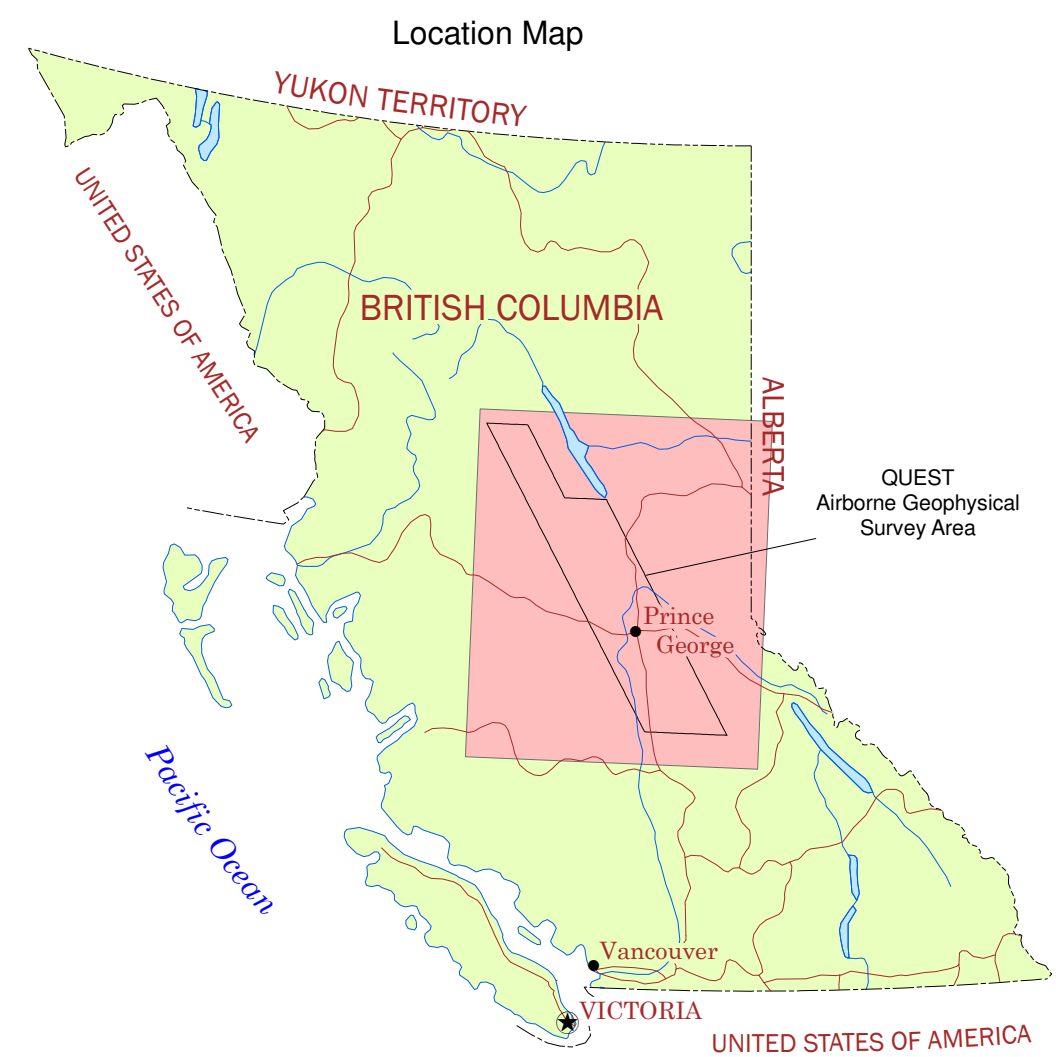
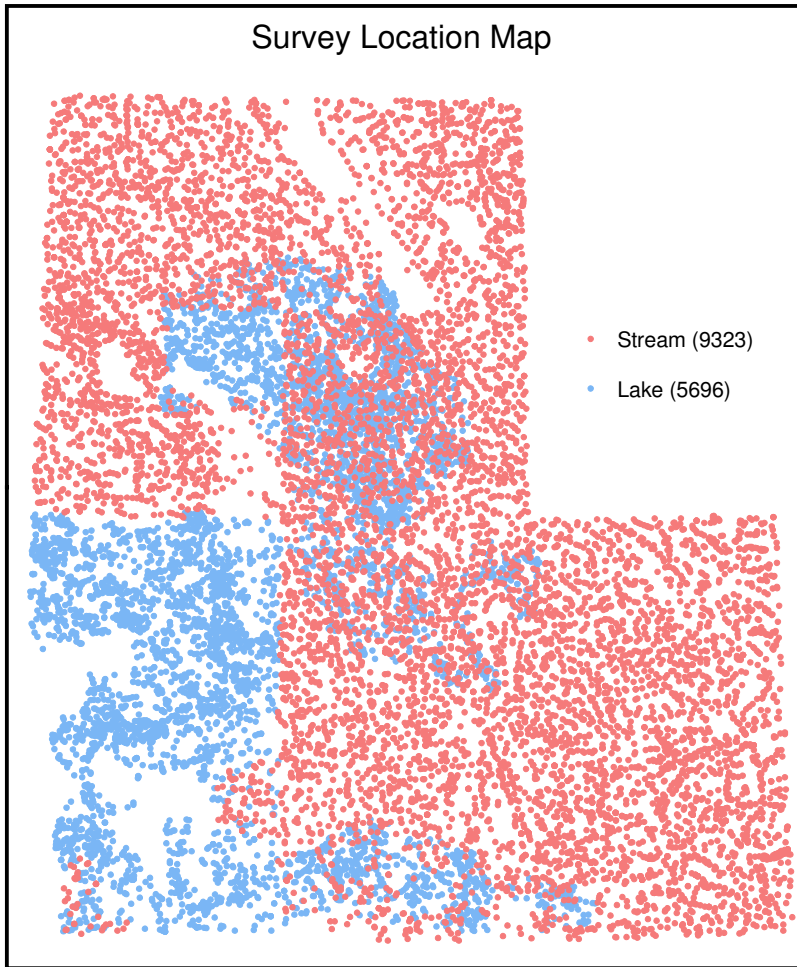


Disclaimer: While every effort has been taken to ensure the accuracy of the information in this map, the data are provided on an "as-is" basis, without any warranty, guarantee or representation of any kind, whether expressed or implied. It is the responsibility of the user to check the facts before entering any financial or other commitment based upon this information.



National Topographic System Index

15M SPENCER RIVER	04E CHOCOMA RIVER	04F WINE RIVER	04G FRITCH RIVER	04H SEATTLE RIVER	04I CHOCOMA RIVER
15A LAKE	04C WICKHAM LAKE	04D CHOCOMA LAKE	04E CHOCOMA LAKE	04F CHOCOMA LAKE	04G CHOCOMA LAKE
15P RIVER	05M MILLIKEN RIVER	05N WICKHAM RIVER	05O WICKHAM RIVER	05P CHOCOMA RIVER	05Q CHOCOMA RIVER
15T FRASER	05L FRASER LAKE	05M FRASER LAKE	05N FRASER LAKE	05O FRASER LAKE	05P FRASER LAKE
15H WICKHAM LAKE	05G WICKHAM LAKE	05H WICKHAM LAKE	05I WICKHAM LAKE	05J WICKHAM LAKE	05K WICKHAM LAKE
15B LAKE	05D LAKE	05E LAKE	05F LAKE	05G LAKE	05H LAKE
15P CHOCOMA RIVER	05M CHOCOMA RIVER	05N CHOCOMA RIVER	05O CHOCOMA RIVER	05P CHOCOMA RIVER	05Q CHOCOMA RIVER
15T FRASER	05L FRASER LAKE	05M FRASER LAKE	05N FRASER LAKE	05O FRASER LAKE	05P FRASER LAKE
15H WICKHAM LAKE	05G WICKHAM LAKE	05H WICKHAM LAKE	05I WICKHAM LAKE	05J WICKHAM LAKE	05K WICKHAM LAKE
15B LAKE	05D LAKE	05E LAKE	05F LAKE	05G LAKE	05H LAKE
15P CHOCOMA RIVER	05M CHOCOMA RIVER	05N CHOCOMA RIVER	05O CHOCOMA RIVER	05P CHOCOMA RIVER	05Q CHOCOMA RIVER
15T FRASER	05L FRASER LAKE	05M FRASER LAKE	05N FRASER LAKE	05O FRASER LAKE	05P FRASER LAKE
15H WICKHAM LAKE	05G WICKHAM LAKE	05H WICKHAM LAKE	05I WICKHAM LAKE	05J WICKHAM LAKE	05K WICKHAM LAKE
15B LAKE	05D LAKE	05E LAKE	05F LAKE	05G LAKE	05H LAKE
15P CHOCOMA RIVER	05M CHOCOMA RIVER	05N CHOCOMA RIVER	05O CHOCOMA RIVER	05P CHOCOMA RIVER	05Q CHOCOMA RIVER



Legend

Provincial boundary
Railroad (unclassified)
Road (unclassified)
Mineral deposit (selected)
Populated place (unclassified)
Stream sediment sample
Lake sediment sample

K-means Clusters

1	5	9	13	17
2	6	10	14	18
3	7	11	15	19
4	8	12	16	20

Note: Samples were assigned to SOM-derived BMU nodes. These nodes then were "clustered" by K-means to yield 20 classes. Field sample sites are coloured according to the cluster their node has been assigned.

QUEST Geochemistry CSIRO SOM Analysis - K-means Clustering

The levelled and imputed element grids (Barnett and Williams, 2009) were intersected by the sample locations and the values assigned to the sample point. Note, missing element values have been imputed.

The Sirosom procedure assigns each sample to a best-matching unit (BMU). Samples that are similar tend to be assigned to either the same BMU or to a BMU that is nearby on the self-organized map (SOM). The SOM-derived BMU "vectors" were analysed using K-means to produce 20 classes. By inspection, the user can determine which sample sites have similar geochemical statistics. Sites with similar statistics will be assigned to the same K-means cluster. Anomalous for each sample is then determined using the statistics of the K-means cluster it has been assigned to.

Users should reference Figure 20) in Fraser and Hodgkinson (2009), which details the distribution of the K-means classes over the self-organized map and Figure 3, which shows the elemental component plots. By combining information present on these two figures, one can assess the elemental significance of the various clusters, and this understanding can be enhanced by noting the spatial context of particular clusters.

Data Analysis

Fraser, S.J. and Hodgkinson, J.H. (2009): An Investigation Using Sirosom for the Analysis of QUEST Stream Sediment and Lake-Sediment Geochemical Data. September 2009, Geoscience BC, Report 2009-14. CSIRO Exploration and Mining Report 2009/963, 84p.

Geochemistry Data

Levelled Data
Barnett, G. T. and Williams, P. M. (2009): Using geochemistry and neural networks to map geology under glacial cover, Geoscience BC, Report 2009-3.

Original Data
Jackman, W. (2008): Regional Stream Sediment and Water Geochemical Data, Pine Pass, British Columbia (NTS 93D), Geoscience BC, Report 2008-7.

Jackman, W. (2008): Regional Lake Sediment and Water Geochemical Data, Northern Fraser Basin, Central British Columbia (parts of NTS 93D, H, J, K, N & O), Geoscience BC, Report 2008-5.

Jackman, W. (2008): QUEST Project Sample Reanalysis, Geoscience BC, Report 2008-3.

Jackman, W. (2007): Regional drainage sediment and water geochemical data, South Nechako Basin and Cariboo Basin, central British Columbia (parts of NTS 92N, O, P, 93A, B), Geoscience BC, Report 2007-4, 332 p.

Lott, R.E.W. and Blumel, B. (2006): Re-analysis of regional geochemical survey stream sediment samples from the McLeod Lake area (NTS map sheet 953), BC Ministry of Energy, Mines and Petroleum Resources, Geofile 2006-59, 201 p.

Jackman, W. (2006): Regional drainage sediment and water geochemical data, Anahim Lake and Nechako River, central British Columbia (NTS 93C & 93F), Geoscience BC, Report 2006-4, 462 p.

Lott, R.E.W. (2005): Regional Geochemical Survey Database on CD, BC Ministry of Energy, Mines and Petroleum Resources, Geofile 2005-17.

Topographic Data

Messing, N.W.D., Macfadyen, D.G., Desjardins, P.J. and Cooney, R.T. (2005): Digital Geology Map of British Columbia, Whole Province, B.C. Ministry of Energy and Mines, Geofile 2005-1.

Data Sources

Geoscience BC
www.geosciencebc.com

Ministry of Energy, Mines and Petroleum Resources
www.empr.gov.bc.ca/mining/geoscience

Acknowledgments

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www.geosciencebc.com

MAP 2009-14-01
GEOCHEMISTRY - CSIRO SOM ANALYSIS
Sample Sites Coloured by Sirosom-Derived K-means Clustering
QUEST PROJECT
1:250 000 NTS SHEETS 93A,B,C,F,G,H,I,J,K,N,O,P
PART OF 1:250 000 NTS SHEETS 82M, 83D,E,L,M, 84D, 92M,N,O,P, 93D,E,L,M AND 94A,B,C,D

1: 500,000
0 5 10 15 20 25 30 35 40 45 50 kms

Universal Transverse Mercator Projection, Zone 10
Horizontal Datum: North American Datum 1983
Mean magnetic declination 2009, 14°10' E, decreasing 14.6' annually. Reading only from 17°42' E in the southeast corner to 20°47' E in the northwest corner of the map.
September 16, 2009

Citation:
Geoscience BC (2009): QUEST Project - Geochemistry - CSIRO SOM Analysis: Sample Sites Coloured by Sirosom-Derived K-means Clustering, Geoscience BC, Map 2009-14-01, scale 1:500,000.