Updating the British Columbia Regional Geochemical Survey database with new field survey and sample reanalysis data to support mineral exploration

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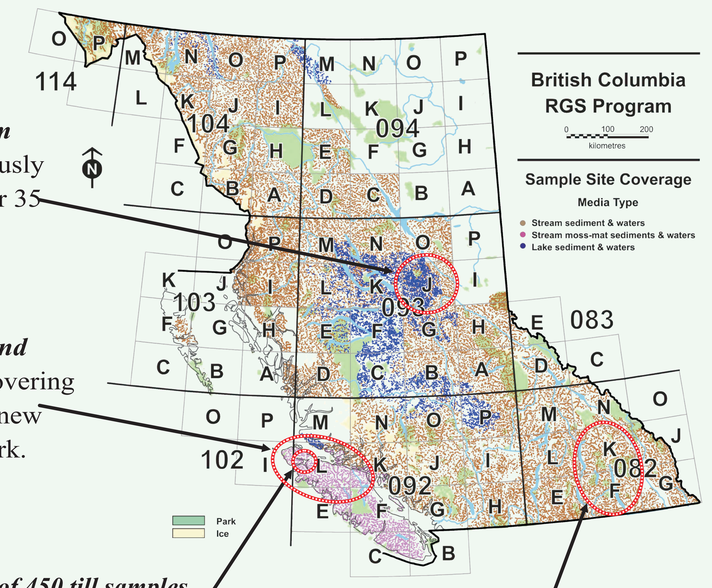
Geoscience BC
Roundup 2013

2013 Geoscience BC Geochemical Projects

Government-funded reconnaissance-scale regional geochemical surveys (RGS) have been conducted in BC since 1976. Currently, more than 63,000 drainage sediment and water samples have been collected at an average density of one sample for every 12 km^2. Survey results comprise a comprehensive multi-element geochemical database that is routinely used to guide and support mineral exploration activities.

Efforts to maximize the utility of the BC RGS database include both new sampling and enhancements to available analytical information. In 2013, ***Geoscience BC*** supported the following geochemical initiatives:



Reanalysis of 1145 stream sediment samples, previously collected in NTS 093J, for 35 elements by INAA.

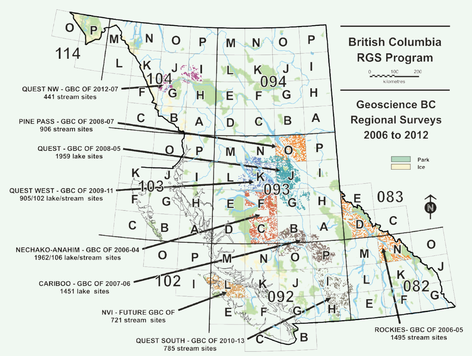
New stream sediment and water infill sampling covering areas coincidental with new airborne geophysics work.

Reanalysis of 450 till samples, previously collected in northern Vancouver Island, for 53 elements by aqua-regia ICP-MS.

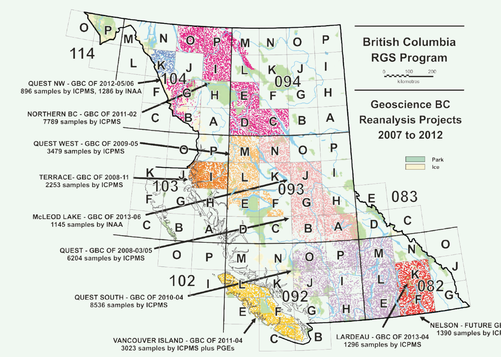
Reanalysis of 2586 stream sediment samples, previously collected in NTS 082F and K, for 53 elements by aqua-regia ICP-MS.

Geoscience BC Sponsored Geochemical Projects - 2006 to 2012

Regional Surveys ...



Sample Reanalysis ...

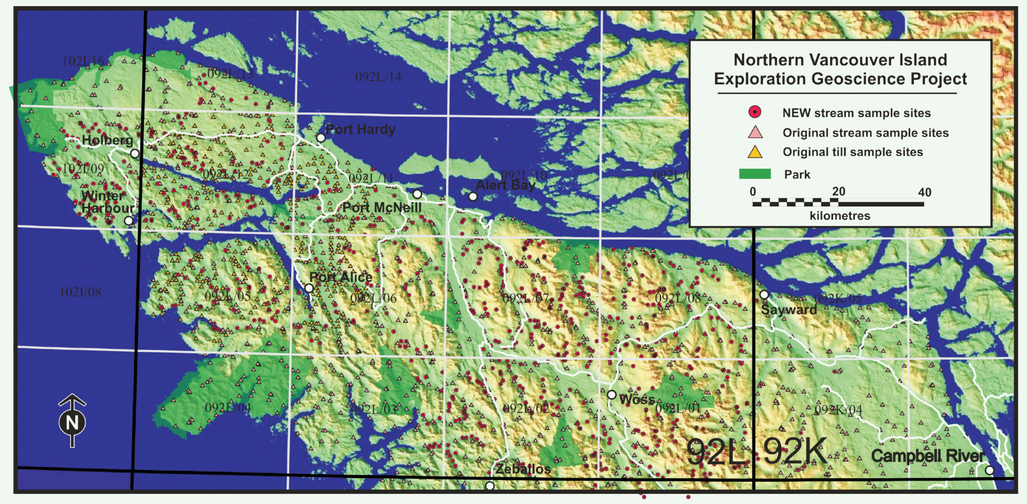


10,833
SAMPLES COLLECTED

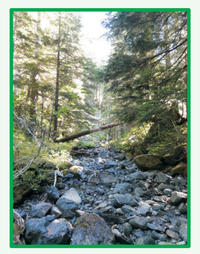
34,868
SAMPLES REANALYZED

Northern Vancouver Island Exploration Geoscience Project

The 2012 NVI project includes new stream based sampling plus the reanalysis of till samples. The work will generate new geochemical information that will stimulate mineral exploration in the region and compliment other components of the initiative such as a high-resolution airborne geophysical survey as well as earlier geochemical survey work and geological mapping. Survey results will be available in spring 2013.



NVI - Infill Geochemical Survey



Stream-based sample collection was carried out in the summer of 2012. Moss-mat sediment and water samples were acquired from over 700 sites. The sediment samples have been analyzed for base and precious metals, pathfinder elements and rare earths by an ultra trace aqua-regia digestion ICP-MS package and INAA. Waters have been analyzed for pH, conductivity and fluoride.

NVI - Till Sample Reanalysis

To further augment NVI's geochemical database, till samples collected in the 1990s as part of the northern Vancouver Island drift prospecting program were recovered from storage and a portion of each sample as been recovered for analysis by an ultra-trace aqua-regia digestion ICP-MS package for 53 elements.

Acknowledgments

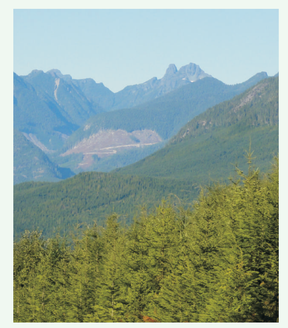
~> Island Coastal Economic Trust.

~> E. Jackaman, S. Reichheld, J. Dimock, J. Constable and B. Elder (Noble Exploration Services Ltd.).

~> A. Rukhlov (BC Geological Survey).

~> The many services in the communities of Holberg, Port Alice, Port Hardy, Port McNeill, Sayward, Winter Harbour, Woss and Zeballos.

~> ALS Canada Ltd., Becquerel Laboratories Inc. and Acme Analytical Laboratories Ltd.



RGS Sample Reanalysis

The reanalysis of archived sediment samples has been sponsored by Geoscience BC since 2007. These programs have significantly enhanced the BC RGS database by providing a wide range of new analytical information at improved detection levels.

NEW DATA AVAILABLE
ROUNDUP 2013

Geoscience BC Report 2013-04

Lardeau (NTS 082K):
1224 samples by ultra-trace aqua-regia digestion (0.5 g) ICP-MS technique for 53 elements .

Geoscience BC Report 2013-06

McLeod Lake (NTS 093J):
1145 samples analyzed for 35 elements by instrumental neutron activation analysis (INAA).

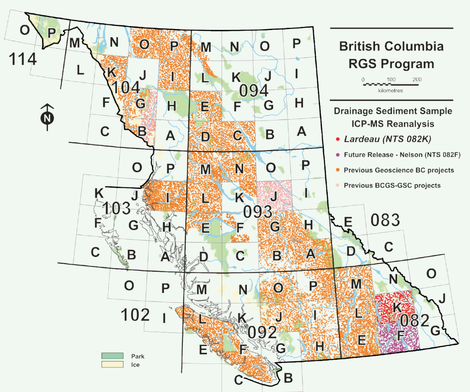
Acme Laboratories
Ultra trace Aqua Region Digestion by ICP Mass Spec ...

Element		Detection Levels	Units	Element		Detection Levels	Units
Gold	Au	0.2 to 10000	ppb	Selenium	Se	0.1 to 100	ppm
Silver	Ag	2 to 100000	ppb	Strontium	Sr	0.5 to 10000	ppm
Aluminum	Al	0.01 to 10	pct	Tellurium	Te	0.02 to 1000	ppm
Arsenic	As	0.1 to 10000	ppm	Thorium	Th	0.1 to 2000	ppm
Boron	B	20 to 2000	ppm	Titanium	Ti	0.001 to 5	pct
Barium	Ba	0.5 to 10000	ppm	Thallium	Tl	0.02 to 1000	ppm
Bismuth	Bi	0.02 to 2000	ppm	Uranium	U	0.05 to 2000	ppm
Calcium	Ca	0.01 to 40	pct	Vanadium	V	2 to 10000	ppm
Cadmium	Cd	0.01 to 2000	ppm	Tungsten	W	0.05 to 100	ppm
Cobalt	Co	0.1 to 2000	ppm	Zinc	Zn	0.1 to 10000	ppm
Chromium	Cr	0.5 to 10000	ppm	Beryllium	Be	0.1 to 1000	ppm
Copper	Cu	0.01 to 10000	ppm	Cerium	Ce	0.1 to 2000	ppm
Iron	Fe	0.01 to 40	pct	Cesium	Cs	0.05 to 2000	ppm
Gallium	Ga	0.1 to 1000	ppm	Germanium	Ge	0.05 to 100	ppm
Mercury	Hg	0.01 to 1000	ppb	Hafnium	Hf	0.05 to 1000	ppm
Potassium	K	0.01 to 10	pct	Indium	In	0.02 to 1000	ppm
Lanthanum	La	0.5 to 10000	ppm	Lithium	Li	0.1 to 2000	ppm
Magnesium	Mg	0.01 to 30	pct	Niobium	Nb	0.02 to 2000	ppm
Manganese	Mn	1 to 10000	ppm	Rubidium	Rb	0.1 to 2000	ppm
Molybdenum	Mo	0.01 to 2000	ppm	Rhenium	Re	1 to 1000	ppb
Sodium	Na	0.001 to 5	pct	Tin	Sn	0.1 to 100	ppm
Nickel	Ni	0.1 to 10000	ppm	Tantalum	Ta	0.05 to 2000	ppm
Phosphorus	P	0.001 to 5	pct	Yttrium	Y	0.01 to 2000	ppm
Lead	Pb	0.01 to 10000	ppm	Zirconium	Zr	0.1 to 2000	ppm
Sulphur	S	0.02 to 5	pct	Platinum	Pt	2 to 100000	ppb
Antimony	Sb	0.02 to 2000	ppm	Palladium	Pd	10 to 200000	ppb
Scandium	Sc	0.1 to 100	ppm				

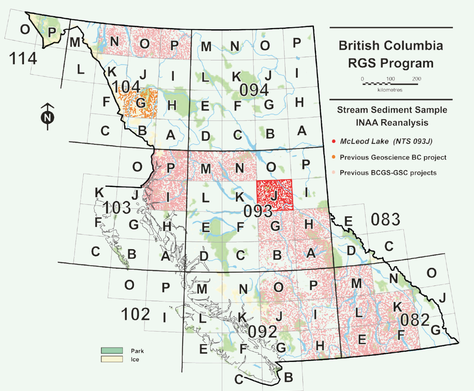
Becquerel Laboratories
INAA Gold + 33 ...

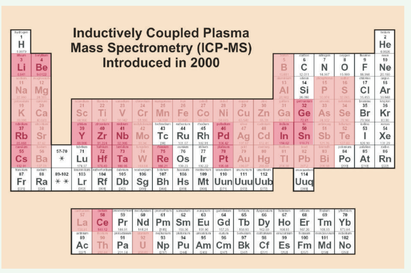
Element		Detection Levels	Units	Element		Detection Levels	Units
Gold	Au	2	ppb	Nickel	Ni	10	ppm
Silver	Ag	2	ppm	Rubidium	Rb	5	ppm
Arsenic	As	0.5	ppm	Antimony	Sb	0.1	ppm
Barium	Ba	50	ppm	Scandium	Sc	0.2	ppm
Bromine	Br	0.5	ppm	Selenium	Se	5	ppm
Cadmium	Cd	5	ppm	Samarium	Sm	0.1	ppm
Cerium	Ce	5	ppm	Tin	Sn	100	ppm
Cobalt	Co	5	ppm	Tantalum	Ta	0.5	ppm
Chromium	Cr	20	ppm	Terbium	Tb	0.5	ppm
Cesium	Cs	0.5	ppm	Tellurium	Te	10	ppm
Europium	Eu	1	ppm	Thorium	Th	0.2	ppm
Iron	Fe	0.2	pct	Titanium	Ti	100	ppm
Hafnium	Hf	1	ppm	Uranium	U	0.2	ppm
Indium	In	50	ppb	Tungsten	W	1	ppm
Lanthanum	La	0.2	ppm	Ytterbium	Yb	0	ppm
Lutetium	Lu	0.2	ppm	Zinc	Zn	100	ppm
Molybdenum	Mo	1	ppm	Zirconium	Zr	200	ppm
Sodium	Na	1	pct	Weight	Wt	0.01	g

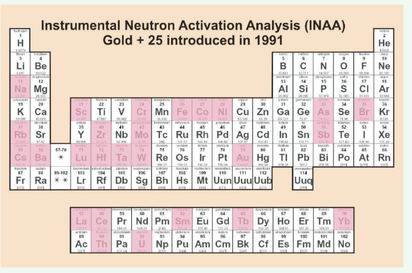
Sediment Samples by ICP-MS ...



Sediment Samples by INAA ...







Acknowledgments

~> M. McCurdy and A. Therriault (NRCan); A. Rukhlov (BCGS, MEMNG).

~> E. Jackaman, S. Reichheld and J. Dimock (Noble Exploration Services Ltd.).

~> Acme Analytical Laboratories Ltd and Becquerel Laboratories Inc.

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