboratory no.	Field no.	1/4	1/4	Sec.	T.(S.)	R.(E.)	UTM Coordinates	Elev. ft.	Lithology	Map unit	SiO ₂	Al ₂ O ₃	TiO ₂	Fe ₂ O ₃	MnO	CaO	MgO	K ₂ O	Na ₂ O	P ₂ O ₅	LOI	Total	Cr	Rb	Sr	Y	Zr	Nb	Ba	Co	Cu	U	Mn	Ni	Zn
A	AZB-309	B-91-77	SW	SE	13	21	41	4842618N 448590E	3,280	Basaltic andesite	Tdmv	52.8	16.0	1.36	9.50	0.18	8.21	5.01	1.47	3.46	0.59	1.39	100.0	93	41	572	10	185	46	633	26	61.2	9.9	495	65	94.9
B	AZB-310	B-91-9	NE	SW	19	21	41	4841606N 440120E	3,460	Rhyolite	Tlr	72.7	12.3	0.429	3.12	0.04	0.74	0.27	4.00	4.58	0.07	1.08	99.7	<10	124	185	137	600	56	2210	<5	1.2	11.0	171	<5	140
C	AZB-311	B-91-21	NE	NW	31	21	41	4839120N 440320E	3,480	Rhyolite	Tlr	71.3	12.3	0.440	4.87	0.04	0.63	0.22	4.09	4.29	0.08	1.23	99.9	<10	129	168	92	608	55	2120	<5	0.8	15.5	172	<5	150
D	AZB-308	B-91-36	SW	SE	34	21	41	4837864N 445500E	3,950	Basaltic andesite	Tdmv	53.1	15.9	1.35	9.69	0.18	8.11	5.20	1.73	3.32	0.59	1.23	100.6	87	39	595	21	190	11	718	25	65.5	9.3	947	65	95.0
E	AZB-305	B-91-38	NW	SE	2	22	41	4836890N 446925E	4,210	Basaltic andesite	Tdmv	53.1	16.9	1.70	7.86	0.13	9.73	4.06	1.24	3.61	0.65	1.23	100.4	124	27	662	35	181	31	739	24	47.6	5.5	783	58	106
F	AZB-307	B-91-14	SE	SE	5	22	41	4836470N 442606E	3,380	Basalt	Tbl	48.3	15.7	1.27	12.4	0.20	10.4	7.28	0.36	2.69	0.35	1.47	100.5	78	13	376	<10	93	20	248	35	137	10.3	519	93	93.2
G	AZB306	B-91-39	SE	SE	2	22	41	4836120N 447360E	4,480	Basalt	Tab	48.6	15.9	1.92	12.4	0.20	9.39	6.33	0.94	3.00	0.56	0.47	99.9	159	17	481	41	153	26	691	34	46.9	9.9	603	94	110
H	AZB-300	B-91-106	SW	SE	10	22	41	4834690N 445540E	4,100	Rhyolite	Tlr	64.3	16.7	1.24	3.23	0.04	3.25	0.60	3.36	0.04	0.44	0.62	99.5	13	68	494	50	376	46	1380	8	7.3	12.7	221	5	111
I	AZB-315	B-91-94	SE	SW	13	22	41	4833180N	4,180	Basalt	Tdmv	50.9	15.8	1.60	11.1	0.17	9.17	4.94	0.99	3.29	0.57	1.77	100.5	95	35	606	26	164	31	652	30	63.7	11.6	1174	69	107

Avery Creek Quadrangle

MAP SYMBOLS



Contact -- approximately located



Fault contact -- dashed where approximately located, dotted where concealed. Ball and bar on down throw side



Strike and dip of beds



Location of whole rock sample analyzed in Table 1

