Geoscience BC's

Explaner

Annual Information Update

Annual Report 2007

QUEST Update on Quesnellia under cover

Mountain Pine Beetle Initiatives

What's shaking in Nechako? Geoscience BC's Vibroseis survey

Vancouver Island New mapping, new targets, new ideas

Top 10

Exploration Geoscience Grad students working in BC

Financial Statements

Geoscience BC



Annual Information Update



Features

Welcome	1
Mountain Pine Beetle Initiatives Unlocking BC's Potential with Geoscience!	2
The Northern Trust: Geoscience BC's Partner in Economic Diversification of the MPB Area	3
Quesnellia Under Cover: The QUEST Project	4
The Science Behind QUEST	5
What's Shaking in Nechako? Is there Oil & Gas in the Nechako Basin?	6
Partnerships with Academia	8
Partnerships for Diversification	9
Regional Geochemistry A Basic of the BC Explorer's Toolkit	10
Filling the Gaps Contributions to BC's Regional Geochemical Survey (RGS) Program	11
Geophysics	12

Geophysics The Jennings River and Bonaparte Lake Surveys

ASTER and Hyperspectral 13 **Imagery for BC** An Online Exploration Resource **Mineral Deposit Studies** 14 Copper, Gold and Molybdenum Vancouver Island 15 New Information - New Ideas -New Targets Northwest BC 16 Hydrocarbons in the Bowser Basin Skeena Arch Metallogenic Data and Map **Geoscience BC Project Notes** 17

List of Geoscience BC Publications	18
Our Team	19
Top 10 Exploration Geoscience Grad students working in BC	20
Financial Statements	23

Published by Geoscience BC

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Editor: Christa Sluggett Design & Layout: XY3 Design

PRINTED IN CANADA 2008





Cover photo: Taseko Valley Back cover photo: Battlement Creek Photos by Scott Blevings

Message from the Chair



It is my honour and privilege to have served another year as Chair of the Board of Geoscience BC. The organization has flourished in 2008, providing leadership in exploration geoscience targeted to bring investment to British Columbia.

The Government of British Columbia took a bold and innovative step to stimulate exploration activity in BC with the creation of Geoscience BC. Now the envy of exploration industry associations across Canada, Geoscience BC has been accelerating the rate of exploration geoscience data collection in BC, complementing the work of the BC Geological Survey and the BC Oil and Gas Division, and providing a direct voice for the exploration industry in designing and delivering public geoscience projects.

The launch of our QUEST Project in June of this year was followed by a 'staking rush', clearly illustrating the excitement created by the prospect of extensive new geoscience information in a recognized prospective region. With our funding partner, the Northern Trust, the QUEST Project represents one of the largest exploration-related public geoscience projects every undertaken in BC.

The fact that the QUEST Project is situated in the heart of the Mountain Pine Beetle area, brings another dimension to this project. Beyond just attracting new exploration investment to BC, we hope that the results of the QUEST Project will contribute to economic diversification and the sustainable wellbeing of the communities affected by this beetle infestation.

Finally, I would like to offer my sincere appreciation to my fellow Directors for their leadership and governance of the organization, to the members of our volunteer Technical Advisory Committee for providing us with their valuable technical expertise, to all of our partners in industry, government, First Nations, academia and communities for their ongoing support, and to our new Project Team of consultants and the staff of Geoscience BC, for all their hard work and dedication. I am confident that this combination of talent and energy will meet our mandate – to attract new exploration investment to BC.

Dr John Thompson Vice President Technology and Development, Teck Cominco

Message from the President & Chief Executive Officer



This past year has been an exciting and successful one for Geoscience BC. We launched seven new projects in 2007, including our QUEST Project in central BC, and now have twenty-five projects ongoing with new projects to announce in early 2008.

Our QUEST Project represents an evolutionary step for Geoscience BC. We are expanding from funding partnership projects proposed by other organizations, to developing our own major state-of-the-art programs of exploration geoscience data collection, compilation and interpretation, designed and implemented by a highly qualified technical team of advisors, consultants and staff. However, we are also maintaining our partnership projects and will continue to hold an annual open Request for Proposals.

In 2007, we released nine reports or data sets including: the results of two major geophysical surveys (in partnership with NRCan); a regional geochemical survey in the South Nechako-Cariboo Basin; a digital geochemical data compilation for the Mountain Pine Beetle (MPB) area; and two reports on geochemical sampling techniques for areas of cover. These results represent significant additions to BC's geoscience database.

Geoscience BC has also focused efforts on working with communities and First Nations, particularly those in the MPBaffected areas. We are contributing to the economic diversification planning efforts of the Omineca and Cariboo-Chilcotin Beetle Action Coalitions, and the First Nations MPB Initiative. And we are particularly pleased to have the Northern Development Initiative Trust join us as a funding partner for the QUEST Project. We are also supporting the development of the next generation of exploration geoscientists for BC. Geoscience BC announced a new geoscience scholarship program in 2007, and awarded the first ten scholarships in May.

Geoscience BC is committed to maintaining an exploration-industry focus to all our projects, and to providing relevant applied geoscience information in a timely fashion to industry and the public. In addition to the work of our colleagues in the provincial and federal government geoscience agencies, Geoscience BC is making significant contributions to BC's geoscience knowledge base to make BC the preferred destination for exploration dollars.

C.D. ('Lyn) Anglin

1

Geoscience BC hopes to stimulate increased exploration activity in the Mountain Pine Beetle region, which will have a positive impact on communities...



Geoscience BC's Mountain Pine Beetle Initiatives Unlocking BC's Potential with Geoscience!

The Mountain Pine Beetle (MPB) epidemic has now killed over 400 million cubic hectares of merchantable timber in BC's forests (Ministry of Forests and Range). While in the short term this has led to an increase in harvest levels, for the long term many forestry communities are looking for opportunities to diversify their economies.

Mineral exploration dollars can go anywhere in the world, but high quality, upto-date geoscience information will help attract the mineral exploration industry to BC. By targeting a significant portion of our investments in the MPB area, Geoscience BC hopes to stimulate increased exploration activity in the region, which will have a positive economic impact on nearby communities as industry looks for services, and will hopefully lead to the discovery of economic deposits that can be developed and provide long-term benefits to the region.

Since our creation in 2005 our projects in the MPB infestation area have given the exploration industry new tools to target the mineral and oil & gas potential in the region, leading to increased mineral exploration claim staking and exploration dollars being invested in the region. We have also been working hard to inform the people of central BC about the resource potential of their area, and what government and communities can do to increase exploration in their region.



BC Mineral Sector:

(Courtesy of AME BC) Mineral Exploration expenditures in BC: 1999: \$25 million 2006: \$265 million Ministry of Energy, Mines and Petroleum Resources

BC's share of mineral exploration in Canada: 2001: 5.7% 2006: 18.3%

Natural Resources Canada

Number employed in mineral exploration and mining sector: 28,000 - plus spinoff jobs in all sections in communities throughout BC. The mineral industry is also Canada's largest private sector employer of Aboriginal People. Ministry of Energy, Mines and Petroleum Resources

Average salary and benefits in the mining sector: 1999: \$74,850 2006: \$99,900 PricewaterhouseCoopers





The Northern Trust: Geoscience BC's Partner in Economic Diversification of the Mountain Pine Beetle Area



The Mountain Pine Beetle Salvage Area, which represents the extent of BC affected by the Mountain Pine Beetle. Eligible individuals, corporations and partnerships conducting grassroots mining exploration in this area of BC are eligible for a 30% tax credit on eligible exploration expenditures. Data Source: Land Resource Data Warehouse

The Northern Trust's goal is to be a catalyst for economic development at the local and regional levels to achieve its mission of helping northern BC communities create and sustain world-class industries and diversified economies. The Trust operates independently from government and provides the funding and ability to identify and pursue new opportunities for stimulating economic growth and job creation.

Geoscience BC's QUEST Project (see next page) was the first project funded by the Northern Trust's Mountain Pine Beetle Recovery Program, which was created to diversify the economies of communities impacted by the Mountain Pine Beetle in BC's interior. The additional \$750,000 in funding allowed the QUEST project to be extended to the north and east.

The Northern Trust was established in October 2004 by the Province of BC through the Northern Development Initiative Trust Act.

FOR MORE INFORMATION, PLEASE CONTACT:

Northern Trust www.nditrust.ca admin@nditrust.ca



"The (Northern Trust) Board was compelled to help our communities become more resilient and diversify their economies by focusing the attention of BC mining and exploration companies on this area. Certainly recent discoveries like Kwanika, found by Serengeti Resources have been huge news in the investment markets in Vancouver and internationally.

We are excited about all of the new geoscience and geochemistry information

that will be made publicly available next spring, and the potential \$8-12 million of exploration that is predicted to follow as a result of this work, providing new revenues for the businesses in Northern Trust communities."

> Northern Trust Chair **Bruce Sutherland,** commenting on the Northern Trust granting Geoscience BC \$750,000 for the QUEST Project.



Quesnellia Under Cover: The QUEST Project

"This project will provide us with a much better understanding of the region's mineral potential. We are confident the results will stimulate more on-theground exploration in the area and lead to new mineral discoveries in central BC."

> Dr. 'Lyn Anglin, President and CEO of Geoscience BC

Late in 2006 Geoscience BC asked its Technical Advisory Committee (TAC), composed of industry representatives well versed in BC geology, to determine a priority region in BC that would benefit from new geoscience information. The TAC recommended the central part of the Quesnel Terrane, a belt of rocks extending from south of Kamloops north past Mackenzie into the Yukon. This belt of rocks has good potential for copper and coppergold deposits such as those at the Gibraltar and Mount Polley mines.

The central part of this belt (around Prince George) had been relatively unexplored as it is covered by a thick layer of sand and gravel left behind by glaciers, making mineral exploration in the region difficult.

Geoscience BC's project development team took up the challenge, creating the QUEST (QUesnellia Exploration STrategy) Project, a program of regional geophysical and geochemical surveys designed to look through the sand and gravel cover between Williams Lake and Mackenzie. The QUEST Project area covers a portion of the Mountain Pine Beetle (MPB) infestation, which has affected a huge area of BC. The MPB is creating an enormous economic challenge for BC and its affected communities and Geoscience BC hopes that the results of this project will help stimulate exploration activity which in turn will lead to diversification opportunities for the communities in the MPB area.

The QUEST Project was officially announced in June, 2007, in Prince George by Dr. 'Lyn Anglin, President and CEO of Geoscience BC, and the Honourable Kevin Kreuger, Minister of State for Mining.

"This is the largest public geoscience project in BC's history," said Krueger. "This important work in conjunction with the BC Geological Survey's many ministry projects will help industry identify vitally-needed mineral deposits to help diversify local economies."

Additional funding from the Northern Development Initiative Trust (Northern Trust) has enabled Geoscience BC to extend the project to the northwest of Mackenzie and Fort St James.

Since the QUEST Project was announced, over 700,000 ha have been staked in the QUEST geophysical survey area alone, with companies such as Fjordland, Rimfire, and Xstrata registering mineral title in the area. Interest from local governments and communities in the region has been high, as they look for economic options in the face of the MPB epidemic.

Did you know?

The footprint of Geoscience BC's QUEST regional geophysical survey is over 46,000 km², which is larger than Vancouver Island.



Minister of State for Mining Kevin Krueger joined Minister of Education Shirley Bond (at left) and (from left to right) Minister of Agriculture and Lands Pat Bell, Geoscience BC director David Caulfield, Mining Association of B.C. President & CEO Michael McPhie and Geoscience BC President & CEO 'Lyn Anglin to launch Geoscience BC's \$5million QUEST project in Prince George on June 12, 2007. Photo courtesy of the BC Ministry of Energy, Mines and Petroleum Resources.



The Science Behind QUEST

Geoscience BC's QUEST Project includes two new airborne geophysical surveys: an airborne electromagnetic (EM) survey and an airborne gravity survey, which give insight into the conductivity and density of the rocks. The EM survey was undertaken using Geotech Ltd.'s VTEM (Versatile Time-Domain Electromagnetics) system supported by helicopter (TRK Helicopters Ltd.). Over 11,000 line-km of EM data was collected, at a line spacing of 4 km.

The airborne gravity survey, flown by Sander Geophysics Ltd., was flown by fixed wing airplane. Over 23,000 line-km of data was collected, at a line spacing of 2 km. The results of the combined geophysical surveys will be an important tool for industry looking to better understand the geology in the area and prospective exploration areas underneath the sand and gravel cover. The VTEM data will help determine the thickness of the cover.

The QUEST project also includes the reanalysis of almost 5,000 archived regional geochemical survey samples from parts of NTS sheets 93A, B, G, H, K and N, and the collection of 2,200 new geochemical samples north and west of Prince George (see map). Collection of the new geochemical samples was conducted by Noble Exploration Services Ltd. and CME Consultants Inc. This new geochemical data will also aid industry in identifying new exploration targets, and help attract the exploration investment to the region.

Altogether, the QUEST Project will produce a compilation of maps combining the results of the above surveys with existing public geoscience data. New interpretation of the depth to bedrock in the region will also be produced using geophysical and water well data. All data will be released to the public in digital and paper format, throughout early 2008.

FOR MORE INFORMATION, PLEASE CONTACT:

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ARCIS and Geoscience BC Partner to Reprocess Canadian Hunter Seismic Data

In November 2006, Geoscience BC, in cooperation with Arcis Corporation, acquired the rights to seismic data from the Nechako Basin acquired by Canadian Hunter Exploration in the early 1980s. This seismic data covers a significant part of the southern portion of the Basin located west of Quesnel and Williams Lake.

Arcis has reprocessed the data using modern techniques and is currently marketing the data, which includes 1300 km of reprocessed and interpretated vibroseis 2D data, copies of the original mapping and reports from Canadian Hunter, and the incorporation of current public geotechnical data (airborne geophysics, surface geology, gravity, reinterpretation of well information, new GSC and BCGS mapping, and regional tectonic models).

"The data will provide the foundation for Geoscience BC and its partners, to design new seismic and other geoscience projects in central BC," says 'Lyn Anglin, President and CEO of Geoscience BC. "The data will assist in determining the petroleum potential of the Nechako Basin with the goal of attracting exploration industry investment into the area."

Execution of these agreements marks completion of a process that commenced in 2003 as part of the BC Ministry of Energy, Mines and Petroleum Resources initiative. The purchase of this data complements ongoing seismic monitoring, geophysical and geological studies of reservoir potential funded by Geoscience BC and the BC Ministry of Energy, Mines and Petroleum Resources.

FOR MORE INFORMATION, PLEASE CONTACT:

Mark Watson or Mike Kary, Arcis Corporation www.arcis.com www.geosciencebc.com/s/2005-060.asp

What's Shaking in Nechako? Is there Oil & Gas in the Nechako Basin?

The Nechako Basin in central BC has long been thought to have some oil and gas potential, but this potential is still very speculative. The basin has seen very little hydrocarbon exploration activity since the early 1980s when Canadian Hunter collected approximately 1,300 km of seismic and gravity data. Although 5 wells were drilled as a result of this program, economic hydrocarbons were not found, and exploration in the area essentially ceased soon after.

In order to better understand the potential of the Nechako Basin, Geoscience BC acquired the Canadian Hunter data (see sidebar), and, on the recommendation of the Geoscience BC Oil and Gas Technical Advisory Committee, has designed the first phase of a new seismic acquisition program. Geoscience BC's goal is to develop an improved understanding of the petroleum potential of the Nechako Basin and to generate renewed oil and gas exploration interest. The Geoscience BC seismic survey, planned for summer 2008. is aimed at better defining the regional structure of the basin, and also evaluating the effectiveness of modern Vibroseis acquisition particularly in areas covered by volcanic rocks of unknown thickness.

Seismic surveys use sound waves to produce images of the rock formations below the earth's surface which provide critical data needed to identify potential oil and gas deposits. Vibroseis is a method used in exploration seismology to propagate energy signals into the earth by a vibrating source over an extended period of time, as opposed to the near instantaneous energy provided by an impulsive source such as explosives. The challenge to this survey will be to have sufficient signal penetration through the near-surface volcanic rocks which cover much of the region and to be able to generate images of the underlying sedimentary rocks in which hydrocarbons might be found.

Part of the planning for this new survey has involved further reprocessing of the old Canadian Hunter seismic data. Drs. Hayward and Calvert at SFU have been working with this data to develop new interpretations that will help guide the design and maximize the results from the new survey. For more details on their work, see *Geoscience BC Summary* of Activities 2007.

Given the current high cost of seismic acquisition, Geoscience BC has planned this survey so that most new data will be collected along existing roads. The goal is to collect approximately 400 km of seismic data. The seismic survey will be conducted by CGG Veritas of Calgary, with the permitting process being handled by Bighorn Land and Field Services Ltd. of Fort St. John. Geoscience BC is working with MEMPR to consult with the Tsilhqot'in National Government and the Nazko First Nation on this proposed survey.

FOR MORE INFORMATION, PLEASE CONTACT:

Dr. Andrew Calvert

Simon Fraser University and Chair of Geoscience BC's Oil and Gas TAC acalvert@sfu.ca www.geosciencebc.com/s/2006-002.asp



Interpreted seismic reflection section from the Southeastern Nechako Basin, BC. Well d-94-G stratigraphic column (time converted) from Ferri and Riddell (2006).



Nechako: A Multidiciplinary Approach

Geoscience BC has funded the following three projects to help assess the potential for oil & gas in the Nechako Basin.

Magnetotelluric Profiles of the Nechako Basin

One of the challenges for hydrocarbon exploration in the Nechako Basin is the imaging of potential sedimentary sequences through younger volcanic rocks. Classic seismic techniques have had mixed results due to energy absorption and reflection by the volcanic units. Magnetotellurics (MT) is sensitive to an independent parameter, namely electrical conductivity, so is a useful additional tool for exploring the subsurface of the Nechako Basin.

Geoscience BC and the Oil and Gas Division of MEMPR have co-funded a MT survey led by Jim Craven of Natural Resources Canada. The objective of the study is to determine the appropriate acquisition parameters for MT as a tool for both oil and gas exploration and geological characterization of the Nechako Basin, and to undertake a test MT survey.

Collection of new magnetotelluric data began in late 2007. A more detailed report on the survey design is included in *Geoscience BC Summary of Activities 2007.*

FOR MORE INFORMATION, PLEASE CONTACT

Jim Craven Natural Resources Canada craven@nrcan.gc.ca www.geosciencebc.com/s/2006-016.asp

Mapping the Structure of the Nechako Basin Using Passive Source Seismology

Geoscience BC has co-funded with the Oil and Gas Division of MEMPR a passive source seismology study undertaken by Dr. John Cassidy of Natural Resources Canada. This study uses recordings of distant earthquakes and "background noise" to map the sediment thickness, crustal thickness, and overall geometry of the Nechako Basin, and represents a unique, and very cost-effective means to provide regional-scale structural information that will help direct future targeted studies (including MT, active source seismic, and drilling) by industry and other groups.

Seven seismic stations were set up in September 2006, which will collect information over an area of approximately 33,000 km². Initial results and interpretations, including shear-wave velocity models, will be presented in 2008. This project forms part of a MSC thesis at UVic, and a more detailed report on the project is available in *Geoscience BC Summary of Activities 2007.*

FOR MORE INFORMATION, PLEASE CONTACT:

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Did you know?

During the fall of 2007, a series of minor earthquakes were recorded in the Nechako Basin near Nazko, and are thought to be the result of magma moving deep within the Earth's crust.

Stratigraphic Analysis of Cretaceous Strata Flanking the Southern Nechako Basin: Constraining Basin Architecture and Reservoir Potential

Accurate assessment of the petroleum potential of the Nechako Basin hinges on a comprehensive understanding of the basin architecture and those strata which represent the most prospective targets in the subsurface. This work requires detailed stratigraphic analysis of the equivalent sedimentary strata exposed along the basin margins.

This Geoscience BC funded project, undertaken by Dr. Peter Mustard of Simon Fraser University, and Dr. Brian Mahoney of the University of Wisconsin – Eau Claire, is working to provide a detailed analysis of the northern Methow Basin, including the Lower Cretaceous Jackass Mountain Group (JMG), which is probably the best candidate for a major reservoir system in the subsurface of the Nechako Basin.

The 2007 field season included measurement of stratigraphic sections and sample collection from well-exposed JMG strata. Samples were also collected for regional studies of Lower Cretaceous units in adjacent areas. Fieldwork on this project will continue next summer. This project supports two MSc students at SFU, and one undergraduate at UWEC. A more detailed report on the project is available in *Geoscience BC Summary of Activities 2007.*

FOR MORE INFORMATION, PLEASE CONTACT:

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Partnerships with Academia

The Chilcotin Group north of Hanceville on Hwy. 20, looking west up the Chilcotin River valley. Photo by Graham Andrews



Did you know?

Geoscience BC has contributed over \$1.6 million to projects led by universitybased proponents.

The Primary QUEST Targets: Copper-Gold and Copper Porphyries

Alkalic gold-(copper) deposits are of increasing economic significance and can be an attractive exploration target. Furthermore, alkalic porphyry Cu-Au deposits like Mount Polley contribute to the economy of BC, and projects like Mt. Milligan and the new Kwanika discovery are driving significant new exploration in the province. However, exploration for these deposits is difficult as they are small targets and the controls on their formation are not well understood.

A multi-disciplinary research project, jointly led by the Mineral Deposits Research Unit (MDRU) at UBC and the Centre for Excellence in Ore Deposit Research (CODES) at the University of Tasmania, is advancing the understanding of the characteristics of individual alkalic porphyry systems and aims integrate that information into a model for these types of deposits. The project addresses fundamental questions regarding deposit genesis by examining the Mount Polley, Mt Milligan, Lorraine and Galore Creek deposits. New tools for the exploration industry developed as part of this project will help in discovering more of these potentially very metal-rich systems in BC. This project is also supporting several graduate thesis project, both at UBC and at CODES. For a more detailed update on this project see Geoscience BC Summary of Activities 2007.

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The Chilcotin Group Basalts

New Geoscience Information to promote exploration in Nechako and the QUEST Project Area

Basalts of the Chilcotin Group cover an area of over 30,000 km² in BC's interior, covering rocks with high potential for mineral deposits (Quesnel Terrane and other rock units) and possible potential for hydrocarbons (Nechako Basin). The lack of geoscience information on these volcanic rocks and younger glacial cover has been one of the impediments to exploration in this region because the rocks of interest are not exposed, and the thickness of the cover material is not well known.

A Geoscience BC project led by Dr. Kelly Russell at the University of British Columbia and co-funded by NRCan is looking to understand the thickness of the 'cover' and exploration potential beneath the Chilcotin Group. Using a combination of field data and water well records, this project has shown that the Chilcotin Group is typically less than 25 m thick, and the glacial material is less than 50 m thick. In addition, results of this project indicate that the aerial distribution of the Chilcotin Group may be less than previously thought.

This project is supporting graduate students and a post-doctoral researcher at UBC. For a more detailed report on this project see *Geoscience BC Summary of Activities 2007.*

FOR MORE INFORMATION, PLEASE CONTACT:

Dr. Kelly Russell University of British Columbia krussell@eos.ubc.ca www.geosciencebc.com/s/2006-003.asp

Partnerships for Diversification

In addition to our QUEST Project partnership with the Northern Trust, Geoscience BC has been working with the Omineca Beetle Action Coalition (OBAC), the Cariboo-Chilcotin Beetle Action Coalition (CCBAC) and the First Nations Mountain Pine Beetle Initiative (FNMBPI) to support the development of mineral sector diversification strategies for the MPB-affected areas of the Province.

With colleagues from the Association for Mineral Exploration BC (AME BC), the Mining Association of BC (MABC), and representatives from exploration and mining companies, Geoscience BC has participated in community workshops and strategy sessions organized by OBAC, CCBAC and FNMPBI, focused on identifying economic diversification options for forestry-based communities affected by the MPB infestation. Geoscience BC has provided input on the role of geoscience knowledge in attracting new exploration interest and investment into a region.

New geoscience data and knowledge are essentially infrastructure investments, providing the base for further exploration industry interest and investment in an area. To develop new mines, requires new discoveries. New discoveries require exploration. And exploration activity is encouraged and facilitated by new geoscience. The same can be said for oil and gas resources: before you can develop the resource, discoveries need to be made, and new geoscience information helps encourage industry to invest in the exploration activity that is needed to make those discoveries. Collaboration and cooperation among the various sectors, communities and levels of government is key as the MPB epidemic plays itself out.



Elizabeth Andersen PAg

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THE MINING ASSOCIATION OF BRITISH COLUMBIA

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Did you know?

The Geological Survey of Canada (GSC) is Canada's oldest scientific organization, created in 1842. The British Columbia Geological Survey (BCGS) is BC's oldest scientific organization, created in 1895.

Collaborative MPB Geoscience Plan

Geoscience BC, in cooperation with the geoscience agencies in the Ministry of Energy, Mines and Petroleum Resources and Natural Resources Canada has developed a plan to ensure that all of our project activities are complementary. We communicate regularly with colleagues in the BC Geological Survey Branch and the Resources and Development Geoscience Branch of MEMPR, and with colleagues in the Geological Survey of Canada in NRCan, to avoid any duplication of our investments in geoscience in the MPB area, and thus maximize our respective contributions to providing geoscience knowledge to assist in diversifying the economies of MPB-affected areas of the Province.





Natural Resources Canada Ressources naturelles Canada

Geoscience BC talking with communities about oil and gas potential in the Nechako

Throughout 2007, Geoscience BC has been participating in a series of meetings with First Nations whose traditional territories cover the Nechako Basin. These meetings have helped Geoscience BC inform First Nations about the proposed seismic work, answer questions, and to tailor the project to address concerns. Presentations have also been made in local communities.

Many of these meetings have been led and organized by Jo Harris, a senior

project manager with the Oil & Gas Division in the BC Ministry of Energy, Mines and Petroleum Resources, and have included additional representatives from the Oil & Gas Division and the Oil and Gas Commission.

Communicating with First Nations and communities about our projects is an important part of the Geoscience BC's work, both in Nechako and throughout the province.



Geoscience BC Community Meeting in Alexis Creek, September 2007.

Lake sediment sampling has been an integral part of Geoscience BC's regional geochemistry program. Photo by Wayne Jackamar

Reanalysis: Great value for money

Administrators of the National Geochemical Reconnaissance (NGR) and BC Regional Geochemical Survey (RGS) programs had the foresight to preserve portions of samples collected during drainage sediment surveys completed from 1976 to 1985. The archived material has provided the opportunity to re-analyze samples using up-to-date analytical techniques. In the early 1990s, over 24,000 samples collected throughout BC were re-analyzed by instrumental neutron activation analysis (INAA) for gold and a number of other metals not previously determined.

This type of work has provided access to important new analytical information at improved detection levels and has significantly enhanced the utility of the provincial geochemical database.

As part of the QUEST program, Geoscience BC is reanalyzing 4,452 stream sediment pulps (covering NTS map sheet areas 93A, 93B, 93G, 93H and 93N), and 488 lake sediment pulps from NTS map sheet 93K using inductively coupled plasma mass spectrometry (ICP-MS) techniques. These samples will complement previous reanalyzed samples in the QUEST project area (NTS 093J; Lett and Bluemel, 2006), as well as new lake sediment geochemical sampling in parts of NTS sheets 093N, O, J and G, and new stream sediment sampling in NTS 093 O.

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Regional Geochemistry A Basic of the BC Explorer's Toolkit

Regional geochemical survey programs and the resulting data sets are recognized as key exploration tools in BC. BC's Geological Survey started a systematic program of regional stream sediment and stream water geochemical surveys (RGS) in 1976 as part of the National Geochemical Reconnaissance Program (NGR) of the Geological Survey of Canada. About 70% of the Province has now been surveyed, with collection and analysis of over 50,000 stream sediment, lake sediment and surface water samples (Lett, 2007).

These RGS data sets have applications to mineral exploration, baseline environmental assessment and monitoring, and to land use planning. However, the main objective of these surveys is to identify areas with anomalous (elevated) element concentrations that may help highlight areas with significant mineral potential. There are numerous examples of exploration programs and mineral discoveries that have been stimulated by interesting results in RGS data sets.

For more background on regional geochemical surveys, see BC Geological Survey Geofile 2007-6 "Workshop Notes: Drainage geochemical surveys – stream sediments, lake sediments, moss mats, heavy minerals" by Ray Lett.

For information on the full BC Regional Geochemical Program coverage see the BC Geological Survey Branch Geochemistry Link: www.em.gov.bc.ca/Mining/Geolsurv/ Geochinv/rgs.htm

FOR MORE INFORMATION ON THE BC REGIONAL GEOCHEMICAL SURVEY PROGRAM (RGS PROGRAM) PLEASE CONTACT:

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Helicopter fuel cache stop on the Kluskus main line. Photo by Wayne Jackaman

Did you know?

Geoscience BC projects have added new geochemical samples from 7,444 sites to the provincial database since 2005.

Filling the Gaps Geoscience BC's Contributions to BC's Regional Geochemical Survey (RGS) Program

Recognizing the importance of RGS data to exploration in BC, Geoscience BC has funded four regional geochemical survey programs in the last two years, in addition to the significant geochemical survey component of the QUEST Project.

Over the past two years, Wayne Jackaman of Noble Exploration Ltd. has completed three geochemical surveys in the heart of BC's MPB area, with lake and stream sediment sampling programs covering the Anahim Lake and Nechako River map sheets (NTS 093C and 093F) in 2005, and a lake sediment sampling program in the South Nechako and Cariboo Basins (parts of NTS sheets 092N, O, P; 093A, B) in 2006. In the first few months following the release of the data from the Anahim Lake and Nechako River map sheets, over 190,000 ha was staked in the project area.

A drainage sediment sampling program in Southeastern BC led by Chris Naas of CME Consultants Ltd has also been very successful. This program covered parts of NTS sheets 083C, D, E and 082N, and completed the regional geochemical coverage in the southeastern corner of the province. Data from this project was released in the summer of 2006. In addition to these sample collection programs, Wayne Jackaman has produced a MPB Data Repository, consolidating BC's diverse geochemical data landscape in the MPB area (lake and stream sediment, till and biogeochemical data) into a functional data repository, including a digital database of geochemical information and associated geospatial base maps, which can be easily accessed and incorporated into a wide range of exploration and research activities.

With these programs, Geoscience BC has filled significant gaps in BC's regional geochemical coverage, providing geochemical data that will help the mineral exploration industry now and in years to come.

To download Geoscience BC's regional geochemical datasets:

www.geosciencebc.com/s/DataReleases.asp

FOR MORE INFORMATION, PLEASE CONTACT:

Wayne Jackaman

Noble Exploration Ltd. wjackaman@shaw.ca www.geosciencebc.com/s/2005-014.asp www.geosciencebc.com/s/2005-047.asp www.geosciencebc.com/s/2006-013.asp www.geosciencebc.com/s/2006-012.asp

Chris Nass

CME Consultants Ltd cnaas@cmegroup.com www.geosciencebc.com/s/2005-050.asp





New Geochemical Methods For Covered Areas

One of the challenges of working in central BC is that much of the area is covered with sand and gravel transported and deposited by glaciers.

Geoscience BC funded two research studies to test applications of different types of exploration geochemical methods to working in areas of glacial cover.

Colin Dunn and associates looked at the feasibility of using the halogen elements in prospecting for buried deposits. The final report, Geoscience BC Report 2007-10: Halogens in Surface Exploration Geochemistry: Evaluation and Development of Methods for Detecting Buried Mineral Deposits by Colin E. Dunn, Stephen J. Cook and Gwendy E.M. Hall, was released in October 2007.

FOR MORE INFORMATION, PLEASE CONTACT:

Colin Dunn Consulting Geochemist colindunn@shaw.ca www.geosciencebc.com/s/2005-008.asp

Stephen Cook and Colin Dunn also looked at a variety of geochemical methods to see which gave the best response in areas of known mineralization in central BC. The final report, Geoscience BC Report 2007-7: A Comparative Assessment of Soil Geochemical Methods for Detecting Buried Mineral Deposits – 3Ts Au-Ag Prospect, Central BC by Stephen J. Cook and Colin E. Dunn, was released in July 2007.

FOR MORE INFORMATION, PLEASE CONTACT:

Stephen Cook Teck Cominco Ltd. Stephen.Cook@teckcominco.com www.geosciencebc.com/s/2005-009.asp



In early 2007 Geoscience BC, in partnership with Natural Resources Canada, was pleased to release data from two new airborne geophysical surveys. Both surveys provide new insights into the geology of and potential for mineral deposits in their respective regions.

Locations of Geoscience BC-supported airborne geophysical surveys undertaken since April 2005.



Geoscience BC Geophysics The Jennings River and Bonaparte Lake Surveys

Jennings River Survey

A high-resolution airborne magnetic survey of the Jennings River area (NTS 104O) in northern BC as released at AME BC's Mineral Exploration Roundup 2007. This new data allows exploration companies to take a more focused approach to their programs, minimizing the potential costs associated with untargeted mineral exploration. This area has potential for copper, gold and silver as well as nickel and platinum group elements.

"This survey has provided a spectacular new data set," said Dr. 'Lyn Anglin, President and CEO of Geoscience BC. "It is characterized by numerous anomalies that provide new insights into the geology, structure and mineral potential of the region."

"These survey results provide us with new data and interpretations that will increase the potential for exploration and mining in northern B.C.," said the Honourable Gary Lunn, Minister of Natural Resources Canada. "Working with Geoscience BC and the BC government on this project is an excellent example of a partnership that benefits both the industry and the community."

Bonaparte Lake Survey

In April 2007 at the Kamloops Exploration Group conference, Geoscience BC, in partnership with Natural Resources Canada's (NRCan) Targeted Geoscience Initiative 3, Candorado Operating Company Limited, Amarc Resources Limited and GWR Resources Limited, announced the release of new airborne gamma-ray spectrometric and magnetic data in the Bonaparte Lake Area (parts of NTS 092P and 093A).

The Bonaparte Lake area has very good potential for a number of mineral deposit types, particularly copper and gold. However, exploration in the region has been limited by the extensive glacial material and young volcanic rocks which cover the rocks of potential economic interest.

The new magnetic survey information will improve the understanding of the rocks, especially where they are hidden by glacial cover, will help target areas for further exploration, and will aid in future bedrock and surficial mapping projects. The spectrometric data will provide key information to help guide exploration to new mineral targets. Industry partners have already used their data to focus their exploration and make new discoveries in the area.

"The results of this survey will identify new potential targets for mineral exploration in the Bonaparte Lake area," states Dr. 'Lyn Anglin, President & CEO of Geoscience BC. "Without a doubt, the survey will stimulate new interest and investment in resource exploration in the region."

The Bonaparte Lake airborne survey expands upon a 2005 proposal originally made to Geoscience BC by the Whispering Pines-Clinton Indian Band, and covers part of their traditional territory.

Data for both projects can be accessed at: www.geosciencebc.com/s/DataReleases.asp, www.mapplace.ca and from the Geoscience Data Repository of Natural Resources Canada at: http://gdr.nrcan.gc.ca/index_e.php

> FOR TECHNICAL INFORMATION ON THESE PROJECTS, PLEASE CONTACT

> > Warner Miles

Natural Resources Canada WMiles@NRCan.gc.ca www.geosciencebc.com/s/2005-059.asp (Jennings River) www.geosciencebc.com/s/2006-008.asp (Bonaparte Lake)



ASTER and Hyperspectral Imagery for BC An Online Exploration Resource

Remote sensing is increasingly used in mineral exploration in many parts of the world. However, the appreciation of some techniques of remote sensing for mineral exploration in BC has lagged behind due to the extensive forest cover in the province. Three Geoscience BC-funded projects, led by Ward and Caleen Kilby of Cal Data Ltd., are adding new imagery and viewing tools to the BC Ministry of Energy, Mines and Petroleum Resources MapPlace (www.mapplace.ca) that are helping the public and mineral exploration industry better understand the geology of BC. The images, along with new tools created for MapPlace's Image Analysis Toolbox (IAT), allow users to identify and map new exposures, geological features and alteration zones, all from the comfort of their office.

Two projects focused on collecting ASTER (Advanced Spaceborne Thermal Emission and Reflection Radiometer) imagery over much of the province, with Geoscience BC funding the collection of 200 ASTER images in BC during 2005 and 2006 (earlier images were funded by the Rocks to Riches program). ASTER imagery provides information in the visible, near infrared (VNIR), short wave infrared (SWIR) and thermal infrared (TIR) range of the electromagnetic spectrum, as well as the ability to generate stereo images. Reflectance values in the SWIR range are particularly useful in differentiating rock and soil mineralogy related to alteration zones. A tutorial has also been made available though MapPlace.

Hyperspectral imagery was collected in August 2007, to provide within-BC examples of high quality imagery for the mineral exploration community as a pilot project to assess its value to mineral exploration. The sites included active surface mines with good bedrock exposure (Gibraltar and Mount Polley), an underground past producer (Blackdome), an area of alteration above the tree line (Limonite occurrence in the Taseko Lakes area), an area of active exploration but limited exposure (Prosperity deposit), and a heavily vegetated area (Lang Lake region). Two additional sites included past producers and prospects at Kicking Horse Pass and Ice River. These new hyperspectral images will be available for download from MapPlace and new analysis tools will be added to the IAT in early 2008. More detail on the hyperspectral project is available in *Geoscience BC Summary of Activities 2007*.

FOR MORE INFORMATION, PLEASE CONTACT:

Ward Kilby

Cal Data Ltd. wkilby@telus.net www.geosciencebc.com/s/2006-001.asp (ASTER Imagery) www.geosciencebc.com/s/2006-032.asp (Hyperspectral Imagery)

Did you know?

Hyperspectral imagery is collected using an imaging spectrometer, which collects a picture using hundreds of contiguous spectral bands, more than enough to sample the entire electromagnetic spectrum. The images can then be used to identify minerals in a region of interest.





Adanac Study

Taseko Lakes

orne-Bridge

Quartz-carbonate vein with secondary malachite. Photo by Lucy Hollis

Mount McLure with Taseko Lakes in the background. Photo by Scott Blevings



Did you know?

It is estimated that approximately \$35 million worth in gold was extracted from around Barkerville between 1860 and 1880. BC MEMPR Open File 1992-19.

Mineral Deposit Studies Copper, Gold and Molybdenum

Copper and Gold Mineralization in the Taseko Lakes Region

Porphyry copper deposits are a primary source of the world's copper, molybdenum and gold. A project headed by Dr. Lori Kennedy at the University of British Columbia is focused on creating a better understanding porphyry deposits in the Taseko Lakes area of BC (southwest of Williams Lake). Over the last year, UBC graduate students Scott Blevings and Lucy Hollis have focused on understanding the link between the structural history of the area and its mineralization, and developing a framework for the evolution and development of selected mineralized showings in order to compare them to conceptual porphyry models respectively. Detailed updates on the two aspects of this project are included in Geoscience BC Summary of Activities 2007.

FOR MORE INFORMATION, PLEASE CONTACT:

Dr. Lori Kennedy lkennedy@eos.ubc.ca www.geosciencebc.com/s/2005-058.asp

Is there a Continuum between Porphyry Molybdenum Deposits and Intrusion-Hosted Gold Deposits?

That is the question that Dr. Greg Arehart of the University of Nevada, Reno, along with graduate student Jessica Smith and associates are trying to answer. Focusing on the Adanac Molybdenum deposit near Atlin, the project aims to fit Adanac into the spectrum of molybdenite deposits, and then to geochemically compare the deposit to intrusion-hosted gold deposits in the North American Cordillera, in order to refine the models for both deposit types. Work in the past year focused on describing the rock types found at Adanac, and studying the trace-element and whole-rock geochemistry. Planned work for 2007-08 includes alteration and geochronology studies. A detailed update on this project is included in *Geoscience BC Summary of Activities 2007.*

FOR MORE INFORMATION, PLEASE CONTACT:

Dr. Greg Arehart arehart@unr.edu www.geosciencebc.com/s/2005-054.asp

Gold, Granites and Geochronology: The Bralorne-Pioneer Gold Orebodies

Orogenic gold vein deposits are among the most lucrative deposit type to mine, characteristically with high gold grades, focused mineralization, large vertical extents, easy metallurgy, and reasonably small environmental footprints. The Bridge River mineral district in southwestern BC is wellknown for the Bralorne-Pioneer orogenic gold system that yielded over 4.1 million ounces of gold during its long history (1897-1971). A project led by Dr. Craig Hart (University of Western Australia) and Richard Goldfarb (United States Geological Survey) has spent the past year working to establish the temporal relationship between magmatic, structural and metamorphic events in the Bridge River district, to help constrain geological models of the formation of this deposit. A detailed update on this project is included in Geoscience BC Summary of Activities 2007.

FOR MORE INFORMATION, PLEASE CONTACT:

Dr.Craig Hart craig.hart@uwa.edu.au www.geosciencebc.com/s/2006-005.asp Nootka Sound Sicker Group

Three Sisters waterfall

Vancouver Island New Information – New Ideas – New Targets

Three Geoscience BC projects have set out to explore the mineral potential of three areas on Vancouver Island.

Volcanic strata of the Sicker Group on Vancouver Island host the world-class Myra Falls volcanogenic massive sulphide (VMS) deposit, which is currently the largest and most productive VMS mine in western Canada. A project led by Dr. Jim Mortensen at UBC is aiming to develop a model for the evolution of the Sicker Group on Vancouver Island and assess the potential for other VMS occurrences in these rocks. Summer 2007 field work involved an intensive examination of the geological setting of VMS occurrences and their relationship to exhalative iron formation in the Sicker Group in the Port Alberni area. Two new sulphide occurrences were identified during the summer's mapping. This project supports Tyler Ruks, a PhD student at UBC. More detail on this project is available in Geoscience BC Summary of Activities 2007.

Dr. Dan Marshall and his students at Simon Fraser University have set out to examine the mineral potential of the Westcoast Crystalline Complex in the Nootka Sound area on the west coast of Vancouver Island. This project has identified new occurrences of layered ultramafic rocks with possible nickel (Ni) and platinum group element (PGE) potential, and a new occurrence of porphyry copper-style mineralization in the Nootka Sound area. These occurrences have subsequently been staked by exploration companies and are currently being explored. Two M.Sc. theses and summer work experience for three undergraduate students have been supported by this project. More detail is available in *Geoscience BC Summary of Activities 2007*, and final results of this project will be released in 2008.

Near the south end of Vancouver Island, Dr. Dante Canil at UVic is collaborating with Emerald Field Resources to shed light on the Ni and PGE potential of isolated ultramafic bodies in the Bonanza arc near Port Renfrew. Fieldwork undertaken in the summer of 2006 collected samples for geochemical and geochronological analysis to help determine the prospectivity of the ultramafic bodies, both near Port Renfrew and elsewhere in the West Coast Crystalline Complex. This work is part of a M.Sc. thesis at UVic. Final results for this project are expected in 2008.

FOR MORE INFORMATION, PLEASE CONTACT:

Nootka Sound area – West Coast Crystalline Complex

Dr. Dan Marshall, SFU marshall@sfu.ca www.geosciencebc.com/s/2005-027.asp

Sicker Group - VMS Potential

Dr. Jim Mortensen, UBC jmortensen@eos.ubc.ca www.geosciencebc.com/s/2005-030.asp

Ultramafic rocks - Port Renfrew area

Dr. Dante Canil, UVIC dcanil@uvic.ca www.geosciencebc/com/s/2005-052.asp Intensely altered mafic schist with blue-greer gypsum veins and quartz-carbonate veins which in places contain chalcopyrite blebs (Sicker Group, Vancouver Island). Photo by Tyler Ruks.



Reid Staples in Conuma River area. Photo by Karin Fecova



Did you know?

The Myra Falls mine on Vancouver Island began production in 1966. Breakwater Resources Ltd. website



Northwest BC Hydrocarbons in the Bowser Basin

Two Geoscience BC funded projects are focusing on the Bowser Basin, a frontier hydrocarbon basin which underlies approximately 50,000 km² of central BC north of Terrace. The Bowser formed during the Middle Jurassic through Early Cretaceous through the deposition of a large volume of siliciclastic sediments onto the Hazelton Group.

The first project, led by Dr. Carol Evenchick of Natural Resources Canada, examines the stratigraphic record of the initiation of sedimentation in the Bowser Basin, including the lower and upper Hazelton Group and the Bowser Lake Group, and the structural overprinting of the Bowser Basin and its implications for hydrocarbon exploration. This project is nearing completion, with final result to be released in 2008.

The second project, led by Dr. John Waldron and Jean-Francois Gagnon of the University of Alberta, targets the basal sections of the Bowser succession. Field and lab work are aimed at preparing sedimentation-rate curves for the basin fill, and will be combined with water-depth estimates to produce subsidence curves for the basin. These curves will help to distinguish between competing models for the origin of the basin which have important consequences for petroleum prospectivity.

Fieldwork for this project conducted in the summer of 2007 focused on the Hazelton Group – Bowser Lake Group transition, as a clear understanding of this transition at basin scale may provide insight for mineral and hydrocarbon exploration in the region. A detailed update on this project is included in *Geoscience BC Summary of Activities 2007.*

FOR MORE INFORMATION, PLEASE CONTACT:

Dr. Carol Evenchick Natural Resources Canada CEvenchi@nrcan.gc.ca www.geosciencebc.com/s/2005-036.asp

Dr. John Waldron University of Alberta john.waldron@ualberta.ca www.geosciencebc.com/s/2006-046.asp



Skeena Arch Metallogenic Data and Map

The Skeena Arch transects central BC and represents a long lived magmatic arc that has produced a diverse range of mineral deposits in a wide variety of geologic settings. Released in June 2007 as Geoscience BC Report 2007-5/Geofile 2007-3: Skeena Arch Metallogenic Data and Map (NTS map sheets 093E, L, M; south half of 094D, east half of 103I and southeast corner of 103P) by Don MacIntyre, the Skeena Arch project includes a series of GIS compatible data files showing the geology and mineral occurrences for this prospective area of west central BC. All data files are hosted on the Ministry of Energy, Mines and Petroleum Resources MapPlace (www.mapplace.ca).

FOR MORE INFORMATION, PLEASE CONTACT:

Don MacIntyre Independent Consultant don.macintyre@shaw.ca www.geosciencebc.com/s/2005-003.asp

Did you know?

Barrick Corporation's Eskay Creek Mine is Canada's highest grade gold mine and the world's fifth largest silver producer. The mine is nearing the end of its production life in 2008. Project Notes

Geoscience BC Project Notes

Whitesail Lake Mapping Project

The Whitesail Lake project, headed by Dr. Brian Mahoney of the University of Wisconsin - Eau Claire, released four new geology maps in December 2007. The project is examining the geology and mineral potential of the southern and western parts of the Whitesail Lake map sheet (NTS 093E south of Houston, BC). The new maps (Geoscience BC Maps 2007-11-1 to 4; GSC Open Files 5585-5588) complement two earlier geology maps released by the same team of researchers supported with Rocks to Riches funding (Geoscience BC Maps 2006-1 and 2; GSC Open Files 5386 and 5387). All six maps are available in hard copy from the GSC bookstore or can be viewed online though the GSC website or www.geosciencebc.com.

FOR MORE INFORMATION, PLEASE CONTACT:

Dr. J. Brian Mahoney University of Wisconsin – Eau Claire mahonej@uwec.edu www.geosciencebc.com/s/2005-032.asp

Surficial Geochemistry and Mineralogy in Northeast BC

A multidisciplinary project led by Alain Plouffe of Natural Resources Canada is aimed at investigating the resource potential of the Etsho Plateau region of Northeastern BC for kimberlites, diamonds, gold, base metals and other economic commodities. Stream sediment data will be released in the spring or early summer of 2008, followed by a compilation report that integrates the glacial and stream sediment data later in the year. This project will be completed in 2008.

FOR MORE INFORMATION, PLEASE CONTACT:

Alain Plouffe Natural Resources Canada APlouffe@NRCan.gc.ca www.geosciencebc.com/s/2005-016.asp

Fingerprinting of Porphyry Intrusions

A project led by Katrin Breitsprecher (with funding from Geoscience BC and Natural Resources Canada) is applying isotopic and geochemical fingerprinting techniques to Mesozoic porphyry intrusions in southcentral BC. One of the goals of this project is to provide a framework to explain the apparent change in porphyry intrusions from mineralized (alkalic) to non-mineralized (calc-alkalic) in the earliest Jurassic. A detailed project update will be published as a GSC Current Research article in early 2008. The work forms part of Ms. Breitsprecher's Ph.D. studies at UBC.

FOR MORE INFORMATION, PLEASE CONTACT:

Katrin Breitsprecher University of British Columbia kbreitsp@eos.ubc.ca www.geosciencebc.com/s/2006-018.asp

Relational Rock Property Database for BC

This project, led by Tom Lane of CAMIRO, has assembled over 900,000 rock property records for BC, many of which come from well logs with up to 14 measured parameters. This data is widely spread throughout the province, and will be essential for constraining the interpretation of regional geophysical surveys. A one-day workshop has been organized for January 27, 2008 at the Mineral Exploration Roundup in Vancouver on the "Extraction of Geology from Geophysics", where the attendees will learn about the application of rock property data to exploration.

FOR MORE INFORMATION, PLEASE CONTACT:

Tom Lane CAMIRO tom.lane@sympatico.ca www.geosciencebc.com/s/2006-015.asp Mel Best in front of the solar panel and box containing the 12 V battery, the seismic recording instrument and the GPS receiver used in the mapping of microearthquakes. Photo by Mel Best.

Passive Seismic Transmission Tomography

Microearthquake mapping is a possible alternative to using active seismic exploration to understand the structures and rock types. Microseismic, Inc. and Bemex Consulting International completed a two month long reconnaissance study in the Nechako Basin in late 2006, which was cofunded by Geoscience BC and the BC Ministry of Energy, Mines and Petroleum Resources. Results are due for release in early 2008.

FOR MORE INFORMATION, PLEASE CONTACT:

Chris Neale Microseismic, Inc. cneale@microseismic.com www.geosciencebc.com/s/2006-004.asp



Geoscience BC Publications

All Geoscience BC Publications and Data Releases can be found on our website at www.geosciencebc.com/s/DataReleases.asp.

Geoscience BC Report 2006-1

(also BCGS Paper 2006-1) Geological Fieldwork 2005 (contains 13 papers on 2005 Geoscience BC project activities, various authors)

Geoscience BC Report 2006-2

(also GSC Open File 5332) Apatite Fission Track Data for 29 Rock Samples from the Southern Bowser Basin Region, BC by P.B. O'Sullivan, R.A. Donelick, and C.A. Evenchick

Geoscience BC Report 2006-3

(also MEMPR GeoFile 2006-8) ASTER Imagery for BC – An Online Exploration Resource by W.E. Kilby and C.E. Kilby

Geoscience BC Report 2006-4

(also MEMPR GeoFile 2006-11) Drainage Sediment and Water Geochemical Surveys in the Anahim Lake and Nechako River Map Areas (NTS 093C and F) Central BC by *W. Jackaman*

Geoscience BC Maps 2006-1 and 2

(also GSC Open File 5387 and 5386) Geology, Tesla Lake (93E/02), BC and Geology, Foresight Mountain (93E/03), BC by S.M. Gordee, J.B. Mahoney, R.L. Hooper and J.W. Haggart

Geoscience BC Maps 2006-3-1 through 16 and 2006-4-1 through 16

(also GSC Open Files 5351 – 5382) Residual total magnetic field and First vertical derivative of the magnetic field, Jennings River aeromagnetic survey, BC, various map sheets by *R. Dumont, J. Potvin* and *F. Kiss*

Geoscience BC Report 2007-1

(also BCGS Paper 2007-1) Geological Fieldwork 2006 (contains 23 papers on 2006 Geoscience BC project activities, various authors)

Geoscience BC Maps 2007-3-1 through 9 (also GSC Open Files 5488-5490, 5492-

5496, 5504) Geophysical Series – Bonaparte Lake East, BC by R. Dumont, J. Potvin, J.M. Carson, B.J.A. Harvey, R.B.K. Shives and K.L. Ford

Geoscience BC Maps 2007-4-1 through 8 (also GSC Open Files 5491, 5497-5503) Geophysical Series – Bonaparte Lake West, BC by M. Coyle, R. Dumont, J. Potvin, J.M. Carson, J.L. Buckle, R.B.K. Shives and B.J.A. Harvey

Geoscience BC Report 2007-5

(also MEMPR GeoFile 2007-3) Skeena Arch Metallogenic Data and Map (093E, L, M, L; south half of 094D, east half of 103I and southeast corner of 103P) by D.G. MacIntyre

Geoscience BC Report 2007-6

Regional Drainage Sediment and Water Geochemical Data: South Nechako Basin & Cariboo Basin, Central BC (parts of NTS 92N, O, P, 93A & B) by *W. Jackaman*

Geoscience BC Report 2007-7

Final Report on Results of the Cordilleran Geochemistry Project: A Comparative Assessment of Soil Geochemical Methods for Detecting Buried Mineral Deposits – 3Ts Au-Ag Prospect, Central BC by *S.J. Cook* and *C.E. Dunn*

Geoscience BC Report 2007-9

Geoscience BC MPB Data Repository Version 1.0 by *W. Jackaman*.

Geoscience BC Report 2007-10

Halogens in Surface Exploration Geochemistry: Evaluation and Development of Methods for Detecting Buried Mineral Deposits by C.E. Dunn, S.J. Cook and G.E.M. Hall

Geoscience BC Maps 2007-11-1 through 4

(also GSC Open Files 5585 to 5588) Geology, Tahtsa Peak (93E/12), BC; Geology, parts of Chikamin Mountain and Troitsa Lake (93E/06 and 11), BC; Geology, Tsaytis River (93E/05), BC and Geology, Kitlope Lake (east part) (93E/04), BC by J.B. Mahoney, J.W. Haggart, R.L. Hooper, L.D. Snyder and G.J. Woodsworth

Geoscience BC Report 2008-1

Geoscience BC Summary of Activities 2007 (contains 16 papers on 2007 Geoscience BC project activities, *various authors*)



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Wayne Roberts Badger and Co.

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Hans Smit Grayd Resource Corporation

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Christa Sluggett Project Geologist and Communications Coordinator

Stephen Williams Information Specialist

Lauren Elliott Office Manager and Executive Assistant

Rhonda Schultz Accountant and Corporate Secretary



Our Top Ten Exploration Geoscience Grad Students Working in BC

Geoscience BC awarded ten scholarships for \$5,000 to students across Canada and in Australia in 2007.

The scholarships were open to students registered in a Masters (MSc) or Doctorate (PhD) program in a Canadian university, or to Canadian students registered in a MSc or PhD program in a university outside of Canada, and working on a mineral or oil and gas exploration-related topic in BC.

Applicants were scored based on their education and work experience, their thesis project, career goals and aspirations, as well as the remarks from their references. They were reviewed by a panel of geoscientists from industry and academia. Preference was given to applicants whose projects were deemed to have the greatest potential benefit to exploration in BC and whose research and career interests are primarily directed towards the exploration sector, either mineral or oil and gas.

For more information about scholarship opportunities, please visit our website at www.geosciencebc.com.

Did you know?

The application deadline for the 2008 Geoscience BC Scholarship is April 30, 2008

Adam Bath PhD student, University of Tasmania

Adam's PhD project aims to answer a number of key questions relating to the transportation and deposition of Cu within the Mount Polley and Lorraine alkalic porphyry deposits.

Future work will focus on sulfate and primary and secondary fluid inclusions within apatite to better understand the composition and trapping temperature of fluids that were associated with apatite crystallization and ore-deposition.



Scott Blevings MSc student, University of British Columbia

Scott's studies are based on several suspected porphyry and epithermal mineral occurrences which are located proximal to the contact of the Coast Plutonic Complex, within the southeast Coast Belt.

The goals of the first phase of this project have been to (1) characterize the geology and structures of the Taseko Lakes Area, and (2) place age constraints on identified lithologies and faults in the project area. The goals for the second phase of research, will be to (1) characterize the alteration and mineralization of three separate mineral occurrences in the area and (2) determine any genetic relationships between the occurrences, the major faults in the area and the Coast Plutonic Complex.



Katrin Breitsprecher PhD student, University of British Columbia

Katrin's PhD project bridges the petrologic and tectonic scales of study of convergent margins at the Mesozoic Canadian Cordillera type-setting for crustal growth by accretionary tectonism.

The project will apply geochemical and isotopic analyses to address a series of objectives, one of which is to identify the primary magmatic source(s) for the metallogenic components of porphyrymineralized Mesozoic arc magmatism of the Quesnel terrane.



Jacqueline Dohaney MSc student, University of British Columbia

Jacqueline's project involves the Neogene Chilcotin Group (CG) volcanic rocks located in south central BC and covering approximately 36,500 km² of Mesozoic and Paleozoic basement rocks.

The project will include mapping, collecting field geophysical data, and sampling of the CG throughout its known extent in southern BC.





Karin Fecova MSc student, Simon Fraser University

Karin's project is titled *Mineralization*, *tectonics and geology of Nootka Sound area.* The major research focus of her thesis is the development of an updated geology map and tectonic setting for the Nootka Sound region on Vancouver Island coupled with a detailed study of newly discovered layered ultramafic units within the Jurassic Island Intrusive Suite.



Jean-François Gagnon PhD student, University of Alberta

Jean-François' project consists of evaluating the timing and nature of subsidence of the Jurassic-Cretaceous Bowser Basin in northwestern BC. Understanding the basin forming mechanisms is critical for evaluating its petroleum potential.

The aim of this research is to provide fundamental inputs for modelling the subsidence and thermal history of the basin, aimed at improving understanding of basin development, and basin evolution.

David Gardner MSc student, University of Victoria

David works as a part of the Targeted Geoscience Initiative – 3 (TGI-3) in southern BC on tectonics, stratigraphy, sedimentology, structural geology, geochronology, and basin analysis of the Upper Purcell Supergroup.

David's research is focused on understanding the tectonic and depositional history of the Mesoproterozoic Belt-Purcell Basin, a 15-20 km thick sedimentary sequence that straddles the Canada-US border in western North America.



Janina Micko PhD student, University of British Columbia

Janina's PhD research is part of a joint project between MDRU (Mineral Deposit Research Unit, UBC) and CODES (Centre for Ore Deposit Research, UTAS) investigating alkalic porphyry deposits which are typically enriched in Au, Ag, and Cu and can have large tonnages (deposit or district scale), making them economically attractive.

Janina's project is focused on understanding the hydrothermal evolution NovaGold Resources Inc.'s Galore Creek Deposit in northwest BC.



Heidi Pass PhD student, University of Tasmania

The principal objective of Heidi's PhD project (*Carbonate and Sulphide Zonation Patterns in Alkalic Porphyry and Epithermal Mineral Systems – Implications for Ore Genesis and Mineral Exploration*) is to investigate the geochemistry of carbonate- and sulfidebearing veins and breccia infill within and around two alkalic deposits.

This project contrasts Imperial Metal's Mount Polley deposit with Barrick Gold's Cowal deposit, and provides the first detailed analysis of carbonate mineral chemistry in porphyry systems and the first detailed carbonate mineral zonation study of alkalic mineral systems.

Tyler Ruks PhD student, University of British Columbia

Tyler's research will use geological mapping to establish contact relationships between rock formations and establish the geological setting of VMS and potential VMS occurrences within the Sicker Group on Vancouver Island.

This study will enhance the knowledge of Wrangellian tectonic evolution and metallogeny, and lead to a better understanding of the history of crustal growth in the North American continent.





Financial Statements

for the year ended March 31, 2007 and the period from inception on April 26, 2005 to March 31, 2006

Auditors' Report	24
Statements of Financial Position	25
Statements of Revenues and Expenditures	26
Statements of Cash Flows	27
Statements of Changes in Net Assets	3 28
Notes to Financial Statements	29-32

Auditors' Report

To the Members of Geoscience BC Society

We have audited the statement of financial position of Geoscience BC Society as at March 31, 2007 and the statements of revenues and expenditures, cash flows, and changes in net assets for the year then ended. These financial statements are the responsibility of the society's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we plan and perform an audit to obtain reasonable assurance whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation.

In our opinion, these financial statements present fairly, in all material respects, the financial position of the society as at March 31, 2007 and the results of its operations and its cash flows for the year then ended in accordance with Canadian generally accepted accounting principles. As required by the Society Act (British Columbia), we report that, in our opinion, these principles have been applied on a basis consistent with that of the preceding period.

Vancouver, B.C. June 22, 2007, except as to note 9 which is as of July 11, 2007

"Beauchamp & Company" Chartered Accountants

Statements of Financial Position

As at March 31, 2007 and 2006

	 2007	2006
ASSETS		
Current Assets		
Cash and cash equivalents (Note 3)	\$ 2,014,849	\$ 22,342,873
Temporary investments (Note 4)	18,558,520	-
Accrued interest receivable	68,416	205,415
Amounts receivable	54,713	10,133
Prepaid expenses and deposits	3,337	6,730
	20 699 835	22 565 151
Equipment (Note 5)	20,099,855	32 586
	 20,492	 52,500
	\$ 20,728,287	\$ 22,597,737
LIABILITIES		
Current Liabilities		
Accounts payable and accrued liabilities	\$ 41,913	\$ 23,316
NET ASSETS		
Net Assets Invested In Equipment	28,452	32,586
Net Assets Restricted For Approved Programs (Note 3)	929,988	815,132
Unrestricted Net Assets	19,727,934	21,726,703
	20,686,374	22,574,421
	\$ 20,728,287	\$ 22,597,737

Approved By The Board:

"James D. Gray" Director

"C.D. ('Lyn) Anglin" Director

Statements of

Revenues and Expenditures

007

For the year ended March 31, 2007

and the period from inception on April 26, 2005 to March 31, 2006

		2007		2000
Pevenuec				
Grants	¢	16 466	¢	25 000 000
Investment income (Note 4)	Ψ	991 7/3	Ψ	636 563
Workshops		3 850		
Funding recoveries (Note 3)		256 129		_
		230,123		
		1,268,188		25,636,563
Expandituras Program Caste				
Program costs incurred		2 520 212		2 584 761
Publishing costs		3/ 135		2,304,701
		54,155		20,002
		2,554,347		2,605,563
Fun and itures Administrative Costs				
Amortization of equipment		10 693		3 501
Communications and marketing		65 654		17 650
Consulting (Note 7)		95 01/		110 505
Dues and memberships		3 910		2 7/9
Equipment lease (Note 6)		3 161		701
Executive recruitment		5,101		56 588
GST non-refundable portion		23 971		9 833
Insurance		7 522		2 862
Investment management fees		23,156		
Management and administration fees (Note 8)				136,754
Office and sundry		16.088		7,533
Professional fees		41.807		18,703
Rent and utilities (Note 6)		42.782		8.573
Salaries and benefits		277.011		46.596
Travel, conferences and meetings		91,547		23,908
Website, internet and e-mail		7.860		10,123
Workshop expenses		10,557		-
		720,733		456,579
(Deficiency) Excess Of Revenues Over Expenditures	\$ (2,006,892)	\$	22,574,421

Statements of **Cash Flows**

For the year ended March 31, 2007 and the period from inception on April 26, 2005 to March 31, 2006

	2007	2006
Cash Provided By (Used For):		
Operating Activities		
Grants	\$ 16,466	\$ 25,000,000
Workshops and recoveries	229,237	-
Investment income	1,107,269	431,148
Payments for program expenditures	(2,554,347)	(2,605,563)
Payments for administrative expenditures	(682,123)	(442,107)
Payments of refundable portion of GST	(23,971)	(9,833)
Receipt of refundable GST	9,833	
Cash (used for) provided by operating activities	(1,897,636)	22,373,645
Investing Activities		
Payments for equipment	(11.874)	(20 772)
Initial nurchases of temporary investments	(18,000,000)	(30,772)
Reinvestment of investment income net	(418 514)	_
	(110,511)	
Cash used for investing activities	(18,430,388)	(30,772)
(Decrease) Increase in cash and cash equivalents	(20,328,024)	22,342,873
Cash and cash equivalents, Beginning of Period	22,342,873	
Cash and cash equivalents, End of Period	\$ 2,014,849	\$ 22,342,873
Cash and each equivalents		
Funds held in treasury account	\$ 114.849	\$ 28.485
GIC investments due within one year	1 900 000	20,405
Gre investments due within one year	1,200,000	22,317,300
	\$ 2,014,849	\$ 22,342,873

Statements of Changes in Net Assets

For the year ended March 31, 2007

and the period from inception on April 26, 2005 to March 31, 2006

					Restricted For				
	Inve	estment	In		Approved				
	E	Equipment			Programs	Un	restricted		Total
Balance, at inception		\$	-	\$		\$	-	\$	-
(Deficiency) Excess of revenues	5								
over expenditures		(3,50)1)	()	2,584,761)	25,	162,683	22,	574,421
Investment in equipment		36,08	37		-		(36,087)		_
Internally imposed restrictions			-		3,399,893	(3,	399,893)		_
Balance, March 31, 2006		32.58	36		815,132	21.	726,703	22.	574.421
(Deficiency) Excess of revenues	5	/				,	,	,	
over expenditures		(10,69	93)	(2	2,520,212)		524,013	(2,	006,892)
Unrealized gain on investments	5		-		-		118,845		118,845
Investment in equipment		6,55	59		-		(6,559)		-
Internally imposed restrictions			_		2,635,068	(2,	635,068)		-
Balance, March 31, 2007	\$	28,45	52	\$	929,988	\$ 19,	727,934	\$ 20,	686,374

Notes to Financial Statements March 31, 2007 and 2006

1. Incorporation and Nature of Operations

Geoscience BC Society ("Geoscience BC" or "the Society") was incorporated under the Society Act (British Columbia) on April 26, 2005 as a not for profit organization. The Society is exempt from taxation under Section 149(1) of the Income Tax Act (Canada). The purpose of the Society is to promote, fund and otherwise support applied geoscience research in British Columbia. The Society had its genesis in the \$25 million funding commitment announced by the government of British Columbia in January 2005, which unrestricted funding was subsequently received and the Society incorporated. The Society has had certain members and directors in common with, and its creation was promoted by, both the Association for Mineral Exploration British Columbia ("AME BC") and the Mining Association of British Columbia. However, the Society operates independently of both organizations and is controlled by a separate board of up to thirteen directors, which also comprises the Society's membership. Although it functions to complement the efforts of pre-existing provincial and federal agencies, Geoscience BC also operates on an arms-length basis from the governments of both British Columbia and Canada.

2. Significant Accounting Policies

Basis of presentation

These financial statements have been prepared in accordance with Canadian generally accepted accounting principles which necessarily involves the use of estimates. The preparation of financial statements requires management to make estimates and assumptions which affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements and the revenues and expenditures for the period reported. Actual results could differ from those estimates. The financial statements of the Society have, in management's opinion, been properly prepared within reasonable limits of materiality, and within the framework of the significant accounting policies summarized below.

Financial instruments

The Society's financial instruments consist of cash and cash equivalents, temporary investments, amounts receivable, and accounts payable and accrued liabilities. Unless otherwise noted, it is management's opinion that the Society is not exposed to significant interest, currency or credit risks arising from its financial instruments. The fair values of the financial instruments approximate their carrying values, unless otherwise noted.

During the current fiscal year the Society adopted, on a prospective basis, new Canadian accounting guidance in respect to the measurement and presentation of certain financial instruments at fair value. Pursuant to these standards the Society's temporary investments have been reported at fair value. Unrealized gains or losses involving instruments other than banker's acceptances are recorded directly in the statement of changes in net assets.

Revenue recognition

The Society follows the deferral method of accounting for contributions. Restricted contributions are recognized as revenue in the year in which the related expenditures are incurred. Unrestricted contributions are recognized as revenue when received or receivable if the amount to be received can be reasonably estimated and collection is reasonably assured. Endowment contributions are recognized as direct increases in net assets. Restricted investment income is recognized as revenue in the year in which the related expenditures are incurred. Unrestricted investment income is recognized as revenue when earned.

Notes

to Financial Statements March 31, 2007 and 2006

(cont'd)

2. Significant Accounting Policies (cont'd)

Donated materials and services

Donated materials and services are recorded only when a fair value can be reasonably estimated and when they would be paid for by the Society if they had not been donated.

Contributed services

Significant volunteer labour is contributed to assist the Society in carrying out its activities, but is not recorded in the Society's financial statements due to the difficulty of determining the fair value of those services.

Cash and cash equivalents

Cash and cash equivalents consist of cash on deposit with banks and other financial institutions, and highly liquid short-term interest bearing securities that are readily convertible to known amounts of cash. As at March 31, 2007, the Society's term investment had an effective annual interest rate of 3.9%, and was due April 27th, 2007.

Equipment

Equipment purchases made by the Society are capitalized and are recorded at cost less accumulated amortization. Amortization is recorded as disclosed in note 5 on a straight-line basis, commencing in the quarter of acquisition, as follows:

Computer equipment	3 years
Furniture and office equipment	5 years

3. Restricted Net Assets

At March 31, 2007, the Society's net assets are subject to future obligations aggregating \$929,988 (2006 – \$815,132), representative of undisbursed but approved funding commitments, payment of which is contingent upon the Society receiving acceptable deliverables from these projects in accordance with executed agreements. These internally restricted amounts are not available for other purposes without the approval of the Society's Board of Directors.

Recipients of funding from Geoscience BC are required to account for the expenditure of all monies received, and Geoscience BC reserves the right to request documentation to support the reported expense breakdowns. Unspent funds, including GST input tax credits subsequently recovered by recipients but based on the expenditure of Geoscience BC grants, are to be returned to the Society. During the current fiscal year the Society received an aggregate of \$75,709 (2006 – \$nil) of such recoveries, which are included within the Society's unrestricted net assets. No predictions of future recoveries can be accurately made at this time and therefore funding recoveries are recorded at the earlier of the date of receipt and the date that a recovered amount becomes determinable.

During the current year, Geoscience BC recovered an aggregate of 180,420 (2006 - nil) from third parties in connection with the partial reimbursement of program costs incurred by the Society.

Also during the current fiscal year, the Society committed to funding, on an annual basis, up to ten graduate-level bursaries of \$5,000 each to qualifying students performing mineral or oil and gas exploration-related research in British Columbia. Accordingly, the first annual disbursement of these monies has also been considered to be internally-restricted at March 31, 2007.

Refer to Note 9.

Notes to Financial Statements March 31, 2007 and 2006

(cont'd)

4. Temporary Investments

During the current fiscal year, the Society's board elected to invest an aggregate of \$18.0 million in temporary investments other than cash. Accordingly, \$8.0 million was invested in banker's acceptances which initially matured at three, six and twelve month intervals and which are readily convertible to cash at any time at market values. A further \$10.0 million was invested in various pooled private equity funds under the discretionary management of Connor, Clark and Lunn Private Capital Ltd. ("CC&L"), and subject to a Statement of Investment policy between the Society and CC&L. These monies are also readily convertible to cash at any time without penalty.

	Cost*		Market value
Banker's acceptance, RBC, due April 25, 2007 Banker's acceptance, TD, due July 30, 2007	\$ 2,291,501 3,099,927	\$	2,290,918 3,097,854
Banker's acceptance, RBC, due October 19, 2007	 2,745,266		2,741,967
	\$ 8,136,694	_	8,130,739
Connor, Clark and Lunn aggregate portfolio,			
at market value			10,427,781
		\$	18,558,520

*Inclusive of accumulated provisions for amortized discounts calculated on a straight-line basis. In a non-volatile interest rate environment the adjusted cost – market differential in respect to banker's acceptances is typically nominal; accordingly, the aggregate difference above is included in current operations and not separately disclosed.

Investment income is comprised as follows:

	2007	2006
Interest earned on cash equivalents/		
banker's acceptances	\$ 658,261	\$ 636,563
Reinvested income distributions	312,009	-
Realized investment gains	21,473	-
Unrealized investment gains	118,845	-
Aggregate investment income	1,110,588	636,563
Less: unrealized gains reported in		
Statement of changes in net assets	(118,845)	
Income reported in Statements of		
Revenues and Expenditures	991,743	636,563

5. Equipment

	Net Book Value at March				
	Cost	Accumulated Amortization	2007	2006	
Computer equipment	\$ 24,758	\$ 9,958	\$ 14,800	\$ 17,099	
Furniture and office equipment	17,888	4,236	13,652	15,487	
	\$ 42,646	\$ 14,194	\$ 28,452	\$ 32,586	

Notes

to Financial Statements March 31, 2007 and 2006 (cont'd)

6. Contractual Obligations

The Society has a base rental commitment relating to the lease of its office premises, inclusive of monthly charges in respect to operating and common area costs and property taxes, totalling approximately \$133,000 to January 31, 2011. The Society also has a commitment relating to the lease of its photocopy equipment totalling \$10,517 to November 17, 2010.

Pursuant to a contract of employment with its President and Chief Executive Officer, the Society would be committed, in the event that it terminates its employment of this individual without cause, to pay \$155,000 in termination benefits. In addition, the President and Chief Executive Officer may terminate employment with the Society at any time by providing three months written notice.

7. Related Party Transactions

During the period ended March 31, 2006, the Society paid \$92,500 to a private company controlled by a now former director of the Society for management and consulting services.

8. Administrative Services Contract

During the period from incorporation to December 31, 2005, the Society paid AME BC an aggregate of \$136,754 pursuant to a contract based on a sliding-scale percentage of program grants distributed by the Society to that date. The contract was inclusive of accounting and legal services, the provision of office rent and meeting space, and other management services rendered by AME BC staff to the Society during its initial start up phase.

9. Subsequent Events

During the period subsequent to March 31, 2007:

- The Society approved and disbursed the ten scholarships of \$5,000 each that are disclosed in note 3. In addition, the Society approved an additional \$157,000 in funding for two previously approved programs.
- Geoscience BC announced the Quesnellia Exploration Strategy ("QUEST"), pursuant to which its board of directors has approved approximately \$4.25 million to be spent directly by the Society on regional geophysical and geochemical exploration programs in the area of the Mountain Pine Beetle infestation in central British Columbia. In addition, Geoscience BC has also received a commitment of \$750,000 from the Northern Trust, a non-profit organization established by the British Columbia government in 2004 to support regional economic development in north-central BC, in connection with the funding of this work in two specific areas near Mackenzie, BC.



Geoscience BC is an industry-led, industry-focused not for profit society that works to attract mineral and oil and gas investment to British Columbia through collection and marketing of geoscience data.

Geoscience BC operates independently from government.

Looking east at extensive exposures of Jackass Mountain Group sedimentary strata in northern Namaia Range on southwest margin of Nechako Basin. Photo by Peter Mustard



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