



PRESIDENT'S MESSAGE - Carl Verley

Winter may not be over yet, but there is a definite spring in most geologists' stride these days. At long last it looks as if the stage is set for a renaissance in the geosciences – although I suspect this has been going on for quite a while. Metals prices have definitely helped. But not a day goes by when one reads of some aspect of geoscience that touches our lives. From natural hazards in the Whistler area to recently discovered dinosaur foot prints in the Tumbler Ridge area to the use of geomorphology in identifying “clam gardens” in the Broughton Archipelago (Vancouver Sun Oct. 25, 2003) and their archaeological significance and social impact. Of course Canadian diamonds still garner significant press. The renewed interest in geoscience issues will spill over to more opportunities for graduates in a variety of geoscience fields.

The past few months have been quite eventful in the local community. The BC Securities Commission held a well-attended workshop covering NI 43-101 issues that impact on those of us confronted with (or possibly confounded by) reporting on resource properties for public companies. Both UBC and SFU have continued seminars and talks on a variety of geoscience topics. And the MEG again hosted a successful short course in early December: “Exploration and Ore Forming Systems”. This will complement this year's GAC-MDD Howard Street Robinson Lecture, which will be presented by Dr. John Thompson.

January 04

John will be presenting “Ore Systems Science: Variations in Tectonic, Magmatic and Fluid Processes” February 26 at the Labatt Theatre, SFU Harbour Centre Campus at 3:30 pm – for more on this see the notice further on in this Newsletter.

The Section's website is currently down. We apologize to those of you who are used to getting their Newsletter via the web - but it will be back very soon!

From time to time the Section has received enquires regarding possible events to hold, workshops or short courses to put on. Several of these include: a Gemstone Workshop, a discussion group on the economics of small, high grade precious metal mines and social events to bring geologists in the lower mainland together. We will be circulating a questionnaire in the near future to canvas members on these and other issues. Please make your concerns and interests know to us so we can better serve you.

GSC Update - Steve Irwin

The Geoscape Canada poster, a map of Canada's earth materials, received two honours from Environmental Systems Research Institute Inc.(ESRI), the world's largest GIS and mapping software company. It has been selected by ESRI Canada to be one of the featured maps in “Map Gallery 2004,” their annual calendar. The poster was selected from over 50 map submissions. Last summer Geoscape Canada placed fourth out of 90 submissions in the “Integrated Data” category at the ESRI International User Conference Map Gallery competition. The poster, by Bob Turner and Nicky Hastings (GSC Vancouver) and John Clague (GSC Emeritus), is an important public outreach product for the GSC and Earth Science Sector. Several regional Geoscape and



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Waterscape poster projects are planned for release in the next year.

On a recent trip to Northern British Columbia, Dr. Carol Evenchick (GSC) met with non-traditional clients in the communities of Terrace and Houston. She described geoscience work being done in their area, in collaboration with the B.C. Ministry of Energy and Mines, and how it could help kick-start the local economy. Dr. Evenchick participated in a live local radio interview, met with a group of Councillors from the City of Terrace and the Executive Director of the Terrace Economic Development Authority (TEVA), and delivered a luncheon talk to the Terrace Chamber of Commerce ("New Insights on the Petroleum Potential of the Bowser and Sustut Basins"). A similar presentation was given to the mayor and council members of the District of Houston Council, 250 km east of Terrace. The work in the Bowser Basin is to identify new northern prospects and stimulate exploration. These along with Dr. Evenchick's outreach efforts to inform northern communities about geoscience employment possibilities are all targeted outcomes of the Northern Resources Development Program.

GSC Vancouver field activities included a large multi year collaborative project in the Bowser/Sustut Basin area lead up by Carol Evenchick. The project is developing the geoscience knowledge base for the area to assist in defining the hydrocarbon potential of these frontier basins. Other collaborative field projects that were launched or augmented this year as part of the Targeted Geoscience Initiative II included work by Bob Anderson and Kirstie Simpson in the Atlin Eskay Creek areas and Jim Haggart in Bella Coola map area. Steve Gordey and Jim Ryan completed fieldwork in the Stewart River area this past summer and plan for final compilation and write-up in 2004-2005.

In Prime Minister Martin's new cabinet John Efford (MP Bonavista-Trinity-Conception, Nfld.) has been named the minister for Natural Resources Canada replacing Herb Dhaliwall.



SFU Update

Simon Fraser University has two new members to its faculty of Earth Science. Brian Coffey has come aboard as Assistant Professor, Carbonate Stratigraphy and Petroleum Geology. Dr. Coffey completed his PhD at Virginia Polytechnic Institute and State University (1999) and then worked as a senior geologist for Exxon Mobil ExxonMobil Upstream Research Company (Houston, TX). His research interests include: variations in carbonate sequence development in tropical and non-tropical settings. These differences help to better predict the distribution of potential hydrocarbon and water resources in the subsurface. He is also interested in using chemical and isotopic signatures in carbonates to reconstruct paleoclimatic and eustatic variations in the rock record. He prefers integrated studies that utilize outcrop and various subsurface datasets to provide broad-scale stratigraphic reconstructions.

Glyn Williams-Jones has joined the SFU faculty as assistant professor of volcanology. Dr. Williams-Jones completed his doctoate at The Open University and has conducted postdoctoral work at the OU and the Hawai'i Institute of Geophysics and Plaetology SOEST, University of Hawaii at Manoa. His current reseach interests are: incorporation of near-real time GOES and Modis images with gas-flux and gravity data to study Fuego volcano (Guatemala). Investigation of the environmental impact of persistent degassing at Masaya (Nicaragua), Poás (Costa Rica), and Kilauea volcanoes using Landsat TM and ground-based data. Field measurements of micro-gravity and SO2 gas flux data at Masaya, Poás and Kilauea volcanoes. Development and application of theoretical models relating gravity and height change to the study of calderas in a state of unrest.

Congratulations to Kevin Treptau who has just been named the 2004 Canadian Society of Petroleum Geologists medalist for best Canadian M.Sc. thesis concerning sedimentology and petroleum geology. Kevin recently completed his thesis at SFU.



UBC Update - Stuart Sutherland

Hot off the Press

Eberhardt, E., Stead, D. and Coggan, J.S. (2004). Numerical analysis of initiation and progressive failure in natural rock slopes - the 1991 Randa rockslide. *International Journal of Rock Mechanics and Mining Sciences*: 41 (1), 69-87.

Hearn, E.H., 2003 What can GPS Tell us About the Dynamics of Postseismic Deformation?, *Geophys. J. Int.*, 155, 753-777.

Doucet S., Weis D., Scoates J.S., Debaille V., Giret A. (2004) Geochemical and Hf-Pb-Sr-Nd isotopic constraints on the origin of the Amsterdam-St. Paul plume and the relatively high $^{206}\text{Pb}/^{204}\text{Pb}$ component in Amsterdam-St. Paul hotspot basalts. *Earth Planet. Sci Lett.*, 218, 179-195.

Barling J., Anbar A.D. (2004) Molybdenum isotope fractionation during adsorption by manganese oxides *Earth Planet. Sci Lett.* 217, 315-329, 2004.

Seminars at UBC

Is Earth a Living System?
Thursday, January 29, 2004 at 12:30 PM
EOS-Main, Room 330-A Kurt Grimm, Earth and Ocean Sciences, UBC

An Experimental Study of Thermochemical Sulfate Reduction
Friday, January 30, 2004 at 4:00 PM
EOS-Main, Room 330-A
James Thom of Earth and Ocean Sciences, UBC

UBC Student-Industry Night

The G.M. Dawson Club at UBC organized an Industry-Student night November 12, 2003. The event was well attended by not only students but a variety of industry types. Brian Butterwoth of Western Keltic Mines Inc., Tom Schroeter of the BCGS, Lena Brommeland of Hunter Dickinson Inc. and Jim Mustard of Haywood Securities all gave brief presentation on their experiences in the mining-exploration industry and the opportunities there. Ample beer and pizza made the gathering an excellent opportunity for the industry types to check out the latest crop of undergraduate talent coming out of UBC.

Melissa Zack and Diane Hanano of the Dawson Club gave a presentation on the Western Inter-University Geology Conference and fund raising efforts for this event that was held January 9 to 11, 2004. Phu Van Bui, Dawson Club President, thanked speakers and participants for coming out this the event.

Pacific Museum of the Earth at UBC - Kirsten Parker

As the new year opens, the Pacific Museum of the Earth is starting work on several new projects. Most significantly, we have begun rebuilding the Pacific Mineral Museum Society membership list.

The Pacific Mineral Museum Society (soon to change its name appropriately) is a group of people interested in supporting the museum and keeping up-to-date with changes and other news. For a small fee, members receive a quarterly newsletter, a 10% discount in the museum shop, and invitations to special events. If you'd like to become a member, please visit our website (<http://www.eos.ubc.ca/public/museum/index.html>) and go to the "Support" page.

The second big project of the new year is the move of the gift store and the establishment of the Teacher,s Resource Centre. The first step in this process is to obtain a security assessment of the proposed future location of the shop. When that is complete we will evaluate our financial resources and determine a more concrete timeline for the changeover.

Smaller projects include the development of additional tours and new displays. The PME currently offers only one tour, the content of

which is general geological knowledge. With the return of the beautifully refurbished seismic centre, we plan to add a tour focused specifically on seismic events and geophysics. Depending on the progress of the courtyard renewal project, we may also add a courtyard tour to the roster.

It's going to be an exciting year!

Kirsten Parker
Curator
Pacific Museum of the Earth
<http://www.eos.ubc.ca/public/museum/index.html>

Joint Universities Field Trip

Following the great success of the first joint BC Universities trip to Scotland plans are now underway for other field excursions. In addition to Scotland it has been proposed that Santorini could be a possible destination. Watch this space for further developments or contact Dr. Stuart Sutherland (ssutherland@eos.ubc.ca) or

Dr. Dan Marshall (marshall@sfu.ca) if you would like to be involved.

Brown Bag discussion Group

Brown bag discussions started the Fall season on December 16, 2003 with Bill Morton of Eastfield Resources Ltd. giving an update on exploration of the Lorraine porphyry Cu-Au deposit north of Fort St. James B.C. As Bill pointed out Lorraine is one of a family of alkaline Cu-Au porphyry systems in B.C. that is being re-evaluated because of the recent upsurge in copper and gold prices. Recent exploration has revealed new areas that are open to future testing as well as new targets on the property.

Steve Gordey of the GSC gave an excellent demonstration of the use of the Palm Pilot for collecting field data, January 8, 2004. Steve pointed out the use of Pendragon forms software in setting up data collection tables. Information collected is then moved into Microsoft Access from where it can be exported to most GIS programs for map

GEOLOGICAL ASSOCIATION OF CANADA MINERAL DEPOSITS DIVISION PRESENTS

2004 HOWARD STREET ROBINSON LECTURE

February 26, 2004 at 3:30 pm
Labatt Theatre
(Room 1700)
SFU Harbour Centre Campus,
515 West Hastings Street

Sponsors: GAC
Cordilleran Section and
Simon Fraser University

CORDILLERAN SECTION
GAC
GEOLOGICAL ASSOCIATION OF CANADA



Dr. John F.H. Thompson

Ore Systems Science: Variations on Tectonic, Magmatic and Fluid Processes

Abstract

Exploration for and study of mineral deposits requires the understanding of many aspects of earth science – an "ore system science" approach. Examples of three ore systems – porphyry Cu±Mo±Au, iron oxide Cu-Au and VMS – will be used to illustrate the varying roles of tectonics, magmas and fluid processes in their formation. The relationship between genetic processes and the spatial and temporal distribution of these deposit types will be discussed. Understanding of ore systems, such as the examples used here, contributes to the understanding of broader earth processes. From the applied perspective, the recognition of broad far-field processes increases the scale of the exploration target and the ability to rank areas.

John F.H. Thompson holds MSc and PhD degrees in geology from University of Toronto, and has worked in the mineral exploration sector and academia for over 25 years. He is presently the Chief Geoscientist for Teck Cominco Limited in Vancouver, B.C. and an adjunct professor at University of British Columbia. He is well known for his research in magmatic-hydrothermal ore-forming processes and has supervised and mentored many students as the Director of the Mineral Deposits Research Unit at UBC from 1991-1998. He was the 1999-2000 SEG Thayer Lindsley Lecturer and the 1993 MDD-GAC William Harvey Gross Medal Winner.

MINERAL EXPLORATION ROUNDUP 2004



WESTIN
BAYSHORE
RESORT &
MARINA
VANCOUVER,
CANADA
JANUARY 26 - 29,
2004

Roundup website:

<http://www.bc-mining-house.com/rdup2004/roundupoverview.htm>

production. Steve described not only the strong points of the system, but also the shortcomings of the graphics and memory. However, he admitted that he was sold on the method and would not go back to the manual system of note taking. Other participants in the audience commented on the use of other PDA's and software such as ESRI's ArcPad to accomplish the same thing. The conclusion was that while the technology is still in the early growing stages it will be a must for geologists to be able to digitally record location and observational data in the field for later transfer to a variety of mapping programs – with the hope that the “later transfer” may some day become a real-time event.

March 16: Dr. Kristie Simpson of the GSC will lead a discussion on the recent work that has been completed at the Mt Meager volcanic complex. GSC Boardroom 1501 – 605 Robson Street, 12 noon

EVENT CALENDAR:

January 26 - 29: Mineral Exploration Roundup
 roundup2004@chamberofmines.bc.ca

February 11: MEG Luncheon, Hyatt Regency Hotel: Kinross Gold “Emanuel Creek Gold Deposit, Washington State”

February 12: UBC Colloquia, 4:00 pm, EOS-Main, Room 330-A. Alan Wainwright of Earth and Ocean Sciences, UBC: Structure and Stratigraphy of the Oyu Tolgoi Cu-Au-(Mo) porphyry deposit, South Gobi region, Mongolia.

February 13: UBC Colloquia, 4:00 pm, EOS-Main, Room 330-A. Alan Wainwright of Earth and Ocean Sciences, UBC: Structure and Stratigraphy of the Oyu

Tolgoi Cu-Au-(Mo) porphyry deposit, South Gobi region, Mongolia.

February 25: MEG Luncheon, Hyatt Regency Hotel: Mike McInnis, Gateway Gold “Exploration of Big Springs and Island Mountain Gold Properties in Nevada”

February 26: GAC-MDD Howard Street Robinson Lecture: Dr. John Thompson, Teck-Cominco: Ore Systems Science: Variations on Tectonic, Magmatic and Fluid Processes, Labatt Theatre, SFU Harbour Centre, 3:30 pm

March 2: MEG Luncheon, Hyatt Regency Hotel: Ken Shannon, Corriente Resources “Mirador Copper Porphyry Project, Ecuador”

March 7 — 10: Prospectors and Developers Annual Conference: Toronto

March 16: GAC-CS Brown Bag Discussion Group: Dr. Kristie Simpson of the GSC will lead a discussion on the recent work that has been completed at the Mt Meager volcanic complex. GSC Boardroom 1501 – 605 Robson Street, 12 noon

March 24: MEG Luncheon, Hyatt Regency Hotel: Moira Smith, Teck Cominco Ltd. “El Limon, A Newly Discovered Gold Skarn Deposit in the Guerrero Gold Belt, Mexico”

March 30- April 1: 2004 Kamloops Exploration Group Conference, Kamloops Best Western, <http://www.keg.bc.ca/news.html>

May 12—14: GAC-MAC Joint Annual Conference: Brock University, St. Catherines, Ontario, www.stcatherines2004.ca

SUMMER STUDENTS

Are you intending to hire students to work as junior or senior geological assistants for the upcoming summer? Whether in mineral exploration, environmental geoscience or any other “earth science” discipline, in the office or in the field, there are competent, intelligent and keen undergraduate students who are seeking experience in your area of interest. Please send your ads to all of the following departments so that they can be posted for the students to respond to.

Earth Sciences

Simon Fraser University
 8888 University Drive
 Burnaby, B.C.
 V5A 1S6

tel: (604) 291-5387
 fax: (604) 291-4198

Earth & Ocean Sciences
 University of British Columbia
 6339 Stores Road
 Vancouver, B.C.
 V6T 1Z4

tel (604) 822-2449
 fax (604) 822-6088

Earth & Ocean Sciences
 University of Victoria
 P.O. Box 3055
 Victoria, B.C.
 V8W 3P6

tel (250) 721 6120
 fax (250) 721 2000

GAC Publications

Geology Tours of Vancouver's Buildings and Monuments

By: P.S. Mustard, Z.D., Hora and C.D. Hansen

This book provides walking, bicycle or driving tours within the cities of Vancouver, West Vancouver and North Vancouver. The book is a "popular science" treatment of the rock types (commonly called dimension stone) used as building material for the major buildings and monuments of the Vancouver area. This includes information on general rock names, fossils, minerals and other interesting geologic features of Vancouver's major buildings. The tours are arranged in a logical order, allowing the reader to guide themselves on any of three downtown Vancouver walking or bicycle tours, or bicycle, public transit, or driving tours of both the South Vancouver area and North and West Vancouver areas. Sixty-five buildings and monuments are included, ranging from Vancouver's earliest major buildings (Sun Tower, Carnegie Hall, etc.) to some of the most recent (Cathedral Place, Terminal City Club, etc.). The main intent is to document the geologic aspects of the dimension stone used, however discussion of the building history of use and changes in both types of dimension stone favoured and

architectural styles also provides a unique way of tracing the historical development of Vancouver and large building construction techniques during the last 110 years.

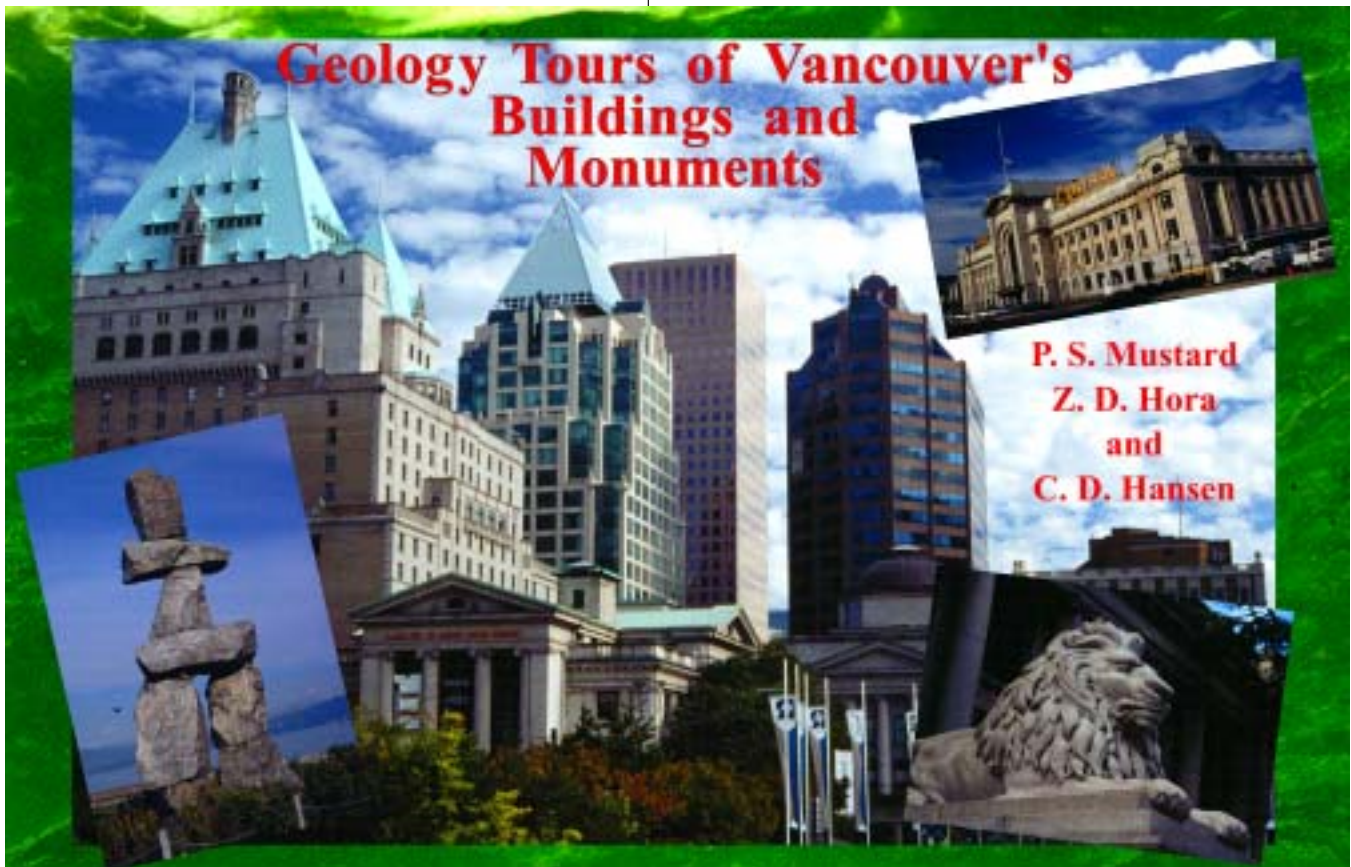
The book includes an introductory chapter summarizing the geological evolution of the local region, a brief introduction to the major rock types commonly used for building stone, a synopsis of the historical evolution of the B.C. rock quarry industry, and also a short primer on dimension stone in general, summarizing briefly the variety of types, finishes, and features of the most common dimension stones, especially those used in the Vancouver area. The tours are keyed to simplified street maps, clearly showing recommended routes and keying buildings to the relevant pages of information on each. A glossary of geological, architectural, and dimension stone terms is provided at the end of the book, along with a list of suggested reading and an index of buildings included in the book.

ONLY \$20 !!

Available from the GAC website (www.gac.ca) or at the GSC Bookstore in Vancouver

Cordilleran Section Field Guides

This very well illustrated guide book contains 6 field trip guides that provide up to date information on a number



of important aspects of B.C.'s geology:

Cordilleran ore deposits (Hoy & Lefebure)
Massive sulphide deposits at Myra falls (Chong et al)
Sedimentology, paleontology, ichnology and
sequence stratigraphy of the Upper Cret. Nanaimo
Grp. (Mustard et al)
Quaternary glaciovolcanism along the Whistler
Corridor (Kelman, Hickson & Russell)
2360 B.P. eruption of Mount Meager (Russell et al)
Critical earth science issues along transportation
corridors in SW B.C. (Clague & Turner)

A revision of the guide book produced for GSA 2000, this edition arrived just in time to fill orders for the previously sold out version. It is totally updated version of the ultimate guide to the southern Cordillera, by the two "world-class" experts on Cordilleran tectonics and evolution. Dense with figures and comprehensive references, this is an invaluable resource for any geologist working in the Canadian Cordillera.

Purchase either publication at the GSC Bookstore in Vancouver or over the web at GAC National (www.gac.ca) or alternatively download an order form from the Section's website:
www.sfu.c/earth-sciences/gac/

MEMBERSHIP

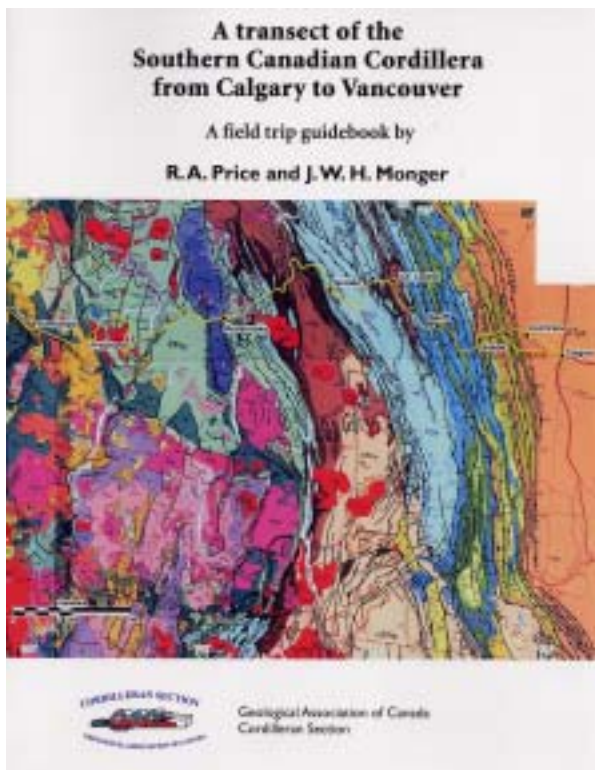
The section was established over 30 years ago in an effort to bring geologists in the Vancouver and lower mainland area together to discuss and debate topical issues. As the group evolved and more geologists settled in the lower mainland the range of events grew from small discussion groups to workshops and short courses as well as symposia.

Objectives:

To advance the science of geology, especially concerning the Cordilleran region. To promote a better understanding of Cordilleran region geological issues among geoscientists and the general public.

Activities:

Workshops: From time to time the Section puts on workshops in the winter or spring – watch our newsletter for upcoming workshops. In the recent past, topics have included:
Diamonds: Theory & Exploration
Cordilleran Tectonics and Mineral Deposits
Yukon-Tanana
Nechako Geology
Introductory Geospanish
Internet for Geoscientists
Mining the Internet



Quality Control Strategies In The Estimation And Classification Of Mineral Inventories

Publications:

The Section sells GAC publications relevant to Cordilleran Members at local conferences. The Section also produces its own publications, including the popular Vancouver Geology. Latest publications include: Geology Tours of Vancouver's Buildings and Monuments and two sets of field trip guidebooks produced for the May 2003 GAC-MAC-SEC meeting held in Vancouver: A transect of the southern Canadian Cordillera: Vancouver to Calgary and Geological Field Trips in Southern British Columbia. A number of exciting, new publications are in the works, including: Geology of the Canadian Cordillera.

Student Members receive discounts on our books, workshops and other activities. Grants are available to qualifying student groups for conferences, formal field trips, and other activities.



JOIN US! ~~~~ Dues Structure for 2004 ~~~~

Mail completed form, with cheque for annual membership dues of \$10 (GST included) payable to Cordilleran Section – GAC, to: P.O. Box 398, Station A Bentall Centre, Vancouver B.C., Canada V6C 2N2

Name: _____
 Renewal New member

Company/Affiliation: _____

Street: _____

City: _____

Province: _____

Postal/Zip: _____

E-Mail: _____

Tel. Office: (_____)

Home: (_____)

FAX: (_____)

Website: <http://www.sfu.ca/earth-sciences/gac/>