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GEOLOGIC MAP OF THE NORTHWEST PART OF THE GOLDENDALE QUADRANGLE, WASHINGTON

Compiled by

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INTRODUCTION

This map is one of a series of 1:100,000-scale geologic maps compiled by staff geologists of the Division of Geology and Earth Resources. Other maps in the series are available for all 1:100,000-scale quadrangles within the southwest quadrant, that is, south of 47°15' north latitude and west of 120°30' west longitude, except for the Wenatchee and Snoqualmie Quadrangles which are available as U.S. Geological Survey Maps.

The 1:100,000-scale maps in this series that have been released to date are:

Korosec, M. A., compiler, 1987, Geologic map of the Mount Adams quadrangle, Washington: Washington Division of Geology and Earth Resources Open File Report 87-5, 41 p., 1 pl., scale 1:100,000

Korosec, M. A., compiler, 1987, Geologic map of the Hood River quadrangle, Washington and Oregon: Washington Division of Geology and Earth Resources Open File Report 87-6, 42 p., 1 pl., scale 1:100,000

Logan, R. L., compiler, 1987, Geologic map of the Chehalis River and Westport quadrangles, Washington: Washington Division of Geology and Earth Resources Open File Report 87-8, 18 p., 1 pl., scale 1:100,000

Logan, R. L., compiler, 1987, Geologic map of the south half of the Shelton and the south half of the Copalis Beach quadrangles, Washington: Washington Division of Geology and Earth Resources Open File Report 87-9, 17 p., 1 pl., scale 1:100,000

Phillips, W. M., compiler, 1987, Geologic map of the Mount St. Helens quadrangle, Washington and Oregon: Washington Division of Geology and Earth Resources Open File Report 87-4, 63 p., 1 pl., scale 1:100,000

Phillips, W. M., compiler, 1987, Geologic map of the Vancouver quadrangle, Washington and Oregon: Washington Division of Geology and Earth Resources Open File Report 87-10, 32 p., 1 pl., scale 1:100,000

Phillips, W. M.; Walsh, T. J., compilers, 1987, Geologic map of the northwest part of the Goldendale quadrangle, Washington: Washington Division of Geology and Earth Resources Open File Report 87-13, 9 p., 1 pl., scale 1:100,000

Schasse, H. W., compiler, 1987, Geologic map of the Centralia quadrangle, Washington: Washington Division of Geology and Earth Resources Open File Report 87-11, 27 p., 1 pl., scale 1:100,000

Schasse, H. W., compiler, 1987, Geologic map of the Mount Rainier quadrangle, Washington: Washington Division of Geology and Earth Resources Open File Report 87-16, 43 p., 1 pl., scale 1:100,000

Walsh, T. J., compiler, 1986, Geologic map of the west half of the Toppenish quadrangle, Washington: Washington Division of Geology and Earth Resources Open File Report 86-3, 8 p., 1 pl., scale 1:100,000

Walsh, T. J., compiler 1986, Geologic map of the west half of the Yakima quadrangle, Washington: Washington Division of Geology and Earth Resources Open File Report 86-4, 12 p., 1 pl., scale 1:100,000

Walsh, T. J., compiler, 1987, Geologic map of the Astoria and Ilwaco quadrangles, Washington and Oregon: Washington Division of Geology and Earth Resources Open File Report 87-2, 30 p., 1 pl., scale 1:100,000

Walsh, T. J., compiler, 1987, Geologic map of the south half of the Tacoma quadrangle, Washington: Washington Division of Geology and Earth Resources Open File Report 87-3, 12 p., 1 pl., scale 1:100,000

Igneous rocks are classified according to Travis (1955). If geochemical data are available, volcanic rocks are classified according to the current classification of the International Union of Geological Sciences (Zanettin, 1984).

The geologic time scale for this map is basically that used for the "Correlation of Stratigraphic Units of North America (COSUNA)" project of the American Association of Petroleum Geologists (Salvador, 1985). Additions and modifications were made following Armentrout and others (1983), Montanari and others (1985), Prothero and Armentrout (1985), and Aguirre and Pasini (1985). These modifications entailed addition of regional floral and faunal zonations, placing the Eocene-Oligocene boundary at 35.7 m.y.b.p. and within the Refugian foraminiferal stage, and setting the Pliocene-Pleistocene boundary to 1.6 m.y.b.p.

DESCRIPTION OF MAP UNITS OF THE NORTHWEST PART OF THE GOLDENDALE QUADRANGLE, WASHINGTON

Quaternary Unconsolidated Deposits

Qal

Alluvium (Holocene)--River and stream deposits of silt, sand and gravel. Along the Columbia River, composed of mixed lithologies. Along sidestreams, composed almost entirely of basalt with rare to abundant reworked clasts of quartzite (Anderson, 1983, 1986).

Qaf

Alluvial fan deposits (upper Pleistocene to Holocene)--Sand, gravel and boulders, mainly of basaltic composition. Includes layers of reworked loess and debris flows. Mostly younger than flood deposits (unit Qf) (Anderson, 1983, 1986).

Qls

Landslide deposits--Basalt and lesser sedimentary rock blocks in a matrix of finer debris. Blocks up to hundreds of meters long. Top of Grande Ronde Basalt is the most common basal slip surface. Maximum thickness approximately 70 m (Anderson, 1983; 1986). Also includes angular, unconsolidated basaltic talus deposited at the base of cliffs (Anderson, 1986).

Qlo

Loess--Pale orange to brown silt and fine sand. Contains some caliche and ash layers. Thickness highly variable. Includes the Palouse Formation and all younger loess (Anderson, 1986).

Qf

Missoula flood deposits, undifferentiated (upper Pleistocene)--Loosely to semi-consolidated silt, sand, and gravel of diverse composition. Consists of high-energy foreset-bedded gravel and sand deposits, and low energy (slackwater) parallel bedded silt and sand deposits. Includes eolian dune sand derived from these deposits (Anderson, 1986). Deposited by multiple catastrophic floods caused by rapid draining of glacial Lake Missoula.

QTg

Older alluvium (upper Miocene ? to lower Pleistocene)--Light brown to yellowish-gray gravel, sand, silt, clay and tuff. Consists of weakly to moderately indurated fluvial and locally paludal deposits containing basaltic, andesitic, metamorphic, and quartzo-feldspathic clasts. Maximum thickness greater than 60 m (Anderson, 1983).

Simcoe Mountains Volcanics (Pliocene to lower Pleistocene)

QTsr

Rhyolite and associated volcaniclastic deposits--Light to dark gray or light brown, flow banded, porphyritic rhyolite. Includes domes, flows, debris flows, breccia, and tuff. Erupted from vents in the Indian Rock area. Interstratified with olivine basalt (unit QTsb). Maximum exposed thickness greater than 500 m (Anderson, 1983).

QTsd

Dacite--Light to dark gray, flow-banded, glassy, porphyritic dacite. Contains phenocrysts of plagioclase, olivine, clinopyroxene, hypersthene, and oxyhornblende (Sheppard 1960, 1967). Overlies flows of olivine basalt (unit QTsb) and rhyolite deposits (unit QTsr). Erupted from a single dome (Anderson, 1983).

QTsb

Olivine basalt--Medium-gray to medium dark-gray, fine-to medium-grained plagioclase- and olivine-phyric basalt. Occurs in stacked flow sequences or intracanyon flows. Contains minor interstratified volcaniclastic deposits. Age spans the Pliocene (whole rock K/Ar dates of 3.77, 3.87, 4.06, and 4.79 m.y.b.p.) to early Pleistocene (K/Ar age of 0.9 m.y. for Haystack Butte flow)(Anderson, 1986).

QTsv

Vent facies--Red to dark gray, unconsolidated and poorly sorted basaltic cinder and scoria produced by near-vent and vent eruptive processes. Includes bombs, spatter, cowpie pahoehoe, breccia and agglutinate. Occurs in cinder cones as much as 50 m high (Anderson, 1986).

Tertiary Sedimentary Rocks

Tdl

The Dalles Formation (lower to middle Pliocene)--"Thickly bedded gray and buff volcanic-sedimentary and sedimentary deposists of agglomerate, pumiceous tuff, tuff breccia, tuff, volcanic ash, conglomerate, sandstone, siltstone, and shale....Maximum thickness about 660 m" (Newcomb, 1969, plate 1).

Tel

Ellensburg Formation (upper Miocene)--Light brown to yellowish gray, weakly to moderately indurated gravel or conglomerate, sand, silt, and clay. Gravel is most abundant and consists of basaltic, andesitic, and metamorphic clasts including quartzite. Conglomerate contains a sandy matrix that is locally micaceous. Maximum thickness about 15 m. Unit was deposited by ancestral Columbia River and tributary streams. Conformably overlies Columbia River Basalt Group and is unconformably overlain by olivine basalt of the Simcoe Volcanics (Anderson, 1983).

Columbia River Basalt Group

Yakima Basalt Subgroup

Wanapum Basalt (middle Miocene)

Twp

Priest Rapids Member--Gray black, rusty-brown weathering, medium- to coarse-grained basalt. Very sparsely phyric with rare plagioclase glomerocrysts 0.5-1.0 cm long. Typically forms blocky columns or vertical platy joints. Locally pillowed at base. Possesses reversed magnetic polarity. Two flows present locally, including the Rosalia chemical type and Lolo chemical type. Age approximately 13.6 m.y. (Anderson, 1983).

Twr

Roza Member--Medium dark gray, pale brown to yellowish gray weathering, fine- to medium-grained basalt with abundant plagioclase phenocrysts up to 1.0 cm in length. Flow top is locally aphyric. Locally pillowed at base. Typically has well-developed colonnade; locally possesses an entablature near flow margins. Closely resembles the basal Frenchman Springs flow. Possesses transitional magnetic polarity (Anderson, 1983).

Twf

Frenchman Springs Member, undivided--Consists of three flow types distinguishable on the basis of phenocryst distribution and geochemistry. The flow types follow the usage of Beeson and others (1985) and are arranged from stratigraphically highest to lowest below.

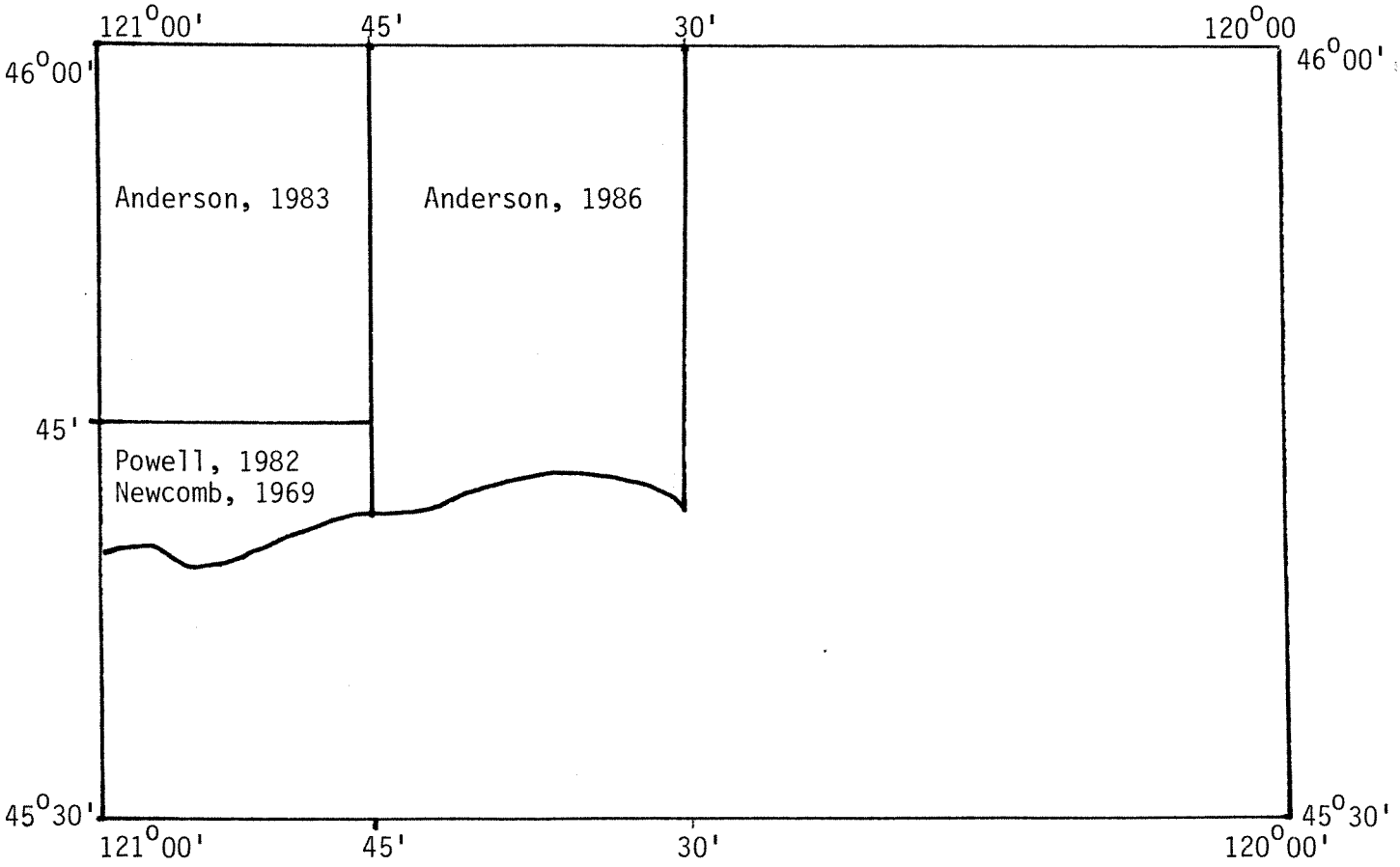
Sentinal Gap flow type is medium dark gray, fine to coarse grained, generally aphryic basalt with irregular columnar to vertical platy jointing. Rare plagioclase phenocrysts up to 1.5 cm in length are present.

Sand Hollow flow type is medium dark gray, medium-grained, aphyric to plagioclase-phyric basalt. Phenocrysts are rare to abundant with individual crystal clusters up to 2.5 cm in diameter. Commonly has well-developed blocky to platy lower colonnade. The center of flows often contain vertical platy jointing. Maximum thickness is about 60 m (Anderson, 1983; 1986).

Gingko flow type is medium dark gray basalt with abundant plagioclase phenocrysts or glomerocrysts 1 to 1.5 cm in diameter. Typically consists of one flow but locally two are present. Thickness of the Ginko flow or flows is about 60 m. In many places overlies sedimentary interbeds of the Vantage Member of the Ellensburg Formation (not mapped separately) and is commonly pillowed at base.

Tgn_2, Tgr_2

Grande Ronde Basalt (middle Miocene)--Dark gray, fine- to very fine grained, aphyric to very sparsely plagioclase-phyric basaltic andesite. Possesses uniform lithologic and petrologic characteristics within the map area. Divisible informally on the basis of MgO content and paleomagnetic polarity. Only high-MgO chemical type Grand Ronde Basalt is present within the map area. Magnetostratigraphic units present are: N_2 magnetostratigraphic unit (Tgn_2) and R_2 magnetostratigraphic unit (Tgr_2).



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