

Metadata:

Identification_Information:

Citation:

Citation_Information:

Originator: R.W. Tabor

Originator: V.A. Frizzell, Jr.

Originator: D.B. Booth

Originator: R.B. Waitt

Originator: J.T. Whetten

Originator: R.E. Zartman

Publication_Date: 1993

Title:

Geologic map of the Skykomish River 30- by 60-Minute
Quadrangle, Washington

Edition: 1.1

Geospatial_Data_Presentation_Form: vector digital data

Series_Information:

Series_Name: U.S. Geological Survey Miscellaneous Investigation Series

Issue_Identification: I-1963

Publication_Information:

Publication_Place: Menlo Park, Calif.

Publisher: U.S. Geological Survey

Online_Linkage: <http://pubs.usgs.gov/imap/i1963/>

Description:

Abstract:

This digital map database has been prepared from the published geologic map of the Skykomish River 30- by 60-minute quadrangle by the senior author. Together with the accompanying text files as PDF, it provides information on the geologic structure and stratigraphy of the area covered. The database delineates map units that are identified by general age and lithology following the stratigraphic nomenclature of the U.S. Geological Survey. The authors mapped most of the bedrock geology at 1:100,000 scale, but compiled Quaternary units at 1:24,000 scale. The Quaternary contacts and structural data have been much simplified for the 1:100,000-scale map and database. The spatial resolution (scale) of the database is 1:100,000 or smaller.

From the eastern-most edges of suburban Seattle, the Skykomish River quadrangle stretches east across the low rolling hills and broad river valleys of the Puget Lowland, across the forested foothills of the North Cascades, and across high meadowlands to the bare rock peaks of the Cascade crest. The Straight Creek Fault, a major Pacific Northwest structure which almost bisects the quadrangle, mostly separates unmetamorphosed and low-grade metamorphic Paleozoic and Mesozoic oceanic rocks on the west from medium- to high-grade metamorphic rocks on the east. Within the quadrangle the lower grade rocks are mostly Mesozoic melange units. To the east, the higher-grade terrane is mostly the Chiwaukum Schist and related gneisses of the Nason terrane and invading mid-Cretaceous stitching plutons. The Early Cretaceous Easton Metamorphic Suite crops out on both sides of the Straight Creek fault and records its dextral displacement. On the south margin of the quadrangle, the fault separates the lower Eocene

Swauk Formation on the east from the upper Eocene and Oligocene(?) Naches Formation and, farther north, its correlative Barlow Pass Volcanics the west. Stratigraphically equivalent rocks of the Puget Group crop out farther to the west. Rocks of the Cascade magmatic arc are mostly represented by Miocene and Oligocene plutons, including the Grotto, Snoqualmie, and Index batholiths. Alpine river valleys in the quadrangle record multiple advances and retreats of alpine glaciers. Multiple advances of the Cordilleran ice sheet, originating in the mountains of British Columbia, Canada, have left an even more complex sequence of outwash and till along the western mountain front, up these same alpine river valleys, and over the Puget Lowland.

Purpose:

This database and accompanying plot files depict the distribution of geologic materials and structures at a regional (1:100,000) scale. The report is intended to provide geologic information for the regional study of materials properties, earthquake shaking, landslide potential, mineral hazards, seismic velocity, and earthquake faults. In addition, the report contains new information and interpretations about the regional geologic history and framework. However, the regional scale of this report does not provide sufficient detail for site development purposes.

Supplemental Information

DIGITAL COMPILATION- The geologic map information was scanned from a stable ink-on-mylar author compilation at 1:100,000 scale. The scanned digital image was used produce color fill on the Scitex. The digital image of polygons was vectorized and later edited by R.W. Tabor to produce an ARC/INFO coverage complete with faults etc. Structural data was hand-digitized from scanned and georeferenced paper copy of the published map.

The original digital compilation was done in version 7.1.1 of ARC/INFO with version 3.0 of the menu interface ALACARTE (Fitzgibbon and Wentworth, 1991, Fitzgibbon, 1991, Wentworth and Fitzgibbon, 1991). Export files for this release were edited and created in 9.1 ARC/INFO.

BASE MAP-The geology of this dataset was mapped on dimensionally stable chronflex prints of the Skykomish River 1:100,000 scale topographic quadrangle. Although no base map material is included in this dataset, a vectorized version of the base can be downloaded from

<http://edcftp.cr.usgs.gov/pub/data/DLG/100K/S/>.

SPATIAL RESOLUTION- Uses of this digital geologic map should not violate the spatial resolution of the data. Although the digital form of the data removes the constraint imposed by the scale of a paper map, the detail and accuracy inherent in map scale are also present in the digital data. The fact that this database was edited for a scale of 1:100,000 means that higher resolution information is not present in the dataset. Plotting at scales larger than 1:100,000 will not yield greater real detail, although it may reveal fine-scale irregularities below the intended resolution of the database. Similarly, where this database is used in combination with other data of higher resolution, the resolution of the combined output will be limited by the lower resolution of these data.

Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1993 (paper); 2006 (digital database)

Currentness_Reference: publication date

Status:

Progress: Complete

Maintenance_and_Update_Frequency: As needed

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -122.009569

East_Bounding_Coordinate: -120.980758

North_Bounding_Coordinate: 48.013061

South_Bounding_Coordinate: 47.486923

Keywords:

Theme:

Theme_Keyword_Thesaurus: none

Theme_Keyword: alpine glaciation

Theme_Keyword: Bald Mountain pluton

Theme_Keyword: Barlow Pass Volcanics

Theme_Keyword: bedrock geology

Theme_Keyword: Chiwaukum Schist

Theme_Keyword: Cordilleran Ice Sheet

Theme_Keyword: Darrington Phyllite

Theme_Keyword: Eastern melange belt

Theme_Keyword: Easton Metamorphic Suite

Theme_Keyword: Easton terrane

Theme_Keyword: fault offset

Theme_Keyword: Fraser glaciation

Theme_Keyword: geologic history

Theme_Keyword: geologic structures

Theme_Keyword: geology

Theme_Keyword: Index batholith

Theme_Keyword: Ingells Tectonic Complex

Theme_Keyword: Mazama ash

Theme_Keyword: melange

Theme_Keyword: metamorphism

Theme_Keyword: Mount Stuart batholith

Theme_Keyword: Nason terrane

Theme_Keyword: North Cascades

Theme_Keyword: Puget Group

Theme_Keyword: rock samples

Theme_Keyword: Shuksan Greenschist

Theme_Keyword: Sloan Creek plutons

Theme_Keyword: Snoqualmie batholith

Theme_Keyword: Straight Creek Fault

Theme_Keyword: surficial geology

Theme_Keyword: Swauk Formation

Theme_Keyword: Tenpeak Mountain pluton

Theme_Keyword: terrane overlap units

Theme_Keyword: Tonga Formation
Theme_Keyword: Western melange belt

Place

Place_Keyword_Thesaurus: none
Place_Keyword: Skykomish River
Place_Keyword: Washington
Place_Keyword: King County
Place_Keyword: Snohomish County
Place_Keyword: Chelan County
Place_Keyword: Kittitas County

Access_Constraints: none

Use_Constraints:

Uses of this digital geologic map should not violate the spatial resolution of the data. Although the digital form of the data removes the constraint imposed by the scale of a paper map, the detail and accuracy inherent in map scale are also present in the digital data. The fact that this database was edited for a scale of 1:100,000 means that higher resolution information is not present in the dataset. Plotting at scales larger than 1:100,000 will not yield greater real detail, although it may reveal fine-scale irregularities below the intended resolution of the database. Similarly, where this database is used in combination with other data of higher resolution, the resolution of the combined output will be limited by the lower resolution of these data.

Native_Data_Set_Environment: Microsoft Windows 2000 Version 5.0 (Build 2195)
Service Pack 4; ESRI ArcCatalog 9.0.0.535
Spatial_Data_Organization_Information:

Spatial_Data_Organization_Information: skygeology is contact, fault, and polygon coverage; skylines is icecap margin, fold axes, and cross section line coverage; skypoints is locations of age samples, fossils, small ultramafic rock bodies, small bodies of limestone or marble and approximate center of morainal embankment; skystructure is structural symbols: bedding, foliation, lineation, and fault balls (These symbols will not show on screen or plot without appropriate symbol sets available in Alacarte); skyrocksamp is a point coverage of rock samples archived at North Cascades National Park, Marblemount. For more information about the rock samples contact the curator at Marblemount, telephone 360 873 4500

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Planar:

Map_Projection:

Map_Projection_Name: Transverse Mercator

Transverse_Mercator:

Scale_Factor_at_Central_Meridian: 0.999600
Longitude_of_Central_Meridian: -123.000000
Latitude_of_Projection_Origin: 0.000000
False_Easting: 500000.000000

False_Northing: 0.000000
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: coordinate pair
Coordinate_Representation:
Abscissa_Resolution: 0.000128
Ordinate_Resolution: 0.000128
Planar_Distance_Units: meters
Geodetic_Model:
Horizontal_Datum_Name: D_Clarke_1866
Ellipsoid_Name: Clarke 1866
Semi-major_Axis: 6378206.400000
Denominator_of_Flattening_Ratio: 294.978698
Spatial_Data_Organization_Information: skygeology:
Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Complete chain
Point_and_Vector_Object_Count: 4558
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Label point
Point_and_Vector_Object_Count: 1989
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: GT-polygon composed of chains
Point_and_Vector_Object_Count: 1989
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Point
Point_and_Vector_Object_Count: 45
Entity_and_Attribute_Information:
Detailed_Description:
Entity_Type:
Entity_Type_Label: skygeology.aat
Attribute:
Attribute_Label: FID
Attribute_Definition: Internal feature number.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain: Sequential unique whole numbers that are
automatically generated.
Attribute:
Attribute_Label: Shape
Attribute_Definition: Feature geometry.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain: Coordinates defining the features.
Attribute:
Attribute_Label: FNODE#
Attribute_Definition: Internal node number for the beginning of an arc
(from-node).

Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain: Whole numbers that are automatically generated.

Attribute:
Attribute_Label: TNODE#
Attribute_Definition: Internal node number for the end of an arc (to-node).
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain: Whole numbers that are automatically generated.

Attribute:
Attribute_Label: LPOLY#
Attribute_Definition: Internal node number for the left polygon.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain: Whole numbers that are automatically generated.

Attribute:
Attribute_Label: RPOLY#
Attribute_Definition: Internal node number for the right polygon.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain: Whole numbers that are automatically generated.

Attribute:
Attribute_Label: LENGTH
Attribute_Definition: Length of feature in internal units.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain: Positive real numbers that are automatically generated.

Attribute:
Attribute_Label: SKYGEOLOGY#
Attribute_Definition: Internal feature number.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain: Sequential unique whole numbers that are automatically generated.

Attribute:
Attribute_Label: SKYGEOLOGY-ID
Attribute_Definition: User-defined feature number.
Attribute_Definition_Source: ESRI

Attribute:
Attribute_Label: LTYPE
Attribute_Definition: Geologic contact description
Attribute_Definition_Source: Author
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: contact, certain

Enumerated_Domain_Value_Definition: Boundary between geologic units established in reconnaissance mapping by authors or compiled from other workers

Enumerated_Domain:

Enumerated_Domain_Value: contact, concealed

Enumerated_Domain_Value_Definition: Boundary between geologic units that is concealed by a younger units

Enumerated_Domain:

Enumerated_Domain_Value: contact, gradational

Enumerated_Domain_Value_Definition: Boundary between geologic units that is indefinite or gradational

Enumerated_Domain:

Enumerated_Domain_Value: normal fault, certain

Enumerated_Domain_Value_Definition: Trace of fault established in reconnaissance mapping by authors or compiled from other workers

Enumerated_Domain:

Enumerated_Domain_Value: normal fault, inferred

Enumerated_Domain_Value_Definition Uncertain location of fault; positional accuracy uncertain but general location inferred from indirect evidence

Enumerated_Domain:

Enumerated_Domain_Value: normal fault, concealed

Enumerated_Domain_Value_Definition: Trace of fault concealed by younger unit; positional accuracy uncertain

Enumerated_Domain_Value: thrust fault, inferred

Enumerated_Domain_Value_Definition Uncertain location of fault; positional accuracy uncertain but general location inferred from indirect evidence

Enumerated_Domain_Value: fault, probable

Enumerated_Domain_Value_Definition: probable location of buried fault based on gravity anomalies

Enumerated_Domain:

Enumerated_Domain_Value: map boundary

Enumerated_Domain_Value_Definition: map boundary of this 1:100,000 study

Enumerated_Domain:

Enumerated_Domain_Value: glacier boundary

Enumerated_Domain_Value_Definition: Boundary of glacier derived from Skykomish River 1:100,000 scale topographic map

Enumerated_Domain:

Enumerated_Domain_Value: water boundary

Enumerated_Domain_Value_Definition: Boundary of open water derived from Skykomish River 1:100,000 scale topographic map

Enumerated_Domain_Value: arrow, certain

Enumerated_Domain_Value_Definition: landslide arrow showing direction of landslide. Includes broken arrows in incipient blockslide areas

Enumerated_Domain_Value: incipient slide boundary

Enumerated_Domain_Value_Definition: boundary of incipient blockslide of large unrotated mass of bedrock extensively crevassed by slight movement

toward free faces (labeled Qib on published map and with broken arrow in downslope direction).

Detailed_Description:

Entity_Type:

Entity_Type_Label: skygeology.pat

Attribute:

Attribute_Label: FID

Attribute_Definition: Internal feature number.

Attribute_Definition_Source: ESRI

Attribute_Domain_Values:

Unrepresentable_Domain: Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute_Label: Shape

Attribute_Definition: Feature geometry.

Attribute_Definition_Source: ESRI

Attribute_Domain_Values:

Unrepresentable_Domain: Coordinates defining the features.

Attribute:

Attribute_Label: AREA

Attribute_Definition: Area of feature in internal units squared.

Attribute_Definition_Source: ESRI

Attribute_Domain_Values:

Unrepresentable_Domain: Positive real numbers that are automatically generated.

Attribute:

Attribute_Label: PERIMETER

Attribute_Definition: Perimeter of feature in internal units.

Attribute_Definition_Source: ESRI

Attribute_Domain_Values:

Unrepresentable_Domain: Positive real numbers that are automatically generated.

Attribute:

Attribute_Label: SKYGEOLOGY#

Attribute_Definition: Internal feature number.

Attribute_Definition_Source: ESRI

Attribute_Domain_Values:

Unrepresentable_Domain: Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute_Label: SKYGEOLOGY-ID

Attribute_Definition: User-defined feature number.

Attribute_Definition_Source: ESRI

Attribute:

Attribute_Label: PTYPE

Attribute_Definition: symbol of geologic unit

Attribute_Definition_Source: Author

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: m

Enumerated_Domain_Value_Definition: SURFICIAL DEPOSITS: Man-modified land (Holocene)-Gravel or diamicton as fill, or extensively graded areas

Enumerated_Domain:

Enumerated_Domain_Value: Ql

Enumerated_Domain_Value_Definition: SURFICIAL DEPOSITS: Landslide deposits (Holocene and Pleistocene): Landslide-Diamicton of angular clasts of bedrock and surficial deposits derived from upslope. Many shown with no letter symbol; arrows denote downslope direction of movement. Includes areas of irregular, hummocky topography; apparently underlain by locally derived rock fragments (shown by map unit symbol Ql?)

Enumerated_Domain:

Enumerated_Domain_Value: Qra

Enumerated_Domain_Value_Definition: SURFICIAL DEPOSITS: Landslide deposits (Holocene and Pleistocene): Rock-avalanche deposits-Huge angular boulders on or at base of steep slope

Enumerated_Domain:

Enumerated_Domain_Value: Qmw

Enumerated_Domain_Value_Definition: SURFICIAL DEPOSITS: Mass-wastage deposits (Holocene and Pleistocene)-Colluvium or landslide debris with indistinct morphology, mapped where sufficiently continuous and thick to obscure underlying material. Unit is gradational with units Qa and Ql

Enumerated_Domain:

Enumerated_Domain_Value: Qt

Enumerated_Domain_Value_Definition: SURFICIAL DEPOSITS: Talus deposits (Holocene and Pleistocene)-Angular-gravel diamicton. At lower altitudes, gradational with unit Qa. At higher altitudes, includes deposits of some Holocene moraines, rock glaciers, and protalus ramparts, small rock avalanches. Generally not vegetated

Enumerated_Domain:

Enumerated_Domain_Value: Qa

Enumerated_Domain_Value_Definition: SURFICIAL DEPOSITS: Alluvium (Holocene and Pleistocene)-Moderately sorted pebble-to-cobble gravel along rivers to poorly sorted gravelly sand on small-tributary fans; some fan material similar to that included in unit Qt

Enumerated_Domain:

Enumerated_Domain_Value: Qb

Enumerated_Domain_Value_Definition: SURFICIAL DEPOSITS: Bog deposits (Holocene and Pleistocene)-Peat and alluvium. Poorly drained and at least intermittently wet annually. Grades into unit Qa

Enumerated_Domain:

Enumerated_Domain_Value: Qgp

Enumerated_Domain_Value_Definition: SURFICIAL DEPOSITS: DEPOSITS RELATED TO ALPINE GLACIERS: Glacial and protalus deposits (Holocene and Pleistocene)-Material similar to unit Qt but having distinct morainal form that indicates deposition at terminus of small glacier or permanent snowfield

Enumerated_Domain:

Enumerated_Domain_Value: Qag

Enumerated_Domain_Value_Definition: SURFICIAL DEPOSITS: DEPOSITS
RELATED TO ALPINE GLACIERS: Alpine-glacier deposits (Pleistocene)-Ranges from
till upvalley and in uplands to gravelly outwash on broad valley floors;
includes areas mostly veneered with drift but having small areas of protruding
bedrock or overlying small fans, colluvium, or other discontinuous deposits.
Grades into unit Qgp in headward reaches of alpine valleys

Enumerated_Domain:

Enumerated_Domain_Value: Qvr

Enumerated_Domain_Value_Definition: SURFICIAL DEPOSITS: DEPOSITS
RELATED TO CORDILLERAN ICE SHEET: Deposits of Vashon stade of Fraser glaciation
of Armstrong and others (1965) of Cordilleran ice sheet (Pleistocene):
Recessional outwash deposits-Stratified sand and gravel, moderately to well
sorted, and well-bedded silty sand to silty clay, deposited in proglacial and
ice-marginal environments. Largely plane-bedded outwash and foreset deltaic
deposits in lowlands, but includes fine-grained deposits of ice-dammed lakes in
major west-draining alpine valleys and at low altitudes along Snoqualmie and
Skykomish River valleys. Includes parts of ice-marginal embankments, kame
terraces, and glaciolacustrine deltaic deposits

Enumerated_Domain:

Enumerated_Domain_Value: Qvgl

Enumerated_Domain_Value_Definition: SURFICIAL DEPOSITS: DEPOSITS
RELATED TO CORDILLERAN ICE SHEET: Deposits of Vashon stade of Fraser glaciation
of Armstrong and others (1965) of Cordilleran ice sheet (Pleistocene):
Glaciolacustrine deposits-Bedded silt and clay containing sand lenses and sparse
dropstones; present in mountain valleys. Distinguished on map from other
Vashon-age deposits (mainly unit Qvr) only where continuous and thick

Enumerated_Domain:

Enumerated_Domain_Value: Qvt

Enumerated_Domain_Value_Definition: SURFICIAL DEPOSITS: DEPOSITS
RELATED TO CORDILLERAN ICE SHEET: Deposits of Vashon stade of Fraser glaciation
of Armstrong and others (1965) of Cordilleran ice sheet (Pleistocene): Till-
Mainly compact diamicton with subangular to rounded clasts, glacially
transported and deposited. Includes minor stratified fluvial sand and gravel.
Contact with unit Qvr is gradational and is approximately located in ice-
marginal areas or where covered by thin layer of recessional outwash

Enumerated_Domain:

Enumerated_Domain_Value: Qva

Enumerated_Domain_Value_Definition: SURFICIAL DEPOSITS: DEPOSITS
RELATED TO CORDILLERAN ICE SHEET: Deposits of Vashon stade of Fraser glaciation
of Armstrong and others (1965) of Cordilleran ice sheet (Pleistocene): Advance
outwash deposits-Well-bedded gravelly sand to fine-grained sand, generally
unoxidized, deposited in proglacial streams

Enumerated_Domain:

Enumerated_Domain_Value: Qpf

Enumerated_Domain_Value_Definition: SURFICIAL DEPOSITS: OTHER
DEPOSITS: Glacial and nonglacial deposits of pre-Fraser glaciation age
(Pleistocene)- Compact gray clay and deeply weathered stratified sand and gravel

or clay-rich diamicton. Clay is in contact with or grades into fine sand assigned to unit Qva. Other deposits mapped herein as pre-Fraser deposits show evidence of strong in-situ weathering throughout depth of exposure, including oxidation of matrix and deeply weathered clasts. May include some early Fraser-age lacustrine sediments

Enumerated_Domain:

Enumerated_Domain_Value: Qbf

Enumerated_Domain_Value_Definition: SURFICIAL DEPOSITS: OTHER

DEPOSITS: Basalt flows and cones (Pleistocene)-Olivine basalt either as massive, poorly vesicular rocks or as massive to stratified scoriaceous bombs and lapilli. Rocks are solidified lava flows, generally on valley floors and having low-relief, near-level surfaces. Weakly agglutinated scoria forms partly degraded cones on sides and floors of valleys excavated in bedrock

Enumerated_Domain:

Enumerated_Domain_Value: Tcd

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Volcanic rocks of Cady Ridge (Pliocene and Miocene): Dacite dikes-Numerous dacite dikes from 1 to 5 m thick intruding altered gneiss. Dikes are composed mostly of gray porphyritic biotite-hornblende-hypersthene dacite and locally, resorbed quartz phenocrysts. Considerable pyrite in dikes and in country rock

Enumerated_Domain:

Enumerated_Domain_Value: Tcp

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Volcanic rocks of Cady Ridge (Pliocene and Miocene): Dacite plugs-Small plugs composed of hornblende-hypersthene dacite similar to that forming dacite dikes. Well-developed columnar jointing common

Enumerated_Domain:

Enumerated_Domain_Value: Tcb

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Volcanic rocks of Cady Ridge (Pliocene and Miocene): Breccia and flows-Porphyritic hornblende-hypersthene andesite and (or) dacite in flows and breccias. Rocks commonly highly altered to smectite

Enumerated_Domain:

Enumerated_Domain_Value: Tivb

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Intrusive volcanic breccia (Miocene)-Unit as mapped includes Conglomerate Point Breccia of Yeats (1958b), which consists of rhyolitic to basaltic breccia containing clasts of granitoid rocks near its margins. Clasts of angular to subangular, greenish-gray altered pyroxene andesite porphyry, altered basalt porphyry, and flow-banded rhyolite are set in dacite tuff matrix containing angular quartz fragments and plagioclase. Matrix and clasts considerably altered to chlorite, calcite, and epidote. Breccia in Silver Creek valley contains rounded clasts of heterogeneous volcanic rocks and rare clasts of sulfide ore in fine-grained to aphanitic matrix. Locally, breccia is monolithologic, composed of tonalite clasts and matrix and grades into shattered tonalite wallrock

Enumerated_Domain:

Enumerated_Domain_Value: Tts

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Tonalite of Silver Creek (Miocene)-Biotite-hornblende and hornblende-biotite tonalite forming small stocks, plugs, and dikes. Texture is hypidiomorphic to porphyritic granular. Mafic minerals are considerably altered to chlorite and epidote. Small bodies in Silver Creek valley not shown on map

Enumerated_Domain:

Enumerated_Domain_Value: Tib

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Intrusive breccia (Miocene)-Sericitized and silicified fragments of hornfels in matrix of calcite and sulfides (Ream, 1972, p. 10). Breccia has poorly defined subhorizontal bedding and grades abruptly into country-rock hornfels

Enumerated_Domain:

Enumerated_Domain_Value: Tte

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Eagle Tuff of Yeats (1977) (Miocene)-Brown to gray-brown rhyolitic to dacitic tuff, ash-flow tuff, and breccia. Conspicuous quartz phenocrysts are set in clastic matrix of plagioclase and silicic volcanic rock; some glassy shards. Abundant fragments of pre-Tertiary country rock present in unit. Poor sorting. Bedding inconspicuously shown by flattened pumice clasts and local thin layers of tuff

Enumerated_Domain:

Enumerated_Domain_Value: Tbk

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Breccia of Kyes Peak (Miocene)-Mostly andesite and dacite breccia beds with abundant clasts of schist, gneiss, and granitoid rocks. Rare two-pyroxene andesite, dacite, and rhyolite flows. Monolithologic breccias consist predominantly of fine-grained mica schist or granodiorite clasts. Clasts as long as 200 m. Breccia beds range from a few centimeters to more than 50 m in thickness. Thin volcanic to volcanic-lithic-subquartzose-sandstone beds locally near base. Heath (1971, p. 124-125) described probable primary garnets in rhyodacite and dacite flows. Alteration minerals are chlorite, sericite, and epidote. Some rocks, especially those east of Glacier Creek, are thermally metamorphosed and enriched in magnetite, actinolite, and albite(?)

Enumerated_Domain:

Enumerated_Domain_Value: Tst

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Rocks of the Snoqualmie batholith: Tonalite and granodiorite (Miocene and Oligocene)-Biotite-hornblende tonalite and granodiorite, medium-grained, mostly equigranular, with hypidiomorphic texture; locally contains clinopyroxene. Mostly light-colored (CI 9-24), coarsely jointed rock. Description adapted from Erikson (1969, p. 2218-2219)

Enumerated_Domain:

Enumerated_Domain_Value: Tsg

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Rocks of the Snoqualmie batholith: Granodiorite and granite (Miocene and Oligocene)-Medium-grained, hypidio-morphic-granular to porphyritic granophyric granodiorite and granite (Erikson 1969, p. 2221). Most contain biotite; CI 1-5, rarely to 10

Enumerated_Domain:

Enumerated_Domain_Value: Tsh

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Rocks of the Snoqualmie batholith: Granite of Mount Hinman (Miocene and Oligocene)-Hornblende-biotite and two-pyroxene granite; CI 6-15. Generally medium grained, hypidiomorphic granular, but commonly has mesostasic quartz or micrographic texture between larger grains. Rocks commonly altered, containing chlorite and epidote. Description modified from Erikson (1969, p. 2222)

Enumerated_Domain:

Enumerated_Domain_Value: Tsb

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Rocks of the Snoqualmie batholith: Breccia (Miocene and Oligocene)-Fine- to medium-grained mafic biotite and horn-blende-biotite tonalite containing numerous mafic inclusions

Enumerated_Domain:

Enumerated_Domain_Value: Tsm

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Rocks of the Snoqualmie batholith: Mafic diorite and gabbro (Miocene and Oligocene)-Biotite-hornblende diorite and gabbro; includes some mafic pyroxene-bearing tonalite and quartz diorite. CI 20-40 (Erikson, 1969, p. 2217)

Enumerated_Domain:

Enumerated_Domain_Value: Tgg

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Rocks of the Grotto batholith: Biotite-hornblende granodiorite and granite (Miocene and Oligocene)-Medium-grained hypidiomorphic-granular granodiorite and granite with subhedral to euhedral, oscillatory zoned plagioclase in matrix of optically continuous quartz or anhedral quartz and perthite; some granophyric textures. CI 10-20. Relic pyroxene in uraltic pale-green hornblende. Many rocks extensively altered to chlorite, epidote, and sphene; some crosscutting fractures filled with alteration minerals. Fine-grained mafic inclusions common. Includes some areas underlain by rocks similar to the granite of San Juan Creek. North end of pluton and smaller stocks in Monte Cristo area are more mafic and mostly granodiorite and tonalite

Enumerated_Domain:

Enumerated_Domain_Value: Tgs

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Rocks of the Grotto batholith: Granite of San Juan Creek (Miocene and Oligocene)-Mostly biotite granite to granophyric porphyry, CI about 5; graphic intergrowths of potassium feldspar and quartz are common

Enumerated_Domain:

Enumerated_Domain_Value: Tggb

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Rocks of the Grotto batholith: Gabbro, quartz gabbro, and pyroxene porphyry (Miocene and Oligocene)-Fine-grained to porphyritic pyroxene-hornblende gabbro, quartz gabbro, and porphyry. Normally zoned labradorite-oligoclase crystals with euhedral oscillations set in sparse matrix of granophyric potassium feldspar and quartz or uraltic hornblende. For detailed descriptions and modes see Yeats (1958a, p. 190-192)

Enumerated_Domain:

Enumerated_Domain_Value: Tgb

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Rocks of the Grotto batholith: Contact breccia (Miocene and Oligocene)-Heterogeneous, fine- and medium-grained, locally porphyritic tonalite contact breccia containing numerous dark inclusions of hornfels; includes metavolcanic rocks and metachert. Tonalite has clinopyroxene and micrographic intergrowths of quartz and sodic plagioclase. Similar rocks on Crosby Mountain lack inclusions and form anastomosing dikelets (unmapped) in country rocks

Enumerated_Domain:

Enumerated_Domain_Value: Tdd

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Volcanic rocks of Mount Daniel (Oligocene): Dacite, andesite, and rhyolite-Clinopyroxene and hypersthene-clinopyroxene dacite, andesite, and rhyolite in flows, breccia, tuff, dikes, and sills. Rocks commonly highly altered to smectites and (or) calcite on the south and epidote, chlorite, and locally prehnite on the north. Bedding obscure; welded tuff locally shows flattening, and tuff is locally interbedded with volcanic sandstone and siltstone. For further descriptions, see McDougall (1980, p. 54-55) and Simonson (1981)

Enumerated_Domain:

Enumerated_Domain_Value: Tdia

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Volcanic rocks of Mount Daniel (Oligocene): Intrusive andesite-Porphyritic pyroxene andesite containing large plagioclase pheno-crysts and glomerocrysts in felty to intersertal matrix. Augite is common, and hypersthene (or pseudomorphs of smectites after hypersthene) is rare

Enumerated_Domain:

Enumerated_Domain_Value: Tdb

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Volcanic rocks of Mount Daniel (Oligocene): Sandstone breccia-Monolithologic breccia composed of angular sandstone clasts as much as 10 m across, derived from the Swauk Formation (Gualtieri and others, 1973). Rare volcanic clasts. East of Spade Lake, breccia is locally highly sheared and altered. Simonson (1981, p. 40-41) and Ellis (1959, p. 66-67) describe basal sandstone breccia with lapilli tuff matrix

Enumerated_Domain:

Enumerated_Domain_Value: Tv

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Volcanic rocks of Mount Daniel (Oligocene): Volcanic rocks (Oligocene)-On Garfield Mountain. Mostly dacite and minor andesite and rhyolite in breccia, tuffs, ash-flow tuffs, and rare flows. Most are highly recrystallized by thermal metamorphism; many are hornblende-biotite hornfels

Enumerated_Domain:

Enumerated_Domain_Value: Tm

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Volcanic rocks of Mount Daniel (Oligocene): Metaporphry of Troublesome Mountain (Oligocene)-Dark, recrystallized clinopyroxene-plagioclase porphyry; abundant poikiloblastic phenocrysts set in a crystalloblastic matrix of plagioclase, quartz, biotite, hornblende, and opaque minerals. Pyroxene partially or completely replaced by green hornblende. Plagioclase has relict euhedral oscillatory zoning

Enumerated_Domain:

Enumerated_Domain_Value: Tig

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Rocks of the Index batholith: Granodiorite and tonalite (Oligocene)-Mostly biotite-hornblende and hornblende-biotite granodiorite and tonalite but locally ranges from quartz diorite and quartz monzonite to rare granite; CI 2-30. Medium-grained hypidiomorphic-granular texture; granofelsic, mostly anhedral quartz is interstitial to subhedral and euhedrally oscillatory zoned from labradorite or andesine to oligoclase (see Yeats, 1958a, p. 202-203; Griffis, 1977, p. 85). Pyroxene is rare and mostly present as tiny rounded inclusions in plagioclase. On North Fork of Tolt River, unit includes granodiorite with clinopyroxene, uralitic hornblende, and some micrographic texture. Stock on Youngs Creek has uralitic hornblende and relict clinopyroxene.

Enumerated_Domain:

Enumerated_Domain_Value: Tigg

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Rocks of the Index batholith: Granodiorite of the Goblin Creek stock (Oligocene)-Mostly dark-colored, medium-grained pyroxene-biotite-hornblende granodiorite and granite; CI 13-35. Pyroxene mostly uralitized; quartz commonly forms optically continuous mesostasis between plagioclase crystals. Some granophyric texture. Cut by chloritic shears; highly altered to chlorite, epidote, calcite, and prehnite.

Enumerated_Domain:

Enumerated_Domain_Value: Tigs

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Rocks of the Index batholith: Granodiorite and granite of the Sunday Creek stock (Oligocene)-Granodiorite and granite similar to unit Tig but highly altered to sericite, epidote, and chlorite. Bethel (1951, p. 147) reported some micrographic and local granoblastic textures. Locally cataclastic. Contact breccias along margin are rich in clasts of unit Tpa.

Enumerated_Domain:

Enumerated_Domain_Value: Tus

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Unnamed sandstone (Oligocene)-Sandy pebble conglomerate to very fine grained sandstone, moderately to deeply weathered. Coarser beds contain high percentage of quartzose pebbles; finer beds contain considerable mica and lignite. Deeply weathered exposures usually distinguished from old glacial outwash materials by manganese staining on joint planes, quartzose or pebble lithology, and presence of organic matter.

Enumerated_Domain:

Enumerated_Domain_Value: Tnv

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Naches Formation (Oligocene? and late Eocene): Volcanic rocks and minor sandstone-Well-bedded basaltic to andesitic flows, tuff, and breccia interbedded with feldspathic subquartzose sandstone and siltstone. Flows and breccia are somewhat nondescript porphyritic to aphyric, dark-green to black rocks, weathering to brown. In part amygdaloidal, with columns or with brecciated and vesicular tops. Interbedded sedimentary rocks are white, coarse-grained feldspathic sandstone, exhibiting crossbeds and graded bedding and black argillite and

laminated siltstone. Both volcanic and sedimentary rocks are thermally metamorphosed.

Enumerated_Domain:

Enumerated_Domain_Value: Tnr

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Naches Formation (Oligocene? and late Eocene): Rhyolite-White to gray, flow-banded rhyolite containing flattened pumice fragments; well recrystallized by thermal metamorphism.

Enumerated_Domain:

Enumerated_Domain_Value: Tpa

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Volcanic rocks of Mount Persis (late Eocene): Andesite flows, tuffs, and breccia, containing minor dacite and basalt, and minor volcaniclastic sandstone, conglomerate, and siltstone-Massive, dark-green to black, plagioclase-porphyritic two-pyroxene andesite and andesitic breccia and tuff. Phenocrysts and glomerocrysts of plagioclase, clinopyroxene, hypersthene, mostly greatly altered in an intersertal to holocrystalline groundmass of mainly clinopyroxene, plagioclase, and opaque minerals. Black basalt is aphyric to microporphyritic, commonly trachytoid, and locally with altered olivine. Upper part of unit includes rare interbedded, dark-gray to brownish volcanic sandstone and siltstone. Danner (1957, p. 471-472) reports andesite conglomerate interbeds in Youngs Creek. Generally poorly indurated volcanic sandstone contains angular to rounded clasts of volcanic rocks, altered glass, and plagioclase crystals; also contains clasts of chert, sandstone, and siltstone. Variably altered to smectites, epidote, and calcite. Locally hornfelsic near Tertiary plutons, most extensively south of Youngs Creek stock. Near Calligan Lake, unit includes andesite and dacite porphyry dike swarm.

Enumerated_Domain:

Enumerated_Domain_Value: Tphb

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Volcanic rocks of Mount Persis (late Eocene): Hornblende dacite breccia-Light-green hornblende dacite breccia composed mainly of andesitic clasts, euhedral plagioclase (in part altered to epidote), tan to olive-green hornblende, clinopyroxene altered to smectites, resorbed quartz, and opaque mineral grains in altered partially devitrified glassy matrix

Enumerated_Domain:

Enumerated_Domain_Value: Tpp

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Volcanic rocks of Mount Persis (late Eocene): Pyroxene andesite-Pyroxene andesite porphyry containing phenocrysts of plagioclase, clinopyroxene, and rare brown hornblende (mostly altered to chlorite) and mixed clots of plagioclase and clinopyroxene in highly altered, groundmass of microlites of plagioclase and opaque minerals

Enumerated_Domain:

Enumerated_Domain_Value: Tbv

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Barlow Pass Volcanics of Vance (1957b) (late and middle Eocene): Volcanic rocks-Basalt, rhyolite, and andesite flows, breccia, and tuff interbedded with minor bedded tuffaceous to feldspathic sandstone and argillite. Andesite and basalt

generally dark-green to gray, massive, and dense. Light-green to white rhyolite. Rocks are mostly highly altered to a dense mat of chlorite, epidote, calcite, and sericite; porphyritic and trachytoid textures are relict. Most bedding in volcanic members is obscure. Many rocks recrystallized by thermal metamorphism near Tertiary plutons, reaching pyroxene-hornfels facies adjacent to unfaulted contacts with plutons. Further descriptions in Heath (1971, p. 116-118) and, for the Barlow Pass unit north of mapped area, in Vance (1957a, p. 275-286).

South of Skykomish, rocks that we mapped as Barlow Pass(?) Volcanics are mostly heterogeneous, light-tan to dark-gray-green, rhyolitic to andesitic breccia and feldspar porphyry. Rocks identified as andesite in the field generally contain at least trace amounts of quartz in thin section. Crystal-rich andesite and dacite breccia contains andesite, dacite, and rhyolite clasts, sandstone, metasedimentary rocks, chert, siltstone, quartz, foliated polycrystalline quartz, potassium feldspar, and plagioclase. Crystal-rich greenish rhyodacite breccia has platy cleavage. Amygdaloidal andesite(?) and andesite(?) porphyry, in part having crude columns, are also present. Plagioclase is commonly altered to calcite and chlorite. Pyrite is locally present. Further details given by Yeats (1958a, p. 152-161). Includes probable intrusive rhyolite porphyry on Money Creek. Many volcanic rocks in the Barlow Pass(?) Volcanics are partly to strongly recrystallized by nearby Tertiary plutons

Enumerated_Domain:

Enumerated_Domain_Value: Tbs

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Barlow Pass Volcanics of Vance (1957b) (late and middle Eocene): Sandstone-Fluviatile, light-colored, fine- to medium-grained feldspathic subquartzose sandstone and conglomerate with interbeds of siltstone and shale. Bedding is thick to very thick but obscure near Tertiary plutons except where revealed by pebble trains and changes in grain size. Along Silver and lower Trout Creeks, framework grains are composed of subequal amounts of quartz, plagioclase, and chert. Near Crosby Mountain, our unit Tbs(?) includes plane bedded to crossbedded quartz-rich sandstone and quartz-pebble to cobble conglomerate.

Enumerated_Domain:

Enumerated_Domain_Value: Tt

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Puget Group (Eocene): Tukwila Formation (late and middle Eocene)-Andesitic flows, breccia, conglomerate, and sandstone with subordinate intercalated feldspathic sandstone and impure coal beds. Tuff and breccia contain clasts of porphyritic andesite and dacite and polymictic volcanic conglomerate predominate, but flow rocks (in part sills or dikes?) form resistant layers. As mapped, includes some sandstone belonging to Tiger Mountain Formation.

Enumerated_Domain:

Enumerated_Domain_Value: Ttm

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Puget Group (Eocene): Tiger Mountain Formation (middle and early Eocene)-Light-colored, medium-grained, micaceous feldspathic subquartzose sandstone interbedded with siltstone, minor pebble conglomerate, and coal beds

Enumerated_Domain:

Enumerated_Domain_Value: Trr

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Raging River Formation (middle Eocene)-Marine sandstone, siltstone, shale, and minor conglomerate. Sandstone pre-dominantly volcanic subquartzose. Described in detail by Vine (1969, p. 13-16).

Enumerated_Domain:

Enumerated_Domain_Value: Tfm

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Fuller Mountain plug (early Eocene)-Gray, highly jointed, hornblende-biotite-clinopyroxene granodiorite. Clinopyroxene rimmed with hornblende; intergranular quartz and potassium feldspar graphically intergrown(?).

Enumerated_Domain:

Enumerated_Domain_Value: Tss

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Swauk Formation (early Eocene): Sandstone and conglomerate-Predominantly feldspathic subquartzose sandstone and conglomerate, fluviatile, light-colored, medium-grained, and minor interbeds of siltstone and shale. Bedding thin to very thick. Compositions reported by McDougall (1980, p. 39-45) for Swauk on southern Tonga Ridge

Enumerated_Domain:

Enumerated_Domain_Value: Tssp

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Swauk Formation (early Eocene): Silver Pass Volcanic Member-As mapped on Summit Chief and in upper Waptus River area [28] includes mostly sandstone with interbeds of dacitic breccia and thin-bedded silicic tuff and ash-flow tuff.

Enumerated_Domain:

Enumerated_Domain_Value: Tssc

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Swauk Formation (early Eocene): Sandstone and conglomerate-Similar to unit Tss, but conglomerate is more conspicuous and rich in granitic clasts. Upper contact shown as mapped by McDougall (1980).

Enumerated_Domain:

Enumerated_Domain_Value: gb

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Gabbro (age uncertain)-On Money Creek, hypersthene-clinopyroxene gabbro, medium-grained, subophitic to locally uralitic. Commonly layered containing well-aligned calcic plagioclase. On Palmer Mountain, medium-grained uralitic gabbro and quartz gabbro composed of tightly packed calcic plagioclase with uralite patches and uralite pseudomorphous after subophitic pyroxene(?). On Middle Fork of Snoqualmie River, heterogeneous, uralitized pyroxene gabbro to mafic biotite-hornblende tonalite; strongly thermally metamorphosed.

Enumerated_Domain:

Enumerated_Domain_Value: bm

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Bald Mountain pluton (age uncertain)-Medium- to coarse-grained, hypidiomorphic biotite granodiorite and granite, in part gneissic near the margins. Accessory cordierite, mostly altered to pinite, and rare garnet. Locally cataclastic.

Clinopyroxene rimmed with hornblende; intergranular quartz and potassium feldspar graphically intergrown.

Enumerated_Domain:

Enumerated_Domain_Value: TKwa

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Rocks of the western melange belt (early Tertiary to mid-Cretaceous): Argillite and graywacke-Pervasively sheared, scaley matrix of mostly argillite containing steep-sided, outcrop- to mountain-sized phacoids of purplish, reddish, gray, and black, fine- to coarse-grained and pebbly, lithofeldspathic, volcanolithic, and subquartzose sandstone interbedded with black argillite. Sandstone has clasts mostly of plagioclase, chert, volcanic rocks, and quartz. Also abundant are grains of sandstone, siltstone, phyllite, biotite, muscovite, and epidote. Where more strongly deformed, unstable grains are broken down into anastomosing shear zones or smeared out into indistinct chloritic matrix. Alteration minerals are calcite, chlorite, sericite, limonite, epidote, and prehnite. Near Tertiary plutons the rocks have become hornfelsic, commonly with conspicuous biotite. Sedimentary features such as graded bedding and load casts are locally well preserved. Unit includes minor chert, polymictic and quartz-pebble conglomerate, and shale-chip breccia; also very minor chert, limestone, metavolcanic rocks, metagabbro, and metatonalite. Locally cut by greenstone (metadiabase) dikes.

Enumerated_Domain:

Enumerated_Domain_Value: TKwk

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Rocks of the western melange belt (early Tertiary to mid-Cretaceous): Potassium-feldspar-bearing sandstone-Lithologically similar to sandstone of unit TKwa but having 2-20 percent potassium-feldspar clasts and commonly more plagioclase, muscovite, and biotite.

Enumerated_Domain:

Enumerated_Domain_Value: TKwv

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Rocks of the western melange belt (early Tertiary to mid-Cretaceous): Metavolcanic rocks-Greenstone and metadiabase, with minor metagabbro, argillite, and sandstone. Greenstone and metadiabase contain relict plagioclase and clinopyroxene locally having intersertal to diabasic textures. Amygdaloidal texture and pillow structures locally preserved. Boudins of metamorphosed quartz-porphyry dikes(?) in faintly foliate greenstone breccia on Little Si. Outcrops north of Sultan River are cut by numerous faults, of various orientations, that outline streamlined blocks of metavolcanic, metaplutonic, and sedimentary rocks

Enumerated_Domain:

Enumerated_Domain_Value: TKwg

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Rocks of the western melange belt (early Tertiary to mid-Cretaceous): Metagabbro, minor gneissic amphibolite, and rare gabbro flaser gneiss-Massive to foliated, fine- to medium-grained metagabbro. Many outcrops sheared on all scales. In massive rocks, euhedral, mottled, locally crushed plagioclase, intergranular to euhedral uranitized clinopyroxene, and opaque minerals are common. Mafic metagabbro on Woods Creek bears relicts of hypersthene and clinopyroxene. Sheared rocks range

from flaser gabbro with plagioclase cataclasts in schistose, chloritic matrix to well-recrystallized greenstone, greenschist, or amphibolite, locally banded. Most metamorphic minerals are uralite, chlorite, epidote, sphene, carbonate, prehnite, and pumpellyite in metagabbro and metadiabase. Unit includes minor hornblende metatonalite, metaquartz diorite, and minor feldspathic hornblendite

Enumerated_Domain:

Enumerated_Domain_Value: TKwd

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Rocks of the western melange belt (early Tertiary to mid-Cretaceous): Metadiabase-Metadiabase composed of plagioclase, uralite, chlorite, epidote, and opaque minerals; secondary blebs or veinlets of quartz. Rare relict clinopyroxene. Relict intergranular to diabasic texture. Most rocks highly thermally metamorphosed and similar to those of unit TKed. North of Money Creek, unit includes many hornfelsic Tertiary dikes and some volcanic breccia containing clasts of metadiabase in hornfelsic tuffaceous matrix

Enumerated_Domain:

Enumerated_Domain_Value: TKwt

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Rocks of the western melange belt (early Tertiary to mid-Cretaceous): Metatonalite-Fine- to coarse-grained porphyroclastic metatonalite, locally sheared into light-colored cataclastic chlorite gneiss. Predominantly composed of plagioclase and quartz (in part secondary) with actinolitic hornblende, epidote, and chlorite. Occurs mostly as small bodies generally associated with metagabbro.

Enumerated_Domain:

Enumerated_Domain_Value: TKwc

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Rocks of the western melange belt (early Tertiary to mid-Cretaceous): Chert-Maroon, reddish, and white chert and metachert, in part with shaley interbeds. Undeformed to contorted bedding. Occurs as streamlined pods with scaley margins

Enumerated_Domain:

Enumerated_Domain_Value: TKwm

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Rocks of the western melange belt (early Tertiary to mid-Cretaceous): Marble-Black to bluish-gray marble and, in part, interbedded chert and shale occurring as steeply dipping pods and lenticular beds. Thin, green tuffaceous chert beds crop out in marble at Haystack quarry on Proctor Creek.

Enumerated_Domain:

Enumerated_Domain_Value: TKws

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Rocks of the western melange belt (early Tertiary to mid-Cretaceous): Slate, phyllite, and semischist-Rocks similar in composition to those of unit TKwa, but with well-developed schistosity commonly parallel to bedding. New metamorphic minerals in semischist include sericite, chlorite, albite, calcite, sodic plagioclase, and opaque minerals; hornfels near contacts with Tertiary plutons. Contact with unit Tkev is based on more abundant metavolcanic rocks, chert, and ultramafic rocks in unit Tkev

Enumerated_Domain:

Enumerated_Domain_Value: TKwp

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Rocks of the western melange belt (early Tertiary to mid-Cretaceous): Phyllitic greenstone-Mostly metabasalt and mafic tuff. Includes volcanic-clast-rich, foliated sandstone

Enumerated_Domain:

Enumerated_Domain_Value: TKwu

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Rocks of the western melange belt (early Tertiary to mid-Cretaceous): Ultramafic rocks-Serpentinized peridotite.

Enumerated_Domain:

Enumerated_Domain_Value: TKeV

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Rocks of the eastern melange belt (early Tertiary to mid-Cretaceous): Mafic metavolcanicrocks, chert, argillite, and gray-wacke-Greenstone, greenschist (metabasalt and meta-andesite), metagraywacke, chert-rich metagrit, and metaconglomerate, mostly massive and rarely bedded. Original sedimentary and volcanic textures largely obscured by penetrative deformation, low-grade regional metamorphism, and static thermal metamorphism. Contact metamorphism by Tertiary plutons has destroyed original textures and structures as well as earlier formed greenschist-facies minerals; many rocks are now pyroxene hornfels.

Enumerated_Domain:

Enumerated_Domain_Value: TKec

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Rocks of the eastern melange belt (early Tertiary to mid-Cretaceous): Chert and metachert-Intensely folded, white to cream or gray, ribbon chert and medium- to fine-grained banded quartzite (metachert); alternating with thin to thick, dark-brown to black layers of calcareous argillite.

Enumerated_Domain:

Enumerated_Domain_Value: TKeg

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Rocks of the eastern melange belt (early Tertiary to mid-Cretaceous): Migmatitic gneiss-Fine-grained schistose amphibolite to medium- and coarse-grained massive quartz diorite with layered hornblende gneiss, gneissose quartz diorite, trondhjemitic, and replacement breccia and minor serpentized ultramafite. Amphibolite is crystalloblastic with xenoblastic unzoned and untwinned andesine, brown to brownish-green xenoblastic hornblende, and accessory sphene, apatite, magnetite, ilmenite, and zircon. Rocks grade through hornblende gneiss to gneissose quartz diorite; commonly mafic and less mafic rocks in irregular, intimately mixed layers. All exposures cut by anastomosing shear zones; rocks cataclastically deformed prior to late static recrystallization. Description modified from Yeats (1958a, p. 83-99; 1964, p. 552-555)

Enumerated_Domain:

Enumerated_Domain_Value: TKed

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Rocks of the eastern melange belt (early Tertiary to mid-Cretaceous): Metadiabase-Altered and thermally metamorphosed, fine-grained ophitic to subophitic metadiabase and metagabbro. Euhedral plagioclase and mostly uranitized subhedral clinopyroxene,

rare hypersthene (Plummer, 1964, p. 53). Newly grown reddish biotite and mesostasis of quartz present adjacent to Tertiary plutons.

Enumerated_Domain:

Enumerated_Domain_Value: TKet

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Rocks of the eastern melange belt (early Tertiary to mid-Cretaceous): Metatonalite-Altered medium-grained metatonalite. Subhedral plagioclase, mostly anhedral and intergranular mosaics of quartz and small amounts of altered green hornblende and perthitic potassium feldspar. Locally cataclastic.

Enumerated_Domain:

Enumerated_Domain_Value: TKem

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Rocks of the eastern melange belt (early Tertiary to mid-Cretaceous): Marble-Lenticular beds and pods of banded, white to grayish, medium- to fine-grained crystalline marble intercalated with metachert and greenstone; in part, shaly laminations or graphitic impurities mark bedding planes. Silicified replacement masses (Danner, 1966, p. 374; Yeats, 1958a, p. 103).

Enumerated_Domain:

Enumerated_Domain_Value: TKeu

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Rocks of the eastern melange belt (early Tertiary to mid-Cretaceous): Ultramafic rocks-Highly altered pods of pyroxenite, peridotite, and serpentized dunite are tectonically intercalated with argillite and ribbon chert near Merchant Peak. See Yeats (1958a, p. 116-119) for further discussion of that area. Schistose ultramafite east of Weden Creek consists of forsterite in mesh of antigorite. Olivine is locally converted to phlogopite near Tertiary plutons. In Sultan Basin area Dungan (1974, p. 40-41) describes peridotite hornfels on Red Mountain with assemblage of forsterite-talc-tremolite-chlorite within 2.5 km of contact with Index batholith. North of quadrangle, ultramafic rocks on strike with this layer are serpentized cumulus peridotite with relict olivine and orthopyroxene associated locally with layered gabbro (Dungan, 1974, p. 48-62).

Enumerated_Domain:

Enumerated_Domain_Value: Ked

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Easton terrane: Easton Metamorphic Suite (Early Cretaceous): Darrington Phyllite (west of Straight Creek Fault)-Black sericite-quartz phyllite with abundant quartz segregation veinlets and lenses. Abundant graphite and albitic plagioclase; accessory minerals include chlorite, iron oxide, apatite, tourmaline, and sphene. Mostly thermally metamorphosed to biotite phyllite and locally pyroxene hornfels close to Tertiary intrusive rocks. Description taken from Heath (1971, p. 81-87)

Enumerated_Domain:

Enumerated_Domain_Value: Ksw

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Rocks of the Mount Stuart batholith (Late Cretaceous): Tonalite and granodiorite of the western pluton-Predominantly medium-grained, hypidiomorphic-granular hornblende-biotite tonalite and subordinate granodiorite. CI 4-15, based on normative mineral data from Erikson (1977b and written commun., 1978). Hornblende locally

uralitic around clinopyroxene relicts; potassium feldspar crystallized late and replaces plagioclase with some myrmekite developed. Massive to gneissic near margins.

Enumerated_Domain:

Enumerated_Domain_Value: Ksw

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Rocks of the Mount Stuart batholith (Late Cretaceous): Tonalite and granodiorite of the western pluton: Tonalite of Harding Mountain-Fine- to medium-grained biotite-hornblende tonalite, commonly with crystalloblastic patches of actinolitic hornblende and biotite; CI 12-18. Hypidiomorphic-granular, rich in matrix quartz. Local cumulate layering of hornblende and plagioclase. Outcrops tend to be highly jointed and disintegrate into 10- to 20-cm blocks in extensive talus.

Enumerated_Domain:

Enumerated_Domain_Value: Kse

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Rocks of the Mount Stuart batholith (Late Cretaceous): Tonalite and granodiorite of the eastern pluton-Predominantly medium-grained, hypidiomorphic-granular hornblende-biotite tonalite and subordinate granodiorite. Similar to unit Ksw, although parts of the eastern pluton are somewhat more mafic than western pluton. CI 3-30, based on normative minerals and modal analyses by Erikson (1977b and written commun., 1978).

Enumerated_Domain:

Enumerated_Domain_Value: Ksb

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Rocks of the Mount Stuart batholith (Late Cretaceous): Granodiorite of the Beckler Peak stocks-Biotite granodiorite, hypidiomorphic granular to xenomorphic with microcline microperthite. Mostly CI 5-9, but Yeats (1958a, p. 75) reports some rocks with as much as 18 percent mafic minerals. Stocks are commonly highly sheared and cataclastic.

Enumerated_Domain:

Enumerated_Domain_Value: Ksm

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Rocks of the Mount Stuart batholith (Late Cretaceous): Metagabbro and metadiorite-Medium-grained biotite-hornblende metagabbro and metadiorite; minor metatonalite characterized by uralitic hornblende and actinolitic hornblende mats between subhedral to euhedral, well-aligned plagioclase prisms. Some rocks exhibit mosaic of granoblastic plagioclase between clots of mafic minerals

Enumerated_Domain:

Enumerated_Domain_Value: Ksc

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Tonalite gneiss of the Sloan Creek plutons (Late Cretaceous)-Biotite-hornblende tonalite gneiss, flaser gneiss, and local gneissic tonalite; medium-grained, homogeneous, crystalloblastic gneissose to strongly flaseroid; locally strongly mylonitic. Plagioclase normally zoned, or unzoned and strongly stress-twinned but has relict patchy zoning and faint oscillatory zoning and synneusis twins (Heath, 1971, p. 62). Retrogressive alteration is pronounced but somewhat sporadic;

epidote minerals and sericite commonly fill plagioclase cores; mafic minerals are altered to chlorite, sphene, and prehnite.

Enumerated_Domain:

Enumerated_Domain_Value: Kt

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Tonalite gneiss and tonalite of the Tenpeak Mountain pluton (Late Cretaceous)-Hornblende-biotite and biotite-hornblende tonalite gneiss and tonalite, medium-grained, hypidiomorphic to crystalloblastic with interstitial quartz, broken and healed sodic andesine with relict euhedral oscillatory zoning and rare synneusis twins. Hornblende commonly euhedral. Euhedral epidote and clinozoisite locally have pseudomymekitic intergrowths of quartz. Common sphene, allanite; rare garnet. CI 20-40. Plagioclase porphyroclasts filled with euhedral epidote minerals and some muscovite.

Enumerated_Domain:

Enumerated_Domain_Value: Ktp

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Tonga Formation of Yeats (1958b) (Late Cretaceous): Phyllite, semischist, schist, and biotite-hornblende gneiss and amphibolite-South of Tye River, mostly graphitic chlorite-sericite-quartz phyllite and high-rank semischist. To the north, mostly fine-grained graphitic garnet-staurolite-biotite schist, fine-grained biotite-hornblende gneiss, and local metaconglomerate and metaporphry (fine-grained two-mica gneiss). In many outcrops from Jack Pass south, relict bedding and other sedimentary structures in metapelite and metasandstone are prominent despite well-developed penetrative foliation. Northward and northeastward from Jack Pass, schistose texture and recrystallization increase until recrystallization has produced fine-grained staurolite-garnet-mica schist, and sandstone is recrystallized to fine-grained hornblende-biotite schist and gneiss, locally with randomly oriented or sheaflike poikiloblastic amphibole blades (garbenschiefer); cummingtonite is locally intergrown with hornblende. Staurolite and garnet are usually porphyroblastic; biotite is porphyroblastic to strongly aligned. Many of the higher grade rocks show some degree of retrogression: garnet altered to chlorite, staurolite to sericite. Grade and coarseness of recrystallization increase markedly adjacent to gneissic granodiorite of the Beckler Peak stocks, but hornfelsic textures are not developed. Rocks are recrystallized to pyroxene hornfels near the Goblin Creek stock.

Enumerated_Domain:

Enumerated_Domain_Value: Ktg

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Tonga Formation of Yeats (1958b) (Late Cretaceous): Greenschist and fine-grained amphibolite-Fine-grained greenschist on Tonga Ridge, but outcrops north of Tye River are fine-grained actinolitic hornblende schist or biotite amphibolite.

Enumerated_Domain:

Enumerated_Domain_Value: Ktu

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Tonga Formation of Yeats (1958b) (Late Cretaceous): Ultramafic rocks-Serpentine and serpentized peridotite associated with fault bounding the Tonga Formation on west

Enumerated_Domain:

Enumerated_Domain_Value: Kgt

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Gneissic tonalite of Excelsior Mountain (Late Cretaceous)-Light-colored biotite-tonalite gneiss and flaser gneiss, locally massive; contains minor hornblende, muscovite, and clinozoisite and rare garnet and opaque ores. Subhedral to euhedral plagioclase with faint patches of relict euhedral oscillatory zoning and patchy zoning set in mylonitic matrix of quartz, biotite, hornblende, and clinozoisite.

Enumerated_Domain:

Enumerated_Domain_Value: Kcb

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Nason terrane: Chiwaukum Schist (Late Cretaceous): Biotite schist-Graphitic garnet-biotite-quartz schist, mostly fine- to medium-grained, well-laminated, locally with cordierite, andalusite, staurolite, and (or) kyanite and rare sillimanite. Contains very minor schistose amphibolite. Commonly isoclinally folded on outcrop and microscopic scales, with contorted quartz segregations and veins. Locally has thick veins of quartz and local dikes and sills of foliated, light-colored tonalite. Grades into unit Kca.

Enumerated_Domain:

Enumerated_Domain_Value: Kca

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Nason terrane: Chiwaukum Schist (Late Cretaceous): Biotite schist and amphibolite-Mostly fine- to medium-grained, well-laminated mica schist similar to unit Kcb but with rare to abundant schistose amphibolite, fine-grained hornblende gneiss, and less common calc-silicate schist and marble. Cut by dikes and sills of light-colored biotite tonalite and pegmatite. Unit in Cadet Creek area [16] elaborately described by Heath (1971, p. 12-55). Grades into unit Kbg

Enumerated_Domain:

Enumerated_Domain_Value: Kbg

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Nason terrane: Banded gneiss (Late Cretaceous): Gneiss, schist, and amphibolite-Mostly interlayered heterogeneous light-colored tonalite to granodiorite gneiss, mica schist, and amphibolite similar to the Chiwaukum Schist. Kyanite or sillimanite and staurolite locally abundant; sericite pseudomorphs after aluminum silicates common. Predominantly crystalloblastic. Most common is medium-grained biotite gneiss with slightly porphyroblastic appearance due to anastomosing mica layers surrounding larger plagioclase crystals or aggregate grains. Contacts between gneiss and schist are both sharp and gradational along and across strike. Crosscutting sills, dikes, and irregular bodies of light-colored, fine-grained to pegmatitic tonalite and gneiss are also abundant. Locally migmatitic. Most of unit has 10 percent or more light-colored gneiss.

Enumerated_Domain:

Enumerated_Domain_Value: Kbgg

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Nason terrane: Banded gneiss (Late Cretaceous): Gneissic biotite granodiorite-Nonbanded homogeneous, light-colored, medium-grained gneissic biotite granodiorite with accessory sphene, allanite, zircon, and locally garnet. Relict euhedral oscillatory zoning in cores of subidioblastic plagioclase.

Potassium feldspar and quartz are interstitial. Textures mostly granoblastic, but locally blastomylonitic. Contacts with schist layers in unit Kbg are parallel, interlayered, or locally crosscutting

Enumerated_Domain:

Enumerated_Domain_Value: Kbgp

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Nason terrane: Banded gneiss (Late Cretaceous): Gneissic pyroxene-biotite tonalite-Medium- to coarse-grained gneissic tonalite with conspicuous subhedral biotite books as wide as 8 mm. CI 6-15 (Ford and others, 1988, p. 118) Quartz and potassium feldspar intergranular to crystalloblastic; plagioclase with relict euhedral oscillatory zoning, subhedral clinopyroxene, and minor hornblende. Small amounts of zircon and allanite. Interlayers of biotite schist at margins.

Enumerated_Domain:

Enumerated_Domain_Value: Kum

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Nason terrane: Ultramafic rocks (Late Cretaceous)-Serpentinized orthopyroxenite (metaperidotite) and serpentinite. Coarse-grained enstatite with skeletal relicts of olivine in lens on ridge north of North Fork of Skykomish River; enstatite replaced by serpentine minerals, talc, and tremolite, especially in foliate zones. Small pods are mostly serpentinitized pyroxenite(?) or talc-tremolite rocks.

Enumerated_Domain:

Enumerated_Domain_Value: Ked

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Easton terrane: Easton Metamorphic Suite (Early Cretaceous): Darrington Phyllite (east of Straight Creek Fault)-Black, graphitic sericite-quartz phyllite with quartz exudation lamellae. Strongly mylonitic with new quartz and quartzofeldspathic layers and boudins; thermally metamorphosed with new red-brown biotite. Ellis (1959, p. 8-12) describes two generations of foliation.

Enumerated_Domain:

Enumerated_Domain_Value: Kes

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Easton terrane: Easton Metamorphic Suite (Early Cretaceous): Shuksan Greenschist-Greenschist, actinolite schist, and rare blue-amphibole schist. Strongly schistose and locally well layered. Actinolitic hornblende locally replaces crossite and glaucophane. Glaucophane rims crossite. Pumpellyite, probable sodic pyroxene, and stilpnomelane are common constituents of some rocks. Descriptions adapted from Yeats (1958a, p. 64-70). Highly recrystallized breccia of metagreenstone tuff, greenschist, and phyllitic clasts crops out in Lower Eagle Creek gorge.

Enumerated_Domain:

Enumerated_Domain_Value: KJis

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Ingalls terrane: Ingalls Tectonic Complex (Early Cretaceous or Late Jurassic): Serpentinite and serpentinitized metaperidotite-Metamorphic rocks composed of olivine (forsterite), tremolite or talc, and carbonate minerals and serpentine. Frost (1973, p. 8-12) reports that the original ultramafic rocks in Paddy Go Easy Pass area were lherzolite with olivine, enstatite, diopside, and chromite.

Local relict primary layering. Serpentinite, formed prior to intrusion of Mount Stuart batholith, is mostly antigorite with veins of lizardite (Frost, 1973, p. 26). Contact with unit KJim is mapped where subdued topography and gray to bluish-gray serpentinite slopes change to blocky orange outcrops of metaperidotite. In Paddy Go Easy Pass area, contacts are from Frost's (1973, pl. 1 and p. 28-29) serpentine-out isograd. Common foliation in serpentinite not shown on map.

Enumerated_Domain:

Enumerated_Domain_Value: KJim

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Ingalls terrane: Ingalls Tectonic Complex (Early Cretaceous or Late Jurassic): Metaperidotite-Olivine (forsterite)-talc-tremolite rock with minor late serpentine minerals. Forsterite and enstatite also occur with or without anthophyllite close to Mount Stuart batholith (Frost, 1973, p. 29-34). See Frost (1973) for details of petrology and mineralogy.

Enumerated_Domain:

Enumerated_Domain_Value: KJih

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Ingalls terrane: Ingalls Tectonic Complex (Early Cretaceous or Late Jurassic): Hornfels-Foliate and nonfoliate metamorphic rocks ranging from hornfels with relict protolith structure to gneissic amphibolite. Includes hornfelsic pillow basalt, gabbro, diorite, quartz diorite, amphibolite, mafic schist, volcaniclastic rocks, argillite, chert, and rodingite. See Frost (1973, p. 16-22, 43-45) for more details.

Enumerated_Domain:

Enumerated_Domain_Value: wa

Enumerated_Domain_Value_Definition: water

Enumerated_Domain:

Enumerated_Domain_Value: gl

Enumerated_Domain_Value_Definition: glacier

Distribution_Information:

Resource_Description: Downloadable Data

Standard_Order_Process:

Digital_Form:

Digital_Transfer_Information:

Transfer_Size: 1.422

Metadata_Reference_Information:

Metadata_Date: 20060914

Spatial_Data_Organization_Information: skylines:

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector

Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Entity point

Point_and_Vector_Object_Count: 18

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Complete chain

Point_and_Vector_Object_Count: 75

SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Point
Point_and_Vector_Object_Count: 45
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Label point
Point_and_Vector_Object_Count: 25
Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Map_Projection:
Map_Projection_Name: Transverse Mercator
Transverse_Mercator:
Scale_Factor_at_Central_Meridian: 0.999600
Longitude_of_Central_Meridian: -123.000000
Latitude_of_Projection_Origin: 0.000000
False_Easting: 500000.000000
False_Northing: 0.000000
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: coordinate pair
Coordinate_Representation:
Abscissa_Resolution: 0.000128
Ordinate_Resolution: 0.000128
Planar_Distance_Units: meters
Geodetic_Model:
Horizontal_Datum_Name: D_Clarke_1866
Ellipsoid_Name: Clarke 1866
Semi-major_Axis: 6378206.400000
Denominator_of_Flattening_Ratio: 294.978698
Entity_and_Attribute_Information:
Detailed_Description:
Entity_Type:
Entity_Type_Label: skylines.pat
Attribute:
Attribute_Label: FID
Attribute_Definition: Internal feature number.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain: Sequential unique whole numbers that are automatically generated.
Attribute:
Attribute_Label: Shape
Attribute_Definition: Feature geometry.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain: Coordinates defining the features.
Attribute:
Attribute_Label: AREA
Attribute_Definition: Area of feature in internal units squared.

Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain: Area is always zero for point coverages. Values are automatically generated.

Attribute:
Attribute_Label: PERIMETER
Attribute_Definition: Perimeter of feature in internal units.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain: Perimeter is always zero for point coverages. Values are automatically generated.

Attribute:
Attribute_Label: SKYLINES#
Attribute_Definition: Internal feature number.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain: Sequential unique whole numbers that are automatically generated.

Attribute:
Attribute_Label: SKYLINES-ID
Attribute_Definition: User-defined feature number.
Attribute_Definition_Source: ESRI

Attribute:
Attribute_Label: PTYPE

Attribute:
Attribute_Label: SEL

Attribute:
Attribute_Label: SYMB

Detailed_Description:
Entity_Type:
Entity_Type_Label: skylines.aat

Attribute:
Attribute_Label: FID
Attribute_Definition: Internal feature number.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain: Sequential unique whole numbers that are automatically generated.

Attribute:
Attribute_Label: Shape
Attribute_Definition: Feature geometry.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain: Coordinates defining the features.

Attribute:
Attribute_Label: FNODE#
Attribute_Definition: Internal node number for the beginning of an arc (from-node).

Attribute_Definition_Source: ESRI
 Attribute_Domain_Values:
 Unrepresentable_Domain: Whole numbers that are automatically generated.
 Attribute:
 Attribute_Label: TNODE#
 Attribute_Definition: Internal node number for the end of an arc (to-
 node).
 Attribute_Definition_Source: ESRI
 Attribute_Domain_Values:
 Unrepresentable_Domain: Whole numbers that are automatically generated.
 Attribute:
 Attribute_Label: LPOLY#
 Attribute_Definition: Internal node number for the left polygon.
 Attribute_Definition_Source: ESRI
 Attribute_Domain_Values:
 Unrepresentable_Domain: Whole numbers that are automatically generated.
 Attribute:
 Attribute_Label: RPOLY#
 Attribute_Definition: Internal node number for the right polygon.
 Attribute_Definition_Source: ESRI
 Attribute_Domain_Values:
 Unrepresentable_Domain: Whole numbers that are automatically generated.
 Attribute:
 Attribute_Label: LENGTH
 Attribute_Definition: Length of feature in internal units.
 Attribute_Definition_Source: ESRI
 Attribute_Domain_Values:
 Unrepresentable_Domain: Positive real numbers that are automatically
 generated.
 Attribute:
 Attribute_Label: SKYLINES#
 Attribute_Definition: Internal feature number.
 Attribute_Definition_Source: ESRI
 Attribute_Domain_Values:
 Unrepresentable_Domain: Sequential unique whole numbers that are
 automatically generated.
 Attribute:
 Attribute_Label: SKYLINES-ID
 Attribute_Definition: User-defined feature number.
 Attribute_Definition_Source: ESRI
 Attribute
 Attribute_Label: LTYPE
 Attribute_Definition: locations of fold axis, mineral isograd, margin of
 continental ice and cross-section line
 Attribute_Definition_Source: Author
 Attribute_Domain_Values:
 Enumerated_Domain:
 Enumerated_Domain_Value: fa

Enumerated_Domain_Value_Definition: Axial trace of fold based on strike and dip of bedding.

Enumerated_Domain:

Enumerated_Domain_Value: fa, concealed

Enumerated_Domain_Value_Definition: Axial trace of fold based on strike and dip of bedding, where beds defining fold are hidden beneath younger unfolded materials

Enumerated_Domain:

Enumerated_Domain_Value: iso

Enumerated_Domain_Value_Definition: Mineral isograd

Enumerated_Domain:

Enumerated_Domain_Value: ice margin

Enumerated_Domain_Value_Definition: margin of continental ice (Canadian ice sheet)

Enumerated_Domain:

Enumerated_Domain_Value: xs

Enumerated_Domain_Value_Definition: Location of cross-sections on printed map.

Attribute:

Attribute_Label: DESCRIPTION

Attribute_Definition: additional information about lines on published map such as minerals defining isograd (i.e. sillimanite isograd), letter designation of cross section lines, type of fold axis, etc.

Attribute_Definition_Source: Author

Distribution_Information:

Resource_Description: Downloadable Data

Standard_Order_Process:

Digital_Form:

Digital_Transfer_Information:

Transfer_Size: 0.042

Metadata_Reference_Information:

Metadata_Date: 20060914

Spatial_Data_Organization_Information: skypoints:

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector

Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Entity point

Point_and_Vector_Object_Count: 90

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Point

Point_and_Vector_Object_Count: 45

Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: skypoints.pat

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Attribute_Label: FID

Attribute_Definition: Internal feature number.
 Attribute_Definition_Source: ESRI
 Attribute_Domain_Values:
 Unrepresentable_Domain: Sequential unique whole numbers that are automatically generated.

Attribute:
 Attribute_Label: Shape
 Attribute_Definition: Feature geometry.
 Attribute_Definition_Source: ESRI
 Attribute_Domain_Values:
 Unrepresentable_Domain: Coordinates defining the features.

Attribute:
 Attribute_Label: AREA
 Attribute_Definition: Area of feature in internal units squared.
 Attribute_Definition_Source: ESRI
 Attribute_Domain_Values:
 Unrepresentable_Domain: Area is always zero for point coverages. Values are automatically generated.

Attribute:
 Attribute_Label: PERIMETER
 Attribute_Definition: Perimeter of feature in internal units.
 Attribute_Definition_Source: ESRI
 Attribute_Domain_Values:
 Unrepresentable_Domain: Perimeter is always zero for point coverages. Values are automatically generated.

Attribute:
 Attribute_Label: SKYPOINTS#
 Attribute_Definition: Internal feature number.
 Attribute_Definition_Source: ESRI
 Attribute_Domain_Values:
 Unrepresentable_Domain: Sequential unique whole numbers that are automatically generated.

Attribute:
 Attribute_Label: SKYPOINTS-ID
 Attribute_Definition: User-defined feature number.
 Attribute_Definition_Source: ESRI

Attribute:
 Attribute_Label: PTTYPER
 Attribute_Definition: location points for samples dated by isotope methods, fossils, approx. center of morainal embankments, outcrops of limestone or ultramafic rock to small to show at map scale.
 Attribute_Definition_Source: Author
 Attribute_Domain_Values:
 Enumerated_Domain:
 Enumerated_Domain_Value: fossil locality
 Enumerated_Domain_Value_Definition: Fossil locality keyed by map number to Table 1, I-1963 (<http://pubs.usgs.gov/imap/i1963/>)
 Enumerated_Domain:

Enumerated_Domain_Value: age sample

Enumerated_Domain_Value_Definition: Location of sample dated by isotope analysis, keyed by map number to Table 2, I-1963 (<http://pubs.usgs.gov/imap/i1963/>)

Enumerated_Domain:

Enumerated_Domain_Value: morbank

Enumerated_Domain_Value_Definition: Approximate center of morainal embankment

Enumerated_Domain:

Enumerated_Domain_Value: um

Enumerated_Domain_Value_Definition: Location of ultramafic rock outcrop too small to show at map scale. Includes : PRE-TERTIARY BEDROCK: Rocks of the western melange belt (early Tertiary to mid-Cretaceous): Ultramafic rocks-Serpentinized peridotite, Rocks of the eastern melange belt (early Tertiary to mid-Cretaceous): Ultramafic rocks-Highly altered pods of pyroxenite, peridotite, and serpentinized dunite are tectonically intercalated with argillite and ribbon chert near Merchant Peak. See Yeats (1958a, p. 116-119) for further discussion of that area. Schistose ultramafite east of Weden Creek consists of forsterite in mesh of antigorite. Olivine is locally converted to phlogopite near Tertiary plutons. In Sultan Basin area Dungan (1974, p. 40-41) describes peridotite hornfels on Red Mountain with assemblage of forsterite-talc-tremolite-chlorite within 2.5 km of contact with Index batholith. North of quadrangle, ultramafic rocks on strike with this layer are serpentinized cumulus peridotite with relict olivine and orthopyroxene associated locally with layered gabbro (Dungan, 1974, p. 48-62), Nason terrane: Ultramafic rocks (Late Cretaceous)-Serpentinized orthopyroxenite (metaperidotite) and serpentinite. Coarse-grained enstatite with skeletal relicts of olivine in lens on ridge north of North Fork of Skykomish River; enstatite replaced by serpentine minerals, talc, and tremolite, especially in foliate zones. Small pods are mostly serpentinized pyroxenite(?) or talc-tremolite rocks, and Tonga Formation of Yeats (1958b) (Late Cretaceous): Ultramafic rocks-Serpentine and serpentinized peridotite associated with fault bounding the Tonga Formation on west.

Enumerated_Domain:

Enumerated_Domain_Value: ls

Enumerated_Domain_Value_Definition: Location of limestone or marble outcrop too small to show at map scale. Includes : PRE-TERTIARY BEDROCK: Rocks of the western melange belt (early Tertiary to mid-Cretaceous): Marble-Black to bluish-gray marble and, in part, interbedded chert and shale occurring as steeply dipping pods and lenticular beds, Rocks of the eastern melange belt (early Tertiary to mid-Cretaceous): Marble-Lenticular beds and pods of banded, white to grayish, medium- to fine-grained crystalline marble intercalated with metachert and greenstone; in part, shaly laminations or graphitic impurities mark bedding planes. Silicified replacement masses (Danner, 1966, p. 374; Yeats, 1958a, p. 103), and Nason terrane: Chiwaukum Schist (Late Cretaceous): Marble-Small, coarsely crystalline gray lenses in schist east of Mill Creek

Attribute:

Attribute_Label: SAMPNO

Attribute_Definition: Field number of rock sample with described fossils or isotopically analysed for age.

Attribute_Definition_Source: Author

Attribute:

Attribute_Label: AGE

Attribute_Definition: age(s) of samples dated by radiometric or fission track methods. See Table 2 in published text keyed to mapno

(<http://pubs.usgs.gov/imap/i1963/>)

Attribute:

Attribute_Label: UNIT

Attribute_Definition: Source unit of sample or unit symbol of small outcrop or morainal embankment.

Attribute_Definition_Source: Author

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Bald Mtn. pluton

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Bald Mountain pluton (age uncertain)-Medium- to coarse-grained, hypidiomorphic biotite granodiorite and granite, in part gneissic near the margins. Accessory cordierite, mostly altered to pinite, and rare garnet. Locally cataclastic. Clinopyroxene rimmed with hornblende; intergranular quartz and potassium feldspar graphically intergrown.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Barlow Pass(?) Volca

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Barlow Pass Volcanics of Vance (1957b) (late and middle Eocene): South of Skykomish, rocks that we mapped as Barlow Pass(?) Volcanics are mostly heterogeneous, light-tan to dark-gray-green, rhyolitic to andesitic breccia and feldspar porphyry. Rocks identified as andesite in the field generally contain at least trace amounts of quartz in thin section. Crystal-rich andesite and dacite breccia contains andesite, dacite, and rhyolite clasts, sandstone, metasedimentary rocks, chert, siltstone, quartz, foliated polycrystalline quartz, potassium feldspar, and plagioclase. Crystal-rich greenish rhyodacite breccia has platy cleavage. Amygdaloidal andesite(?) and andesite(?) porphyry, in part having crude columns, are also present. Plagioclase is commonly altered to calcite and chlorite. Pyrite is locally present. Further details given by Yeats (1958a, p. 152-161). Includes probable intrusive rhyolite porphyry on Money Creek. Many volcanic rocks in the Barlow Pass(?) Volcanics are partly to strongly recrystallized by nearby Tertiary plutons

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Beckler Pk.stock

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Rocks of the Mount Stuart batholith (Late Cretaceous): Granodiorite of the Beckler Peak stocks-Biotite granodiorite, hypidiomorphic granular to xenomorphic with microcline microperthite. Mostly CI 5-9, but Yeats (1958a, p. 75) reports some

rocks with as much as 18 percent mafic minerals. Stocks are commonly highly sheared and cataclastic

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Breccia of Kyes Peak

Enumerated_Domain_Value_Definition: : TERTIARY BEDROCK: Breccia of Kyes Peak (Miocene)-Mostly andesite and dacite breccia beds with abundant clasts of schist, gneiss, and granitoid rocks. Rare two-pyroxene andesite, dacite, and rhyolite flows. Monolithologic breccias consist predominantly of fine-grained mica schist or granodiorite clasts. Clasts as long as 200 m. Breccia beds range from a few centimeters to more than 50 m in thickness. Thin volcanic to volcanic-lithic-subquartzose-sandstone beds locally near base. Heath (1971, p. 124-125) described probable primary garnets in rhyodacite and dacite flows. Alteration minerals are chlorite, sericite, and epidote. Some rocks, especially those east of Glacier Creek, are thermally metamorphosed and enriched in magnetite, actinolite, and albite(?).

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Chiwaukum Schist

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Nason terrane: Chiwaukum Schist (Late Cretaceous): Biotite schist and amphibolite-Mostly fine- to medium-grained, well-laminated mica schist similar to unit Kcb but with rare to abundant schistose amphibolite, fine-grained hornblende gneiss, and less common calc-silicate schist and marble. Cut by dikes and sills of light-colored biotite tonalite and pegmatite.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: dike in Tpa

Enumerated_Domain_Value_Definition: Dike intruding Volcanic rocks of Mount Persis.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Eagle Tuff

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Eagle Tuff of Yeats (1977) (Miocene)-Brown to gray-brown rhyolitic to dacitic tuff, ash-flow tuff, and breccia. Conspicuous quartz phenocrysts are set in clastic matrix of plagioclase and silicic volcanic rock; some glassy shards. Abundant fragments of pre-Tertiary country rock present in unit. Poor sorting. Bedding inconspicuously shown by flattened pumice clasts and local thin layers of tuff

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Eastern melange belt

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Rocks of the eastern melange belt (early Tertiary to mid-Cretaceous): Migmatitic gneiss-Fine-grained schistose amphibolite to medium- and coarse-grained massive quartz diorite with layered hornblende gneiss, gneissose quartz diorite, trondhjemitic, and replacement breccia and minor serpentinitized ultramafite. Amphibolite is crystalloblastic with xenoblastic unzoned and untwinned andesine, brown to

brownish-green xenoblastic hornblende, and accessory sphene, apatite, magnetite, ilmenite, and zircon. Rocks grade through hornblende gneiss to gneissose quartz diorite; commonly mafic and less mafic rocks in irregular, intimately mixed layers. All exposures cut by anastomosing shear zones; rocks cataclastically deformed prior to late static recrystallization. Description modified from Yeats (1958a, p. 83-99; 1964, p. 552-555) AND Metatonalite-Altered medium-grained metatonalite. Subhedral plagioclase, mostly anhedral and intergranular mosaics of quartz and small amounts of altered green hornblende and perthitic potassium feldspar. Locally cataclastic.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Fuller Mtn. plug

Enumerated_Domain_Value_Definition: : TERTIARY BEDROCK: Fuller Mountain plug (early Eocene)-Gray, highly jointed, hornblende-biotite-clinopyroxene granodiorite. Clinopyroxene rimmed with hornblende; intergranular quartz and potassium feldspar graphically intergrown(?).

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Gneissic tonalite

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Gneissic tonalite of Excelsior Mountain (Late Cretaceous)-Light-colored biotite-tonalite gneiss and flaser gneiss, locally massive; contains minor hornblende, muscovite, and clinozoisite and rare garnet and opaque ores. Subhedral to euhedral plagioclase with faint patches of relict euhedral oscillatory zoning and patchy zoning set in mylonitic matrix of quartz, biotite, hornblende, and clinozoisite.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Grotto batholith

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Rocks of the Grotto batholith: Biotite-hornblende granodiorite and granite (Miocene and Oligocene)-Medium-grained hypidiomorphic-granular granodiorite and granite with subhedral to euhedral, oscillatory zoned plagioclase in matrix of optically continuous quartz or anhedral quartz and perthite; some granopyhric textures. CI 10-20. Relic pyroxene in uralitic pale-green hornblende. Many rocks extensively altered to chlorite, epidote, and sphene; some crosscutting fractures filled with alteration minerals. Fine-grained mafic inclusions common. Includes some areas underlain by rocks similar to the granite of San Juan Creek. North end of pluton and smaller stocks in Monte Cristo area are more mafic and mostly granodiorite and tonalite

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Index batholith

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Rocks of the Index batholith: Granodiorite and tonalite (Oligocene)-Mostly biotite-hornblende and hornblende-biotite granodiorite and tonalite but locally ranges from quartz diorite and quartz monzonite to rare granite; CI 2-30. Medium-grained hypidiomorphic-granular texture; granofelsic, mostly anhedral quartz is interstitial to subhedral and euhedrally oscillatory zoned from labradorite or

andesine to oligoclase (see Yeats, 1958a, p. 202-203; Griffis, 1977, p. 85). Pyroxene is rare and mostly present as tiny rounded inclusions in plagioclase AND Granodiorite and granite of the Sunday Creek stock (Oligocene)-Granodiorite and granite similar to unit Tig but highly altered to sericite, epidote, and chlorite. Bethel (1951, p. 147) reported some micrographic and local granoblastic textures. Locally cataclastic.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Misc. volcanic rocks

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Volcanic rocks of Cady Ridge (Pliocene and Miocene): Breccia and flows-Porphyrific hornblende-hypersthene andesite and (or) dacite in flows and breccias. Rocks commonly highly altered to smectite.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Mt Stuart batholith

Enumerated_Domain_Value_Definition: : PRE-TERTIARY BEDROCK: Rocks of the Mount Stuart batholith (Late Cretaceous): Tonalite and granodiorite of the western pluton-Predominantly medium-grained, hypidiomorphic-granular hornblende-biotite tonalite and subordinate granodiorite. CI 4-15, based on normative mineral data from Erikson (1977b and written commun., 1978). Hornblende locally uraltic around clinopyroxene relicts; potassium feldspar crystallized late and replaces plagioclase with some myrmekite developed. Massive to gneissic near margins, Tonalite and granodiorite of the western pluton: Tonalite of Harding Mountain-Fine- to medium-grained biotite-hornblende tonalite, commonly with crystalloblastic patches of actinolitic hornblende and biotite; CI 12-18. Hypidiomorphic-granular, rich in matrix quartz. Local cumulate layering of hornblende and plagioclase. Outcrops tend to be highly jointed and disintegrate into 10- to 20-cm blocks in extensive talus, AND Tonalite and granodiorite of the eastern pluton-Predominantly medium-grained, hypidiomorphic-granular hornblende-biotite tonalite and subordinate granodiorite. Similar to unit Ksw, although parts of the eastern pluton are somewhat more mafic than western pluton. CI 3-30, based on normative minerals and modal analyses by Erikson (1977b and written commun. 1978).

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Shuksan Greenschist

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Easton terrane: Easton Metamorphic Suite (Early Cretaceous): Shuksan Greenschist-Greenschist, actinolite schist, and rare blue-amphibole schist. Strongly schistose and locally well layered. Actinolitic hornblende locally replaces crossite and glaucophane. Glaucophane rims crossite. Pumpellyite, probable sodic pyroxene, and stilpnomelane are common constituents of some rocks. Descriptions adapted from Yeats (1958a, p. 64-70). Highly recrystallized breccia of metagreenstone tuff, greenschist, and phyllitic clasts crops out in Lower Eagle Creek gorge.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Silver Creek stock

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Tonalite of Silver Creek (Miocene)-Biotite-hornblende and hornblende-biotite tonalite forming small stocks, plugs, and dikes. Texture is hypidiomorphic to porphyritic granular. Mafic minerals are considerably altered to chlorite and epidote.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Snoqualmie batholith

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Rocks of the Snoqualmie batholith: Tonalite and granodiorite (Miocene and Oligocene)-Biotite-hornblende tonalite and granodiorite, medium-grained, mostly equigranular, with hypidiomorphic texture; locally contains clinopyroxene. Mostly light-colored (CI 9-24), coarsely jointed rock. Description adapted from Erikson (1969, p. 2218-2219), Mafic diorite and gabbro (Miocene and Oligocene)-Biotite-hornblende diorite and gabbro; includes some mafic pyroxene-bearing tonalite and quartz diorite. CI 20-40 (Erikson, 1969, p. 2217), AND Granite of Mount Hinman (Miocene and Oligocene)-Hornblende-biotite and two-pyroxene granite; CI 6-15. Generally medium grained, hypidiomorphic granular, but commonly has mesostasic quartz or micrographic texture between larger grains. Rocks commonly altered, containing chlorite and epidote. Description modified from Erikson (1969, p. 2222).

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Vol.rks Mt.Persis

Enumerated_Domain_Value_Definition: : TERTIARY BEDROCK: Volcanic rocks of Mount Persis (late Eocene): Andesite flows, tuffs, and breccia, containing minor dacite and basalt, and minor volcaniclastic sandstone, conglomerate, and siltstone-Massive, dark-green to black, plagioclase-porphyritic two-pyroxene andesite and andesitic breccia and tuff. Phenocrysts and glomerocrysts of plagioclase, clinopyroxene, hypersthene, mostly greatly altered in an intersertal to holocrystalline groundmass of mainly clinopyroxene, plagioclase, and opaque minerals. Black basalt is aphyric to microporphyritic, commonly trachytoid, and locally with altered olivine. Upper part of unit includes rare interbedded, dark-gray to brownish volcanic sandstone and siltstone. Danner (1957, p. 471-472) reports andesite conglomerate interbeds in Youngs Creek. Generally poorly indurated volcanic sandstone contains angular to rounded clasts of volcanic rocks, altered glass, and plagioclase crystals; also contains clasts of chert, sandstone, and siltstone. Variably altered to smectites, epidote, and calcite. Locally hornfelsic near Tertiary plutons, most extensively south of Youngs Creek stock, AND Hornblende dacite breccia-Light-green hornblende dacite breccia composed mainly of andesitic clasts, euhedral plagioclase (in part altered to epidote), tan to olive-green hornblende, clinopyroxene altered to smectites, resorbed quartz, and opaque mineral grains in altered partially devitrified glassy matrix

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Vol.rks.Mt.Daniel

Enumerated_Domain_Value_Definition: TERTIARY BEDROCK: Volcanic rocks of Mount Daniel (Oligocene): Dacite, andesite, and rhyolite-Clinopyroxene and hypersthene-clinopyroxene dacite, andesite, and rhyolite in flows, breccia, tuff, dikes, and sills. Rocks commonly highly altered to smectites and (or) calcite on the south and epidote, chlorite, and locally prehnite on the north. Bedding obscure; welded tuff locally shows flattening, and tuff is locally interbedded with volcanic sandstone and siltstone.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Western melange belt

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Rocks of the western melange belt (early Tertiary to mid-Cretaceous): Metagabbro, minor gneissic amphibolite, and rare gabbro flaser gneiss-Massive to foliated, fine- to medium-grained metagabbro. Many outcrops sheared on all scales. In massive rocks, euhedral, mottled, locally crushed plagioclase, intergranular to euhedral uralitized clinopyroxene, and opaque minerals are common. Mafic metagabbro on Woods Creek bears relicts of hypersthene and clinopyroxene. Sheared rocks range from flaser gabbro with plagioclase cataclasts in schistose, chloritic matrix to well-recrystallized greenstone, greenschist, or amphibolite, locally banded. Most metamorphic minerals are uralite, chlorite, epidote, sphene, carbonate, prehnite, and pumpellyite in metagabbro and metadiabase. Unit includes minor hornblende metatonalite, metaquartz diorite, and minor feldspathic hornblendite AND Rocks of the western melange belt (early Tertiary to mid-Cretaceous): Metatonalite-Fine- to coarse-grained porphyroclastic metatonalite, locally sheared into light-colored cataclastic chlorite gneiss. Predominantly composed of plagioclase and quartz (in part secondary) with actinolitic hornblende, epidote, and chlorite. Occurs mostly as small bodies generally associated with metagabbro.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: West.andEast melange

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Rocks of the western melange belt (early Tertiary to mid-Cretaceous): Argillite and graywacke-Pervasively sheared, scaley matrix of mostly argillite containing steep-sided, outcrop- to mountain-sized phacoids of purplish, reddish, gray, and black, fine- to coarse-grained and pebbly, lithofeldspathic, volcanolithic, and subquartzose sandstone interbedded with black argillite. Sandstone has clasts mostly of plagioclase, chert, volcanic rocks, and quartz. Also abundant are grains of sandstone, siltstone, phyllite, biotite, muscovite, and epidote. Where more strongly deformed, unstable grains are broken down into anastomosing shear zones or smeared out into indistinct chloritic matrix. Alteration minerals are calcite, chlorite, sericite, limonite, epidote, and prehnite. Near Tertiary plutons the rocks have become hornfelsic, commonly with conspicuous biotite. Sedimentary features such as graded bedding and load casts are locally well preserved. Unit includes minor chert, polymictic and quartz-pebble conglomerate, and shale-chip breccia; also very minor chert, limestone, metavolcanic rocks, metagabbro, and metatonalite. Locally cut by greenstone (metadiabase) dikes, Potassium-feldspar-bearing sandstone-Lithologically similar

to sandstone of unit TKwa but having 2-20 percent potassium-feldspar clasts and commonly more plagioclase, muscovite, and biotite, Marble-Black to bluish-gray marble and, in part, interbedded chert and shale occurring as steeply dipping pods and lenticular beds. Thin, green tuffaceous chert beds crop out in marble at Haystack quarry on Proctor Creek, Rocks of the eastern melange belt (early Tertiary to mid-Cretaceous): Chert and metachert-Intensely folded, white to cream or gray, ribbon chert and medium- to fine-grained banded quartzite (metachert); alternating with thin to thick, dark-brown to black layers of calcareous argillite, AND Marble-Lenticular beds and pods of banded, white to grayish, medium- to fine-grained crystalline marble intercalated with metachert and greenstone; in part, shaly laminations or graphitic impurities mark bedding planes. Silicified replacement masses (Danner, 1966, p. 374; Yeats, 1958a, p. 103).

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: TKwm see DMU

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Rocks of the western melange belt (early Tertiary to mid-Cretaceous): Marble: see Description of Map Units

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: TKem see DMU

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Rocks of the eastern melange belt (early Tertiary to mid-Cretaceous): Marble: see Description of Map Units

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Kcm see DMU

Enumerated_Domain_Value_Definition: : PRE-TERTIARY BEDROCK: Nason terrane: Chiwaukum Schist (Late Cretaceous): Marble: see Description of Map Units

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: TKeu see DMU

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Rocks of the eastern melange belt (early Tertiary to mid-Cretaceous): Ultramafic rocks: see Description of Map Units

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: TKwu see DMU

Enumerated_Domain_Value_Definition: PRE-TERTIARY BEDROCK: Rocks of the western melange belt (early Tertiary to mid-Cretaceous): Ultramafic rocks see Description of Map Units

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Kum see DMU

Enumerated_Domain_Value_Definition: : PRE-TERTIARY BEDROCK: Nason
terrane: Chiwaukum Schist (Late Cretaceous): Ultramafic rocks: see Description
of Map Units

Distribution_Information:

Resource_Description: Downloadable Data

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Transfer_Size: 0.039

Metadata_Reference_Information:

Metadata_Date: 20060914

Spatial_Data_Organization_Information: skysstructure:

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector

Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Entity point

Point_and_Vector_Object_Count: 1124

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Complete chain

Point_and_Vector_Object_Count: 0

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Point

Point_and_Vector_Object_Count: 45

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Label point

Point_and_Vector_Object_Count: 1043

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Horizontal_Coordinate_System_Definition:

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Map_Projection:

Map_Projection_Name: Transverse Mercator

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Latitude_of_Projection_Origin: 0.000000

False_Easting: 500000.000000

False_Northing: 0.000000

Planar_Coordinate_Information:

Planar_Coordinate_Encoding_Method: coordinate pair

Coordinate_Representation:

Abscissa_Resolution: 0.000128

Ordinate_Resolution: 0.000128

Planar_Distance_Units: meters

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Horizontal_Datum_Name: D_Clarke_1866

Ellipsoid_Name: Clarke 1866

Semi-major_Axis: 6378206.400000

Denominator_of_Flattening_Ratio: 294.978698

Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: skystructure.pat

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Attribute_Label: FID

Attribute_Definition: Internal feature number.

Attribute_Definition_Source: ESRI

Attribute_Domain_Values:

Unrepresentable_Domain: Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute_Label: Shape

Attribute_Definition: Feature geometry.

Attribute_Definition_Source: ESRI

Attribute_Domain_Values:

Unrepresentable_Domain: Coordinates defining the features.

Attribute:

Attribute_Label: AREA

Attribute_Definition: Area of feature in internal units squared.

Attribute_Definition_Source: ESRI

Attribute_Domain_Values:

Unrepresentable_Domain: Area is always zero for point coverages. Values are automatically generated.

Attribute:

Attribute_Label: PERIMETER

Attribute_Definition: Perimeter of feature in internal units.

Attribute_Definition_Source: ESRI

Attribute_Domain_Values:

Unrepresentable_Domain: Perimeter is always zero for point coverages. Values are automatically generated.

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Attribute_Label: SKYSTRUCTURE#

Attribute_Definition: Internal feature number.

Attribute_Definition_Source: ESRI

Attribute_Domain_Values:

Unrepresentable_Domain: Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute_Label: SKYSTRUCTURE-ID

Attribute_Definition: User-defined feature number.

Attribute_Definition_Source: ESRI

Attribute:

Attribute_Label: PTTYPE

Attribute_Definition: strike and dip of planar structures and bearing and plunge of linear structures

Attribute_Definition_Source: Author

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  Enumerated_Domain:
    Enumerated_Domain_Value: bedding w/tops
    Enumerated_Domain_Value_Definition: strike and dip of bedding; top
direction known
  Enumerated_Domain:
    Enumerated_Domain_Value: ot bedding w/tops
    Enumerated_Domain_Value_Definition: strike and dip of overturned
bedding; top direction known
  Enumerated_Domain:
    Enumerated_Domain_Value: bedding
    Enumerated_Domain_Value_Definition: strike and dip of bedding; top
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    Enumerated_Domain_Value: _l_lineation_h_
    Enumerated_Domain_Value_Definition: strike of lineation
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    Enumerated_Domain_Value: foliation
    Enumerated_Domain_Value_Definition: strike and dip of aligned planar
minerals in metamorphic rocks
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    Enumerated_Domain_Value: horizontal bedding
    Enumerated_Domain_Value_Definition: position of bedding which is
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  Enumerated_Domain:
    Enumerated_Domain_Value: vert foliation and bedding
    Enumerated_Domain_Value_Definition: strike of vertical foliation and
parallel bedding: top direction unknown
  Enumerated_Domain:
    Enumerated_Domain_Value: vert bedding
    Enumerated_Domain_Value_Definition: Vertical bedding; top direction
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  Enumerated_Domain:
    Enumerated_Domain_Value: vert bedding w/tops
    Enumerated_Domain_Value_Definition: vertical bedding; top direction
known
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    Enumerated_Domain_Value: _l_fold_i_
    Enumerated_Domain_Value_Definition: strike and plunge of outcrop-scale
fold in bedded rocks or foliation
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Attribute_Label: DIP
Attribute_Definition: Dip of planar structure (angle of plane to horizontal) or
plunge of lineation (angle of lineation to horizontal)
Attribute_Definition_Source: Author

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Attribute_Domain_Values:
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Attribute_Label: STRIKE
Attribute_Definition: Strike of planar structure (azimuth of horizontal line on plane) or azimuth of linear structure
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Spatial_Data_Organization_Information: skyrocksamp
Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Entity point
Point_and_Vector_Object_Count: 239
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SDTS_Point_and_Vector_Object_Type: Point
Point_and_Vector_Object_Count: 49
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Detailed_Description:
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Entity_Type_Label: skyrocksamp2.pat
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Attribute_Definition: Internal feature number.
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Unrepresentable_Domain: Sequential unique whole numbers that are automatically generated.
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Attribute_Definition: Feature geometry.
Attribute_Definition_Source: ESRI
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Unrepresentable_Domain: Coordinates defining the features.
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Attribute_Label: AREA
Attribute_Definition: Area of feature in internal units squared.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain: Area is always zero for point coverages. Values are automatically generated.
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Attribute_Label: PERIMETER

Attribute_Definition: Perimeter of feature in internal units.
 Attribute_Definition_Source: ESRI
 Attribute_Domain_Values:
 Unrepresentable_Domain: Perimeter is always zero for point coverages.
 Values are automatically generated.

Attribute:
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 Attribute_Definition: Internal feature number.
 Attribute_Definition_Source: ESRI
 Attribute_Domain_Values:
 Unrepresentable_Domain: Sequential unique whole numbers that are
 automatically generated.

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 Attribute_Label: SKYROCKSAMP-ID
 Attribute_Definition: User-defined feature number.
 Attribute_Definition_Source: ESRI

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 Attribute_Label: PPTYPE
 Attribute_Definition: archival category
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 Enumerated_Domain_Value_Definition: most representative sample or
 unusual specimen in easily retrieved archive, North Cascades National Park,
 Marblemount, WA
 Attribute_Domain_Values:
 Enumerated_Domain:
 Enumerated_Domain_Value: store
 Enumerated_Domain_Value_Definition: sample in boxed storage, North
 Cascades National Park, Marblemount, WA
 Attribute_Domain_Values:
 Enumerated_Domain:
 Enumerated_Domain_Value: combine
 Enumerated_Domain_Value_Definition: multiple samples from same
 collection site in archive; some with thin section
 Attribute_Label: SAMPNO
 Attribute_Definition: Field number of sample
 Attribute_Definition_Source: Author

Attribute:
 Attribute_Label: SEL
 Attribute_Definition: number indicating category (archival or store, etc.)
 and existence of thin section for sample
 Attribute_Definition_Source: Author
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 Enumerated_Domain_Value_Definition: archival sample, no thin section

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 Enumerated_Domain_Value_Definition: archival sample with thin section
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 Enumerated_Domain:
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 Enumerated_Domain_Value_Definition: stored sample without thin section
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 Enumerated_Domain_Value: 4
 Enumerated_Domain_Value_Definition: stored sample with thin section
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 Enumerated_Domain_Value: 6
 Enumerated_Domain_Value_Definition: multiple samples at collection
 site. Some may have thin sections (see description field below)
 Attribute:
 Attribute_Label: DESCRIPTION
 Attribute_Definition: additional information about sample, includes,
 comments on lithology, age, references, etc. For "combine" samples, identifies
 those with thin sections
 Attribute_Definition_Source: Author
 Attribute:
 Attribute_Label: UNIT
 Attribute_Definition: Source unit of sample
 Attribute_Definition_Source: Author
 Attribute_Domain_Values:
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 Enumerated_Domain_Value: Bald Mountain pluton
 Enumerated_Domain_Value_Definition: Bald Mountain pluton; number of
 samples of this unit = 9; for description see downloadable pdf of Description of
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 Enumerated_Domain:
 Enumerated_Domain_Value: Barlow Pass Volcanic Rocks: sed. rock
 Enumerated_Domain_Value_Definition: Barlow Pass Volcanics of Vance
 (1957b): Sandstone; number of samples of this unit = 5; for description see
 downloadable pdf of Description of Map Units: <http://pubs.usgs.gov/imap/i1963/>
 Enumerated_Domain:
 Enumerated_Domain_Value: Barlow Pass Volcanic Rocks: vol.rock
 Enumerated_Domain_Value_Definition: Barlow Pass Volcanics of Vance
 (1957b): Volcanic rocks; number of samples of this unit = 18; for description
 see downloadable pdf of Description of Map Units:
<http://pubs.usgs.gov/imap/i1963/>
 Enumerated_Domain:
 Enumerated_Domain_Value: Barlow Pass:mineralized quartz vein

Enumerated_Domain_Value_Definition: Barlow Pass Volcanics of Vance;
number of samples of this unit = 1; for description see downloadable pdf of
Description of Map Units: <http://pubs.usgs.gov/imap/i1963/>

Enumerated_Domain:

Enumerated_Domain_Value: Breccia of Kyes Peak

Enumerated_Domain_Value_Definition: Breccia of Kyes Peak; number of
samples of this unit = 9; for description see downloadable pdf of Description of
Map Units: <http://pubs.usgs.gov/imap/i1963/>

Enumerated_Domain:

Enumerated_Domain_Value: Chiwaukum Schist

Enumerated_Domain_Value_Definition: Chiwaukum Schist; number of
samples of this unit = 15; for description see downloadable pdf of Description
of Map Units: <http://pubs.usgs.gov/imap/i1963/>

Enumerated_Domain:

Enumerated_Domain_Value: Eagle Tuff of Yeats(1977)

Enumerated_Domain_Value_Definition: Eagle Tuff of Yeats (1977); number
of samples of this unit = 2; for description see downloadable pdf of Description
of Map Units: <http://pubs.usgs.gov/imap/i1963/>

Enumerated_Domain:

Enumerated_Domain_Value: Eastern melange belt

Enumerated_Domain_Value_Definition: Rocks of the eastern melange belt:
Mafic metavolcanicrocks, chert, argillite, and graywacke, Chert and metachert,
and Metadiabase; number of samples of this unit = 20; for description see
downloadable pdf of Description of Map Units: <http://pubs.usgs.gov/imap/i1963/>

Enumerated_Domain:

Enumerated_Domain_Value: Fuller Mountain plug

Enumerated_Domain_Value_Definition: Fuller Mountain plug; number of
samples of this unit = 1; for description see downloadable pdf of Description of
Map Units: <http://pubs.usgs.gov/imap/i1963/>

Enumerated_Domain:

Enumerated_Domain_Value: Gneissic tonalite of Excelsior Mtn.

Enumerated_Domain_Value_Definition: Gneissic tonalite of Excelsior
Mountain; number of samples of this unit = 5; for description see downloadable
pdf of Description of Map Units: <http://pubs.usgs.gov/imap/i1963/>

Enumerated_Domain:

Enumerated_Domain_Value: Grotto batholith

Enumerated_Domain_Value_Definition: Rocks of the Grotto batholith:
Biotite-hornblende granodiorite and granite, Gabbro, quartz gabbro, and pyroxene
porphyry, Granite of San Juan Creek, and Contact breccia; number of samples of
this unit = 10; for description see downloadable pdf of Description of Map
Units: <http://pubs.usgs.gov/imap/i1963/>

Enumerated_Domain:

Enumerated_Domain_Value: Grotto batholith: Monte Cristo stock

Enumerated_Domain_Value_Definition: Rocks of the Grotto batholith:
Biotite-hornblende granodiorite and granite; number of samples of this unit = 1;
for description see downloadable pdf of Description of Map Units:
<http://pubs.usgs.gov/imap/i1963/>

Enumerated_Domain:

Enumerated_Domain_Value: Index batholith
Enumerated_Domain_Value_Definition: Rocks of the Index batholith:
Granodiorite and tonalite; number of samples of this unit = 5; for description
see downloadable pdf of Description of Map Units:
<http://pubs.usgs.gov/imap/i1963/>

Enumerated_Domain:
Enumerated_Domain_Value: Index batholith: Goblin Cr. stock
Enumerated_Domain_Value_Definition: Rocks of the Index batholith:
Granodiorite of the Goblin Creek stock; number of samples of this unit = 2; for
description see downloadable pdf of Description of Map Units:
<http://pubs.usgs.gov/imap/i1963/>

Enumerated_Domain:
Enumerated_Domain_Value: Index batholith: Youngs Cr. stock
Enumerated_Domain_Value_Definition: Rocks of the Index batholith:
Granodiorite and tonalite; number of samples of this unit = 2; for description
see downloadable pdf of Description of Map Units:
<http://pubs.usgs.gov/imap/i1963/>

Enumerated_Domain:
Enumerated_Domain_Value: Index batholith: Sunday Cr. Stock
Enumerated_Domain_Value_Definition: Rocks of the Index batholith:
Granodiorite and granite of the Sunday Creek stock; number of samples of this
unit = 2; for description see downloadable pdf of Description of Map Units:
<http://pubs.usgs.gov/imap/i1963/>

Enumerated_Domain:
Enumerated_Domain_Value: Ingalls Tectonic Complex
Enumerated_Domain_Value_Definition: Ingalls Tectonic Complex; number
of samples of this unit = 3; for description see downloadable pdf of Description
of Map Units: <http://pubs.usgs.gov/imap/i1963/>

Enumerated_Domain:
Enumerated_Domain_Value: Misc.gabbro; Money Creek
Enumerated_Domain_Value_Definition: Gabbro; number of samples of this
unit = 4; for description see downloadable pdf of Description of Map Units:
<http://pubs.usgs.gov/imap/i1963/>

Enumerated_Domain:
Enumerated_Domain_Value: Mount Stuart batholith
Enumerated_Domain_Value_Definition: Rocks of the Mount Stuart
batholith; number of samples of this unit = 5; for description see downloadable
pdf of Description of Map Units: <http://pubs.usgs.gov/imap/i1963/>

Enumerated_Domain:
Enumerated_Domain_Value: Nason Ridge Migmatitic Gneiss
Enumerated_Domain_Value_Definition: Banded gneiss: Gneiss, schist, and
amphibolite; number of samples of this unit = 5; for description see
downloadable pdf of Description of Map Units: <http://pubs.usgs.gov/imap/i1963/>

Enumerated_Domain:
Enumerated_Domain_Value: Olivine basalt of North Fork
Enumerated_Domain_Value_Definition: Basalt flows and cones; number of
samples of this unit = 2; for description see downloadable pdf of Description of
Map Units: <http://pubs.usgs.gov/imap/i1963/>

Enumerated_Domain:

Enumerated_Domain_Value: Shuksan Greenschist

Enumerated_Domain_Value_Definition: Easton Metamorphic Suite: Shuksan Greenschist; number of samples of this unit = 7; for description see downloadable pdf of Description of Map Units: <http://pubs.usgs.gov/imap/i1963/>

Enumerated_Domain:

Enumerated_Domain_Value: Sloan Creek plutons

Enumerated_Domain_Value_Definition: Tonalite gneiss of the Sloan Creek plutons; number of samples of this unit = 1; for description see downloadable pdf of Description of Map Units: <http://pubs.usgs.gov/imap/i1963/>

Enumerated_Domain:

Enumerated_Domain_Value: Snoqualmie batholith

Enumerated_Domain_Value_Definition: Rocks of the Snoqualmie batholith; number of samples of this unit = 11; for description see downloadable pdf of Description of Map Units: <http://pubs.usgs.gov/imap/i1963/>

Enumerated_Domain:

Enumerated_Domain_Value: Snoqualmie batholith: Mt Hindman stock

Enumerated_Domain_Value_Definition: Rocks of the Snoqualmie batholith : Granite of Mount Hinman; number of samples of this unit = 1; for description see downloadable pdf of Description of Map Units: <http://pubs.usgs.gov/imap/i1963/>

Enumerated_Domain:

Enumerated_Domain_Value: Swauk Formation

Enumerated_Domain_Value_Definition: Swauk Formation: Sandstone and conglomerate; number of samples of this unit = 5; for description see downloadable pdf of Description of Map Units: <http://pubs.usgs.gov/imap/i1963/>

Enumerated_Domain:

Enumerated_Domain_Value: Swauk: Silver Pass Vol. Member

Enumerated_Domain_Value_Definition: Swauk Formation: Silver Pass Volcanic Member; number of samples of this unit = 2; for description see downloadable pdf of Description of Map Units: <http://pubs.usgs.gov/imap/i1963/>

Enumerated_Domain:

Enumerated_Domain_Value: Tonalite of Silver Creek

Enumerated_Domain_Value_Definition: Tonalite of Silver Creek; number of samples of this unit = 1; for description see downloadable pdf of Description of Map Units: <http://pubs.usgs.gov/imap/i1963/>

Enumerated_Domain:

Enumerated_Domain_Value: Tonga Fm of Yeats (1958)

Enumerated_Domain_Value_Definition: Tonga Formation of Yeats (1958b); number of samples of this unit = 20; for description see downloadable pdf of Description of Map Units: <http://pubs.usgs.gov/imap/i1963/>

Enumerated_Domain:

Enumerated_Domain_Value: Volcanic rocks (Mount Treen)

Enumerated_Domain_Value_Definition: Volcanic rocks; number of samples of this unit = 6; for description see downloadable pdf of Description of Map Units: <http://pubs.usgs.gov/imap/i1963/>

Enumerated_Domain:

Enumerated_Domain_Value: Volcanic rocks of Mount Persis

Enumerated_Domain_Value_Definition: Volcanic rocks of Mount Persis;
number of samples of this unit = 30; for description see downloadable pdf of
Description of Map Units: <http://pubs.usgs.gov/imap/i1963/>

Enumerated_Domain:

Enumerated_Domain_Value: Volcanic rocks of Mt. Daniel

Enumerated_Domain_Value_Definition: Volcanic rocks of Mount Daniel;
number of samples of this unit = 5; for description see downloadable pdf of
Description of Map Units: <http://pubs.usgs.gov/imap/i1963/>

Enumerated_Domain:

Enumerated_Domain_Value: Western melange belt

Enumerated_Domain_Value_Definition: Rocks of the western melange belt:
Argillite and graywacke, Potassium-feldspar-bearing sandstone, Metavolcanic
rocks, Metatonalite, and Slate, phyllite, and semischist; number of samples of
this unit = 29; for description see downloadable pdf of Description of Map
Units: <http://pubs.usgs.gov/imap/i1963/>

Enumerated_Domain:

Enumerated_Domain_Value: WMB: metagabbro

Enumerated_Domain_Value_Definition: Rocks of the western melange belt:
Metagabbro, minor gneissic amphibolite, and rare gabbro flaser gneiss; number of
samples of this unit = 18; for description see downloadable pdf of Description
of Map Units: <http://pubs.usgs.gov/imap/i1963/>

Attribute:

Attribute_Label: COUNTY2

Attribute_Definition: County in Washington State where sample collected

Attribute_Definition_Source: Author

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Chel

Enumerated_Domain_Value_Definition: Chelan County

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: King

Enumerated_Domain_Value_Definition: King County

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Kitt

Enumerated_Domain_Value_Definition: Kittitas County

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Snoh

Enumerated_Domain_Value_Definition: Snohomish County

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Format_Name: Skykomish geologic map as a PDF files

Format_Specification: Adobe Acrobat Document

Format_Information_Content: PDF of geologic map, correlation chart and description of map units

Transfer_Size: 77.9

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Digital_Transfer_Information:

Format_Name: accompanying pamphlet as a PDF files

Format_Specification: Adobe Acrobat Document

Format_Information_Content: Introduction, Acknowledgements, Summary of Geologic History, expanded description of rock units, figures including location, generalized geologic map, sources of data, and reference list

Transfer_Size: 728 KB

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Format_Name: skycovers.tar.gz

Format_Version_Number: 2

Format_Version_Date: 2006

Format_Specification: ARC/INFO v. 7.1.1

Format_Information_Content: 5 ARC/INFO export (.e00) files.

File-Decompression_Technique: TAR and gzip (see the readme for more information about TAR and gzip).

Transfer_Size: 5 KB

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Metadata_Extensions:

Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>

Profile_Name: ESRI Metadata Profile