

Key to Geologic Units

- ### Unconsolidated Sediments
- Qd Pleistocene dune sand
 - Qa Quaternary alluvium
 - Qm Quaternary marine deposits
 - Ql Quaternary loess
 - Qf Pleistocene outburst-flood deposits
 - Qgs Pleistocene continental glacial drift
 - Qad Pleistocene alpine glacial drift

- ### Sedimentary Rocks and Deposits
- QTC Quaternary-Tertiary continental sedimentary rocks and deposits
 - To Tertiary continental sedimentary rocks
 - Mc Mesozoic continental sedimentary rocks
 - Th Tertiary nearshore sedimentary rocks
 - Men Mesozoic nearshore sedimentary rocks
 - Tm Tertiary marine sedimentary rocks
 - Mm Mesozoic marine sedimentary rocks

- ### Volcanic Rocks and Deposits
- Qv Quaternary volcanic rocks
 - QTV Quaternary-Tertiary volcanic rocks
 - Tvg Tertiary volcanic rocks, Columbia River Basalt Group
 - Tv Tertiary volcanic rocks
 - Tvc Tertiary volcanic rocks, Crescent Formation
 - Mv Mesozoic volcanic rocks
 - Qvt Quaternary fragmental volcanic rocks and deposits (includes lahar)
 - Tvt Tertiary fragmental volcanic rocks

- ### Intrusive Rocks
- Qi Quaternary intrusive rocks
 - QTI Quaternary-Tertiary intrusive rocks
 - Ti Tertiary intrusive rocks
 - TKI Tertiary-Cretaceous intrusive rocks
 - Mi Mesozoic intrusive rocks
 - Pi Paleozoic intrusive rocks
 - PCI Precambrian intrusive rocks
 - Mfu Mesozoic-Paleozoic ultramafic rocks

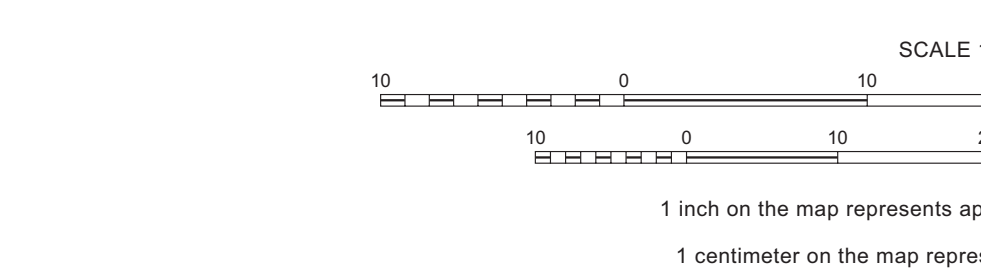
- ### Metasedimentary and Metavolcanic Rocks
- Mms Mesozoic metasedimentary rocks
 - Rms Paleozoic metasedimentary rocks
 - Rpms Paleozoic-Precambrian metasedimentary rocks
 - pRms Precambrian metasedimentary rocks
 - Mmt Mesozoic metasedimentary and metavolcanic rocks
 - Mfms Mesozoic-Paleozoic metasedimentary and metavolcanic rocks
 - Rmt Paleozoic metasedimentary and metavolcanic rocks
 - Mmv Mesozoic metavolcanic rocks
 - Rmv Paleozoic metavolcanic rocks
 - pMv Precambrian metavolcanic rocks

- ### Metamorphic Rocks (Amphibolite Facies and Higher)
- Mhm Mesozoic heterogeneous metamorphic rocks
 - Mfhm Mesozoic-Paleozoic heterogeneous metamorphic rocks
 - pChm Precambrian heterogeneous metamorphic rocks
 - Mam Mesozoic amphibolite
 - Mfam Mesozoic-Paleozoic amphibolite
 - TKgn Tertiary-Cretaceous gneiss
 - Mgn Mesozoic gneiss
 - Rgn Paleozoic gneiss
 - TKog Tertiary-Cretaceous orthogneiss
 - Mog Mesozoic orthogneiss
 - Mmi Mesozoic migmatite and mixed metamorphic and igneous rocks

- ### Other Geologic Units or Features
- Tz Tectonic zones; areas of intense cataclasis, including mylonitization
 - Dm Dike swarms; shown where dikes are too numerous to show individually; are labeled as to geologic unit
 - Ev Ergive centers; volcanic vents of Quaternary to Miocene age, generally the same age and composition as the surrounding volcanic rocks
 - Mi Quaternary to Mesozoic dikes; unlabeled dikes are of Tertiary age

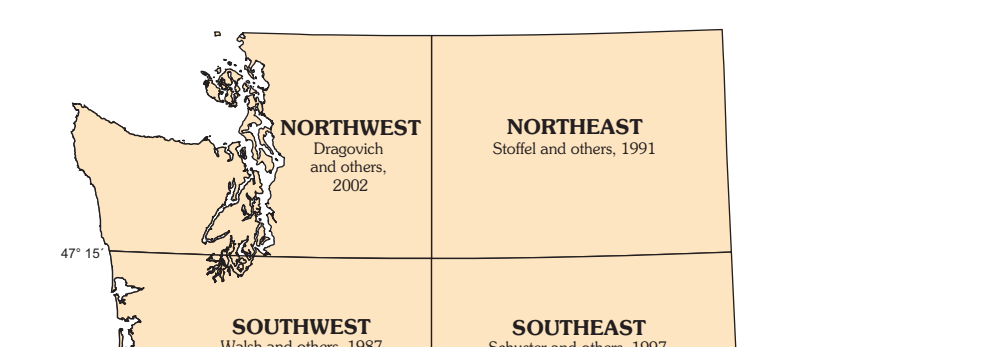
Geologic Symbols

- Contact
- Scotch boundary
- Boundary of modern glacier
- Fractures (near southwest corner of Spokane County)
- Anticline — Showing direction of plunge; dotted where concealed
- Overturned anticline — Dotted where concealed
- Syncline — Showing direction of plunge; dotted where concealed
- Overturned syncline — Dotted where concealed
- Monocline, synclinal bend — Dotted where concealed
- Monocline, antiform bend — Dotted where concealed
- Fault — Long-dashed where approximately located, short-dashed where inferred, dotted where concealed, quartered where uncertain
- Reverse fault — R on upthrown side
- Thrust fault — Sawtooth on upper plate; long-dashed where approximately located, short-dashed where inferred, dotted where concealed, quartered where uncertain; sawtooth omitted in crowded areas
- Right-lateral strike-slip fault — Arrows show relative movement; short-dashed where inferred, dotted where concealed; arrows omitted in crowded areas
- Left-lateral strike-slip fault — Arrows show relative movement; short-dashed where inferred, dotted where concealed; arrows omitted in crowded areas
- Low-angle normal fault — Blocks on upper plate; dotted where concealed, quartered where uncertain; blocks omitted in crowded areas
- Dip-slip fault — Bar and ball on downthrown side; long-dashed where approximately located, quartered where uncertain; dotted where concealed, quartered where uncertain; bar and ball omitted in crowded areas
- Normal left-lateral strike-slip fault — Arrows show relative horizontal movement; bar and ball on downthrown side; arrows and bar and ball omitted in crowded areas
- Normal right-lateral strike-slip fault — Arrows show relative horizontal movement; bar and ball on downthrown side; dotted where concealed; arrows and bar and ball omitted in crowded areas



Lambert conformal conic projection
North American Datum of 1983
Base map modified from Washington State Department of Natural Resources, 2000, Major Public Lands of Washington, Washington State Department of Natural Resources, 1 sheet, scale 1:250,000.
Digital data provided by Donald W. Hiller, Engineering Division, Resource Mapping Section.
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Sources of Data
This map was compiled from the following:
Dunne, J. D., Logan, R. L., Schase, H. W., Wab, T. J., Lindsey, W. S., Jr., Norman, D. K., Genell, W. J., Lapan, T. J., Schuster, J. E., Meyers, R. D., 2002, Geologic Map of Washington—Northern quadrant, Washington Division of Geology and Earth Resources Geologic Map GM-50, 3 sheets, scale 1:250,000, with 72 p. text.
Schuster, J. E., Galck, C. W., Reidel, S. P., Foster, K. R., Zamboni, Stephanie, 1997, Geologic map of Washington—Southwest quadrant, Washington Division of Geology and Earth Resources Geologic Map GM-45, 2 sheets, scale 1:250,000, with 20 p. text.
Stoll, R. L., Joseph, N. L., Waggoner, S. Z., Galck, C. W., Kenner, M. A., Burren, B. B., 1991, Geologic map of Washington—Northwest quadrant, Washington Division of Geology and Earth Resources Geologic Map GM-39, 3 sheets, scale 1:250,000, with 39 p. text.
Wab, T. J., Kenner, M. A., Phillips, W. M., Logan, R. L., Schase, H. W., 1987, Geologic map of Washington—Southeast quadrant, Washington Division of Geology and Earth Resources Geologic Map 34, 2 sheets, scale 1:250,000, with 28 p. text.

1:250,000-scale Geologic Quadrant Maps in Washington State
This map was compiled from the 1:250,000-scale geologic quadrant maps shown above, and the reader is directed to those geologic maps for further details; see full references under "Sources of Data" to the right.

- ### Roads
- Interstate Highway
 - U.S. Highway
 - Washington State Highway
 - U.S. Forest Service Road
- ### Communities
- SEATTLE More than 250,000 people
 - SPOKANE 80,000 - 250,000 people
 - Port Angeles 15,000 - 79,999 people
 - Counties with fewer than 15,000 people or unincorporated
 - Bellingham County Seat (underlined)
 - Olympia State Capital