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GEOLOGICAL SURVEY OF CANADA / COMMISSION GÉOLOGIQUE DU CANADA

TECTONIC ASSEMBLAGES AND PLUTONIC SUITES

(from Wheeler and McFeely, 1991)

Tectonic assemblages represent distinctive successions of stratified rocks, mainly bounded by unconformities or faults, deposited in specific tectonic environments during particular intervals of time. Thus they are fundamental components of Cordilleran geology that relate to the evolution and allow comparisons of the tectonic tempo and style of various regions during specific intervals of time.

An assemblage may comprise one or more formations from a single region or from several separate regions. Most assemblages include several formations, commonly including a basal, a middle, and a terminal formation, but an assemblage is best developed, likely few are not yet named. The age assigned to each assemblage reflects the age range of its components. Each assemblage is characterized in terms of its tectonic or depositional setting, the latter illustrated by descriptions of its principal lithologies, facies variations, source areas and other criteria.

The degrees of confidence in the identification of the associated tectonic or depositional regimes vary considerably due to the uncertainties of correlations, the extent of metamorphism and deformation, and the nature of the evidence available on modern continental margins, island arcs and ocean basins. Others are defined with reference to their positions relative to the orogen (foreland clastic wedge) or to the craton (passive continental margin sediments).

The plutonic suites are defined mainly by age and subdivided on the basis of composition or other attributes. They are grouped, for the most part, into magmatic episodes (Armstrong, 1988).

REFERENCES

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1988: Mesozoic - early Cenozoic plutonism in the Canadian Cordillera - distribution in time and space: Geological Society of America, Abstracts and programs, 1985, v. 17, p.338

Wheeler, J.O. and McFeely, P.

1991: Tectonic Assemblage Map of the Canadian Cordillera and adjacent parts of the United States of America; Geological Survey of Canada, Map 1715A, scale 1:2 000 000

SOURCES OF INFORMATION

Geological information contained in the GSI map library and the 1:1,000,000 scale folio series is derived directly from John Wheeler's Tectonic Assemblage Map of the Canadian Cordillera (Wheeler and McFeely, 1991; Map 1715A), and from the following published and unpublished sources: Stephen Williams' Map 1731A, scale 1:2 000 000 (in press); Geological Survey of Canada Map 1605A by Tipper, Woodsworth, and Gabrielse, published in 1981. It is a compilation of published maps, thesis, and unpublished information from officers of the Geological Survey of Canada; from J.G. Abbott, Yukon Geology Program; from Stephen Gordey, Geological Survey of Canada, Northern Division; Richard Thompson, Dept. of Geol. U.B.C.; Dave Lefebure, Dept. of Geol. U.B.C.; Hamilton, W.J. Northern Rockies, unpublished; Tipper, H.W. Taylor, J.H. Tipper, D. Duncan, J.L. Jones, and R.B. Campbell, Geological Survey of Canada; Gabrielse, H. Geological Survey of the U.S. Geological Survey; Joel Scott R.L. Armstrong, M.T. Bingham, R.L. Brown, D.S. Coney, and R. Enlow; J. Filipone, R.M. Friedman, J.T. Fyles, J.M. Hamilton, C.J.R. Hart, R.A. Haugerud, C.J. Hickson, P.M. Hollister, G.A. Jilson, D.L. Jones, A. Jung, W.C. McLelland, E.W. Mountjoy, J.K. Mortensen, D.C. Murphy, J.S. Obiese, R.A. Price, J.M. Ryan, Y. Sinclair, J.A. Stacey, J.L. Thurston, J.L. Wanless, J.A. Westgate, J.W. Ward, J.A. Wilson, C. Ver-der-Heyden, and R.J. Wolfe. Geological cartography for the original version of this map was by M. Sigburn, Geoscience Information Division.

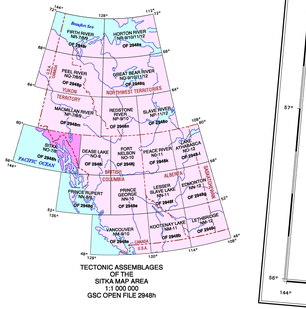
GIS MAP LIBRARY

The Cordilleran GIS Map Library was initiated in March, 1993 as a collaborative research and development project by the Geological Survey of Canada (Cordilleran Division) and the Pacific Geoscience Centre, Sidney, B.C. The aim is to develop an integrated 1:1,000,000 scale digital geoscience database for the Canadian Cordillera that can be used as an archive and research facility by the Geological Survey of Canada (GSC) and its clients. This map is part of a new series of folio maps that will be released as digital data and as printed maps. The digital data are based on Wheeler and McFeely (1991) Tectonic Assemblage Map of the Canadian Cordillera (Map 1715A). It is one of 19 digital data sets derived from the Cordilleran GIS Map Library CORDMI (GSC Open File 2948).

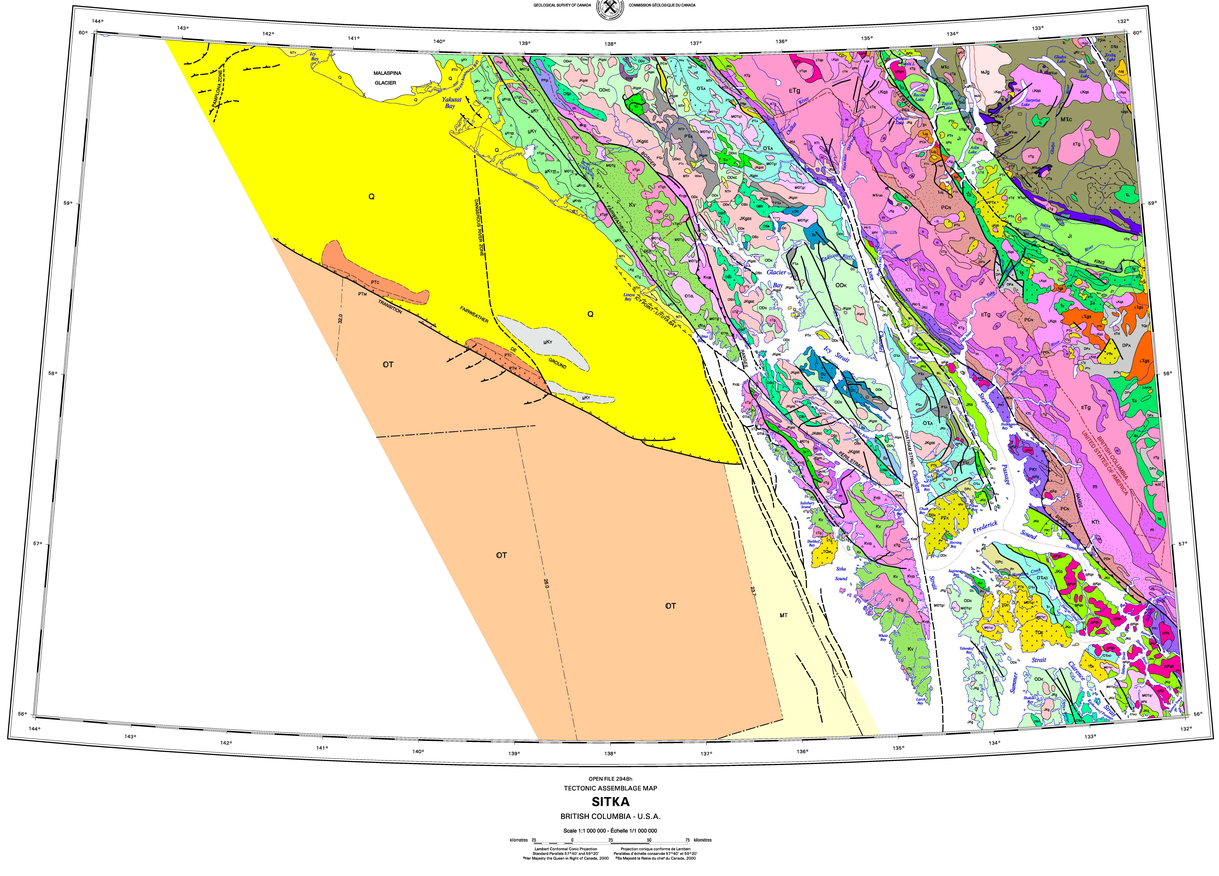
The legend which accompanies Map 1715A was converted to digital format and made available to the GSC by Doug Brownlee, and has been modified and expanded for use as a GIS database. Design and implementation of the digital data set for the Sitka map area was carried out by Terrain Mapping and Analysis, Pacific Geoscience Centre. Production of the 1:1,000,000 scale folio series was performed by Stephen Williams and Murray Journey of the GSC Pacific Division, and Richard Allard of the Geoscience Information Division.

The geographic base for the GIS library and the 1:1,000,000 scale folio series is derived from the National Atlas Information System (NASI) 1:2,000,000 digital map series and is subject to all Copyright laws for distribution in either digital or hard copy form.

CORDILLERAN TECTONIC ASSEMBLAGE MAP LIBRARY



TECTONIC ASSEMBLAGES OF THE SITKA MAP AREA 1:1 000 000 GSC OPEN FILE 2948h



OPEN FILE 2948h

TECTONIC ASSEMBLAGE MAP

SITKA

BRITISH COLUMBIA - U.S.A.

Scale 1:1 000 000 - Échelle 1/1 000 000

Kilometres 25 0 25 50 75 Kilomètres

Lambert Conformal Conic Projection
Standard Parallels 51°45' and 53°20'
Projection conique conforme de Lambert
Parallèles d'échelle conservée 51°45' et 53°20'

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LEGEND

TECTONIC ASSEMBLAGES

QUATERNARY

Q — *Undivided Quaternary alluvium and colluvium*

TERTIARY AND QUATERNARY

TQal — *MAKUSHLI; lava and (?) transform volcanics; calc-alkaline andesite, dacite and lesser basalt and rhyolite in E. Alaska, subaerialne basalt; basaltic andesite, lesser dacite, rhyolite, minor alkali olivine basalt; minor ash and lahar deposits; commonly as dissected volcanoes, associated lake; nonmarine*

TQsi — *EDZZA; transtensional rift volcanics; alkali basalt and peralkaline trachyte-comenite shield volcanoes; alkali olivine basalt cones with lherzolite nodules; flows and tuyas; nonmarine*

NEOGENE

NYr — *HAKATAGA; accretionary prism; interbedded mudstone, siltstone, sandstone, conglomerate; mudstone and conglomerate, marine and nonmarine*

NTr — *PEMBERTON; arc volcanics; calc-alkaline rhyolite, andesite, and dacite flows, domes and pyroclastics; local (Miocene) bimodal suite of exotic rhyolite and high alumina basalt; mainly nonmarine*

PALEOGENE

PTa — *AMPHITHEATRE; eastern derived fan-though clastic wedge; alluvial lithic sandstone, siltstone, and conglomerate; derived from granitic, metamorphic and volcanic rocks of the Coast Belt; lignite, younger sandstone deposits; nonmarine*

PTc — *CARMANAH; overlap assemblage; sandstone, shale, turbidite, conglomerate; mudstone, marine*

PTm — *METCHOSIN; pull-apart basin ridge-island volcanics; tholeiitic pillowed and amygdaloidal basalt flows, breccia, minor alkalic tuff and limestone separated from underlying partly layered Sooke Gabbro by a sheeted dyke complex; marine*

PTx — *KAMLOOPS; transtensional arc volcanics; alkali-rich, calc-alkaline andesite, basaltic andesite, dacite, rhyolite and based flows, pyroclastics and epiclastic deposits. In south and central part of belt, conformably overlies Upper Cretaceous Spences Bridge Group; in north, overlies Eocene Ootsa Lake Group. Includes Kasalka volcanics east of Forsland Belt; all nonmarine*

PTs — *SIFTON; nonmarine fault-through clastics (locally includes upper Upper Cretaceous strata); shale, siltstone, sandstone, conglomerate, local lignite, marl and dacitic volcanics; nonmarine*

UPPER UPPER CRETACEOUS

uKc — *CARMACKS; transtensional arc volcanics; potassic, alkaline, mainly porphyritic andesite flows and pyroclastics with lesser rhyolite, trachyte, and dacite; mainly based in wrench zone; nonmarine*

uKY — *TAKLTAT; accretionary prism; flysch of greywacke-conglomerate channels in mudstone, chert, argillite, and limestone; in part, Upper Triassic to Intracretaceous blocks in a Bamaboo to Campanian matrix; marine*

CRETACEOUS

Kv — *VALDEZ; accretionary prism; interbedded argillite-greywacke flysch containing olistostromes, olistoliths, and olistoliths of Upper Triassic to Intracretaceous blocks in a Lower Cretaceous matrix; marine*

MID-CRETACEOUS

mKs — *SOUTH FORK; transtensional cauldron subsidence and arc volcanics; calc-alkaline basalts andesites, latite, rhyolitedacite and rhyolite flows, pyroclastics, ignimbrite, epiclastic rocks in caldera and fault troughs; nonmarine*

LOWER CRETACEOUS

lKc — *LOGHORN; clastic wedge; proximal sandstone and conglomerate with andesite clasts; minor mudstone, siltstone, greywacke-argillite turbidite, minor andesitic agglomerate and flows; marine*

UPPER JURASSIC - LOWER CRETACEOUS

JKg — *GAMBIER; arc and locally, rift volcanics; upper unit: Albian greywacke, siltstone, argillite, andesitic volcaniclastic rocks, andesite flows, minor limestone; unit: Barremian-Hauterivian and older based granitic conglomerate; calc-alkaline dacite-andesite fragmental volcanics, greywacke-argillite flysch; marine and nonmarine*

LOWER AND MIDDLE JURASSIC

Jⁿ — *TAKWAHONI; Bajocian arc-derived clastics; interbedded conglomerate, greywacke, siltstone and shale derived from Triassic volcanics and granites in Stikinia; marine and nonmarine*

Jl — *INKLIN; arc clastics above Cache Creek Terrane; siltstone-shale-greywacke turbidite, minor conglomerate, derived from Cache Creek and Quesnel terranes; limestone; marine*

UPPER TRIASSIC

Ta — *KARMUTSEN; rift volcanics in Wrangellia; pillowed, brecciated and layered tholeiitic lavas, subaerial tholeiite in eastern Alaska, overlain by bioclastic and reefoid limestone, marine and nonmarine*

Tc — *HYD; bimodal rift volcanics in Alexander Terrane; basalt pillow lava, rhyolite flows, breccia and tuffs; interbedded limestone; siliceous and sandstone; basal polymictic conglomerate and coarse breccia. Rhyolite east of Dixon Entrance yields a concordant U-Pb age of 199 Ma*

Ts — *STUHINI; arc volcanics in Stikinia; calc-alkaline, locally subaerial, augite and feldspar porphyritic andesite and basaltic andesite flows, breccia, tuff and minor ignimbrite interbedded with more easterly volcanic clastic. Western Table facies: more alkaline rocks, including shoshonite, volcanic sandstone, siltstone, and local subaerial volcanic clastics; marine and nonmarine*

TL — *LEWES RIVER; arc clastics, in part in Cache Creek Terrane; mainly westerly derived breccia, tuff, volcanic sandstone and siltstone, and limestone, locally interbedded with subaerial chert above Cache Creek Group; marine*

TAU — *AUTCHO; arc volcanics in Cache Creek Terrane; bimodal calc-alkaline flow-banded rhyolite or rhyodacite, entire tuff, and based or basaltic andesite, phyllite, greywacke and limestone; metamorphosed to greenschist; marine*

PK¹ — *Undivided TAKU assemblage; cardioceracus shale, mudstone, greywacke and lesser limestone; chert and conglomerate, andesite and basalt and minor felsic volcanics; and metamorphic equivalents. Cardioceracus-aged limestone associated with volcanics in Alexander Terrane; Upper Triassic fossils in Cache Creek Terrane; Permian fossils; greywacke and conglomerate probably belong to the Greenville Horizon (Gabrielse) assemblage; marine*

PERMIAN - TRIASSIC

P^Tk — *Undivided Alexander Terrane sediments and volcanics; andesitic to basaltic flows, breccia, and tuff; felsic tuff, greywacke, shale, chert, conglomerate, limestone, and metamorphic equivalents; marine*

PERMIAN

Pⁿ — *PRINCE; platform sediments and volcanics; dolomite, limestone, and subordinate chert beds and nodules; marine*

P^H — *HALLECK; sediments and volcanics; black argillite, greywacke, calcareous siltstone, chert, basalt, limestone, and conglomerate with clasts of Cannery Formation on S. Admiralty I.; marine*

PENNSYLVANIAN - PERMIAN

PP^g — *GRANITE MOUNTAIN; volcanics and sediments in Wrangellia; upper volcanic sandstone, argillite, chert, and limestone unconformably overlying gabbro and lower, alkaline to tholeiitic basalt, basaltic andesite, minor andesite and dacite flows and pyroclastics, intruded by PPgd gabbroids; marine*

MISSISSIPPIAN - UPPER TRIASSIC

M^Tc — *CACHE CREEK; oceanic volcanics and sediments and local accretionary prism mélange; Upper Triassic to Jurassic olistostromes and olistoliths in Permian-Triassic matrix; serpentinized peridotite and dunite, gabbro, hornfelsic and diabase, most sub-greenschist, local blueschist; mélange with blocks of Upper Triassic Nicola Assemblage; Permian fusulinid limestone, Upper Triassic conodont limestone, chert, argillite, basalt, reef and lagoon complexes with Tethyan fossils; includes Jurassic sediments east of Fraser River fault; marine*

DEVONIAN - TRIASSIC

DTs — *SLIDE MOUNTAIN; oceanic marginal basin volcanics and sediments, variably sheared, spilite-like assemblage of oceanic, alkalic to transitional pillowed basalt, tuff, breccia, serpentinized peridotite and gabbro; radiolarian chert, argillite and volcanic clastics; minor limestone; rocks may be in part, Devonian to Triassic in age; volcanic clastic and limestone that may be a distal North American assemblage*

DEVONIAN - PERMIAN

D^{Pc} — *CANNERY; defined clastics; turbiaceous argillite and greywacke, subordinate chert, limestone and andesitic volcanic rocks; marine*

D^{Pa} — *ASTRIA; arc volcanics and platform carbonates; basement of Stikinia; calc-alkaline basalt to rhyolite flows, breccia, pyroclastics, epiclastics, minor argillite and limestone, minor chert; most buff and less rhyolite in western Stikinia; includes Lower Devonian marine and nonmarine*

CARBONIFEROUS

Cl — *PRINCE; platform carbonate, limestone with chert nodules, minor shale and gypsum; marine*

DEVONIAN

Dc — *CEDAR COVE; platform carbonate and rift volcanics; thick and thin-bedded limestone underlain by argillite, arkosic greywacke, and conglomerate containing Silurian pyrite porphyry clasts; rhyolite flows followed by andesite and basalt flows, breccia, tuff and subordinate clastics; marine*

ORDOVICIAN - TRIASSIC

OTx — *Undivided phyllite in Alexander Terrane. OTAx includes Devonian to Triassic rocks in Stikinia: argillite, chert, minor quartzite, greywacke, conglomerate, basalt to rhyolite flows, limestone; subordinate mafic to felsic volcanics, carbonate rocks; minor ultramafics; locally metamorphosed to skiste, phyllite, schist, gneiss and marble; marine*

ORDOVICIAN - DEVONIAN

ODk — *KASKAWULSH; back-arc carbonate and pelite, thick-bedded limestone, interbeds of shale and local lenses of conglomerate (ODkc); laminated limestone, calcareous mudstone, siltstone and phyllite (ODml); marine*

ODo — *DONJEK; back-arc volcanic clastics; khaki, quartz-rich, micaceous, calcareous siltstone and sandstone; slate, phyllite, schist, buff and green greywacke; volcanic sandstone, siltstone and argillite; black, lithic breccia, tuff, cherts, limestone; marine*

ORDOVICIAN - SILURIAN

OSo — *DESKIN; oceanic arc volcanics and sediments; basaltic to andesitic pillow lava, pillow breccia, tuff breccia; subordinate rhyolite, pyroclastic breccia, tuff and domes; argillite, mudstone, siltstone, greywacke; minor limestone; marine*

UPPER PROTEROZOIC - TRIASSIC

P^TEx — *NISUTLIN; cadaboric sediments and volcanics of peri-cratonic Kootenay Terrane; Upper Proterozoic to Devonian quartzite, phyllite, carbonate, basalt; Devonian to Triassic clasts of gneiss; granites and metamorphic rocks and Upper Triassic and Paleozoic carbonate, Pennsylvanian and Permian carbonate, and chlorite-quartz grit; Lower Triassic sandstone, siltstone, shale, chert, limestone, basalt, andesite and other miscarious lithiophilic quartzite, schist, marble, all variably metamorphosed; marine*

UPPER PROTEROZOIC - LOWER CAMBRIAN

PCm — *WALES; metamorphosed oceanic arc volcanics, greenschist and amphibolite facies schist and gneiss derived from basaltic to andesitic pillow lava, breccia and tuff and graded-bedded greywacke, minor marble and metatrophoite; mainly marine*

PCn — *NESLING; metamorphosed passive continental margin assemblage; muscovite-biotite schist, phyllite, slate, micaceous quartzite, marble, skarn, greenstone and amphibolite; marine*

PLUTONIC AND ULTRAMAFIC ROCKS

Plutonic Suite _Tectpe Pluton_ (Reagoner Ridge)

MIOCENE - OLIGOCENE (17 - 29 Ma)

MDT — *hornblende-biotite tonalite and granodiorite*
MDTgr — *Tlaspe: high level, dark-alkaline, pink, hornblende-biotite granite, quartz syenite, minor granodiorite, aplite, pegmatite, hornblende-biotite tonalite, quartz diorite and granophyre; local subvolcanic creamy rhyolite and rhyodacite.*
MDTgd — *hornblende-biotite tonalite and granodiorite*

OLIGOCENE (24 - 29 Ma)

OT — *ETNA - La Perouse: layered and locally zoned two-pyroxene-olivine-biotite-hornblende quartz gabbro, gabbro and peridotite*

EARLY TERTIARY (40 - 64 Ma)

eT — *ETgs - Stewart: abundant and concordant, calc-alkaline biotite-hornblende tonalite, quartz diorite and local biotite-muscovite granodiorite and quartz monzonite.*
ETk - Kitkiata: pink to brownish orange, smoky quartz-bearing assorts;
ETb - Bellayer porphyry dykes
ETg - undivided granodiorite and quartz diorite; commonly has concordant U-Pb and K-Ar ages; Coast Plutonic Complex
ETp - undivided granite
ETf - undivided felsite, quartz feldspar porphyry
ETd - undivided diorite, monzodiorite, gabbro, diabase, amphibolite

CRETACEOUS - TERTIARY

KT — *Diverse suite of generally foliated and layered granodiorite and quartz monzonite; includes K-Ar ages on hornblende biotite and quartz monzonite of "Coastal Plutonic Complex"*
KTg - undivided granodiorite, leucogranodiorite, quartz monzonite, quartz diorite, tonalite
KTd - undivided diorite, monzodiorite, gabbro, diabase, amphibolite

LATE CRETACEOUS (64 - 87 Ma)

uK — *Age - Surprise Lake: discordant, locally foliated, grey and light brown, smoky quartz and fluorite-bearing, miarolitic leucocratic alaskite, hornblende granite and quartz monzonite; Coast Plutonic Complex*
uKg - undivided granodiorite, leucogranodiorite, quartz monzonite, quartz diorite, tonalite
uKq - undivided granite, leucogranite, alaskite, quartz monzonite, monzonite, granophyre

MID-CRETACEOUS (87 - 130 Ma)

mK — *mKg - variably foliated hornblende quartz diorite, tonalite, and hornblende diorite intrusive into Upsenna Aulacoin rocks of S. E. Alaska and forming part of western Coast Plutonic Complex*
mKs - Ecstall: mainly discordant, partly concordant, plutons and stocks of hornblende-biotite quartz diorite, locally rimmed by hornblende-biotite granodiorite and diorite; tonalite, subordinate quartz monzonite; contains primary epidote and garnet
mKd - undivided diorite, monzodiorite, gabbro, diabase, amphibolite, granophyre
mKgd - undivided diorite, monzodiorite, gabbro, diabase, amphibolite
mKgw - Whitehorse: mainly discordant, dark grey, hornblende granodiorite, dark grey, green, and brown biotite granodiorite, minor granite, quartz monzonite, granophyre; biotite quartz monzonite, leucogranite, and dykes of felsite quartz porphyry
mKgw - Kluane: elongate concordant calc-alkaline biotite-hornblende granodiorite and quartz diorite, hornblende diorite and rare biotite-hornblende quartz monzonite

LINCOLNIAN AGE

uq — *uq - granodiorite, quartz diorite and quartz monzonite in Central and southernmost Coast Plutonic Complex*
uz - massive to foliated to schistose greenstone sills in St. Elias Mtns.

LATE JURASSIC - EARLY CRETACEOUS (130 - 155 Ma)

JK — *JKgw - St. Elias: concordant and discordant hornblende, biotite granodiorite and quartz monzonite, minor granite, aplite, pegmatite*
JKdg - undivided diorite, monzodiorite, gabbro, diabase, amphibolite
JKd, JKg - gabbro-diorite-mafic-ultramafic complex; hornblende-biotite quartz diorite, monzodiorite, in W. Coast Plutonic Complex

MIDDLE JURASSIC (155 - 187 Ma)

MJ — *MJd, MJg - foliated diorite, diorite-tonalite complex; foliated hornblende-biotite quartz diorite, tonalite, hornblende-biotite granodiorite in Central Coast Plutonic Complex, altered to greenschist facies along C. margin*
MJq - undivided granite, leucogranite, alaskite, quartz monzonite, monzonite, granophyre

EARLY JURASSIC (187 - 214 Ma)

EJ — *EJg - Topsy: discordant, partly concordant, calc-alkaline, grey, green and pink, hornblende-biotite granodiorite and quartz diorite, lesser biotite granodiorite, quartz monzonite, leucogranodiorite, pyroxene-hornblende diorite and syenodiorite. Altered to greenschist facies along margins*
EJpk - Copper Mtn.: high level, alkaline, syenite, syenodiorite, monzonite, pyroxene-hornblende diorite and gabbro
EJgd - Guide: foliated and altered hornblende granodiorite and quartz diorite in S. Coast Plutonic Complex

LATE TRIASSIC - EARLY JURASSIC

TJ — *TJgr - Kitlatam: grey and dark grey commonly foliated locally altered hornblende-biotite granodiorite, quartz diorite-tonalite and quartz monzonite; occurs as stocks in Lower Jurassic conglomerate*
TJq - undivided granite, leucogranodiorite, quartz monzonite, quartz diorite, tonalite

LATE TRIASSIC (214 - 235 Ma)

LT — *LTgs - Stikine: subalkaline, calc-alkaline, foliated, older; biotite-hornblende diorite, hornblende-biotite quartz diorite, biotite granodiorite, hornblende quartz monzodiorite, subordinate quartz monzonite; few inclusions*

PENNSYLVANIAN - PERMIAN

PP — *PPgr - Icefield Ranges: alkaline to calc-alkaline, agmatitic and multiphase plutons in which diorite-quartz diorite phases are veined and intruded by leucocratic quartz granodiorite. Steele Glacier and Fisher plutons are uniform porphyritic hornblende-biotite quartz monzonite to granodiorite*

DEVONIAN - TRIASSIC

DT — *DTus - oceanic ultramafic rocks*

DEVONIAN - MISSISSIPPIAN

DM — *DMn - orthogneiss*

SILURIAN

S — *Sy - leucocratic aegerine-sodic amphibole syenite, biotite hornblende syenite and hornblendite in S. E. Alaska*

CAMBRIAN - ORDOVICIAN

CO — *COd - foliated and metamorphosed, hornblende diorite and biotite-hornblende granodiorite*

VOLCANIC ROCKS

Calc-alkaline volcanic rocks

Tholeiitic volcanic rocks

Alkaline volcanic rocks

Bimodal volcanic rocks

Bimodal-alkaline volcanic rocks

METAMORPHIC ROCKS

m — *metamorphic rocks (undivided)*

n — *predominantly orthogneiss*

prograde metamorphosed to amphibolite facies

OCEANIC CRUST

MT — *Miocene*

OT — *Oligocene*

SYMBOLS

Geological contact (defined)

Thrust fault (teeth on upper plate)

Extension fault (solid circle indicates downthrow side)

Right lateral transcurrent fault

Fault of unknown displacement

Submerged geological contact

Submerged thrust fault

Submerged faults and those buried by younger strata

Submerged delimitation front

Submerged transform fault

Submerged fracture zone

Submerged pseudofault

Epoch boundaries in oceanic crust (age in Ma)

Time lines from magnetic anomalies in oceanic crust (age in Ma)

Mélange

Mineral Development Agreement
Canada - British Columbia
Contribution to Canada Mineral Assessment by Mineral Exploration in 1991, 1992, 1 colonized, 1 generous, cable line, 1 Canada - British Columbia Mineral Development Agreement
Contribution à l'évaluation minérale du Canada par l'exploration minière en 1991, 1992, 1 colonisé, 1 cable, 1 contribution généreuse
Canada - Colombie-Britannique - Entente de développement minéral
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Geological Survey of Canada, Open File 2948h, scale 1:1 000 000

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