Geoscience Map Library

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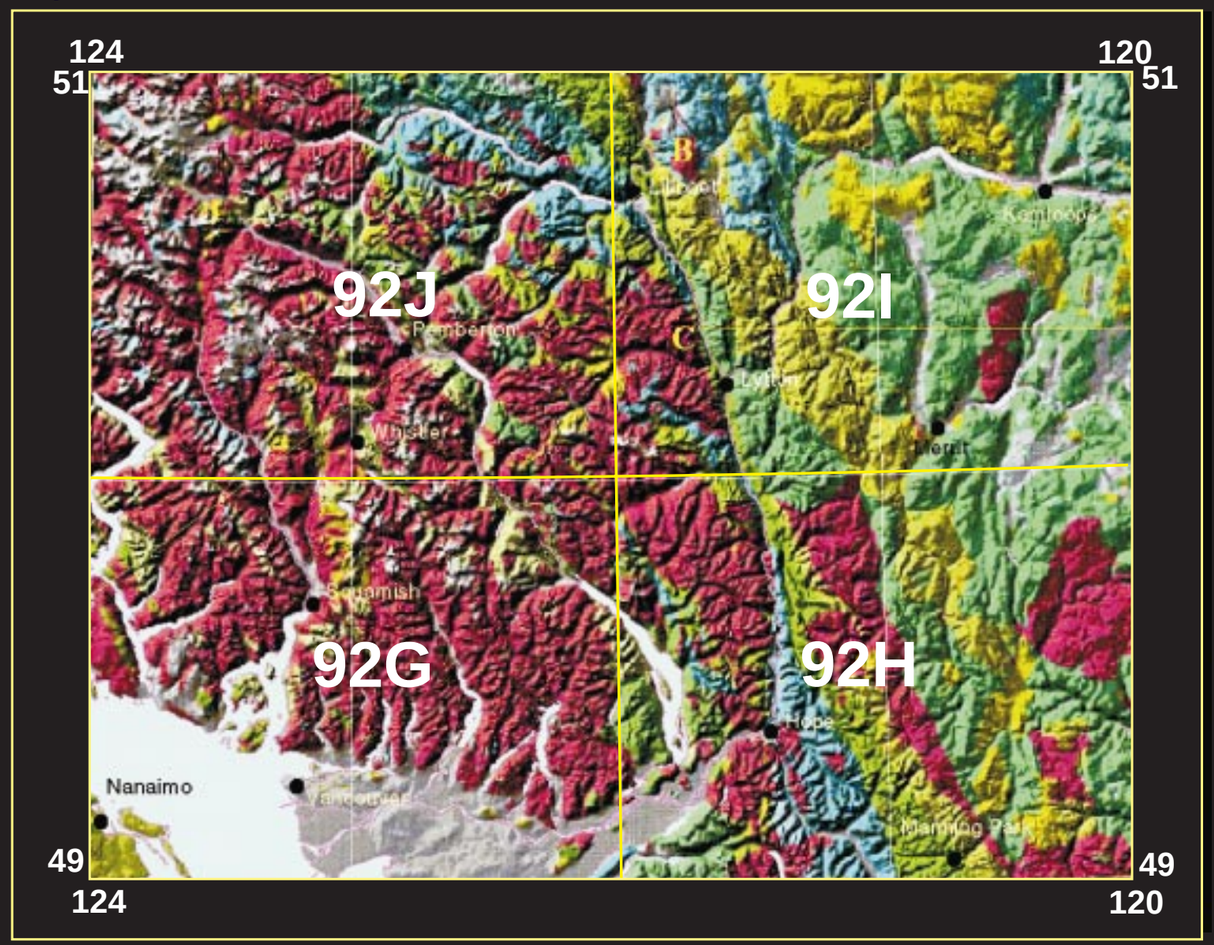

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Natural Resources Canada
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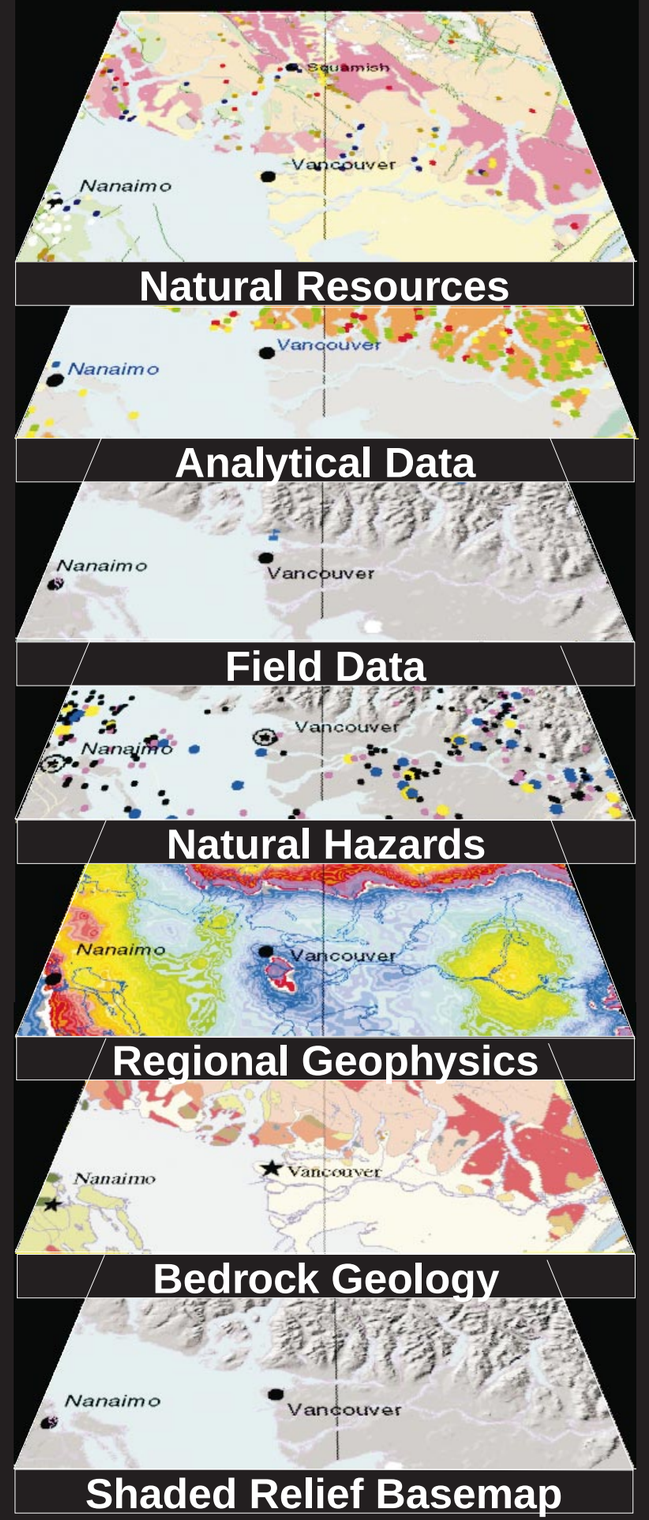
Canada

Map Layers



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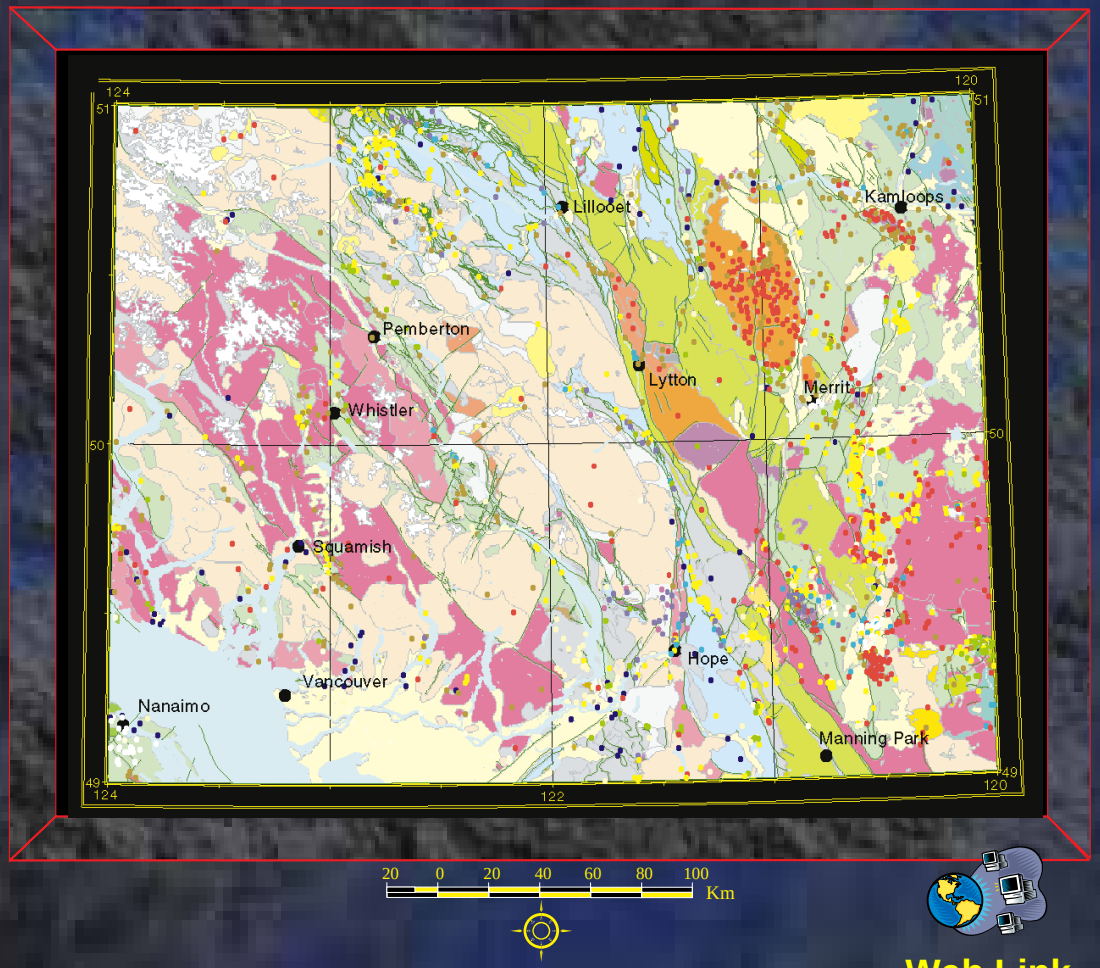
Mineral Resources



Web Link

Southwestern British Columbia is well known for its mineral wealth. Porphyry copper and precious metal deposits of the Highland Valley, Britannia and Bralorne/Goldbridge mining districts once served, and continue to serve as primary sources of economic minerals for Canada. In addition to these major producers, there are 1,780 known occurrences of economic minerals in the region. Most of these occurrences are associated either with subduction-related Mesozoic plutons, or are structurally controlled along the trace of major fault systems of Late Cretaceous and Tertiary age.

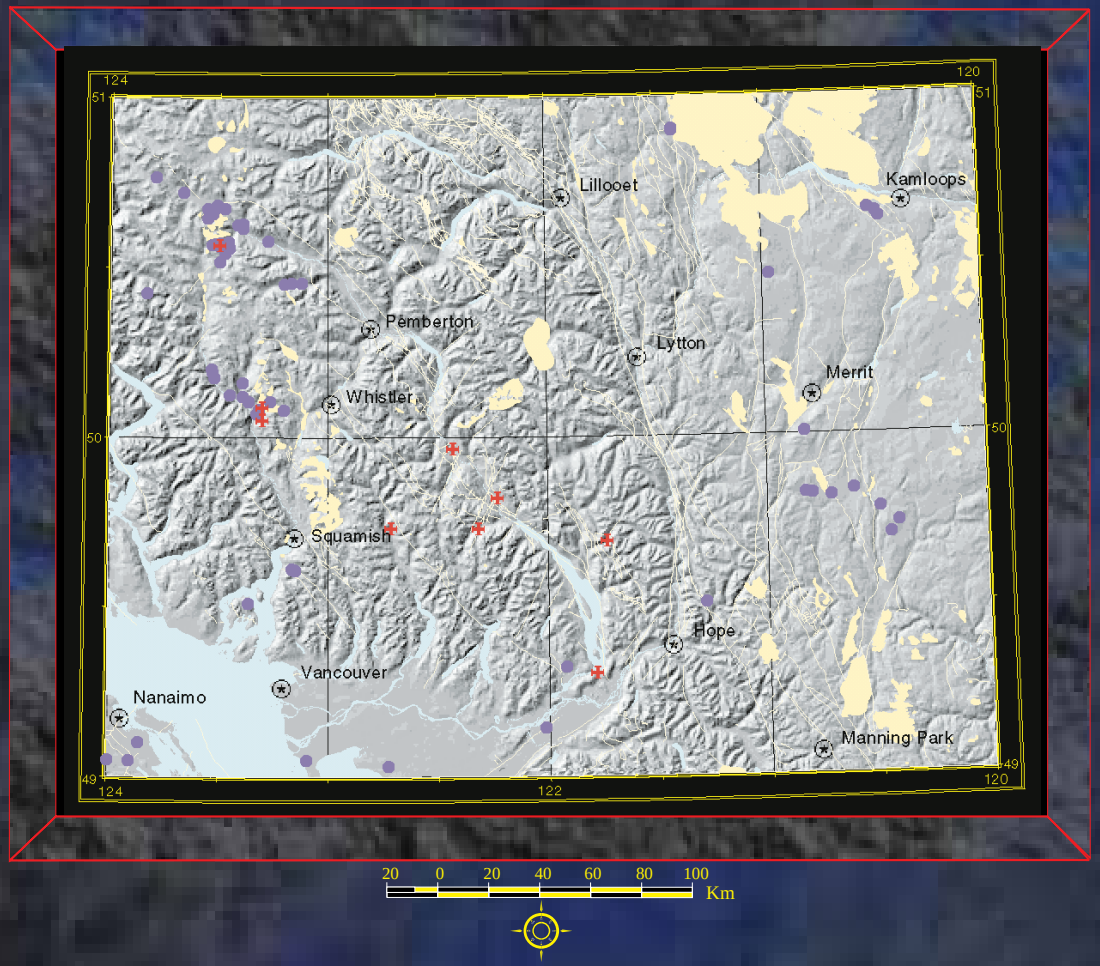
Mineral deposit information in he Library has been modified from the BC Minfile database, a regional inventory of published and unpublished mineral assessment reports maintained and distributed by the BC Ministry of Energy Mines and Petroleum Resources.

Database..

Mineral Resources

Pickitem	Mapunit	Rock_class	Status	Name	Commodity	Comod_gen	Dep_gen	Global
Unclassified	CTru	volcanic/sedimentary	SHOW	ALEXANDER	PB,ZN	PB	Unclassified	
Porphyry	Mqm	plutonic	SHOW	GRISWOLD	CU,AG,AU,MO	CU-AG	Porphyry	Chuquicamata&La Escondida, Chile
Unclassified	CTru	volcanic/sedimentary	SHOW	SHUFLY CENTRAL	CU,PB,ZN	CU-PB	Unclassified	
Unclassified	CTru	volcanic/sedimentary	SHOW	POLE STAR (L.4012)	PB	PB	Unclassified	
Ultramafic/Mafic Association	CJBEs	sedimentary	SHOW	SHULAPS RANGE	CR	CR	Ultramafic/Mafic Association	Josephine ophiolite, Ore; Elazig, Turkey
Chemical Sediment	muKs	sedimentary	SHOW	NORTH UREN	DE	Misc	Chemical Sediment	Oregon; Lake Myvatn, Iceland
Vein/Breccia/Stockwork	Egd	plutonic	SHOW	SHULAPS	AU,AG,CU	AU-AG-CU	Vein/Breccia/Stockwork	Juneau, Alaska; Red Lake, Ont.
Unclassified	CJBC	volcanic/sedimentary	SHOW	DAUNTLESS	AU,AG,ZN	AU-AG-ZN	Unclassified	
Unclassified	PBCu	ultramafic	PAPR	JEWEL	AU,AG,CU	AU-AG-CU	Unclassified	
Vein/Breccia/Stockwork	CJBC	volcanic/sedimentary	DEPR	CONGRESS (PAUL)	AU,AG,CU,SB	AU-AG-CU	Vein/Breccia/Stockwork	Mongolian Flourite Belt
Porphyry	Mqm	plutonic	SHOW	BR	CU,MO	CU-MO	Porphyry	Chuquicamata&La Escondida, Chile
Gems/Semi-Precious Stones	CJBE	volcanic/sedimentary/m	PAPR	GREENBAY (L.2084)	JD,GS	JD	Gems/Semi-Precious Stones	
Gems/Semi-Precious Stones	CJBE	volcanic/sedimentary/m	SHOW	4-TON (L.2085)	JD,GS	JD	Gems/Semi-Precious Stones	
Unclassified	TrNs	sedimentary	SHOW	ALLIES	AU,CU,PB,ZN	AU-CU	Unclassified	

Geothermal Energy



Hot spring activity and elevated values of crustal heat flow in the Western Coast Mountains delineate the active continental arc region of the Cascadia subduction zone. Hot springs are located both adjacent to volcanic centres of the Garibaldi volcanic complex, and along systems of high-angle brittle faults that cut across the southern Coast Belt. The distribution of these hydrothermal systems reflects patterns of convective heat transfer in the upper crust, and is an indirect measure of upward mantle flow adjacent to the subduction zone.

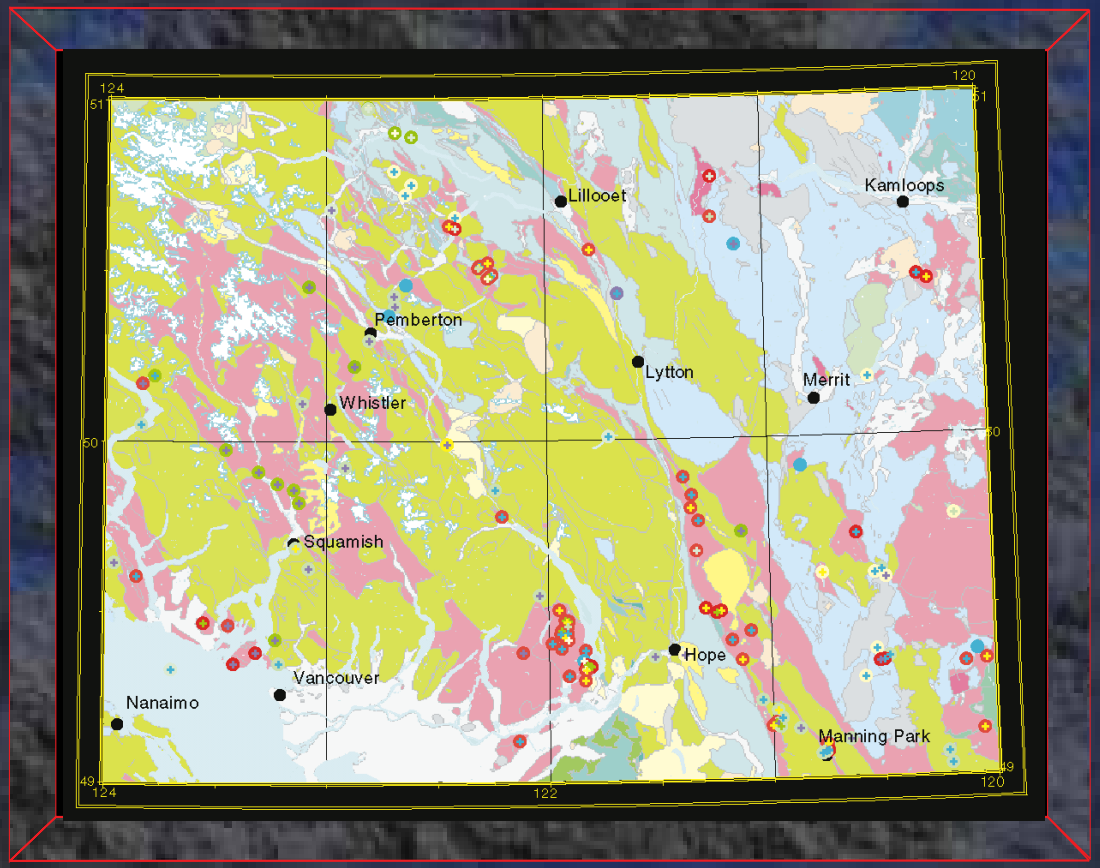
Locations and thermal characteristics of exploration boreholes and geothermal springs are based on a recent compilation of Cordilleran geothermal energy resources jointly published by the GSC and the BC Ministry of Energy, Mines and Petroleum Resources (GSC Open File 2526).

Database..

Geothermal Resources

PickItem	Number	Name	Latitude	Longitude	Depth_(m)	Heat_flux_	Temp_(deg_	Flow_(l/se	Dissolved_	Ph	Grad_(deg	Est_b.h.	Type
Bore Hole	MC-1		50 34.3	-123 30.3	3039	----	230						
Bore Hole	R17	POINT ROBERTS	49 03	-123 06	4509						10	89	
Bore Hole	R18	SUNNYSIDE	49 02	-122 44	3321						16	66	
Hot Spring	S59	PEBBLE CREEK	50 34	-123 30			60	100	1408	6.5			
Hot Spring	S60	MEAGER CREEK	50 34	-123 30			59	500	2021	6.2			
Hot Spring	S60	NO GOOD	50 34	-123 30			40	N/A	1544	6.3			
Hot Spring	S60	PLACID	50 34	-123 30			45	N/A	2013	5.9			
Hot Spring	S61	TURBID CREEK	50 06	-123 17			30	N/A	5542	8.1			
Hot Spring	S62	SHOVELNOSE	50 05	-123 16			30	N/A	1669	6.8			
Hot Spring	S87	SKOOKUMCHUK	49 59	-122 28			54	40	1214	8.5			
Hot Spring	S88	AUGUST JACOB'S	49 48	-122 16			49	1	367	N/A			
Hot Spring	S89	SLOQUET	49 45	-122 20			64	100	760	8.5			
Hot Spring	S90	PITT RIVER	49 44	-122 43			57	1	951	8.2			
Hot Spring	S91	CLEAR CREEK	49 41	-121 45			43	50	340	N/A			

Isotope Geochemistry



In addition to serving as radiometric clocks, isotopes also provide valuable information on rock chemistry and tectonic environment for a variety of rock types in the southern Coast and Intermontane belts.

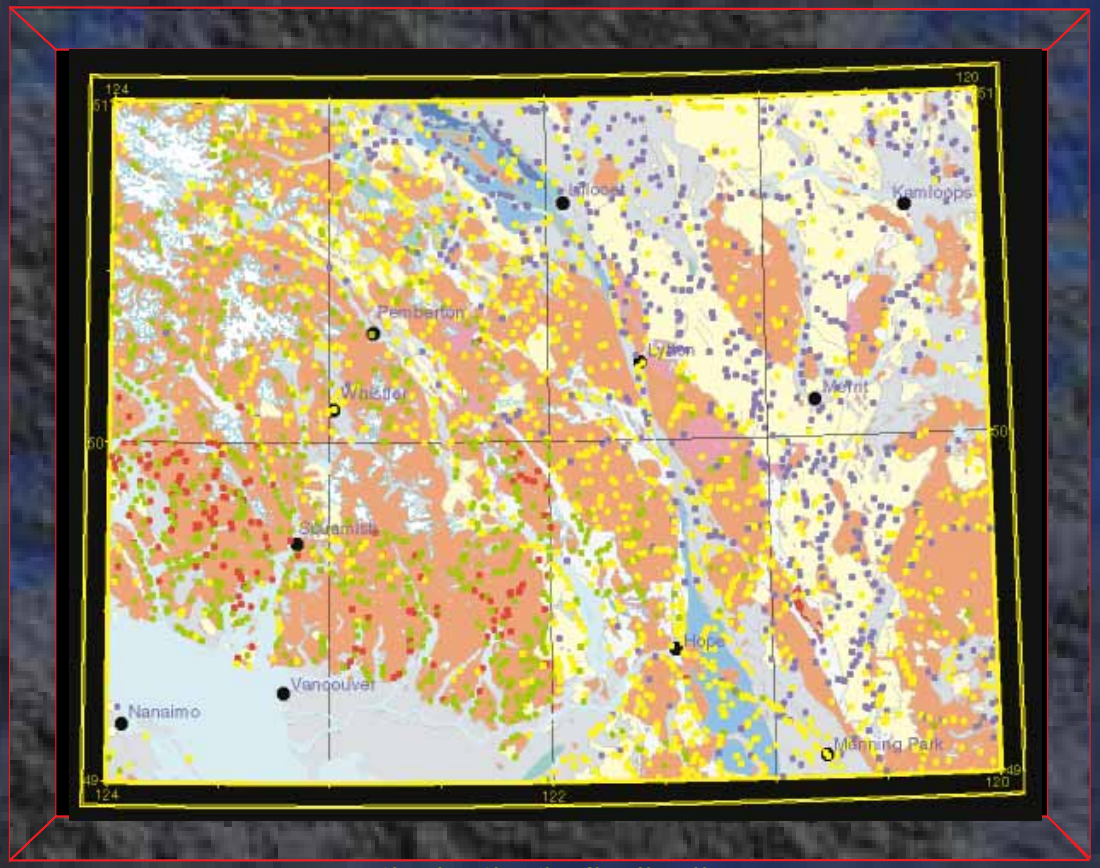
Ratios of rubidium/strontium and neodymiun/samarium have been determined for 150 samples in the map area, mainly by geochronology labs at the University of British Columbia, the University of Washington and GSC Ottawa. These isotopic ratios are used as chemical fingerprints to determine crustal source regions and crystallization histories for plutonic and volcanic rocks, and to establish the provenance of sedimentary rocks derived from these crystalline terrains. Data were made available by Brian Mahoney (University of Wisconsin).

Database..

Isotopes

Fldkitem	Mapunit	Sample	Unit	Rocktype	Age	Age_new	Err_plus	Err_minus	Era_epoch	Rb	Sr	Ab87b_86sr	Ab87_86_m	Ab87_86_+-
Sr87/86 (.709-.710)	IKTL	92-JS-25	Lizard Fm	shale	100	100.0	0.0	0.0	'mid'-Cretaceous	73.30	114.80	1.850	0.70934	27
Sr87/86 (.709-.710)	IKTL	92-JS-10	Bridge River Grp	shale	150*	150.0	0.0	0.0	Late Jurassic	64.60	73.50	2.550	0.70981	80
Sr87/86 (.708-.709)	IKTL	92-JS-23	Lizard Fm	shale	100	100.0	0.0	0.0	'mid'-Cretaceous	72.30	111.50	1.880	0.70876	13
Sr87/86 (.710-.720)	CJBE	92-JS-5	Bridge River Grp	shale	150*	150.0	0.0	0.0	Late Jurassic	52.10	47.30	3.190	0.71236	24
Sr87/86 (.708-.709)	CJBEs	92-JS-7	Bridge River Grp	shale	150*	150.0	0.0	0.0	Late Jurassic	76.50	193.90	1.140	0.70882	38
Sr87/86 (.704-.705)	IKBgd	PJM-B1	Bendor	bi tonalite	64+11/-2	64.0	11.0	2.0	Paleogene	30.00	633.00	0.137	0.70407	46
Sr87/86 (.708-.709)	mJA	273JBM92	Ashcroft Fm	siltstone	190	190.0	0.0	0.0	Early Jurassic	118.10	233.00	1.470	0.70856	22
Sr87/86 (.704-.705)	IKBgd	WV84-BEND	Bendor	bi tonalite	64+11/-2	64.0	11.0	2.0	Paleogene	34.10	658.50	0.150	0.70431	64
Sr87/86 (.704-.705)	IKBgd	PJM-B8	Bendor	bi tonalite	64+11/-2	64.0	11.0	2.0	Paleogene	38.00	684.00	0.161	0.70401	42
Sr87/86 (.703-.704)	Q	RF89-HRC	Hurley River	hb-bi q-diorite	87±2	87.0	2.0	2.0	Late Cretaceous	35.10	578.60	0.180	0.70360	38
Sr87/86 (.707-.708)	mJA	273JBM92	Ashcroft Fm	siltstone	170	170.0	0.0	0.0	Middle Jurassic	90.70	385.90	0.680	0.70762	32
Sr87/86 (.704-.705)	IKBgd,qd	9040	Bendor	tonalite	64+11/-2	64.0	11.0	2.0	Paleogene	32.40	625.00	0.150	0.70447	50
Sr87/86 (.705-.706)	JKC	9039	Cayoosh Ass	andesitic tuff	170	170.0	0.0	0.0	Middle Jurassic	21.40	243.00	0.260	0.70547	60
Sr87/86 (.708-.709)		20aJBM91	Boston Bar Fm	argillite	190	190.0	0.0	0.0	Early Jurassic	73.10	118.20	1.790	0.70847	30

Regional Geochemistry



Web Link

Sediment produced by weathering and erosion along a particular stretch of a drainage system is carried downstream and mixed with other sediments to produce a composite geochemical signature that reflects the overall bedrock geology, environmental setting and biological characteristics of the catchment basin. These signatures are often very distinct, and can be used for prospecting up-stream regions of high economic mineral potential, or for establishing baseline data to evaluate the effects of environmental contamination.

Geochemical data contained in the Library includes the results of major and minor element analyses and pH determinations for more than 3300 samples. The data are derived from the Regional Geochemical Survey (RGB) database, and are part a collaborative geochemical survey being carried out by the GSC and the BCGS.

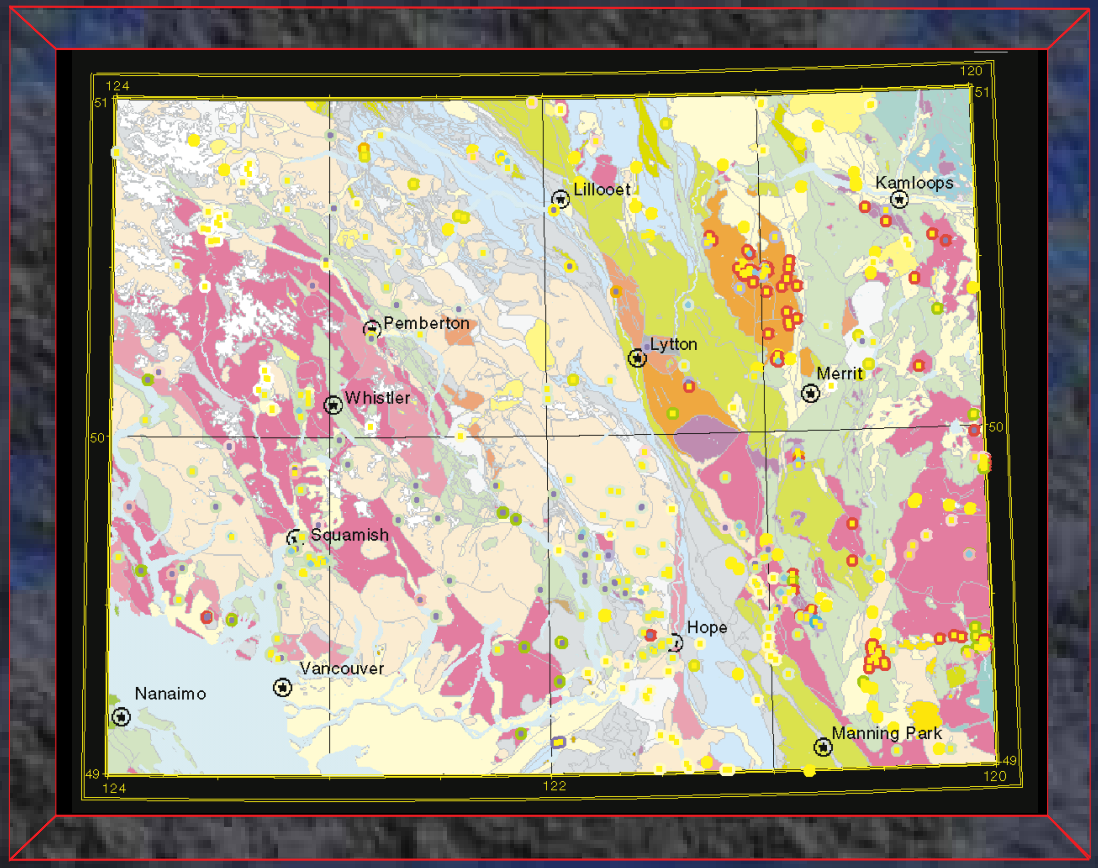
Database..

Stream Geochemistry

Rock_gen	Strm_width	Strm_depth	Materi	Date	Zn_ppm	Cu_ppm	Pb_ppm	Ni_ppm	Co_ppm	Ag_ppm	Mn_ppm	Fe	Mo_ppm	W_ppm	As_ppm	Sb_ppm	Hg_ppb	U_ppm	Uaq_ppb	Faq_ppm	Ph
schist, gneiss	1.00	10.000	6	1106	56.000	26.000	1.000	33.000	8.000	0.100	140.000	1.450	1.000	1.000	2.000	0.200	30.000	2.000	0.000	0.000	7.200
bt-hbl-granodiorite	0.70	10.000	6	1006	82.000	26.000	5.000	20.000	9.000	0.100	273.000	2.500	1.000	1.000	4.000	0.100	30.000	2.000	0.000	0.000	7.200
bt-hbl-qtz-diorite	7.00	100.000	6	25 8	27.000	7.000	2.000	4.000	5.000	0.100	242.000	1.530	3.000	2.000	2.000	0.100	17.000	2.000	0.020	30.000	7.200
gneiss, schist	2.00	10.000	6	0406	64.000	36.000	10.000	9.000	10.000	0.100	265.000	2.550	1.000	1.000	7.000	0.100	110.000	1.500	0.000	0.000	7.200
bt-hbl-granodiorite	1.70	20.000	6	1006	31.000	13.000	4.000	5.000	5.000	0.100	184.000	1.650	1.000	1.000	2.000	0.600	30.000	25.500	0.000	0.000	7.200
gneiss, schist	4.00	30.000	6	1106	73.000	43.000	2.000	63.000	16.000	0.100	428.000	3.360	1.000	1.000	4.000	0.100	30.000	1.500	0.000	0.000	7.200
schist, gneiss	1.50	10.000	6	1709	23.000	7.000	3.000	5.000	2.000	0.100	90.000	0.600	1.000	1.000	2.500	0.400	30.000	1.500	0.000	0.000	7.200
basalt flows, pyroclastic	35.00	1.000	6	2608	28.000	14.000	1.000	4.000	3.000	0.100	125.000	0.750	1.000	1.000	1.000	0.200	10.000	2.000	0.120	10.000	7.200
schist, gneiss	2.00	20.000	6	0506	56.000	42.000	6.000	23.000	9.000	0.100	250.000	2.200	1.000	1.000	19.000	0.400	110.000	15.500	0.000	0.000	7.200
bt-hbl-qtz-diorite	45.00	2.000	6	0109	54.000	57.000	1.000	6.000	9.000	0.100	660.000	2.200	1.000	1.000	1.500	0.200	20.000	2.000	0.020	10.000	7.300
dacite, pyroclastics	5.00	40.000	6	1306	52.000	15.000	5.000	3.000	7.000	0.100	450.000	2.500	2.000	1.000	12.000	0.800	80.000	1.000	0.000	0.000	7.300
bt-hbl-qtz-diorite	10.00	1.000	6	2508	26.000	16.000	1.000	6.000	5.000	0.100	160.000	1.000	1.000	1.000	1.500	0.400	10.000	1.500	0.020	10.000	7.300
bt-hbl-qtz-diorite	17.00	1.000	6	0809	88.000	50.000	26.000	14.000	11.000	0.100	580.000	2.250	2.000	1.000	36.500	1.600	20.000	4.000	0.020	10.000	7.300

Geochronology

Web Link



Naturally occurring radioactive elements are common in many minerals formed in the earth's crust. With time, these elements decay from an equilibrium state into a series of radiogenic parent and daughter isotopes. Like the two chambers of an hourglass, the amount of time that has passed since this process began is determined by measuring the ratios of radiogenic parent and daughter isotopes in the material being dated.

Radiometric determinations to establish the age and thermal histories of igneous and metamorphic rocks in the region have been carried out for more than 600 samples, mainly by geochronology labs at the University of British Columbia, and at the GSC in Ottawa. The Geochron layer of the Library includes information on location, radiometric method, interpreted age and error estimates for most of these samples. Much of this information was initially compiled in digital form by Richard L. Armstrong at the University of British Columbia.

Database..

Geochronology

Pickitem	Mapunit	Age_method	Age	Err_plus	Err_minus	Easting	Northing	Location	Geolunit	Rock_class	Rockdesc	Year	S
K/Ar	lKSgd	K/Ar Biotite	62.70	1.50	1.50	579950	5557700	Kwoiek Creek Elevation:7000'	(Map reference:92I lKgd4-2)	plutonic	N/A50	0	UBC
K/Ar	EKa	K/Ar Whole Rock	41.42	0.65	0.65	580274	5630888	Pavilion Elevation:1450'	(Map reference:92I EK13-3)	volcanic/sedimentary	N/A249	1987	GSC
K/Ar	PJCw	K/Ar Biotite	49.40	2.10	2.10	580407	5631137	Pavilion Elevation:533 m	Kamloops Group (?) (Map referi	volcanic	dacite or rhyolite	0	UBC
K/Ar	EKa	K/Ar	46.40	1.60	1.60	581925	5622775	Pavilion Elevation:1150'	(Map reference:92I EK13-4)	volcanic/sedimentary	N/A46	0	UBC
U/Pb	mKgn	U/Pb	96.00	0.00	0.00	582500	5506000	E of Mt Breakenridge Elevatior	Breakenridge gneiss (Map refei	metamorphic	diorite gneiss	1995	GSC
U/Pb	mKgn	U/Pb Zircon	96.00	1.00	1.00	582564	5506057			metamorphic	Mafic Orthogneiss	1992	GSC
K/Ar	uJB	K/Ar Hornblende	96.40	8.00	8.00	582715	5480298			sedimentary/volcanic	Hornblendite	1975	UBC
Rb/Sr	MC	Rb/Sr	93.50	11.40	11.40	583100	5507500	Mt Urquhart Elevation:1000'	Slollicun Schist (Map reference	metamorphic	biotite-garnet schis	0	UBC
U/Pb	mKgn	U/Pb	105.00	1.00	1.00	583700	5500250	Big Silver Ck Elevation:500'	Breakenridge gneiss (Map refei	metamorphic	gneiss	1985	UBC
Rb/Sr	mKgn	Rb/Sr	79.00	1.60	1.60	583800	5500251	Big Silver Ck Elevation:500'	Breakenridge gneiss (Map refei	metamorphic	gneiss	1985	UBC
U/Pb	lKGB	U/Pb Zircon	102.00	1.00	1.00	583843	5493289			volcanic	Qz feldspar tuff	1992	GSC
U/Pb		U/Pb	100.00	0.00	0.00	583850	5491350	Big Silver Ck Elevation:100'	Brokenbackhill Fm (Map refere	volcanic	Brokenbackhill Fm	1995	GSC
U/Pb	mKgn	U/Pb	105.00	0.00	0.00	583978	5500148			metamorphic	Orthogneiss	1985	UBC
K/Ar		K/Ar Biotite	19.28	0.30	0.30	584700	5461300	Harrison Lake Elevation:30'	Mount Barr Plutonic Cplx (Map	plutonic	Mount Barr Plutonic	0	UBC

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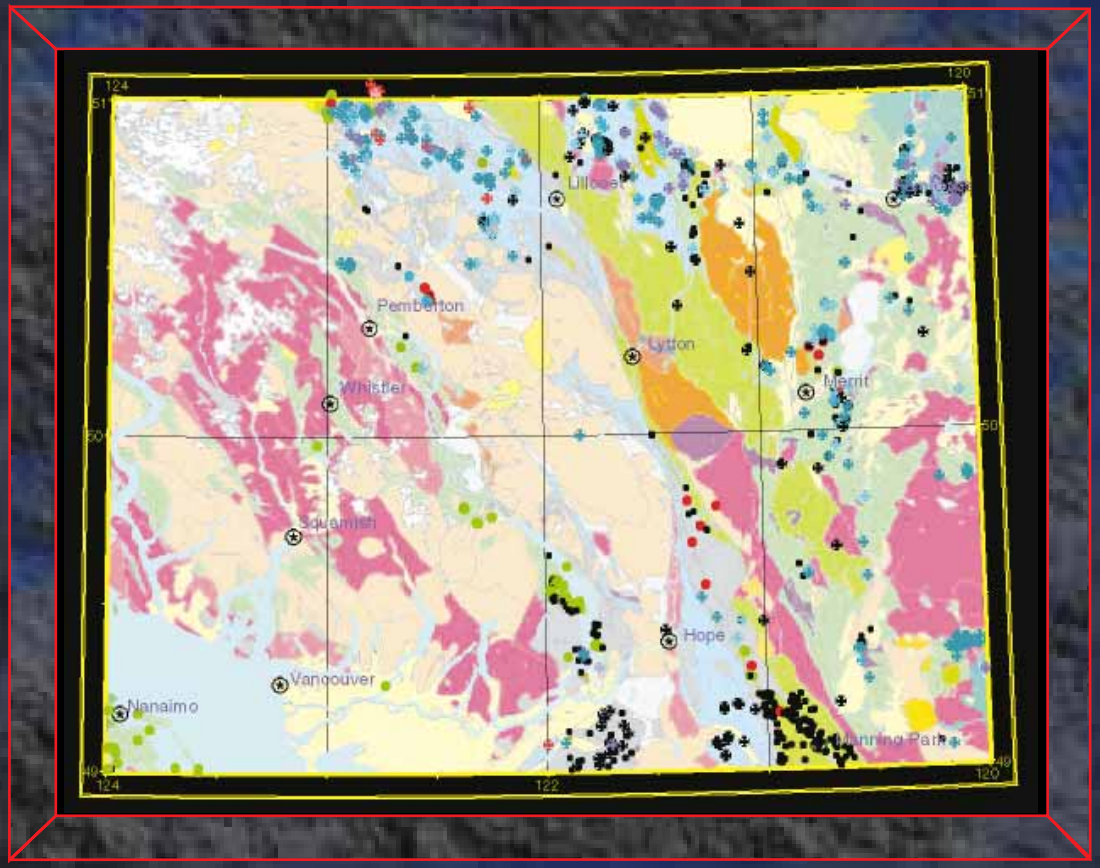


Sedimentary rock sequences of the southern Coast and Intermontane belts span nearly 400 million years of geologic time. They contain a rich and diverse suite of microscopic and macroscopic fossils that record critical stages of biologic evolution, and that provide important constraints on both the age and depositional histories of stratigraphic successions in this part of the Canadian Cordillera.

More than 16,000 specimens have been collected and identified from the Vancouver map area over the years. Curational data for most of these specimens, including information on locality, collector, taxonomy and age, are maintained by the GSC. The data were compiled mainly from internal GSC records and published reports, and were made available to this project through the collaborative efforts of Mike Orchard, Fabrice Cordey, Howard Tipper, James Haggart and Steve Irwin of the GSC.

Database..

Microfossils

Picklitem	Mapunit	Source	Gsc_loc	Collector	Date_col	Field_new	Higher	Formation	Strat_ctx	Informal	Tax_genus	Tax_spec
Devonian	DPH	92I/9	C-087380	J.W.H. Monger	1982	82-MV-15a	Harper Ranch Group.			conodont	®Apatognathus	®varians varians B
Devonian	DPH	92I/9	C-158541	Orchard	1988	88/87-OF-HM-X		Harper Ranch Grou	Re-collection of shelly fauna-lir	conodonts	®Apatognathus	sp.
Jurassic		92O/2	C-302615			89-FC-BR-11				radiolarian	®Archaeodictyomitra	sp.F? Kishida and S
Triassic	EKa	92I/15	C-158290	P.B. Read	1987	87-OF-C-12F	Nicola Group		Light grey, unbedded limestone	conodont	®Budurovignathus	ex gr. ®mungoensis
Triassic	Mv	92I/8	C-118401	M.J. Orchard	1984	84-MJO-M1	Nicola Group.		'Base' of lowest exposed (3 m)	conodont	®Budurovignathus	ex gr. ®mungoensis
Triassic	Mv	92I/8	C-118402	M.J. Orchard	1984	84-MJO-M2	Nicola Group.		Pentacrinoid limestone about 3	conodont	®Budurovignathus	ex gr. ®mungoensis
Triassic	Mv	92I/8	C-117725	M.J. Orchard	1980	80-MJO-Martel A	Nicola Group.		Dolomitized limestone.	conodont	®Budurovignathus	ex gr. ®mungoensis
Triassic	TrCH	92J/15	C-103620	M. Rusmore	1984	84-WV-R-24	Cadwallader Group;	Hurley Formation.	Micritic turbidite.	radiolarians	®Bulbocyrtium	sp.
Triassic	TrCH	92J/15	C-103620	M. Rusmore	1984	84-WV-R-24	Cadwallader Group;	Hurley Formation.	Micritic turbidite.	radiolarians	®Canoptum	sp.
Triassic	CJBE	92J/16	C-300410	F. Cordey		88-FC-B10-02				radiolarians	®Canoptum	®triassicum Yao
Jurassic	CJBC	92J/9	C-300417	F. Cordey		88-FC-B20-01				radiolarians	®Canoptum	®dixoni Pessagno
Triassic	CJBE	92J/16	C-300409	F. Cordey		88-FC-B09-01				radiolarians	®Canoptum	®triassicum Yao
Mesozoic		92O/2	C-302627			89-FC-BR-25				radiolarian	®Canoptum	sp.
Triassic	CJBE	92J/9	C-300416	F. Cordey		88-FC-B18-02				radiolarians	®Canoptum	sp.

Photographic Library

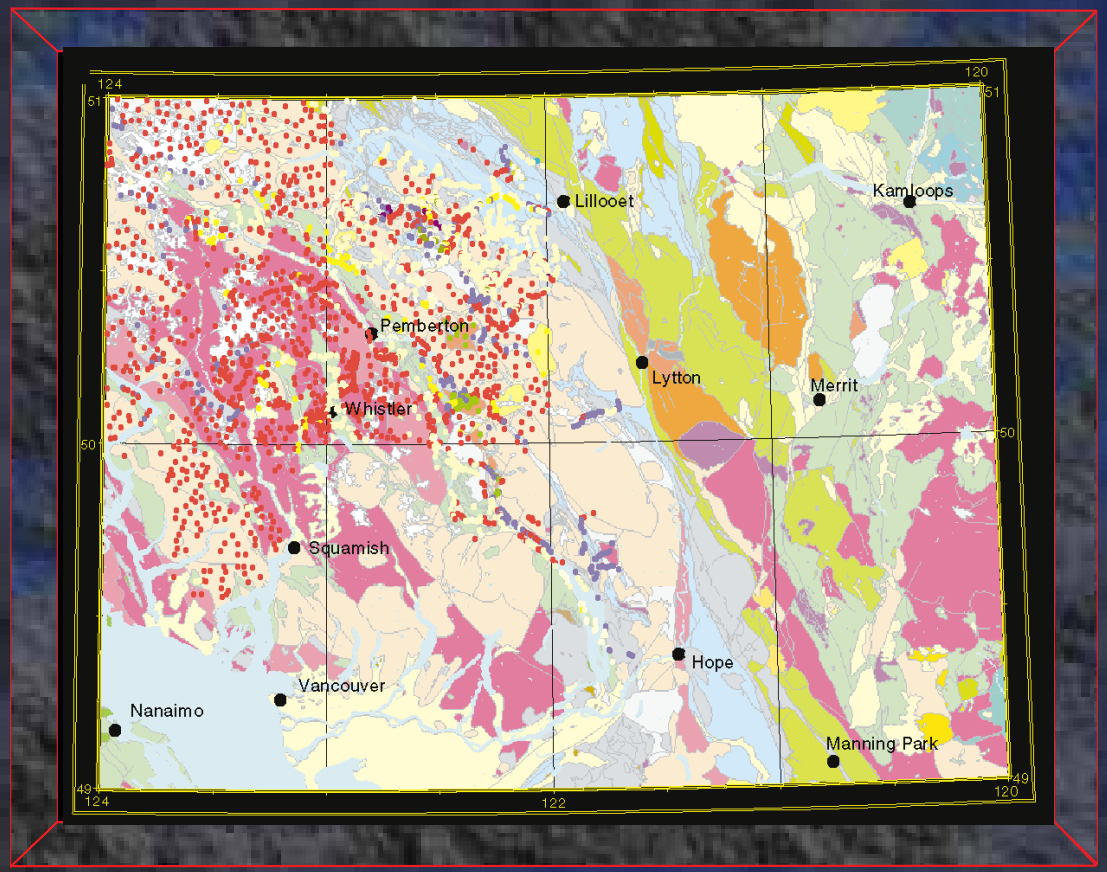
Included in the Library is a collection of 250 georeferenced photographs documenting important geologic and physiographic features of the southern Coast and Intermontane Belts. Each photo is keyed to an associated database that maintains theme, location and descriptive information. General themes include landscape, rock type, structure, thin-section photomicrographs, fossils and miscellaneous field photos.

Database..

photo.pat

Pickitem	Number	Disk	Image	Photo	Field	Station	Sample	Mapunit	Rock_gen	Comments	Nts	Easting
landscape	73	4012	73	4012-73	J10-12	93082	93082	uKPC	andesite flows, clastics	Leckie Ridge	92J15	494546
structure	345	4016	45	4016-45	FLT-13	191275	191275	CJBEm		Sheared granodiorite sill in lower plate of Mission Ridge Faul	92J16	557381
rock-type	307	4016	7	4016-7	JKC-23	93018	93018	JKCm	tuff, volcaniclastics	Mold of plant fragment in graphitic siltstone of 'Gun Lake' As	92J15	502962
structure	463	4017	63	4017-63	JM-11	96038		CJBE		Aerial View of Hell Creek Fault; Chilcotin Range		552101
landscape	61	4012	61	4012-61	J9-10	91329	91329	lKBgd		Bendor Range, near Truax Mt: looking north across the trac	92J15	518285
rock-type	470	4017	70	4017-70	JM-18	96045		CJBE		Greenstone melange; Bridge River Complex, along Carpente		544896
rock-type	164	4014	64	4014-64	CJB-21	91310	91310	CJBC		Transposed layering in sheared and recrystallized metachert	92J9	544982
structure	350	4016	50	4016-50	FLT-18	92166	92166	JKC	phyllite, clastics	Asymmetric fault zone fabrics along trace of Noel Creek Faul	92J10	512014
rock-type	270	4015	70	4015-70	MCC-13	92131	92131	JKCu	phyllite, clastics	Transposed layering in thin-laminated phyllitic quartzite of Ca	92J10	533489
rock-type	207	4015	7	4015-7	MPV-10	96020	96020	MPv	basalt flows, pyroclastic	Top of basalt flow section; volcanic centre north of Noel Mt.	92J10	509914
landscape	95	4012	95	4012-95	J10-34	92134	92134	JKC	phyllite, clastics	Whitecap Mt; looking WSW across McGillivray Pass Fault Z	92J10	534737
landscape	96	4012	96	4012-96	J10-35	92134	92134	JKC	phyllite, clastics	Whitecap Mt; looking SE into Cayoosh Range	92J10	534737
rock-type	212	4015	12	4015-12	MPV-15	96021	96021	MPv	basalt flows, pyroclastic	Fluvial 'channel-fill' conglomerate; contains imbricated pebbl	92J10	509632
rock-type	209	4015	9	4015-9	MPV-12	96021	96021	MPv	basalt flows, pyroclastic	Fluvial "channel-fill" conglomerate; contains imbricated pebl	92J10	509632

Rock Type



The southern Coast Belt is a natural laboratory for studying rocks from a wide range of tectonic settings. It includes slivers of mafic and ultramafic rock formed along spreading centres of the Panthalasia and Pacific oceans; stratified sequences of pelagic and terrigenous sedimentary rocks formed within and along the margins of these ocean basins; volcanic flows and eruptive detritus from oceanic island arc and continental margin volcanic chains; and metamorphic/plutonic rocks formed during the process of subduction, terrane accretion and crustal deformation.

In addition to generalized map unit descriptions provided in the **Bedrock Geology, Lithology and Rock Class layers**, the Library also contains site-specific information for more than 3000 bedrock outcrops in the southern Coast Belt. Each of these stations is linked to a database that describes map unit, rock class, and rock type.

Database..

Rock Type

Pickitem	Mapunit	Rock_class	Station	Rock_1	Rock_2	Rock_3	Rock_4	Rock_5
plutonic	mKgd	plutonic	14413	hornblende-biotite diorite				
sedimentary	lKGP	sedimentary	88014	volcanic porphyry				
metamorphic	MSL	metamorphic	88107	phyllite	schist	garnet-staurolite schist	garnet-hornblende meta-volcanic gneiss	
metamorphic	MSL	metamorphic	88107	hornblende granodiorite				
plutonic	mKgd	plutonic	14417	hornblende-biotite diorite	amphibolite			
sedimentary	lKGP	sedimentary	88015	volcanic porphyry				
sedimentary	lKGP	sedimentary	88016	volcanic porphyry	crystal tuff			
sedimentary	lKGP	sedimentary	88017	crystal tuff				
sedimentary	lKGP	sedimentary	88018	volcanic porphyry	tuff			
metamorphic	MSL	metamorphic	88106	phyllite	garnet-biotite-staurolite schist			
metamorphic	MSL	metamorphic	88047	talc-chlorite-sericite schist				
plutonic	eKgd	plutonic	14405	hornblende-biotite-quartz diorite				
plutonic	mKgd	plutonic	14419	biotite-hornblende granodiorite				
volcanic/sedime	lKGB	volcanic/sedimentary	88046	muscovite-chlorite schist				

Structures and Rock Fabrics

Geologic structures and associated rock fabrics of the southern Coast Belt record a long and complex history of crustal shortening and strike-slip displacement that is linked, in part,to subduction of oceanic crust, terrane accretion, and imbrication of the western North American plate margin in the Mesozoic and early Cenozoic.

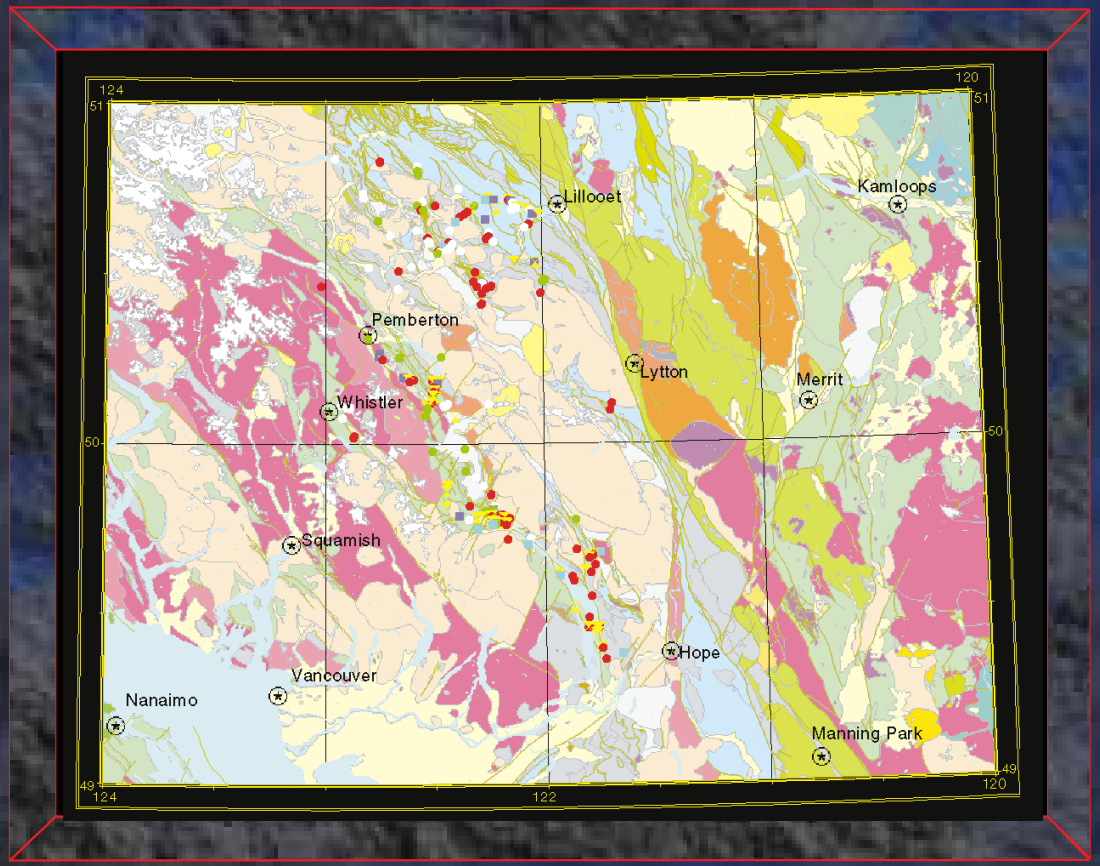
The structure layer documents the distribution, age and kinematics of major fold and fault systems for the entire map area, as well as site-specific information on the orientation, kinematics and relative timing of associated planar and linear fabrics in the southern Coast Belt. These data, together with seismic reflection profiles from the LITHOPROBE southern Cordillera transect, are used to reconstruct the crustal architecture and deformation history for this part of the Canadian Cordillera

Database..

Structural Fabrics

PickItem	Mapunit	Rock_class	Rock_gen	Station	Azimuth	Diplunge	Fabric	Easting	Northing	S_author
Superposed Foliation	JKCm	sedimentary/volcanic	tuff, volcaniclastics	7040661	190	80	S1	552570	5586730	Roddick, J.A.
Stratigraphic Layering	JKCm	sedimentary/volcanic	tuff, volcaniclastics	89573	129	67	S0	552599	5589898	Journeay, J.M.
Superposed Foliation	JKCm	sedimentary/volcanic	tuff, volcaniclastics	89573	114	56	S1	552599	5589898	Journeay, J.M.
Stratigraphic Layering	IKGB	volcanic/sedimentary	tuff, volcaniclastics	188122	151	82	S0	552615	5515953	Journeay, J.M.
Superposed Foliation	IKGB	volcanic/sedimentary	tuff, volcaniclastics	188122	330	74	S2	552615	5515953	Journeay, J.M.
Intersection Lineation	IKGB	volcanic/sedimentary	tuff, volcaniclastics	188122	305	47	L1	552615	5515953	Journeay, J.M.
Superposed Foliation	IKGB	volcanic/sedimentary	tuff, volcaniclastics	188122	151	82	S1	552615	5515953	Journeay, J.M.
Superposed Foliation	IKGB	volcanic/sedimentary	tuff, volcaniclastics	188127	322	85	S1	552623	5517118	Journeay, J.M.
Superposed Foliation	IKGB	volcanic/sedimentary	tuff, volcaniclastics	188127	300	89	S2	552623	5517118	Journeay, J.M.
Stratigraphic Layering	IKJ	sedimentary	sandstone, conglomerate	894440	349	71	S0	552634	5646651	Schiarizza, P. and Gabba, R.G
Stratigraphic Layering	IKJ	sedimentary	sandstone, conglomerate	894452	11	75	S0	552637	5648038	Schiarizza, P. and Gabba, R.G
Superposed Foliation	JKCm	sedimentary/volcanic	tuff, volcaniclastics	189061	336	82	S1	552641	5589573	Journeay, J.M.
Superposed Foliation	JKCm	sedimentary/volcanic	tuff, volcaniclastics	189061	336	82	S2	552641	5589573	Journeay, J.M.

Kinematic Indicators



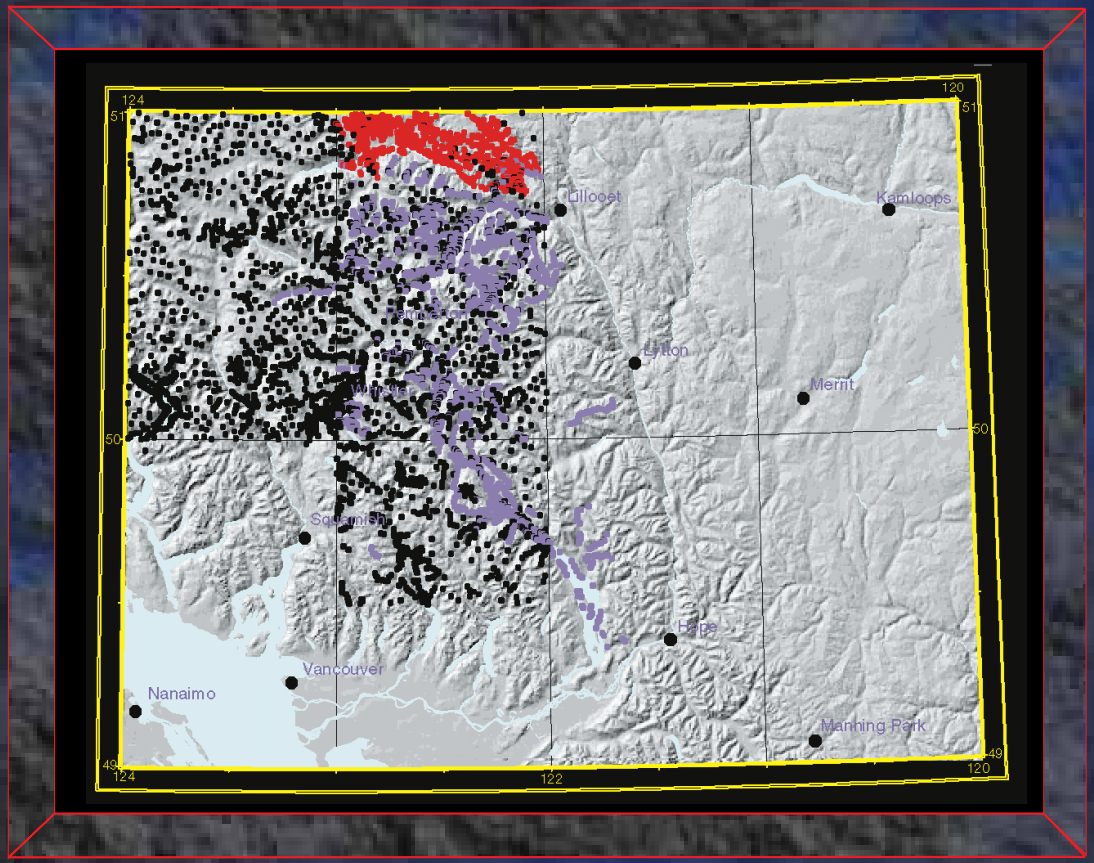
Structures formed during periods of large-scale folding and fault imbrication are locally well-preserved throughout the map area. Minor structures, such as asymmetric folds, flattening foliations, rotated porphyroclasts and pressure shadows record the rotational component of deformation. The geometries of these minor structures, together with constraints on the age of fabric development, provide a means of reconstructing the history of displacement within this part of the Canadian Cordillera.

Database..

Kinematic Indicators

Fldkitem	Mapunit	Rock_gen	Station	Obs_scale	Sz_type	Ki_type	Ki_sense	Azimuth	Diplunge	Lineation	Lin_type	Easting
Reverse-E	lKSqd	bt-hbl-qtz-diorite	89606	MACRO	reverse-slip shear zone	shear band	top-to-the-NE	155	72	62-276	STRCH	513769
Reverse-E	mJqd	bt-hbl-qtz-diorite	88370	MICRO	reverse-slip shear zone	shear fracture	top-to-the-NE	124	77	77-220	STRCH	517589
Reverse-E	mJqd	bt-hbl-qtz-diorite	88370	MICRO	reverse-slip shear zone	shear fracture	top-to-the-NE	124	77	77-220	STRCH	517589
Normal-W	mJqd	bt-hbl-qtz-diorite	88370	MACRO	normal-slip shear zone	shear band	down-to-the-SW	124	77	77-220	STRCH	517589
Reverse-E	lKG	conglomerate, sand	88365	MICRO	reverse-slip shear zone	pressure shadow	top-to-the-NE	149	84			517160
Normal-W	lKG	conglomerate, sand	88365	MACRO	normal-slip shear zone	S-C fabrics	down-to-the-SW	149	84			517160
Reverse-E	lKSqd	bt-hbl-qtz-diorite	188211	MACRO	reverse-slip shear zone	shear fracture	top-to-the-NE	155	22	09-056	SLICK	537668
Reverse-E	lKGB	tuff, volcaniclastics	88346	MACRO	reverse-slip shear zone	shear band	top-to-the-NE	138	44			523912
Normal-E	lKSg	bt-hbl-granite	88359	MACRO	normal-slip shear zone	S-C fabrics	down-to-the-NE	320	72	62-075	STRCH	518437
Reverse-W	lKSg	bt-hbl-granite	88359	MACRO	reverse-slip shear zone	S-C fabrics	top-to-the-NW	5	66	62-075	STRCH	518437
Normal-W	mJqd	bt-hbl-qtz-diorite	188224	MACRO	normal-slip shear zone	pressure shadow	down-to-the-SW	163	74	73-233	STRCH	525422
Dextral	lKSqd	bt-hbl-qtz-diorite	188227	MACRO	strike-slip shear zone	not reported	dextral	224	60			527077
Reverse-W	lKGB	tuff, volcaniclastics	288074	MICRO	reverse-slip shear zone	extension fracture	top-to-the-SW	347	74		STRCH	528596
Reverse-W	lKGB	tuff, volcaniclastics	288074	MACRO	reverse-slip shear zone	not reported	top-to-the-SW	320	88	85-058	STRCH	528596

Field Observations



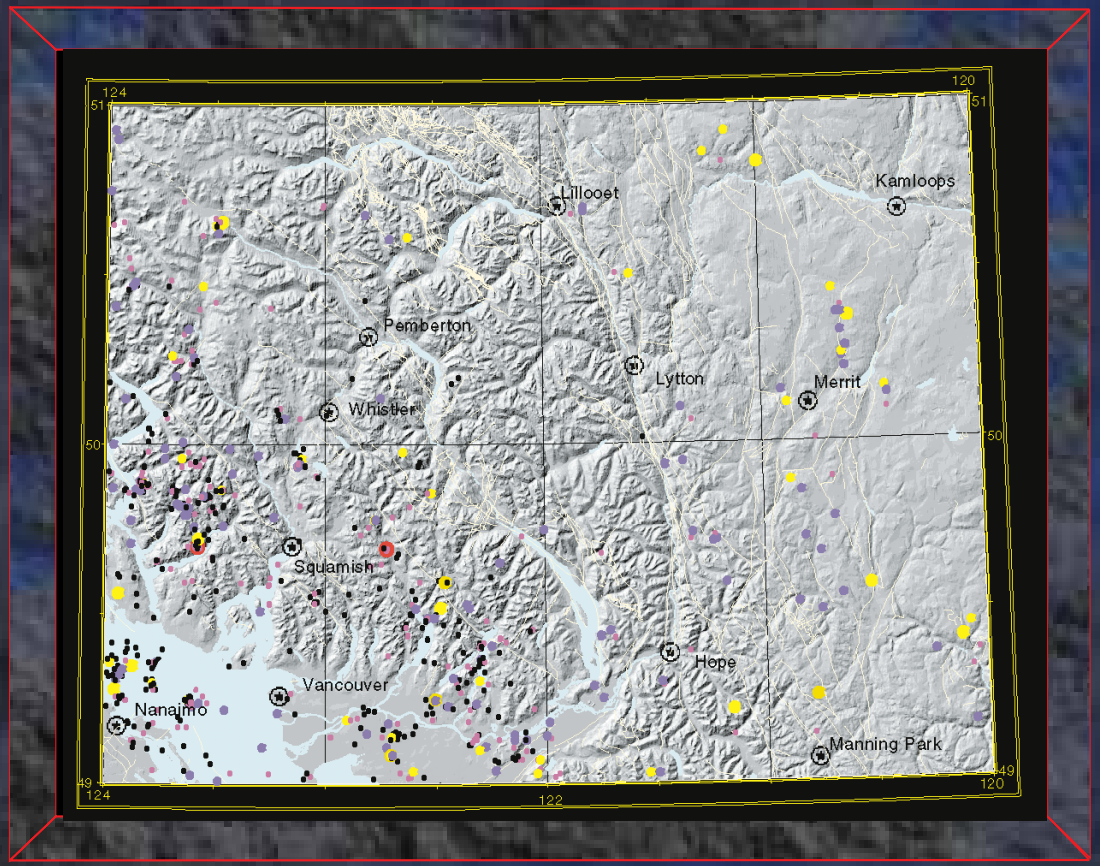
Field observations for the southern Coast Mountains have been collected and maintained in a digital format by the Geological Survey of Canada since the pioneering work of Jim Roddick in the mid 1960's. Locations for 5245 stations are maintained on the curation map and associated database. 2595 of these stations were established over a ten year period by Jim Roddick, Bill Hutchison, Glenn Woodsworth and other members of the Coast Belt Project. The remaining 2647 stations were establised over a five year period by Murray Journeay, Laszlo Csontos, Jim Crowley, Bruce Northcote, Monique Jaasma, Carlo Sanders, and Jan Henk van Konijenenburg, as part of the Pemberton (east-half)-Harrison Lake Project. Each of these station points is linked to an associated curation database that documents location (UTM) and source of data. .

Database..

Curation

Pickitem	Mapunit	Rock_gen	Rock_code	Station	Easting	Northing	S_organ	S_author	S_release	S_scale
Journeay	lKSqd	bt-hbl-qtz-diorite	qtzdir	88369	515961	5567255	GSC	Journeay, J.M.	unpublished field data	50000
Journeay	MCC	schist, gneiss	schist	392096	515997	5617784	GSC	Journeay, J.M.	unpublished field data	50000
Roddick	lKSqd	bt-hbl-qtz-diorite	qtzdir	7010650	516000	5579200	GSC	Roddick, J.A.	unpublished field data	100000
Schiarizza	muKsq	sandstone, conglomerate	sandston	793938	516072	5645817	BCGS	Schiarizza, P.and Gaba, R,G.	Geoscience Map 93-7/8	50000
Roddick	mKqd	bt-hbl-qtz-diorite	qtzdir	465175	516072	5490993	GSC	Roddick, J.A.	unpublished field data	100000
Journeay	PBCu	utramafics	ultrmafx	392086	516099	5619025	GSC	Journeay, J.M.	unpublished field data	50000
Journeay	JKC	phyllite, clastics	phyllite	92193	516109	5611470	GSC	Journeay, J.M.	unpublished field data	50000
Schiarizza	Sh	utramafics	ultrmafx	793799	516132	5642260	BCGS	Schiarizza, P.and Gaba, R,G.	Geoscience Map 93-7/8	50000
Roddick	ICE	ice	ice	176013	516133	5566431	GSC	Roddick, J.A.	unpublished field data	100000
Roddick	lKSqd	bt-hbl-qtz-diorite	qtzdir	7030767	516200	5566800	GSC	Roddick, J.A.	unpublished field data	100000
Journeay	MCC	schist, gneiss	schist	392097	516218	5617438	GSC	Journeay, J.M.	unpublished field data	50000
Journeay	JH	dacite, pyroclastics	dacite	92219	516232	5597566	GSC	Journeay, J.M.	unpublished field data	50000
Journeay	PBCu	utramafics	ultrmafx	392087	516233	5619962	GSC	Journeay, J.M.	unpublished field data	50000
Roddick	mJqd	bt-hbl-qtz-diorite	qtzdir	465192	516279	5509559	GSC	Roddick, J.A.	unpublished field data	100000

Earthquake Epicentres



Earthquakes that occur along the Cascadia subduction zone in southwestern British Columbia record a complex set of interactions between western North America and oceanic crust of the Pacific and Juan de Fuca plates. Earthquakes situated adjacent to and west of Vancouver Island occur deeper in the crust, are larger in magnitude, and record fault motions that are consistent with eastward underthrusting of the Juan de Fuca plate beneath western North America. Earthquakes situated in the southern Coast Belt occur at shallower crustal levels, are smaller in magnitude, and record fault displacements that are both parallel and perpendicular to the plate margin.

Seismic data contained in the Library were collected over a ten year period by GSC seismologists at the Pacific Geoscience Centre. The data are maintained and distributed by the Geophysical Data Centre in Ottawa.

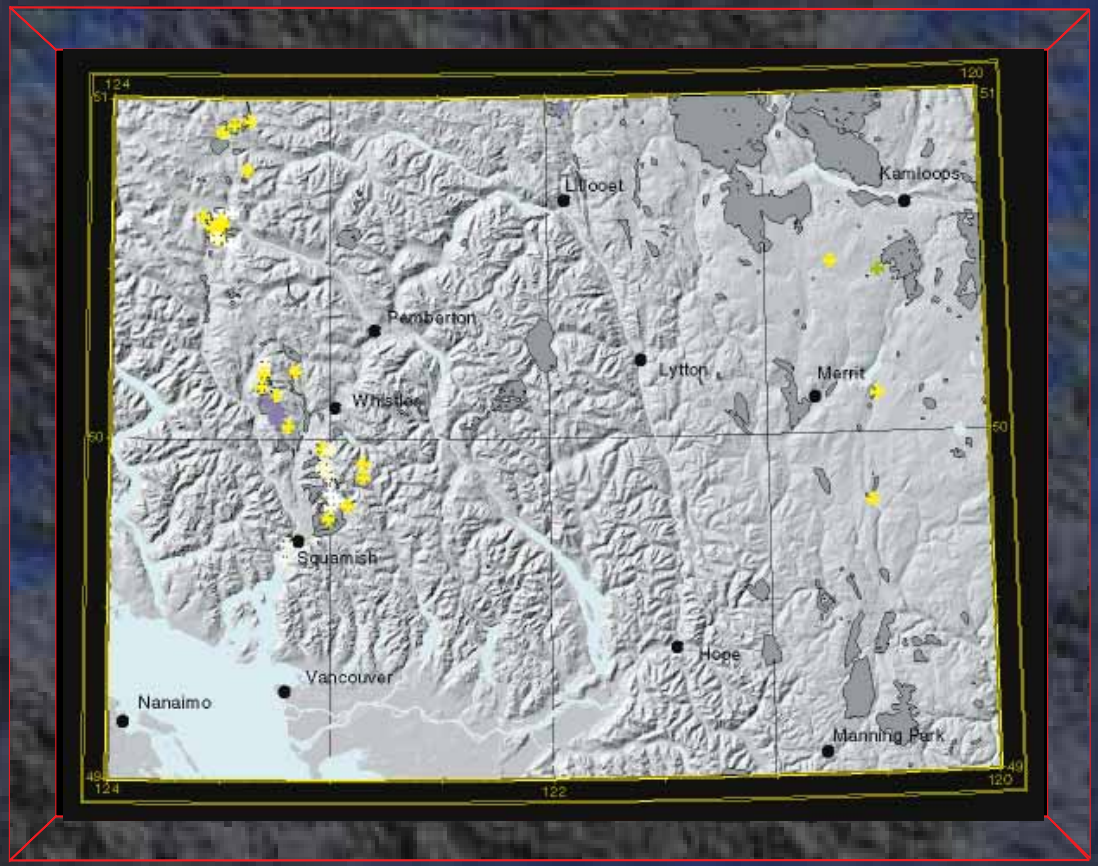
Web Link

Database..

Seismicity

Pickitem	Seismic	Year	Month	Day	Hour	Second	Latitude	Longitude	Depth_gen	Depth	Magnitude	S_organ	S_author	S_release
m(1.0-1.5)	1	1980	1	6	1008	45	49.180	-122.680	deep	20	1.1	GSC	Pacific Geoscience Centre	Canadian National Earthquake Database
m(1.0-1.5)	2	1980	1	13	1539	24	49.220	-122.350	medium	10	1.2	GSC	Pacific Geoscience Centre	Canadian National Earthquake Database
m(0-1.0)	3	1980	1	24	13	8	49.150	-122.610	deep	20	0.8	GSC	Pacific Geoscience Centre	Canadian National Earthquake Database
m(1.0-1.5)	4	1980	3	6	1057	49	49.270	-123.160	deep	74	1.1	GSC	Pacific Geoscience Centre	Canadian National Earthquake Database
m(1.0-1.5)	5	1980	3	21	1210	33	49.480	-122.270	deep	20	1.4	GSC	Pacific Geoscience Centre	Canadian National Earthquake Database
m(1.5-2.0)	6	1980	5	2	418	3	49.790	-123.240	deep	20	1.8	GSC	Pacific Geoscience Centre	Canadian National Earthquake Database
m(2.0-2.5)	7	1980	5	13	1947	3	49.190	-122.910	shallow	5	2.1	GSC	Pacific Geoscience Centre	Canadian National Earthquake Database
m(1.5-2.0)	8	1980	6	4	546	3	49.230	-123.610	deep	27	1.8	GSC	Pacific Geoscience Centre	Canadian National Earthquake Database
m(2.5-3.0)	9	1980	6	23	547	55	49.520	-122.480	medium	11	2.7	GSC	Pacific Geoscience Centre	Canadian National Earthquake Database
m(2.0-2.5)	10	1980	6	25	2259	52	49.890	-120.880	medium	18.00F	2.5	GSC	Pacific Geoscience Centre	Canadian National Earthquake Database
m(1.5-2.0)	11	1980	7	18	1614	49	49.340	-123.920	shallow	1	1.7	GSC	Pacific Geoscience Centre	Canadian National Earthquake Database
m(0-1.0)	12	1980	8	26	953	4	49.440	-122.400	deep	20	1.0	GSC	Pacific Geoscience Centre	Canadian National Earthquake Database
m(1.0-1.5)	13	1980	8	27	2344	31	49.240	-123.610	deep	26	1.4	GSC	Pacific Geoscience Centre	Canadian National Earthquake Database
m(2.0-2.5)	14	1980	10	11	1623	20	49.960	-123.660	deep	20	2.1	GSC	Pacific Geoscience Centre	Canadian National Earthquake Database

Volcanic Centres



Volcanic rocks of the Garibaldi complex are part of the Cascade arc, a chain of active and recently active volcanoes that extends southward through Washington, Oregon and into northern California. The arc is situated above subducting oceanic lithosphere of the Juan de Fuca and Gorda plates, and represents the surface expression of magmas that have migrated upwards through the crust from an underlying zone of partial melting.

Eruptive centres of the Garibaldi Complex occur along en echelon north and northeast-trending domains that apparently reflect underlying zones of structural weakness in the crustal lithosphere. Many of these volcanoes erupted beneath and along the margins of Pliestocene ice sheets. Retreat of the ice, and uplift of the mountains have left these volcanic complexes high and structurally unstable.

Database..

Volcanic Centres

Picklitem	Name	Age	Type_spc	Subregn	Comment	Elevation	Elev_base	Nts	Utm_zone
Pleistocene	Eanastick Meadow	post 0.1 Ma	Subglacial Mound (SUGM)	Mount Garibaldi Volcanic Field	Spelling is from topographic ma	1160	1065	92G15	10
Holocene	Elwyn Hot Spring	Recent	Geothermal Spring	Mount Edziza	A maximum water temperature i	1440	1350	104G15	9
Pliocene	Ember Ridge 01-inf	Pliocene	Subglacial Mound (SUGM)	Mount Cayley	The Ember Ridge complex con	1981	1830	92J3	10
Pliocene	Ember Ridge 02-inf	Pliocene	Subglacial Mound (SUGM)	Mount Cayley	The Ember Ridge complex con	1981	1737	92J3	10
Pliocene	Ember Ridge 03-inf	Pliocene	Subglacial Mound (SUGM)	Mount Cayley	The Ember Ridge complex con	1890	1800	92J3	10
Pliocene	Ember Ridge 04-inf	Pliocene	Subglacial Mound (SUGM)	Mount Cayley	The Ember Ridge complex con	1981	1860	92J3	10
Pliocene	Ember Ridge 05-inf	Pliocene	Subglacial Mound (SUGM)	Mount Cayley	The Ember Ridge complex con	1625	1495	92J3	10
Pleistocene	Enid Creek Cone	Pleistocene	Subglacial Mound (SUGM)	Dark Mountain		1920	1520	104I5	9
Holocene	Eve Cone (DLF-9)	Holocene	Cinder Cone	Desolation Lava Field	Eve and Williams cones are the	1740	1610	104G15	9
Pliocene	Exile Hill	Pliocene	Cinder Cone	Spectrum Range	Part of the Spectrum Formation	1850	1700	104G7	9
Pliocene	Felsite Creek	Pliocene	Eroded Volcanic Outcrop	Felsite Creek	Two small basaltic centres in th	0	0	115C10	7
Late Pleistocene	Fiftytwo Ridge	Late Pleistocene	Subglacial Volcano	Wells Gray-southeast	Fiftytwo Ridge is the smallest ol	2015	1905	82M13	11
Pleistocene	Flatiron	Pleistocene	Eroded Volcanic Outcrop	Wells Gray-southwest	The Flatiron is an eroded featu	730	670	92P16	10
Holocene	Flourmill Cone	early Holocene	Cinder Cone	Wells Gray-northwest	Flourmill Centre is the most soul	1495	1370	93A1	10

Regional Aeromagnetics

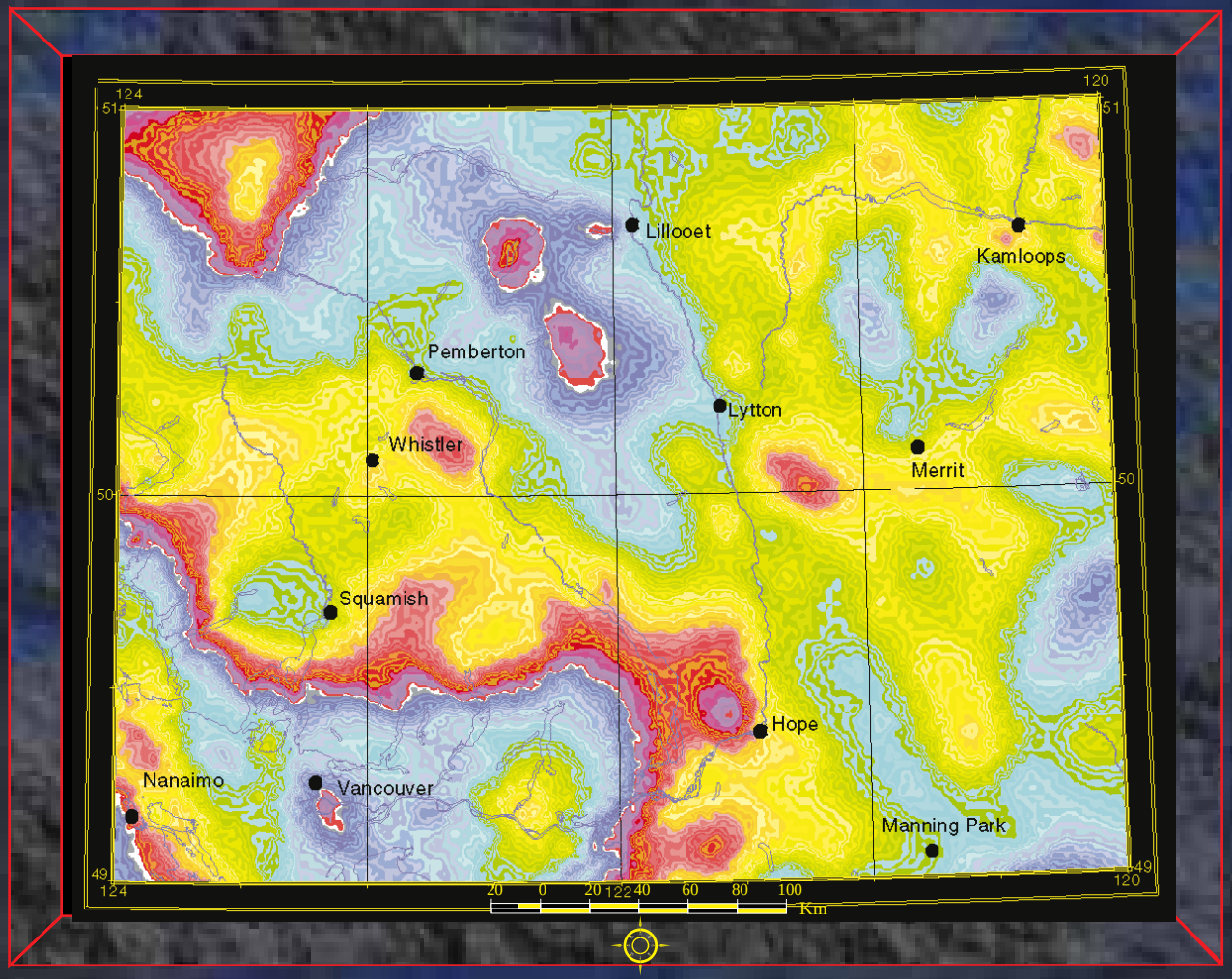
Legend

Web link

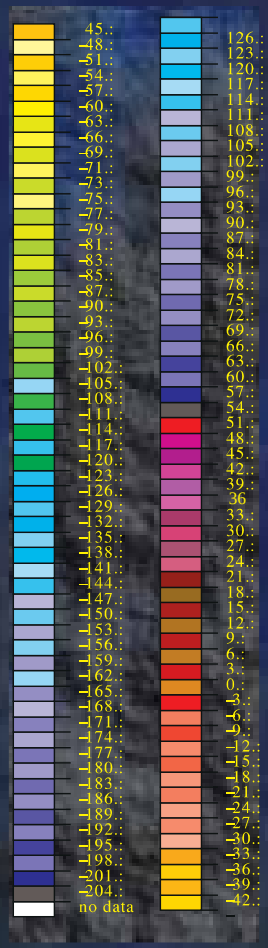
Regional aeromagnetic patterns reflect present-day variations in the fraction of magnetic minerals in the upper crust, and provide a means of indirectly imaging near surface features such as fault structures and/or plutons. The observed magnetic signature for the southern Coast and Intermontane belts reflects the regional northwest-trending structural grain of major fault systems, and the distribution of major plutonic suites and volcanic centres in this part of the southwest Canadian Cordillera.

This image represents a surface grid model of aeromagnetic data that have been contoured at intervals of 30 nanoteslas. The data upon which this model is based are maintained and distributed by the Geophysical Data Centre of the Geological Survey of Canada. For more information, contact their Internet site directly at ***http://gdcinfo.agg.nrcan.gc.ca/***

Regional Bouger Gravity



Legend

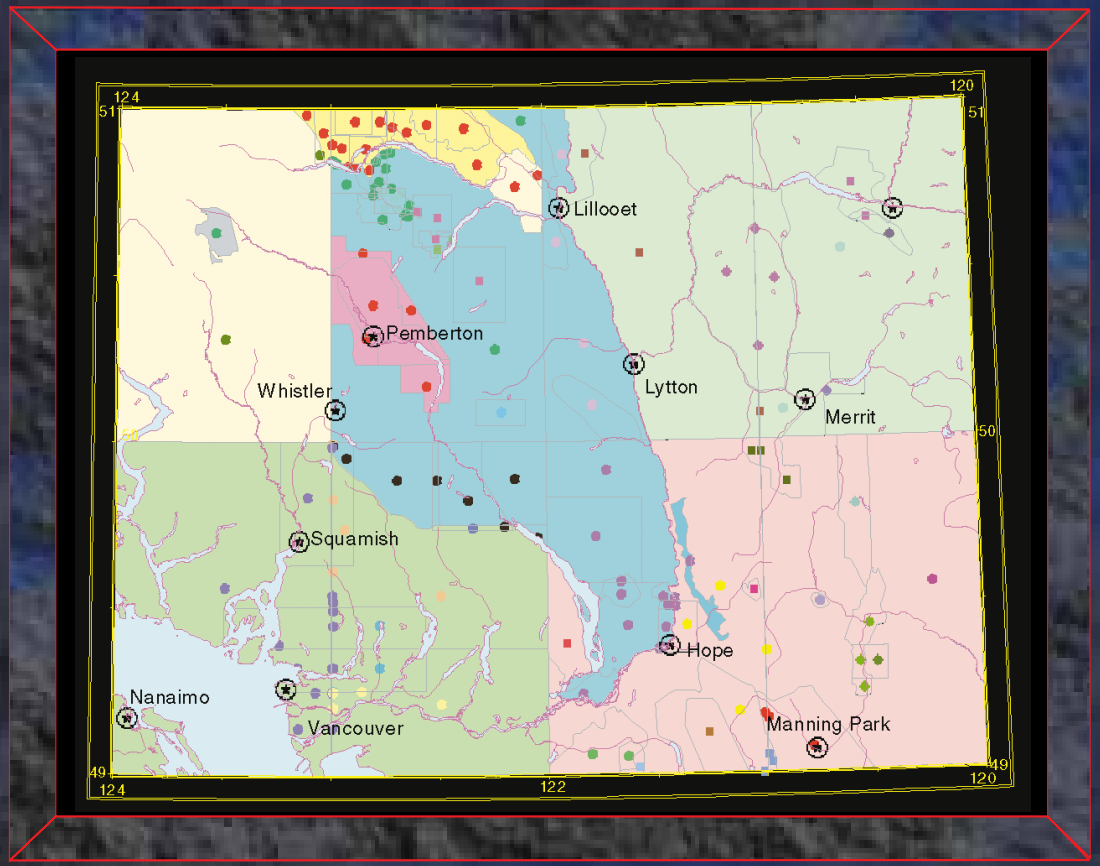


Web link

Bouger gravity measurements reflect present-day variations in density and/or thickness of the underlying crust and upper mantle, and provide a means of indirectly imaging large-scale crustal features. In general, warmer colours reflect regions of anomalously dense and/or thin crust, while cooler colours reflect regions of less dense and/or thicker crust. The Bouger gravity signature for the Vancouver map area is characterized by a northwest-trending high situated over the continental margin and Western Coast Belt, and a corresponding low over the Easern Coast and Intermontane belts.

The image provided in the Library represents a surface grid model of more than 7600 Bouger gravity values contoured at intervals of 3 milligals. The data upon which this model is based are maintained and distributed by the Geophysical Data Centre of the Geological Survey of Canada. For more information, contact their Internet site at ***http://gdcinfo.agg.nrcan.gc.ca/***

Map References



Information contained in this library represents a synthesis of more than a century of geological mapping and research carried out by the Geological Survey of Canada, the B.C. Geological Survey, the mineral resource industry, and various national and international University consortia.

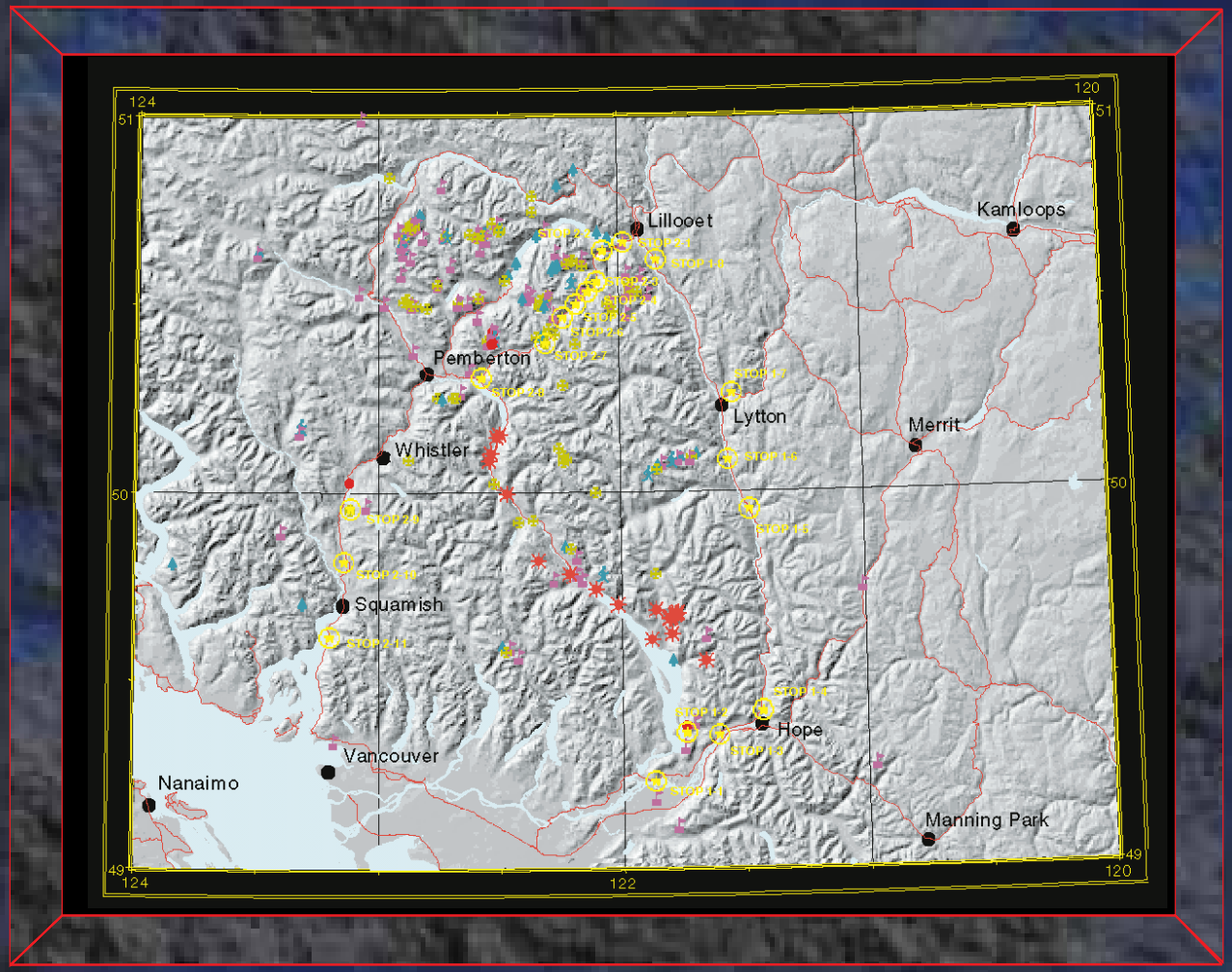
Primary sources of information and references to previous work are summarized in the Map Reference layer, and in the associated Map Reference database. Primary references to line features are also maintained as attributes in the Bedrock Geology layer, for those without access to a GIS.

Database..

Map References

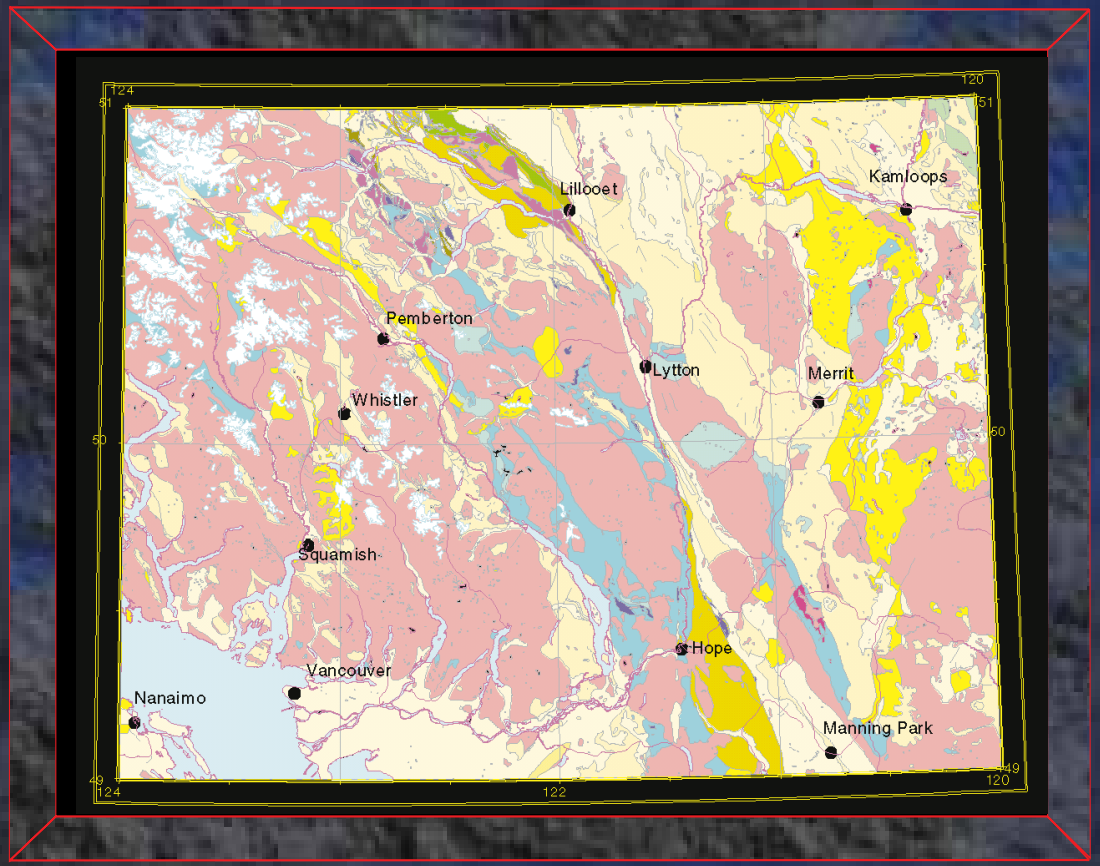
PickItem	Mapref1	Mapref2	Mapref3	Mapref4	Mapref5
Monger	Monger, J.W.H. (1985-1993). GSC Map 41-1989	Coates, J.A., 1974. GSC Bulletin 238	Monger, J.W.H., 1970; GSC Paper 69-47.	Rice, H.M.W., 1947; GSC Memoir 243.	
Monger	Monger, J.W.H. (1985-1993). GSC Map 41-1989	McTaggart, K.E. and Thompson, R.M., 1967. CJE	Monger, J.W.H., 1970; GSC Paper 69-47.	Rice, H.M.W., 1947; GSC Memoir 243.	
Monger	Monger, J.W.H. (1985-1993). GSC Map 41-1989	Read, P.B., 1986; BCMEMPR Open File 1987-19	Preto, V.A., 1972; BCMEMPR Bulletin 59.	Rice, H.M.W., 1947; GSC Memoir 243.	
Schiarizza	Schiarizza, P. and Gaba, 1993. BCGSB Map 1993-7	Journeay, J.M., (1989-1994). GSC Papers: 89-1E	Woodsworth, G.W., 1977. GSC Open File 482	Roddick, J.A. and Woodsworth, G.J., 1975. GS	
Monger	Monger, J.W.H. (1985-1993). GSC Paper 93-1A	Roddick, J.A. and Woodsworth, G.J., 1979. GSC	Roddick, J.A., 1965; GSC Map 1152A.	Roddick, J.A., 1965; GSC Map 1151A.	Roddick, J. A., 1965. GS
Monger	Monger, J.W.H. (1985-1993). GSC Paper 93-1A	Roddick, J.A. and Woodsworth, G.J., 1979. GSC	Armstrong, J. E. and Hicock, S.R., 1979-80. GSC Map	Roddick, J.A., 1965; GSC Map 1151A.	Bostock, H.H., 1963. GS
Monger	Monger, J.W.H. (1985-1993). GSC Paper 93-1A	Armstrong, J. E. and Hicock, S.R., 1979-80. GSC	Roddick, J.A., 1965; GSC Map 1153A.	Roddick, J.A., 1965; GSC Map 1151A.	
Monger	Monger, J.W.H. (1985-1993). GSC Paper 93-1A	Roddick, J.A. and Woodsworth, G.J., 1979. GSC	Roddick, J.A., 1965; GSC Map 1153A.	Roddick, J.A., 1965; GSC Map 1151A.	Roddick, J. A., 1965. GS
Monger	Monger, J.W.H. (1985-1993). GSC Paper 93-1A	Roddick, J.A. and Woodsworth, G.J., 1979. GSC	Armstrong, J. E. and Hicock, S.R., 1979-80. GSC Map	Roddick, J.A., 1965; GSC Map 1151A.	
Monger	Monger, J.W.H. (1985-1993). GSC Paper 93-1A	Armstrong, J. E. and Hicock, S.R., 1979-80. GSC	Roddick, J.A., 1965; GSC Map 1152A.	Roddick, J.A., 1965; GSC Map 1151A.	Bostock, H.H., 1963. GS
Journeay	Journeay, J.M., (1989-1994). GSC Papers: 89-1E; 90	Monger, J.W.H. (1985-1993). GSC Paper 93-1A	Lynch, J.G.V., 1990; GSC Paper 90-1E.	Roddick, J.A., 1965; GSC Map 1151A.	
Monger	Monger, J.W.H. (1985-1993). GSC Paper 93-1A	Roddick, J.A. and Woodsworth, G.J., 1979. GSC	Armstrong, J. E. and Hicock, S.R., 1979-80. GSC Map	Roddick, J.A., 1965; GSC Map 1152A.	Bostock, H.H., 1963. GS
Monger	Monger, J.W.H. (1985-1993). GSC Paper 93-1A	Roddick, J.A. and Woodsworth, G.J., 1979. GSC	Armstrong, J. E. and Hicock, S.R., 1979-80. GSC Map	Roddick, J.A., 1965; GSC Map 1152A.	Roddick, J.A., 1965; GS
Monger	Monger, J.W.H. (1985-1993). GSC Paper 93-1A	Roddick, J. A., 1965. GSC Memoir 335	Armstrong, J. E. and Hicock, S.R., 1979-80. GSC Map	Roddick, J.A., 1965; GSC Map 1152A.	Roddick, J.A., 1965; GS

Field Guide



Included on this CD-ROM is a digital field guide to the geology and tectonic evolution of the southern Coast and Intermontane belts (Monger and Journeay, 1995; GSC Open File 2940). "Field stops" are keyed to an integrated set of maps, figures and descriptive notes that document geological relationships along two transects through the southern Coast Belt and along the western edge of the adjacent Intermontane belt. The trip begins and ends in Vancouver, and follows a route eastward to Hope, northward along the Fraser River to Lillooet, and westward across the Coast Mountains through Pemberton and Squamish.

Rock Classification Units



This map summarizes the distribution of primary rock class units (plutonic, metamorphic, sedimentary, etc.) for the southern Coast and Intermontane belts. It is derived by dissolving the boundaries between adjacent units of the Bedrock Geology layer that share similar (though not necessarily identical) rock class attributes. Many of these units represent a composite of several primary rock classes.

Key features include the widespread distribution of plutonic rocks (80%) in this part of the Canadian Cordillera, and prominant slivers of ultramafic and oceanic melange situated along the inoard margin of Wrangellia.

Database..

Rock Class

PickItem	Rock_class	Class_code	S_organ	S_author	S_release	S_scale	Dc_organ	Dc_author	Dc_release	Dc_scale
metamorphic	metamorphic	metamor	GSC	Journeay, J.M. (in Monger, J.W	GSC Open File 2490	100000	GSC	Journeay, J.M.	GSC Open File 3276	100000
metamorphic/melange	metamorphic/melange	melange2	GSC	Journeay, J.M. (in Monger, J.W	GSC Open File 2490	100000	GSC	Journeay, J.M.	GSC Open File 3276	100000
plutonic	plutonic	plutonic	GSC	Journeay, J.M. (in Monger, J.W	GSC Open File 2490	100000	GSC	Journeay, J.M.	GSC Open File 3276	100000
plutonic/metamorphic	plutonic/metamorphic	plut_met	GSC	Journeay, J.M. (in Monger, J.W	GSC Open File 2490	100000	GSC	Journeay, J.M.	GSC Open File 3276	100000
sedimentary	sedimentary	sed	GSC	Journeay, J.M. (in Monger, J.W	GSC Open File 2490	100000	GSC	Journeay, J.M.	GSC Open File 3276	100000
sedimentary/volcanic	sedimentary/volcanic	sed_volc	GSC	Journeay, J.M. (in Monger, J.W	GSC Open File 2490	100000	GSC	Journeay, J.M.	GSC Open File 3276	100000
sedimentary/volcanic/melange	sedimentary/volcanic/melange	melange3	GSC	Journeay, J.M. (in Monger, J.W	GSC Open File 2490	100000	GSC	Journeay, J.M.	GSC Open File 3276	100000
ultramafic	ultramafic	ultrmafx	GSC	Journeay, J.M. (in Monger, J.W	GSC Open File 2490	100000	GSC	Journeay, J.M.	GSC Open File 3276	100000
ultramafic/plutonic	ultramafic/plutonic	ult_plut	GSC	Journeay, J.M. (in Monger, J.W	GSC Open File 2490	100000	GSC	Journeay, J.M.	GSC Open File 3276	100000
ultramafic/volcanic	ultramafic/volcanic	ult_volc	GSC	Journeay, J.M. (in Monger, J.W	GSC Open File 2490	100000	GSC	Journeay, J.M.	GSC Open File 3276	100000
ultramafic/volcanic/melange	ultramafic/volcanic/melange	melange1	GSC	Journeay, J.M. (in Monger, J.W	GSC Open File 2490	100000	GSC	Journeay, J.M.	GSC Open File 3276	100000
volcanic	volcanic	volc	GSC	Journeay, J.M. (in Monger, J.W	GSC Open File 2490	100000	GSC	Journeay, J.M.	GSC Open File 3276	100000
volcanic/metamorphic	volcanic/metamorphic	volc_met	GSC	Journeay, J.M. (in Monger, J.W	GSC Open File 2490	100000	GSC	Journeay, J.M.	GSC Open File 3276	100000
volcanic/sedimentary	volcanic/sedimentary	volc_sed	GSC	Journeay, J.M. (in Monger, J.W	GSC Open File 2490	100000	GSC	Journeay, J.M.	GSC Open File 3276	100000

Lithologic Units

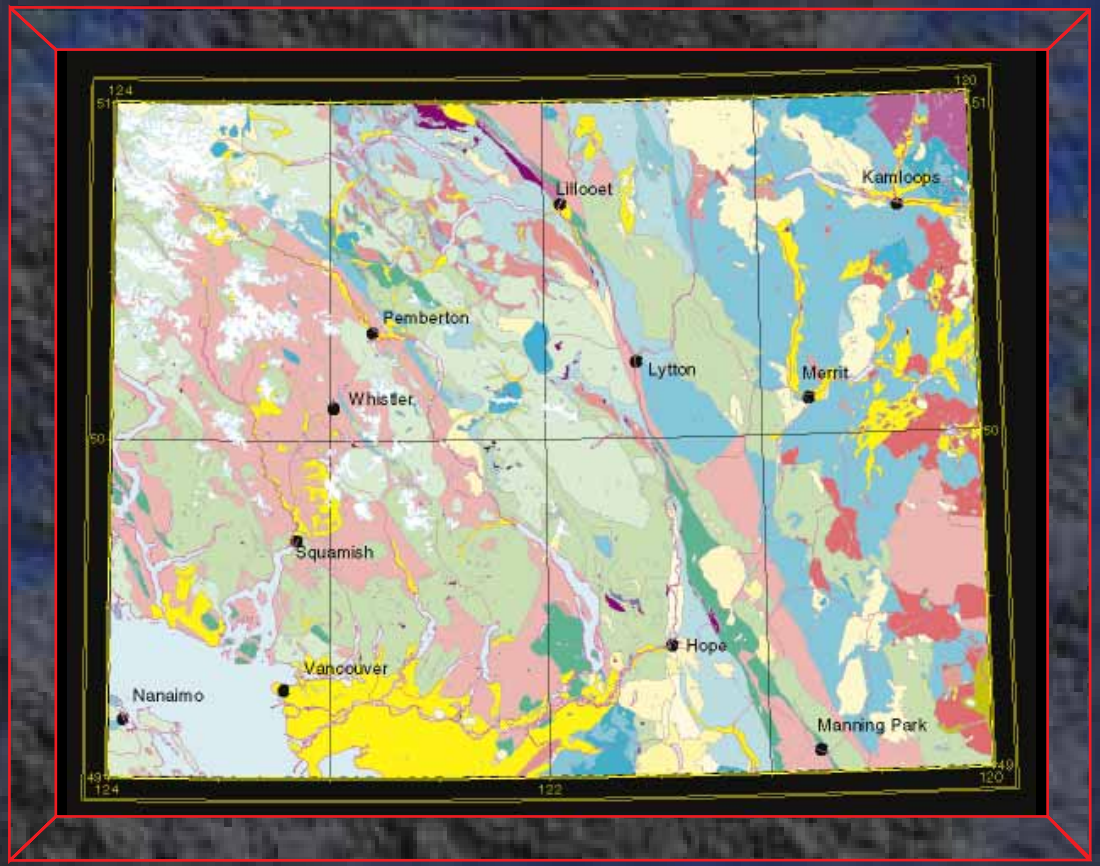
The southern Coast and Intermontane belts represent a collage of more than 40 distinct rock units formed in a wide range of geologic environments and tectonic settings. The distribution, physical properties and compositional characteristics of these rock units provide a window on fundamental geological processes that have shaped this part of the Candaian Cordillera, and a foundation for evaluating a wide range of regional geoenvironmental, geotechnical and land-use planning scenarios (e.g. slope stability, hazard assessment, wildlife habitat, stream and soil geochemistry, etc.).

Database..

Lithology

Fldkltem	Rock_type	S_organ	S_author	S_release	S_scale
dacite, pyroclastics	dacite, rhyolite, andesite, pyroclastics, tuff, argillite, conglomerate, calcareous siltstone, shale, sandstone.	GSC	Journeay, J.M. (in Monger, J.W	GSC Open File 2490	10000
dacite, pyroclastics	dacite-rhyolite-andesite pyroclastics, flows, sandstone, shale, siltstone, conglomerate	GSC	Journeay, J.M. (in Monger, J.W	GSC Open File 2490	10000
dacite, pyroclastics	dacite-rhyolite-andesite pyroclastics, flows, volcaniclastics, shale, siltstone, conglomerate	GSC	Journeay, J.M. (in Monger, J.W	GSC Open File 2490	10000
diabase	diabase, gabbro, serpentinite, talc-carbonate schist	GSC	Journeay, J.M. (in Monger, J.W	GSC Open File 2490	10000
diorite	diorite	GSC	Journeay, J.M. (in Monger, J.W	GSC Open File 2490	10000
diorite	diorite, amphibolite	GSC	Journeay, J.M. (in Monger, J.W	GSC Open File 2490	10000
diorite	diorite, gabbro, orthogneiss, paragneiss	GSC	Journeay, J.M. (in Monger, J.W	GSC Open File 2490	10000
felds-porphyry, clastics	plagioclase-pyroxene porphyry flows, pyroclastics, volcanic sandstone, siltstone, conglomerate	GSC	Journeay, J.M. (in Monger, J.W	GSC Open File 2490	10000
felsic flows, clastics	felsic-intermediate flows, tuffs	GSC	Journeay, J.M. (in Monger, J.W	GSC Open File 2490	10000
felsic flows, clastics	intermediate-felsic flows, volcaniclastic sandstone, pelite, minor carbonate, conglomerate	GSC	Journeay, J.M. (in Monger, J.W	GSC Open File 2490	10000
felsic flows, clastics	mafic and felsic volcanic rock, carbonate, pelite, sandstone and minor conglomerate	GSC	Journeay, J.M. (in Monger, J.W	GSC Open File 2490	10000
gabbro, ultramafics	gabbro	GSC	Journeay, J.M. (in Monger, J.W	GSC Open File 2490	10000
gabbro, ultramafics	gabbro, diorite, quartz diorite, soda granite, harzburgite, peridotite, serpentinite, talc-carbonate schist, greenstone flows, phyllite	GSC	Journeay, J.M. (in Monger, J.W	GSC Open File 2490	10000
gabbro, ultramafics	gabbro, pyroxenite, diorite	GSC	Journeay, J.M. (in Monger, J.W	GSC Open File 2490	10000

Time-Stratigraphic Units



This map summarizes the distribution of 36 distinct time-stratigraphic units (era and/or epoch) for the southern Coast and Intermontane belts. It is derived by dissolving the boundaries between adjacent units of the Bedrock Geology layer that share similar rock age attributes.

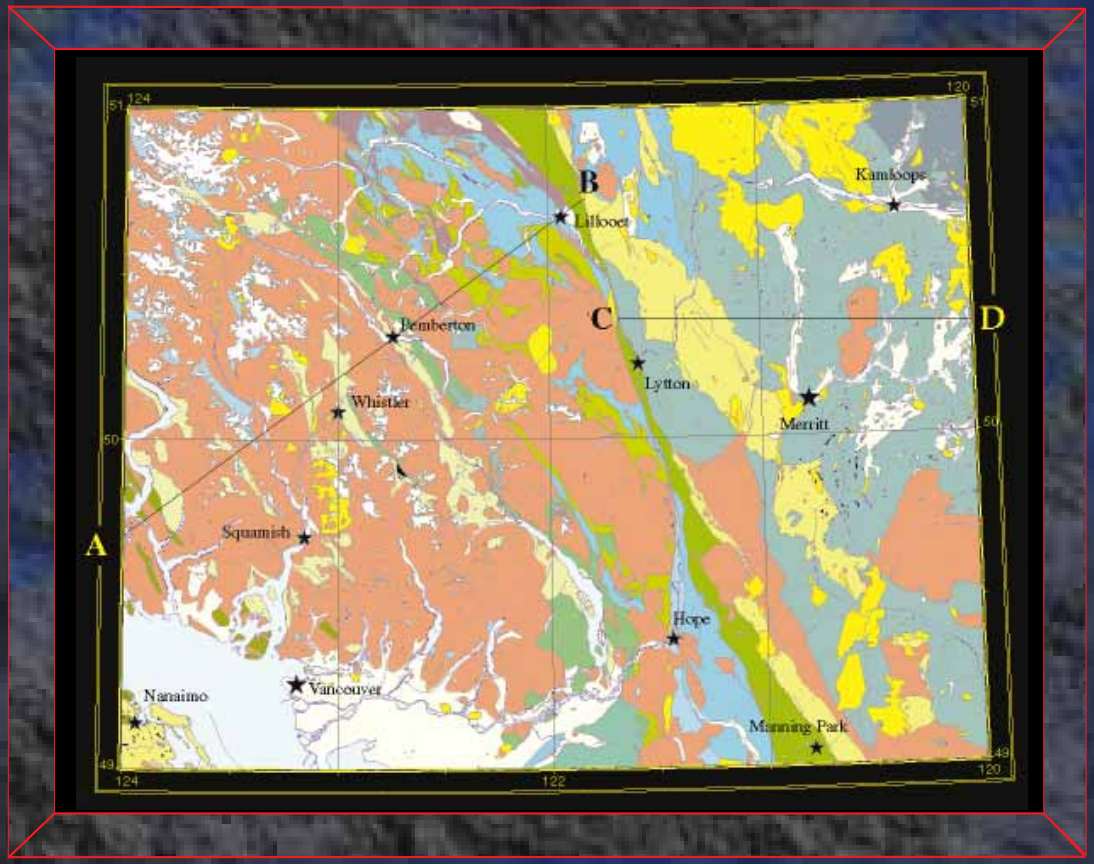
Prominant features include broad tracts of Triassic and older rocks in the Intermontane Belt, slivers of upper Paleozoic and Mesozoic rocks trapped inboard of Wrangellia in the southeastern Coast Belt, and overall northeastward-younging of Cretaceous post-accretionary plutonic suites.

Database..

Rock Age

Pickitem	Era_epoch	Time_slice	S_organ	S_author	S_release	S_scale	Dc_organ	Dc_author
Mesozoic	Middle Jurassic	mesoz4	GSC	Journeay, J.M. (in Monger, J.W.H. and Journeay, J.M.)	GSC Open File 2490	100000	GSC	Journeay, J.M.
Mesozoic	Middle Jurassic-Lower Cretaceous	mesoz6	GSC	Journeay, J.M. (in Monger, J.W.H. and Journeay, J.M.)	GSC Open File 2490	100000	GSC	Journeay, J.M.
Mesozoic	Triassic	mesoz1	GSC	Journeay, J.M. (in Monger, J.W.H. and Journeay, J.M.)	GSC Open File 2490	100000	GSC	Journeay, J.M.
Mesozoic	Upper Cretaceous	mesoz10	GSC	Journeay, J.M. (in Monger, J.W.H. and Journeay, J.M.)	GSC Open File 2490	100000	GSC	Journeay, J.M.
Mesozoic	Upper Jurassic	mesoz6	GSC	Journeay, J.M. (in Monger, J.W.H. and Journeay, J.M.)	GSC Open File 2490	100000	GSC	Journeay, J.M.
Mesozoic	Upper Triassic-Lower Jurassic	mesoz12	GSC	Journeay, J.M. (in Monger, J.W.H. and Journeay, J.M.)	GSC Open File 2490	100000	GSC	Journeay, J.M.
Paleozoic	Devonian-Permian	paleoz4	GSC	Journeay, J.M. (in Monger, J.W.H. and Journeay, J.M.)	GSC Open File 2490	100000	GSC	Journeay, J.M.
Paleozoic	Ordovician-Triassic	paleoz1	GSC	Journeay, J.M. (in Monger, J.W.H. and Journeay, J.M.)	GSC Open File 2490	100000	GSC	Journeay, J.M.
Paleozoic	Permian	paleoz5	GSC	Journeay, J.M. (in Monger, J.W.H. and Journeay, J.M.)	GSC Open File 2490	100000	GSC	Journeay, J.M.
Paleozoic	Permian and Older	paleoz2	GSC	Journeay, J.M. (in Monger, J.W.H. and Journeay, J.M.)	GSC Open File 2490	100000	GSC	Journeay, J.M.
Paleozoic-Mesozoic	Carboniferous-Triassic	pal_mes1	GSC	Journeay, J.M. (in Monger, J.W.H. and Journeay, J.M.)	GSC Open File 2490	100000	GSC	Journeay, J.M.
Paleozoic-Mesozoic	Carboniferous-Upper Jurassic	pal_mes2	GSC	Journeay, J.M. (in Monger, J.W.H. and Journeay, J.M.)	GSC Open File 2490	100000	GSC	Journeay, J.M.
Paleozoic-Mesozoic	Permian-Triassic	pal_mes3	GSC	Journeay, J.M. (in Monger, J.W.H. and Journeay, J.M.)	GSC Open File 2490	100000	GSC	Journeay, J.M.
Proterozoic-Paleozoic	Proterozoic-Paleozoic	pro_pal	GSC	Journeay, J.M. (in Monger, J.W.H. and Journeay, J.M.)	GSC Open File 2490	100000	GSC	Journeay, J.M.

Terranes



Terranes represent fragments of the earth's crust that can be differentiated on the basis of stratigraphy, tectonic setting and/or geologic history. The southern Coast and Intermontane Belts are made up of nine distinct teranes; each comprising fragments of continental and oceanic crust. The boundaries between these terranes are defined by contractional and/or strike-slip faults, some of which are overlapped by younger sedimentary sequences and stitched by cross-cutting plutons.

The terrane map and associated databases maintained in the Library are derived from 1:100,000 scale bedrock geologic maps of the region. Collectively, they document the composition, distribution, tectonic setting and age of major terrane fragments, overlap assemblages and cross-cutting plutons.

Database..

Terranes

Pickitem	Terunit	Name	Superter	Subter	Tertype	Descriptn	Assemblage	Plutons	Era_epoch
JKC	JKC								
JKG	JKG	Gambier			Overlap Assemblage	Post-terrane accretion arc clastic	JKG		Upper Jurassic-Lower Cretaceo
K	K	Undivided			Overlap Assemblage	Post-terrane accertion volcanics	mKB/mKS/uKS/uKT/lKL/KS/		Middle Cretaceous-Upper Creta
MT	MT	Methow			Turbidite/Clastic Wedge	Arc-derived clastic and volcanic	JL/JKR/KS		Lower Jurassic-Lower Cretaceo
PL	PL	Undivided			Post-Terrane Accretion Plutons	Terrane-stitching plutons of the C	none	undivided	Early Jurassic-Oligocene
Q	Q	Undivided			Overlap Assemblage	Post-terrane accertion volcanics	QC/Q		Quaternary
QN	QN	Quesnellia	Intermontane		Island Arc	Amalgamated by latest Triassic tir	TrJN/JHA/LTruP/EJgG/EJyC		Upper Triassic-Early Jurassic
QNH	QNH	Quesnellia	Intermontane	Harper Ranch	Island Arc	Amalgamated by latest Triassic tir	DTrH		Upper Devonian-Triassic
T	T	Undivided			Overlap Assemblage	Post-terrane accertion volcanics	PgTR/NTB/NTF/PgTA/PgTC		Paleogene-Neogene
TQ	TQ	Undivided			Overlap Assemblage	Post-terrane accetion volcanics a	TQA/TQE/TQG/TQW		Tertiary-Quaternary
WATER	WATER								
WR	WR	Wrangellia	Insular		Island Arc	Amalgamated by Latest Jurassic/	DPS/pPS/TrK/JB	DgS/EJdW/EJnW/MJgV/MJg	Devonian-Middle Jurassic
m	m	Undivided			Metamorphic Assemblages	Affinity uncertain/includes metas	m/mC/mS/mT/mV/mYT	nC/pPnY/T/PgTnC/nT	Upper Proterozoic-Tertiary

Tectonic Assemblages

Tectonic Assemblages are fundamental components of Cordilleran geology. They represent distinctive successions of stratified rocks, bounded by unconformities or faults, and deposited in specific tectonic environments during particular intervals of geologic time. An assemblage may comprise one or more geologic formations from a single region or from separate regions. Each assemblage is categorized by tectonic setting and/or depositional environment, the latter characterized by principle lithologies, facies variations, source areas and other criteria.

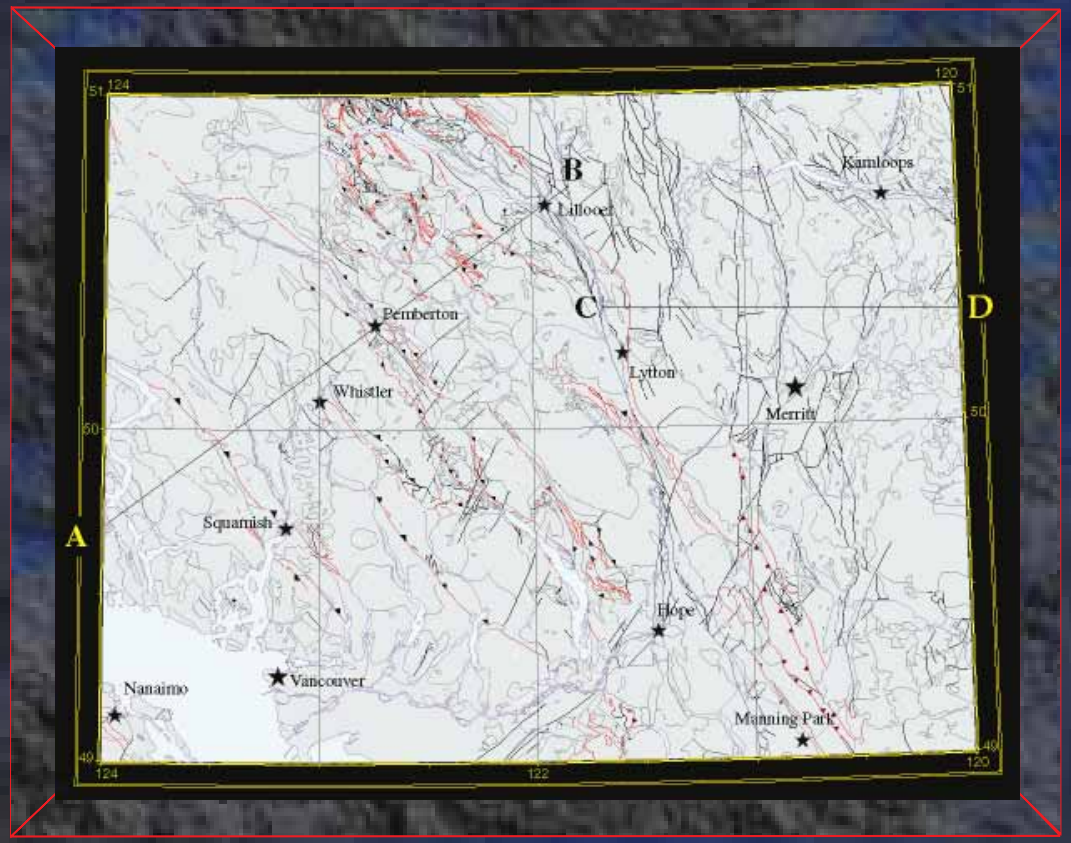
This map and associated database were derived by dissolving boundaries between adjacent units of the Bedrock Geology layer that share similar tectonic assemblage designations, as defined by Wheeler and McFeely (GSC MAp 1712 A).

Database..

Tectonic Assemblages

Pickitem	Tecunit	Name	Rock_class	Rock_type	Descript	Belt	Terrane	Era_epoch	Age_max	Age_min
JL	JL	Ladner	sedimentary/volcanic	argillite/siltstone/greywacke/c	arc clastics and volcanics	Coast	Methow	Lower and Middle Jurassic	208.0	157.1
KS	KS	Skeena	sedimentary	greywacke/sandstone/siltstone	easterly derived back-arc clasti	Insular/Coast/Intermontane	overlap assemblage	Cretaceous	145.6	65.0
KT	KT	undivided	plutonic	granodiorite/qtz-monzonite	foliated and layered plutons	non-specific	non-specific	Cretaceous - Tertiary	145.6	1.6
KTN	KTN	Nanaimo	sedimentary	sandstone/conglomerate/shale	marine and non-marine fault-tro	Insular/Coast	overlap assemblage	Upper Cretaceous - Oligocene	88.5	23.3
LKg	LKg	undivided	plutonic	granodiorite/leucogranodiorite/	undifferentiated plutons	Coast/Intermontane/Omineca	post accretion pluton	Late Cretaceous	87.0	64.0
LKgBe	LKgBe	Bendor	plutonic	bt-hbl-granodiorite/qtz-diorite	discordant plutonic suite	Coast	post accretion pluton	Late Cretaceous	87.0	64.0
LTrg	LTrg	undivided	plutonic	hbl-biotite-qtz-diorite	undivided plutons	Coast	post accretion pluton	Late Triassic	235.0	214.0
MJg	MJg	undivided	plutonic	hbl-bt-diorite/granodiorite	foliated plutons	Insular/Coast	post accretion pluton	Middle Jurassic	187.0	155.0
MTg	MTg	undivided	plutonic	granodiorite/leucogranodiorite/	undifferentiated plutons	Intermontane	post accretion pluton	Miocene	16.0	5.3
MTrC	MTrC	Cache Creek	ophiolite/sedimentary/meta	basalt/peridotite/gabbro/blues	oceanic volcanics and sedimer	Intermontane	Cache Creek	Mississippian - Upper Triassic	362.5	208.0
NTC	NTC	Chilcotin	volcanic	basalt	non-marine alkaline-tholeiitic ba	Coast/Intermontane	overlap assemblage	Neogene	23.3	1.6
NTP	NTP	Pemberton	volcanic	rhyolite/alaskite/dacite/basalt	non-marine calc-alkaline arc vo	Insular/Coast	overlap assemblage	Neogene	23.3	1.6
OTg	OTg	undivided	plutonic	bt-hbl-qtz-diorite/granodiorite	individual plutons	non-specific	post accretion pluton	Oligocene	29.0	24.0
OTrS	OTrS	Shoemaker	sedimentary/volcanic	argiollite/tuff/chert/limestone/c	Paleozoic oceanic tuffs & sedsi	Intermontane	Okanagan	Ordovician - Triassic	510.0	208.0

Geological Contacts



Geologic contacts are the surfaces that seprate rock units of different composition age and/or geologic setting. The nature and distribution of these surfaces (i.e. faults, unconformities, intrusive contacts, etc) provide critical information on the geological framework and evolution of a region. At the earth's surface, these geological contacts are represented as lines.

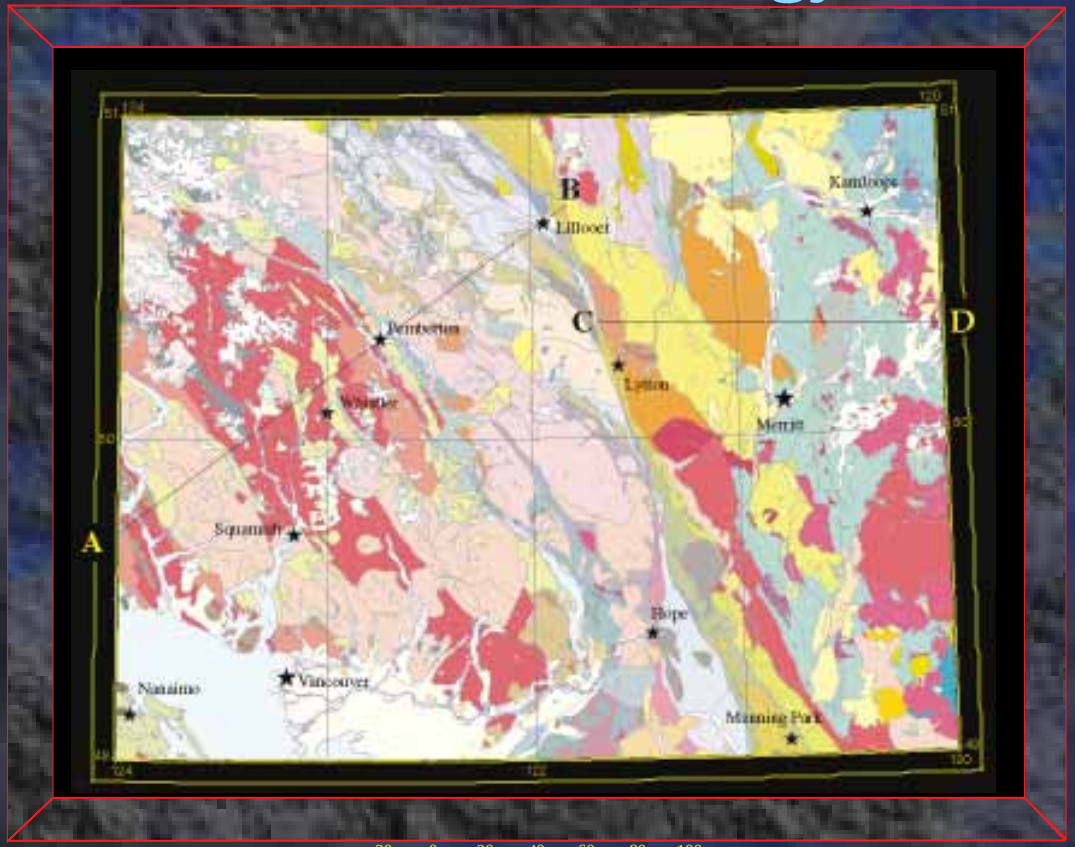
Contact relationships for the Vancouver map are documented in the Geology layer of the library. Each of the 14,750 line segments that make up this layer is linked to an associated database that maintains information on the topology, classification, type and age of the geological contact.

Database..

Contacts

Fldkitem	Line_type	Name	Name_gen	Xy_loc	Age_max	Age_min	Mapref1
Reverse/Thrust Fault	Top-to-the-SW	Tippella Creek Fault	Central Coast Mtn. Thrust Belt	Approximate	112	94	Journeay, J.M., (1989-1994). GSC Papers: 89-1E; 90-1E; 92-1A; 93-1A; 94-
Reverse/Thrust Fault	Top-to-the-SW	Tippella Creek Fault	Central Coast Mtn. Thrust Belt	Observed	112	94	Journeay, J.M., (1989-1994). GSC Papers: 89-1E; 90-1E; 92-1A; 93-1A; 94-
Reverse/Thrust Fault	Top-to-the-SW	Truax Fault	Gun Crk.-Elbow Mtn. Thrust Be	Approximate	112	91	Schiarizza, P. and Gaba, 1993. BCGSB Map 1993-7
Reverse/Thrust Fault	Top-to-the-SW	Twin Lakes Fault Zone	Bralorne-Kwoiek Creek Thrust	Approximate	112	91	Journeay, J.M., (1989-1994). GSC Papers: 89-1E; 90-1E; 92-1A; 93-1A; 94-
Reverse/Thrust Fault	Top-to-the-SW	Twin Lakes Fault Zone	Bralorne-Kwoiek Creek Thrust	Assumed	112	91	Journeay, J.M., (1989-1994). GSC Papers: 89-1E; 90-1E; 92-1A; 93-1A; 94-
Reverse/Thrust Fault	Top-to-the-SW	Twin Lakes Fault Zone	Bralorne-Kwoiek Creek Thrust	Observed	112	91	Journeay, J.M., (1989-1994). GSC Papers: 89-1E; 90-1E; 92-1A; 93-1A; 94-
Strike-Slip Fault	Dextral			Approximate	0	0	Schiarizza, P. and Gaba, 1993. BCGSB Map 1993-7
Strike-Slip Fault	Dextral			Approximate	46	35	Monger, J.W.H. (1985-1993). GSC Map 42-1989,
Strike-Slip Fault	Dextral			Assumed	46	35	Monger, J.W.H. (1985-1993). GSC Map 42-1989,
Strike-Slip Fault	Dextral		Quartz Mtn Fault System	Approximate	56	36	Schiarizza, P. and Gaba, 1993. BCGSB Map 1993-7
Strike-Slip Fault	Dextral	Big Silver Creek Fault		Approximate	94	24	Journeay, J.M., (1989-1994). GSC Papers: 89-1E; 90-1E; 92-1A; 93-1A; 94-
Strike-Slip Fault	Dextral	Big Silver Creek Fault		Assumed	94	24	Journeay, J.M., (1989-1994). GSC Papers: 89-1E; 90-1E; 92-1A; 93-1A; 94-
Strike-Slip Fault	Dextral	Big Silver Creek Fault		Observed	94	24	Journeay, J.M., (1989-1994). GSC Papers: 89-1E; 90-1E; 92-1A; 93-1A; 94-
Strike-Slip Fault	Dextral	Cantilever Fault	Fraser Fault System	Approximate	46	35	Journeay, J.M., (1989-1994). GSC Papers: 89-1E; 90-1E; 92-1A; 93-1A; 94-

Bedrock Geology



Rocks presently exposed at the earth's surface in the Vancouver map area record more than 200 million years of geologic history along what was once the active plate margin of western North America. The bedrock geological map and associated geoscience databases document the distribution, age and regional tectonic significance of these rock units, and provide a foundation for reconstructing their geologic histories, and the overall regional tectonic framework and evolution of the southwest Canadian Cordillera.

Map tiles were compiled at a scale of 1:100,000 from published geological maps, reports, university theses, and unpublished data of the GSC and the B.C. Geological Survey. **(See Map Reference)** The map comprises more than 75 unique geologic units (3235 separate polygons); each of which are distinct in age, composition and/or geological setting. Each of these map units are, in turn, linked to a geologic database that maintains information on tectonic setting, terrane affiliation, rock classification, rock type, age and regional significance. Together, these datasets can be used to create simple thematic overlays **(See Lithology, Rock Class, Rock Age and Tectonic Layers)**.

Bedrock Geology

Pickitem	Rockunit	Mapunit	Legunit	Tecunit	Terunit	Name_spec	Name_gen	Rock_class	Rock_type	Tec_env
mJ	mJqd	mJqd	mJ	MJg	PL	ASHLU CREEK PLUTON		plutonic	biotite-hornblende quartz-diorite	arc-related plutons
mJ	mJqd	mJqd	mJ	MJg	PL	CLOUDBURST PLUTON		plutonic	biotite-hornblende quartz-diorite	arc-related plutons
mJ	mJqd	mJqd	mJ	MJg	PL	EAGLE PLUTONIC COMPLEX	EAGLE COMPLEX	plutonic	biotite-hornblende quartz-diorite	arc-related plutons
mJ	mJqd	mJqd	mJ	MJg	PL	HORSESHOE BAY PLUTON		plutonic	biotite-hornblende quartz-diorite	arc-related plutons
mJ	mJqd	mJqd	mJ	MJg	PL	LILLOOET RIVER PLUTON		plutonic	biotite-hornblende quartz-diorite	arc-related plutons
mJ	mJqd	mJqd	mJ	MJg	PL	MOUNT JASPER PLUTON		plutonic	biotite-hornblende quartz-diorite	arc-related plutons
muKs	mJA	muKs	muKs	uKV	K		undivided	sedimentary	pebble and cobble conglomerate, sandstone	syn-orogenic clastics
muKs	muKs	muKs	muKs	uKV	K		undivided	sedimentary	pebble and cobble conglomerate, sandstone	syn-orogenic clastics
muKs	muKsq	muKsq	muKs	uKV	K		SILVERQUICK CONGLOMERATE	sedimentary	pebble and cobble conglomerate, sandstone	syn-orogenic clastics
uJB	uJB	uJB	uJB	JHL	HA	BILLHOOK CREEK FORMATI	HARRISON LAKE ASSEMBLAGE	sedimentary/volcanic	volcaniclastic sandstone, andesite flows, flow	continental arc volca
uJT	uJT	uJT	uJT	JL	MT	THUNDER LAKE SEQUENCE	LADNER GROUP	sedimentary	volcanic sandstone, argillite	arc clastics
uKN	uKN	uKN	uKN	KTN	K		NANAIMO GROUP	sedimentary	sandstone, shale, conglomerate	foreland basin clastic
uKPC	uKPC	uKPC	uKPC	uKM	K		POWELL CREEK FORMATION	volcanic/sedimentary	andesite flows, flow breccia, lapilli tuff, volca	continental arc volca

Digital Elevation Model

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HELP

Rugged alpine ridges of the Coast Mountains and northern Cascade Ranges stand more than 3000 meters above sea level, and are presently rising at rates of ~2mm/year. Shaded relief models of surface topography provide a means of investigating this history of uplift and associated mountain building.

This image represents a surface grid model of elevation data contoured at intervals of 100 metres, and illuminated from the northwest. The data upon which this model is based are maintained by the National Topographuic Database (NTDB), and distributed by Geomatics Canada of NRCAN. For more information, contact their Internet site at ***http://www.ccrs.nrcan.gc.ca/linc/ps/indexe.html***