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EdGEO

News from the National Workshop Program

Promoting EdGEO Through Affiliated Organizations

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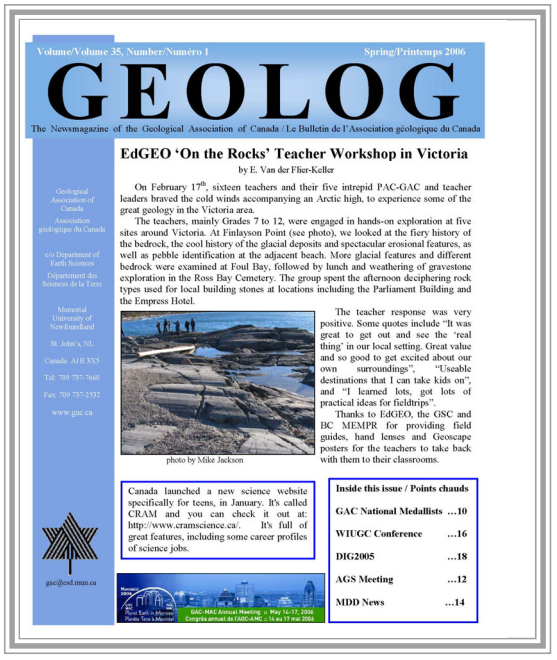
The Geological Association of Canada (GAC) exists to advance geoscience as a profession and as a science. Action and business plans developed by GAC committees in recent years have repeated the need for GAC to increase public awareness of the importance of geology in everyday life. GAC believes that public awareness is a shared responsibility and that collaboration is key. The Canadian Geoscience Education Network (CGEN) helps GAC work in cooperation with other organizations to facilitate initiatives across Canada.

An Outreach Strategy has been developed by GAC. The goal of the strategy is threefold. By increasing the geological knowledge of Canadians we 1) increase their appreciation of the natural world, 2) assist them in making informed decisions regarding resource management, response to geological hazards, and environmental stewardship, and 3) promote the importance of the geoscience professions.

GAC recognizes that most outreach activities begin with the inspired volunteer efforts made at the local level. Through sharing of ideas and provision of resources outreach can be better achieved.

GEOLOG, GAC's quarterly newsletter, plays a role in publicizing and promoting outreach events. As editor of GEOLOG I would like to extend an invitation to participants in EdGEO workshops to submit articles and photos to me for possible inclusion in our newsletter. To download our newsletter visit our website at www.gac.ca/PUBLICAT/geolog.html.

Keep up the efforts in trying to 'rock' our world.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GEOLOG

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EdGEO 'On the Rocks' Teacher Workshop in Victoria

by E. Van der Flier-Keller

On February 17th, sixteen teachers and their five intrepid PAC-GAC and teacher leaders braved the cold winds accompanying an Arctic high, to experience some of the great geology in the Victoria area.

The teachers, mainly Grades 7 to 12, were engaged in hands-on exploration at five sites around Victoria. At Finlayson Point (see photo), we looked at the fiery history of the bedrock, the cool history of the glacial deposits and spectacular erosional features, as well as pebble identification at the adjacent beach. More glacial features and different bedrock were examined at Foul Bay, followed by lunch and weathering of gravestone exploration in the Ross Bay Cemetery. The group spent the afternoon deciphering rock types used for local building stones at locations including the Parliament Building and the Empress Hotel.

photo by Mike Jackson

The teacher response was very positive. Some quotes include "It was great to get out and see the 'real thing' in our local setting. Great value and so good to get excited about our own surroundings", "Useable destinations that I can take kids on", and "I learned lots, got lots of practical ideas for fieldtrips".

Thanks to EdGEO, the GSC and BC MEMPR for providing field guides, hand lenses and Geoscape posters for the teachers to take back with them to their classrooms.

Canada launched a new science website specifically for teens, in January. It's called CRAM and you can check it out at: http://www.cramscience.ca/. It's full of great features, including some career profiles of science jobs.

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EdGEO is coordinated by the Canadian Geoscience Education Network of the Canadian Geoscience Council

Coming to you on the Internet!

Jan Aylsworth, Geological Survey of Canada, Natural Resources Canada, j@nrcan.gc.ca

New, on-line, **Teacher Resource Kits**, to accompany the **Ottawa-Gatineau Geoscape poster and website**, provide teachers with lesson plans and resource materials using examples and data from the local Ottawa region. Individual kits focus on specific geoscape themes; including geological history, bedrock and surface geology, landscapes, mineral and water resources, natural hazards, land-use, and remote-sensing.

The secondary school kits (grades 9/11 geography) consist of a series of hands-on activities, including map interpretation, data analysis and lab experiments, as well as teacher-directed discussion questions, based on the geoscape themes.

The elementary school kits (grade 7 science and geography) include: 1) An overview, accompanied by a list of other web resources; 2) A summary, in point form, of the theme, including maps and diagrams. This component is easily reproduced on overheads, which will allow students to copy notes; 3) A Key Word Game introducing vocabulary from the theme. Glossary is provided; and 4) Lesson plans that include instructions, materials for overheads to be used in a class discussion, student worksheets, and laboratory activities where students will have the opportunity to work hands-on with simulations or models.

Designed to meet the Ontario curriculum for grades 7, 9 and 11, the teachers kits were developed at the Geological Survey of Canada, with the assistance of local teachers, and funding provided by Ontario Ministry of Energy, Science and Technology. Although based on Ottawa, the kits can also be adapted for use in other cities. Teachers may also find that kits for other grade levels can be adapted to their grade.

On May 17th, these teacher resource kits will be available as downloadable files (English and French) on the Geoscape Ottawa-Gatineau website - http://geoscape.nrcan.gc.ca/ottawa/index_e.php.

The International Polar Year

Karen Edwards, Canadian IPY Secretariat, karen.edwards@ualberta.ca

The International Polar Year (IPY) is the largest international research program focused on the polar regions. The first International Polar Year in 50 years, IPY 2007-2008 (www.ipycanada.ca) will involve nearly 60 countries and over 20,000 people from around the world in an intensive international program of coordinated, interdisciplinary science, research and observations over a 24-month period. Research activities will be conducted in both the Earth's polar regions to explore new scientific frontiers, to deepen our understanding of polar processes and their global linkages, and to increase our ability to detect changes. This IPY will more fully involve Arctic residents with research activities and capture the imagination of the public, while attracting and developing the next generation of polar scientists and experts.

The polar regions not only provide a powerful context for science but also for teaching and learning for wide and diverse audiences. Education, outreach and communication for the IPY will addresses the question: "Why are the polar regions and polar research important to all people on Earth?" through a series of nationally and internationally coordinated programs producing an improved understanding of the importance of the poles globally. Teachers from across the globe are getting involved in a range IPY projects from developing polar specific curriculum, resources, teaching technologies and student / scientist research partnerships. Educators have also been participating in the development of international education and outreach programs through workshops such as Integrated Collaborative Education Online Workshop run by the College of Exploration, NOAA, NSF, and CIRES. Workshop results can be accessed at http://www.coexploration.org/ipy.

The Government of Canada (GOC) has contributed $150 million to the development of the Canadian IPY program and a portion of this funding will focus on training, communication and outreach activities for IPY. If you are interested in submitting a proposal please visit the GOC website www.api-ipy.gc.ca for the development of this call for proposals.

If you have any questions about how you and your students can get involved in IPY please feel free to contact the Canadian IPY Secretariat at 780-492-7245 or ipy@ualberta.ca.

Roundup Connects Education and Industry

Sheila Stenzel, Mineral Resources Education Program of BC, stenzel@mining.bc.ca

Students of all ages benefit from connections to real people working in geology and mining to build their understanding of mineral resources development and the people who work in it. Each year for the past three years, the Mineral Resources Education Program of BC (MREPBC) and the Association for Mineral Exploration BC (AME BC) have worked together to build connections by inviting elementary classes learning about geology and mining, and secondary students interested in exploring careers, to AME BC's conference in Vancouver – ***Mineral Exploration Roundup***.

Roundup 2006 hosted four Grade 4 and 5 classes from schools in Burnaby, Delta, and Penticton who, in preparation, created a variety of geology and mining projects to display for the duration of the conference. All 115 children were delegates for a mini-conference filled with fun activities that connected them with geoscientists, reinforced prior knowledge and introduced new things. They explored rock and mineral collections, met with an exploration geologist, were guided through an indicator mineral activity, gold panned with Yukon Dan, and brought a favourite curiosity to the "Stump the Geologist" station. The *Roundup Rockhounds* also went on a guided treasure hunt through the exhibits to find out more about what exploration geologists do and all the people they work with, from pilots to environmental consultants.

On the following day, ***Roundup*** hosted 20 secondary students from 14 schools who were paired with post-secondary student mentors from the geoscience and mining programs at BCIT, SFU, and UBC. Their agenda included attending a technical talk, an introduction to the BC ministry's online Map Place, a diamond exploration activity, a presentation by an exploration geologist, gold panning, and informal talks by the post-secondary student mentors about their programs. The students also explored the exhibits via a treasure hunt that revealed the range of businesses and technologies linked to exploration, and sought answers to questions about occupations and educational requirements.

GeoHazard Awareness Gets Funding

P. Jane Wynne, Geological Survey of Canada, Natural Resources Canada, jwynne@nrcan.gc.ca

There is nothing like a budget to give an activity some credibility! In the Geological Survey of Canada new *Reducing Risk from Natural Hazards Program* there is a new GeoHazard Awareness project that will strive to increase public awareness of our vulnerabilities to natural hazards. Given that the first step in mitigation is education the project is focusing on activities that will help the general public understand the natural hazards that can, and will affect their lives. There are two activities of particular interest to EdGEO-philes. The first is the updating of the Natural Hazard web pages on the Atlas of Canada http://atlas.gc.ca/site/english/maps/environment/naturalhazards to provide richer content and easy links to relevant sites. This website is widely accessed by teachers (K – 12) and used as a resource in university geography and geology courses. The goal is to make these pages a one-stop portal for authoritative multi-hazard information.

The second activity, being led by Jan Aylsworth (GSC in Ottawa), is the development of web-based Teacher's Kits that will complement the Natural Hazard web pages. The kits will contain resources and lesson plans linked to curricula for several grade levels, using local examples wherever possible. If either of these activities tickle your fancy and you would like to get involved (as a content provider or as a critical reviewer) please contact the project leader Jane Wynne (jwynne@nrcan.gc.ca) - no reasonable offer will be refused.

Crystal - Five Nationally Funded Centres to Improve Science and Math Education in Canada

Dr. Eileen Van der Flier-Keller , University of Victoria, fkeller@uvic.ca

Recognising the need for improved scientific literacy in Canada, in 2005, NSERC (Natural Science and Engineering Research Council of Canada) announced that it is funding five centers across Canada, $1 million each over five years, as a pilot project "to conduct research into science and math teaching and learning at the K-12 level and to develop practical solutions to problems in this area". The centres are based at the University of New Brunswick, The Universite de Sherbrooke, the University of Manitoba, the University of Alberta and the University of Victoria.

The Pacific CRYSTAL or Pacific Centre for Scientific and Technological Literacy is based at the University of Victoria and involves 15 researchers from UVic, Simon Fraser University and Malaspina University College working with partners such as the Capital Regional District, several B.C. school districts, the B.C. Ministry of Education, SeaChange Marine Conservation Society and SeaQuarium.

To spark interest in science, Pacific CRYSTAL has organized internship programs for high school students in UVic laboratories, has placed weather stations in local schools, and is involved in offering professional development opportunities for teachers. The center is also co-coordinating several experiential and in-class initiatives on topics including earth science, marine conservation and restoration, meteorology and environmental studies.

CRYSTAL Pacific has provided funds for the EdGEO Education Lab, for student teachers, in a first year earth science course at UVic and will be supporting the research to evaluate the longer-term success of such initiatives.

We'll keep you posted on results and new initiatives!

Edmonton EdGEO Workshops

Dixon Edwards, Alberta Geological Survey, dixon.edwards@gov.ab.ca

A 'Rock On' workshop was given for 20 participants at the University of Alberta Education Centre on Saturday, January 21, 2006. Attendees included working elementary teachers and pre-service teachers from SMESA (Science

Math Education Students Assoc.). The workshop was part of the Science Immersion Workshops for Teachers Conference sponsored by the Edmonton Science Outreach Network. The focus of the conference was to provide 'science beyond the curriculum'. This workshop linked the Alberta Grade 3 curriculum on Rocks and Minerals with hands-on training using specimens as well as examples from rocks around the city: beautiful downtown building stone (with fossils!), river rocks and even pebbles in sidewalk concrete.

Two EdGEO sessions (Rock Walk: a tour through a street museum) were provided to delegates as part of the North Central Teachers' Convention on Feb. 10. An indoor route was available but the weather was so balmy (almost freezing!) that the teachers chose the outdoor route. 'Rock watching' is an enjoyable past-time and these guided tours garnered 'I didn't know that!' comments from many teachers. Building stone is a beautiful (downtown Edmonton is a 'street museum'), durable building material and a mineral resource with historical and world-wide significance. Science (geology), Technology (building and architecture) and Society (art, commerce and history) come together in building stone. The biggest draw is always fossils, and once again the Tyndall Stone fossils were the big hit.

Dixon Edwards is outreach coordinator for the Edmonton Geological Society and the Alberta Geological Survey as well as a long-time organizer and supporter of EdGEO workshops. Dixon ran three workshops during the cold winter months of 2006 in Edmonton; two outdoors!

Greater Vancouver EdGEO Workshop

Erica Williams, Science & Geology Educator, Riverside Secondary School, Port Coquitlam BC, Ewilliams@sd43.bc.ca

The second Greater Vancouver EdGEO workshop for science educators, sponsored by the Cordilleran Section of the GAC, was again held at Riverside Secondary School in Port Coquitlam, April 21st, 2006. The thirty educators were an even mix of grade 7 and grade 10 teachers, with a few of the latter also teaching Earth Science 11 and Geology 12.. After the introductions Pat Johnstone of SFU started by introducing minerals and then giving the teacher groups some unknown minerals to identify. Brett Gilley of UBC then rearranged the groups for his session on rocks – the participants rotated through four stations representing the major rock families and the rock cycle. Erica Williams of Riverside and Adria Williams, a Maple Ridge educator, lead the teachers through volcanic activity including some hands-on experience with a variety of common lavas and pyroclastics. Robbie Dunlop of SFU challenged the teachers with geologic time and fossils. The highlight of this was to locate a fossil on a 25 m time line. The teachers were amazed at how bunched up they were in the Proterozoic compared with Erica standing 23 m away at the origin of Earth. Adria and Erica took them back out into the hallway to demonstrate P and S waves with slinkies, followed by a short role-playing activity modeling P and S waves. The last activities used high tech 'foamies' of different thicknesses, cardboard magnetic fields, and cardboard volcanoes to demonstrate various types of plate boundaries. At the end of the day thirty happy educators went home after an exciting day of learning carrying an armload of resources to support them in their geoscience journey.

The Atlas of Canada - 100 Years of Mapping

Myrna Parker, Atlas of Canada, Natural Resources Canada, mlparker@nrcan.gc.ca

2006 marks the 100th anniversary of *The Atlas of Canada, a* product of Natural Resources Canada. Over the past century, the *Atlas* has mapped the development and evolution of Canada's geography, people, environment and resources. From the opening of the West, to the post-war industrial expansion, to the information age, *The Atlas of Canada* has served as the corporate memory of our country, painting a comprehensive picture of Canada's progress.

The first five editions of the Atlas were printed as books, in 1906, 1915, 1958, 1974 and 1993. The Sixth Edition, launched on the Internet in 1999, was the first electronic on-line atlas in the World. This electronic edition at www.atlas.gc.ca, offers a wide collection of interactive maps, graphics, images and multi-media resources on the Internet.

Canada is a very large country, and the decisions that shape the country are complex and inter-related. Geographic analysis brings together much of the information that is needed to understand the similarities, differences, patterns and diversity of the environmental, economic, social, historical and institutional landscape that Canadians inhabit. Through its maps, *The Atlas of Canada* provides a vital public service, by enabling Canadians to participate in this analysis, appreciate the results and contribute to the decisions.

The Atlas of Canada is especially proud to feature a section whose target audience is the educational community, from elementary school through university. This community includes instructors, students and even parents. The Atlas of Canada offers a complete assortment of classroom-ready lesson plans, developed and written by teachers from all across Canada.

In celebration of its 100th anniversary, *The Atlas of Canada* has developed a series of 100th anniversary products which are featured on the *Atlas* Web. *The Atlas of Canada* is also proud to have its 100th anniversary commemorated through the production of a postage stamp, to be issued by Canada Post on June 30, 2006.

EdGEO 'On the Rocks' Teacher Workshop in Victoria

Dr. Eileen Van der Flier-Keller , University of Victoria, fkeller@uvic.ca

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gravestone exploration in the Ross Bay Cemetery. The group spent the afternoon deciphering rock types used for local building stones at locations including the Parliament Building and the Empress Hotel.

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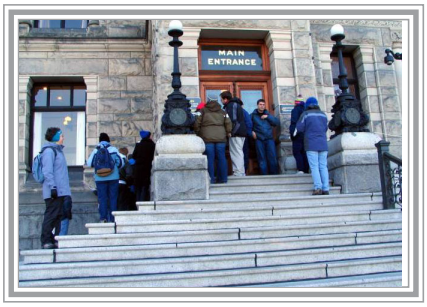

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Thanks to EdGEO, the Geological Survey of Canada and the BC Ministry of Energy, Mines and Petroleum Resources for providing field guides, hand lenses and Geoscape posters for the teachers to take back with them to their classrooms.

EdGEO goes north to Yukon

Godfrey Nowlan, Geological Survey of Canada, Natural Resources Canada, gnowlan@nrcan.gc.ca

Nineteen Yukon teachers from Whitehorse and the smaller communities of Watson Lake and Faro attended a workshop on Earth science based on the new curriculum for grades 8 and 10. The workshop took place on April 21, 2005 at the Beringia Centre (www.beringia.com) in Whitehorse and was presented jointly by the Geological Survey of Canada, Yukon Geological Survey and Yukon Teachers Association. The presentation was based on tried and true EdGEO materials prepared by Bev Ross (Rundle College Junior High School, Calgary) and Godfrey Nowlan of the Geological Survey of Canada in Calgary, but spiced up for the Yukon audience with material from Charlie Roots (Geological Survey of Canada, Whitehorse) and Whitehorse high school teacher Jane Londero (Vanier Secondary School, Whitehorse).

The workshop lasted all day and was split into an indoors hands-on and lecture session and a short field trip. The indoor session took place in the shadow of a mammoth skeleton that graces the main atrium of the Beringia Centre: an inspiring setting. The registrants received a substantial package of materials to assist with classroom instruction including a rock

and mineral set, a fossil set, geoscape posters and other outreach materials on a variety of geoscience topics. The field trip went to visit volcanic rocks erupted between fifteen and nine million years ago in the Whitehorse area, that are cut by the Yukon River at Miles Canyon. The participants went on to see the glacial lake sediments that are exposed in bluffs around the Whitehorse area. In the evening some of the participants convened at Jane Londero's house for some well earned refreshment.

Evaluations of the workshop were very high. One of the participants rated it "the best workshop I have attended in twenty years of teaching". The workshop was conducted under the Northern Resources Development program as part of the project entitled Geoscience Experience for Northern Communities (GENCOM) but it drew extensively on materials and activities developed over many years for EdGEO workshops in Alberta and British Columbia.