



# **GEOSCIENCE BC SUMMARY OF ACTIVITIES 2012**



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Cover photo: Blackdome mine road, Chilcotin Plateau, British Columbia

Photo credit: Esther Bordet, Mineral Deposit Research Unit, University of British Columbia, 2012

## Foreword

Geoscience BC is pleased to present results from many of our ongoing geoscience projects and surveys in this, our sixth edition of the *Geoscience BC Summary of Activities*. The volume is divided into two sections, 'Minerals' and 'Oil and Gas', and contains a total of 15 papers.

The first section contains 12 papers from Geoscience BC minerals projects throughout the province. The first three papers provide updates on Geoscience BC's most recent major projects: QUEST-Northwest and the Northern Vancouver Island Exploration Geoscience projects. Simpson et al. provide details on the new airborne magnetic surveys flown in both project areas during the summer and fall of 2012. Jackaman and Lett describe regional geochemical work undertaken as part of the Northern Vancouver Island Exploration Geoscience Project (as well as geochemical reanalysis work done in central and southeastern BC). Finally, Logan and Iverson summarize geochemical characteristics of volcanic rocks in the QUEST-Northwest Project area.

The rest of the papers in the 'Minerals' section present interim results from smaller Geoscience BC partnership projects across the province. Lewis et al. highlights work undertaken to re-release the Mineral Deposit Research Unit's Iskut River area maps in a modern GIS format. Celis et al. describe new work on porphyry indicator minerals from alkalic porphyry Cu-Au deposits, which builds on a Mineral Deposit Research Unit–Geoscience BC project on porphyry indicator minerals initiated in 2009.

Three papers in the volume describe field activities undertaken in the Woodjam property area. Heberlein et al. discuss a new study aimed at using organic media (e.g., plant vegetation and exudates) in the geochemical detection of blind porphyry deposits. A companion study (Bissig et al.) discusses whether a geochemical signal of mineralization under basalt cover can be detected in a near-surface environment using soil and plant samples. Both these projects are using the Woodjam area as a test site. del Real et al. discuss the paragenesis and alteration at two of the discrete porphyry deposits on the Woodjam property.

Three papers in the 'Minerals' section discuss projects in southeastern BC. Höy discusses new mapping and compilation work in the Burrell Creek map area, an extension of a previous Geoscience BC–sponsored mapping project in the Deer Park map area (completed in 2010). Webster and Pattison describe ongoing work on the metamorphism and structure of the southern Kootenay Arc and Purcell Anticlinorium, and Hartlaub describes the 2012 activities of the SEEK (Stimulating Exploration in the East Kootenays) Project.

Finally, Reichheld outlines his planned methodologies for a study aimed at documenting and assessing exploration activities generated by the Geoscience BC QUEST Project.

The second section discusses some of Geoscience BC's oil and gas projects, all of which are focused on northeastern BC. Salas et al. discuss the creation of a seismographic network in northeastern BC to monitor the effects of induced seismicity from unconventional gas completions. Surface-water studies are the focus of the last two papers, with Salas and Murray discussing a three-year water-monitoring program in the Horn River Basin, and Saha et al. discussing their work in the Kiskatinaw River watershed near Dawson Creek.

Readers are encouraged to visit our website for additional information on all Geoscience BC–funded projects, including project descriptions, posters and presentations, previous *Summary of Activities* or *Geological Fieldwork* papers, and final datasets and reports. The website also contains information on many of Geoscience BC's other activities, including workshops and student scholarships. All papers in this and past volumes are available for download through Geoscience BC's website ([www.geosciencebc.com](http://www.geosciencebc.com)). Limited print copies of past volumes are also available from the Geoscience BC office.

### Geoscience BC Publications 2012

In addition to this *Summary of Activities* volume, Geoscience BC releases interim and final products from our projects as Geoscience BC Reports. All Geoscience BC data and reports can be accessed through our website at [www.geosciencebc.com/s/DataReleases.asp](http://www.geosciencebc.com/s/DataReleases.asp). Geoscience BC datasets and reports released in 2012 include the following:

- 16 technical papers in the *Geoscience BC Summary of Activities 2011* volume
- **QUEST-Northwest Block 1 Airborne Magnetic Survey, British Columbia**, by Aeroquest Airborne (Geoscience BC Report 2012-02)

- **QUEST-Northwest Block 2 Airborne Magnetic Survey, British Columbia**, by Geo Data Solutions (Geoscience BC Report 2012-03)
- **Results from a Pilot Airborne Electromagnetic Survey, Horn River Basin, British Columbia**, by SkyTEM Canada Inc. (Geoscience BC Report 2012-04)
- **QUEST-Northwest Sample Reanalysis (ICP-MS)**, by W. Jackaman (Geoscience BC Report 2012-05)
- **QUEST-Northwest Sample Reanalysis (INAA)**, by W. Jackaman (Geoscience BC Report 2012-06)
- **QUEST-Northwest Regional Geochemical Data, Northwest British Columbia**, by W. Jackaman (Geoscience BC Report 2012-07)
- **Dease Lake – Little Tuya River Geology, NTS 104J/08 & 07E**, by J.M. Logan, D.P. Moynihan, L.J. Diakow and B.I. van Straaten (Geoscience BC Map 2012-08-1 / BC Ministry of Energy, Mines and Natural Gas, BC Geological Survey Open File 2012-04)
- **Horn River Basin Aquifer Characterization Project Phase 2: Geological Report**, by Petrel Robertson Consulting Ltd. (Geoscience BC Report 2012-09)
- **Mesozoic Magmatism and Metallogeny of the Hotailuh Batholith, Northwestern British Columbia**, by B.I. van Straaten, J.M. Logan and L.J. Diakow (Geoscience BC Report 2012-10 / BC Ministry of Energy, Mines and Natural Gas, BC Geological Survey Open File 2012-06)
- **Till Geochemistry and Clast Lithology Studies of the Bulkley River Valley, West-Central British Columbia**, by A.J. Stumpf (Geoscience BC Report 2012-11)
- **Stimulating Exploration in the East Kootenays (SEEK Project): East Kootenay Gravity Database**, by T. Sanders (Geoscience BC Report 2012-12)
- **Subsurface Structure of the Eastern Nechako Basin from Coincident Three-dimensional Tomographic Velocity and Reflection Data**, by D.A. Talinga and A.J. Calvert (Geoscience BC Report 2012-13)
- **Modelling and Investigation of Airborne Electromagnetic Data, and Reprocessing of Vibroseis Data, from Nechako Basin, B.C., Guided by Magnetotelluric Results**, by J. Spratt, J.K. Welford, C. Farquharson and J. Craven (Geoscience BC Report 2012-14)

All releases of Geoscience BC reports and data are announced through our website and e-mail list. If you are interested in receiving e-mail regarding these reports and other Geoscience BC news, please contact [info@geosciencebc.com](mailto:info@geosciencebc.com).

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