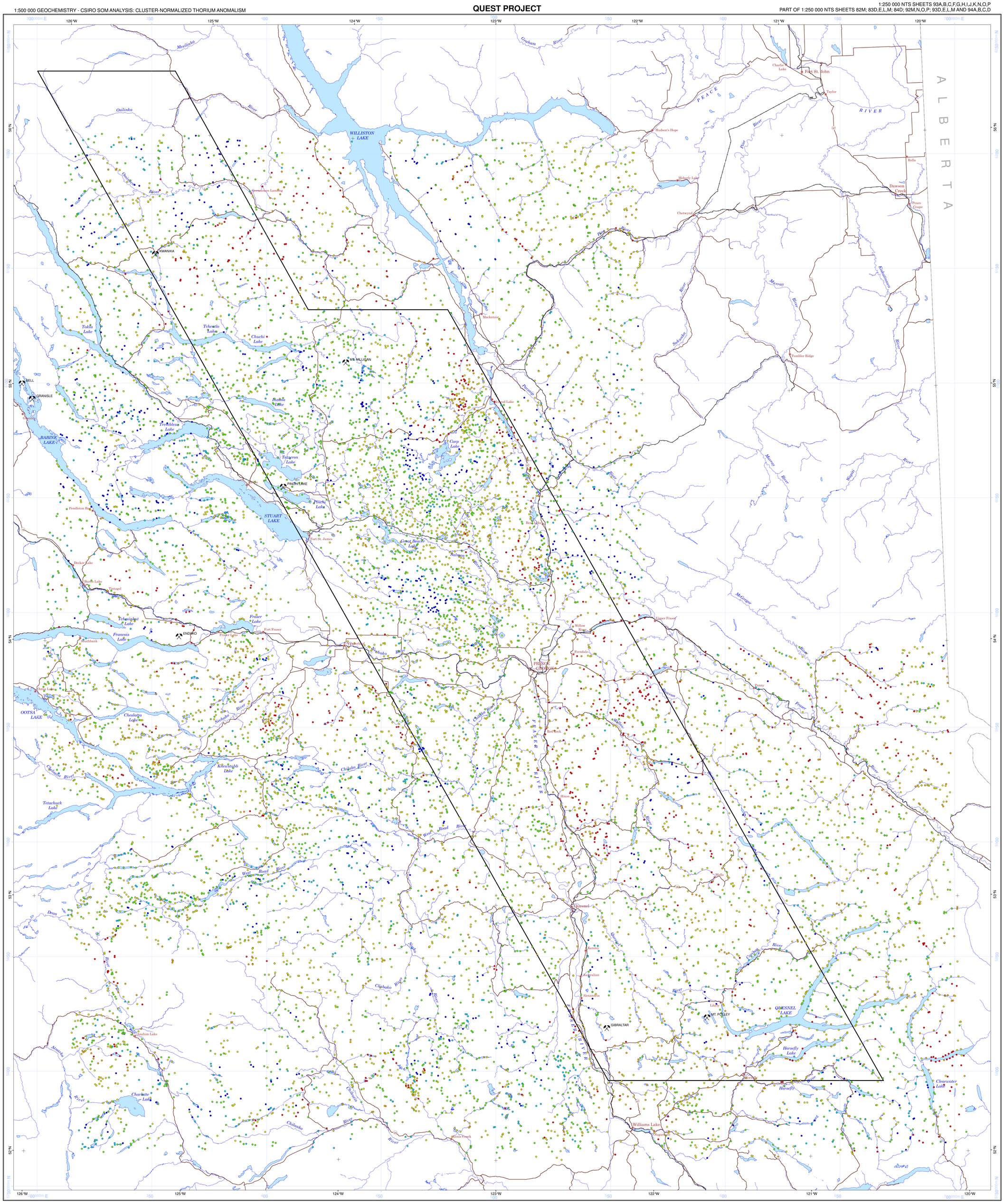
# QUEST PROJECT

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

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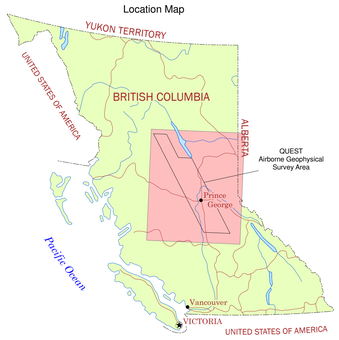
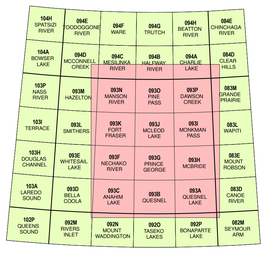
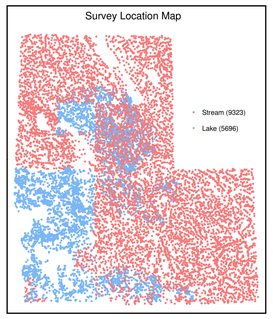
## Location Map




## National Topographic System Index




## Survey Location Map




## Legend

- Airborne Geophysical Survey Area
- Provincial boundary
- Railroad (unclassified)
- Road (unclassified)
- Mineral deposit (selected)
- Populated place (unclassified)

**Thorium Anomalism Value Breakdown**

- > 1.5
- 1 to 1.5
- 0 to 1
- -1 to 0
- -1.5 to -1
- -10 to -1.5

values above cluster norm

values below cluster norm

**QUEST Geochemistry CSIRO SOM Analysis - Cluster-Normalized Element Anomalism**

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) and samples that are similar tend to be assigned to either the same BMU or nearby BMUs that are close on the self-organized map. To assist with interpretation the SOM-derived BMU "vectors" were analyzed using K-means to produce 20 classes. Field samples have been coloured according to the cluster – assignment of their particular BMU.

"Cluster-Normalized" element anomaly maps have been produced with samples normalized to the mean and standard deviation of the K-means cluster to which a sample's BMU belongs. Users are cautioned that normalization by the K-means cluster mean may make intrinsically small numbers anomalous. Specifically, if an element is normally only present in small amounts in a set of samples assigned to a cluster, then the normalization process applied here will make the higher values in this low valued group anomalous.

**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 2009/983. 64 p.

**Geochemistry Data**

Levelled Data

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

Original Data

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

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

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

Jackaman, 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 2007-6, 332 p.

Lett, R.E.W. and Bluemel, B. (2006): Re-analysis of regional geochemical survey stream sediment samples from the McLeod Lake area (NTS map sheet 093J); BC Ministry of Energy, Mines and Petroleum Resources, Geofile 2006-09, 220 p.

Jackaman, 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, 463 p.

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

**Topographic Data**

Massey, N.W.D., MacIntyre, 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**

Cartography by Fion Ma, Geoscience BC

Numerical analysis by CSIRO, Australia - www.csiro.au

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National Research FLAGSHIPS Minerals Down Under — CSIRO

Northern Development Initiative Trust

Geoscience BC

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MAP 2009-14-39

GEOCHEMISTRY - CSIRO SOM ANALYSIS
Cluster-Normalized Thorium Anomalism

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92M,N,O,P; 93D,E,L,M AND 94A,B,C,D

1 : 500,000

0 5 10 15 20 25 50 kms

Universal Transverse Mercator Projection, Zone 10
Horizontal Datum: North American Datum 1983

Mean magnetic declination 2009, 19°26'E, decreasing 16.6' annually. Readings vary 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: Cluster-Normalized Thorium Anomalism; Geoscience BC, Map 2009-14-39, scale 1 : 500 000.

GEOSCIENCE BC - QUEST - GEOCHEMISTRY - CSIRO SOM ANALYSIS