



NEW SERIES

Canada Celebrates the International Year of Planet Earth

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INTRODUCTION

This issue of *Geoscience Canada* introduces a new series based on the scientific themes of the International Year of Planet Earth (IYPE). The Canadian National Committee (CNC) of IYPE congratulates the Geological Association of Canada for this initiative and we look forward to reading the articles and using them to assist in our outreach efforts over the next eighteen months. This article is intended to serve as an update on completed, current and planned IYPE projects.

The International Year of Planet Earth (2007–2009) was proclaimed by the General Assembly of the United Nations (UN) on 22 December 2005. This proclamation was the culmination of efforts by the International Union of Geological Sciences and the United Nations Educational, Scientific and Cultural Organization (UNESCO) Earth Science Division, which initiated the project in 2001. The reasons for choosing the UN-route are twofold: first, the proclamation commits the 191 member countries to stimulate national politicians and decision makers to use the earth sciences as means of advancing sustainable development in their countries, and requires that any progress made be reported to the UN. Second, the proclamation provides credibility to

the claim that this initiative is widely accepted by all nations as a worthy endeavour, and will assist in soliciting donors and sponsors for projects that will realize the Year's aims. Nearly 80 nations have established national committees and are ready to celebrate the year. The reader is encouraged to visit the IYPE website [<http://yearofplanetearth.org/index.html>] for more information, including details on founding partners, the scientific themes, the members of the CNC, and more.

OBJECTIVES

The International Year is designed to foster outreach and research activities in the earth sciences with the purpose of raising worldwide public and political awareness of the vast (but often under-used) potential of earth sciences for improving our quality of life and safeguarding the planet. The year provides an unparalleled opportunity for Earth-dwellers to learn more about how our planet works and to celebrate the contributions made by earth sciences to our society.

The objective of IYPE is encapsulated in the tagline 'Earth Sciences for Society'. The International Year of Planet Earth envisages a significantly expanded role for the earth sciences in building a healthier, safer and wealthier society. One objective is to draw attention to the importance of natural resources (energy, mineral, rock and water) to our society and to encourage their sustainable development. A second objective is to reduce risks caused by natural and human-induced hazards, and to reduce human health problems by improving the public's understanding of the medical aspects of earth science. By drawing attention to the importance of earth sciences in society, IYPE hopes to

stimulate interest in the earth sciences within society at large, expand the number of students of earth sciences, increase budgets for earth science-related research, and promote exposure and application of earth sciences to global problems such as climate change, shortage of energy resources and sustainable resource use.

The theme adopted for IYPE celebrations in Canada is: *WHERE on Earth, WHERE in Canada* in which WHERE stands for Water, Hazards, Energy, Resources and Environment. Projects have been solicited from across the country and fundraising has been in progress to provide financial support. Some projects have already been completed and others will be in progress by the time this article appears in print.

TARGET GROUPS

The target groups for projects being run under the banner of IYPE include decision-makers and politicians, who need to be better informed about how earth science knowledge can be used for sustainable development; the voting public, who need to know how earth science knowledge can contribute to a better society; and our education systems, in order to encourage the teaching of important earth-related concepts. A key component of the target public is youth, both directly and through the education system. The Year is also reaching out to earth scientists to encourage them to use and share their knowledge for the benefit of the world's population.

THE LAUNCH EVENT

The official Canadian launch of IYPE took place at the Canadian Museum of Science and Technology in Ottawa on Tuesday 22 April 2008 (Earth Day).

The launch itself was conducted by The Honourable John Baird, Minister of the Environment, Member of Parliament for Ottawa West-Nepean and John Boyd, Chair of the Canadian National Committee for IYPE (Fig. 1). Over 300 local, intermediate and high school students attended an interactive session with leading Canadian earth scientists. The special guest keynote speaker was Steve MacLean of the Canadian Astronaut Program. Science presentations during the morning session included a talk on natural hazards by John Clague of Simon Fraser University, and two presentations from Natural Resources Canada scientists, namely "A Day in the Life of a Geologist" by Alain Plouffe, and a movie critique of the 'Day After Tomorrow' by Ann Therriault.

COMPLETED PROJECTS

Among those projects already completed in Canada is co-sponsorship of a new Canadian Broadcasting Corporation five-part television series called *A Geologic Journey* [www.cbc.ca/geologic]. The series was shown in September and October 2007 and an advertisement for IYPE was shown twice during each broadcast. The advertisement is available for viewing at [www.EarthSciencesCanada.com/iype].

Also released in 2007 were a series of thirty-two fact sheets (Fig. 2), available in both French and English, on mineral and energy resources in Canada. These are available for free download on the Geological Association of Canada website at: [www.gac.ca/populargeoscience], and are a valuable source of simple information on many resources topics. The fact sheets were put together by a team of authors based at the Geological Survey of Canada in Calgary, with contributions from specialists in many institutions.

A poster on the mineral and energy resources required to build and run a snowmobile (Fig. 3) was released in late 2007 by Mining Matters, the educational outreach program of the Prospectors and Developers Association of Canada in association with staff from the Geological Survey of Canada. This handy poster provides information on the minerals required to build a snowmobile and where in Canada and

elsewhere in the world they can be found. It is available on the web at [http://www.pdac.ca/miningmatters/teachers/resources.html].

A recent release is the Northern British Columbia Geological Landscapes Highway Map, a joint project of the BC Geological Survey and the Geological Survey of Canada (BC Geological Survey, Geofile 2007-1); see also [www.geoscape.nrcan.gc.ca]. This is a basic geological map with descriptions of all the key geological regions and a compendium of sixty-eight photographs of a variety of geological localities along the highways of northern British Columbia. The map covers the area from Kitimat and Quesnel north to the border with the territories and includes the Queen Charlotte Islands.

Another example of a successful IYPE project is the GeoTime Trail (Fig. 4). The prototype has been partially completed in the Waterloo region of Ontario, under the guidance of Alan Morgan at the University of Waterloo. The GeoTime Trail is 4.567 km long, the distance corresponding to the age of the Earth at 4.567 billion years. Every metre along the trail represents one million years of geological time and there are interpretive signs at appropriate measured intervals that elucidate local geology in the context of major planetary events. The first part of this trail was opened on 21 October 2007. Additional trails in other parts of the country are planned.

The International Year of Planet Earth is connected with many events that have already taken place in Canada in 2007 and 2008. Notable among these are nine two-hour teacher workshops on earth science, held in Regina and Saskatoon in April 2008. Two hundred and sixty teachers attended these workshops and each participant received a resource binder that included information on IYPE.

Finally, there have been IYPE special sessions held at several earth science conferences in Canada over the past eighteen months. These have ranged from scientific sessions of general interest (as at the Canadian Society of Petroleum Geologists–Canadian Society of Exploration Geophysicists joint meeting in Calgary in May 2008) to booths at the CIM Mining in Soci-

ety Conference in Edmonton and the Geological Association of Canada–Mineralogical Association of Canada Conference, both held in May 2008. The Year also sponsored a public event on space science, held in conjunction with the GAC–MAC in Québec. In February 2008, the Atlantic Geoscience Society meeting in Dartmouth, NS featured several events in honour of IYPE. Of special note are the activities that were held at the 76th Annual Meeting of ACFAS (l'Association francophone pour le savoir) in Québec City in May 2008. A series of five lunch-time talks were held on some of the scientific themes of IYPE including climate change, natural resources, water and alternative energy. The meeting attracted 4400 participants from all scientific disciplines and the impact was therefore substantial. An IYPE presence will continue at scientific and public events through 2008 and 2009.

PLANS for 2008 and BEYOND The WHERE Challenge

Among the exciting projects planned for 2008 is a major national web-based challenge for Canadians aged 10 to 14 that is being developed on the WHERE theme (Fig. 5) in time for the 2008-09 academic year. The challenge will ask participants to identify the source of materials used in the structure and contents of their house, classroom or meeting place and where on Earth they came from. Did they come from local sources in their neighbourhood, somewhere in their province, somewhere in Canada or from somewhere else in the world? Once they have done their research to find out the source of as many materials as possible, they will be asked to create a website that presents their results in an innovative, creative, thorough and scientifically accurate manner. Assistance with website construction will be provided at the WHERE Challenge website to level the playing field for all participants. The sites are expected to contain original material (not dumps of information from the internet) and should include original text and graphics and possibly short videos, animations or presentations.



Figure 1. John Boyd (left), Chair of the Canadian National Committee for IYPE presents a gift to John Baird, Minister of the Environment at the IYPE launch event in Ottawa.

A Book on the Geology of Canada
 One of the major projects to be completed in 2009 is a new popular book on the geology of Canada entitled *Four Billion Years and Counting: Canada's Geological Heritage*. Lavishly illustrated, the

book will be in three parts: one on fundamental concepts in earth sciences, a second telling the story of the geological development of Canada and a third describing the many societal issues that geology embraces, focusing on health and wealth. The editors of this book are Aicha Achab, John Clague, David Corrigan, Rob Fensome, Jim Monger, Godfrey Nowlan and Graham Williams. More than 50 contributions have been received from experts on various aspects of the geology of Canada and the editors are working these into a narrative for the book. As such, the project is a “grass-

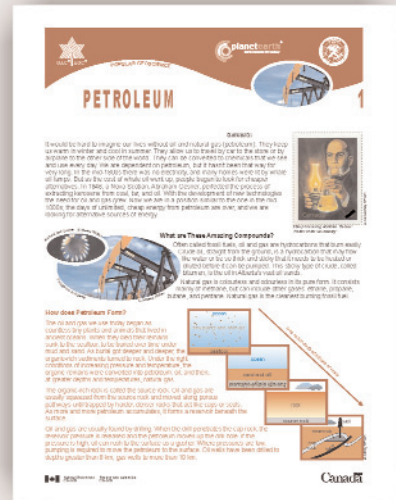
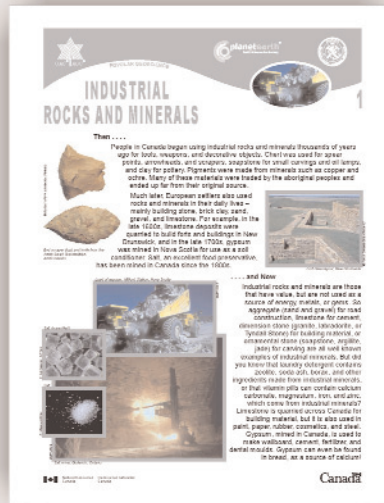


Figure 2. Examples of some of the 32 fact sheets on mineral, rock and energy resources in Canada available at [www.gac.ca/populargeoscience].

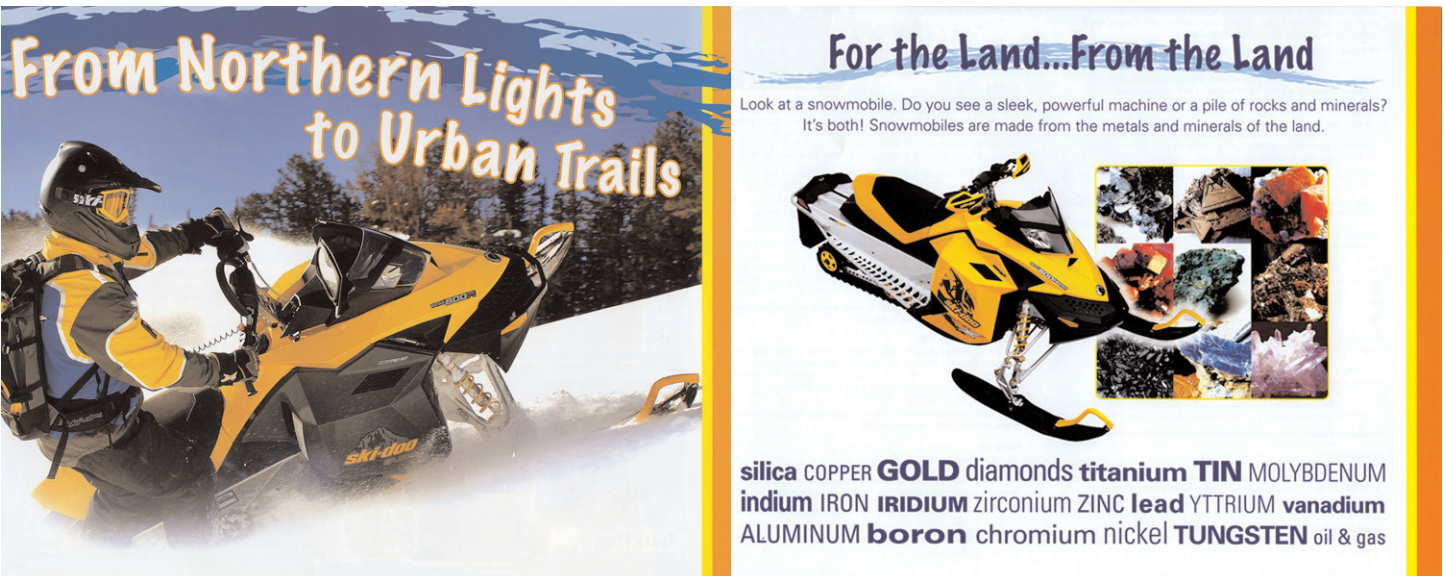


Figure 3. Front and back cover of poster published by PDAC Mining Matters on all the mineral and energy resources required to build and run a snowmobile. It is available on-line at [http://www.pdac.ca/miningmatters/teachers/resources.html].



Figure 4. One of the signs on the GeoTime Trail established in Waterloo, Ontario being accessed by a member of the public.

roots” initiative of the earth science community.

Many new illustrations are being developed including diagrams explaining major Earth processes, a series of time-slice maps showing the geological evolution of Canada and 3-D block diagrams showing the more detailed development of eastern, western and northern Canada. It is the intent of the editors that these illustrations will eventually be available for free downloads from an Earth Sciences Canada website (see below) that is being developed as a major legacy of IYPE. These should be immensely useful to the earth science education community in Canada. A considerable amount of money has been raised to support this project through a principal donor, as well as individuals and groups who have agreed to sponsor individual chapters.

A Legacy Website

An Earth Sciences Canada website [www.EarthSciencesCanada.com] is being developed as a legacy of IYPE. The hub of the site will lead the visitor to sites representing the major projects of IYPE: a Careers site, a site featuring illustrations and other resources from the geology of Canada book project, a “news in earth sciences” site, a contest site for the WHERE Challenge, and the Canadian Federation of Earth Sciences (CFES) site.

Careers in Earth Sciences

For young people who want to know more about the many and varied jobs in earth sciences, there will be a segment of the Earth Sciences Canada website for Canadians to obtain up-to-date information on careers in earth sciences. The site has been under development for some time using

funds from CFES and the Canadian Geological Foundation. The principal developer is Jenn Sabean, who has worked with a committee of the Canadian Geoscience Education Network (CGEN) under the chairmanship of John Clague. Partial funding is already available for this aspect of the legacy website.

Walcott Conference 2009

A special Conference on the Cambrian Explosion to commemorate the 100th anniversary of the discovery of the Burgess Shale by Charles Doolittle Walcott is being held in Banff in 2009. Support for the field trip publications arising from this conference will be forthcoming from IYPE through a corporate donor. The conference is open to all interested parties, especially those interested in the evolution of organisms and the ecological and environmental changes that occurred during the Precambrian–Cambrian transition. The meeting will be held at the Banff Centre for the Arts, August 4–6th, 2009.

Youth Encouraging Sustainability

Support has been provided to the Manitoba Science Council for the field component of a program called Youth Encouraging Sustainability. This is a showcase event for students who have completed projects on sustainable development. Students from all educational levels will have opportunities to collect information on the environment using appropriate methods and technology, to analyze their results, and to identify sustainability issues. One of the long term continuing impacts of the program is the exposure of students to environmental stewardship opportunities attached to career development.

planetearth
Earth Sciences for Society
planète terre
Société pour la Terre

The W.H.E.R.E. Challenge

It's all about a contest for Canadians aged 10-14 in celebration of the **International Year of Planet Earth**. The challenge will ask participants to identify the source of the materials in the structure and contents of their house or classroom and where on Earth they came from (local, national, global).

Entry will be in the form of a web site. Individual and group prizes awarded on a regional basis. **Coming September 2008!**

www.earthsciencescanada.com

EnCana is a proud sponsor of the International Year of the Planet Earth.

Figure 5. An advert for the W.H.E.R.E. Challenge will encourage young Canadians to discover where the resources required to build and manufacture things actually come from.

Interpretive Signs in Alberta

The Alberta Geological Survey (AGS) is recognizing IYPE by getting together with representatives of Alberta Transport and Alberta Tourism, Parks, Recreation and Culture to discuss geological road signs in Alberta. They plan to look at existing signs to see if any need refurbishing and then look to the possibility of some new signs. The AGS has put aside some money to assist in the development of these. This is an excellent example of a provincial agency getting involved in IYPE, and it is hoped that other provincial agencies will do something similar.

Other Proposals

Other proposals have been received that are still waiting for funding. A partnership with National Parks will see development of *GeoVistas*: site specific information sheets that will provide new insights into the earth science behind the beautiful vistas in some of Canada's parks. Many earth scientists are disappointed with the interpretation of geology in some national parks and this project is intended to begin to provide a higher profile for sites of geological interest and to demonstrate the influence of geology on the landscape and the biota. It is hoped that funds will be raised to support pilot projects in Jasper National Park, Alberta and Grasslands National Park in Saskatchewan.

Earth Science Training for Teachers is the focus of another proposed project. Following the very successful model developed by the Earth Science Education Unit in the UK [www.earthscienceeducation.com], this proposal seeks to develop curriculum-linked earth science, EdGEO-style [www.edgeo.org] workshops for in-service as well as pre-service training of teachers across Canada. The workshops will be offered by trained regional facilitators and will be available for teacher training institutions, individual schools, school boards, teacher conferences, and professional development events. A central booking facility (or facilities) will be set up so that individual schools, institutions or professional development groups may request the

workshops. Workshops would be presented singly or in combination, and each would last from 1.5 to 2 hours.

SUPPORT

The International Year of Planet Earth was supported early on by modest grants and in-kind assistance from a variety of organizations including the Canadian Geological Foundation, the Canadian Federation of Earth Sciences, the Geological Association of Canada, the Earth Sciences Sector of Natural Resources Canada (especially the Geological Survey of Canada), the Canadian Society of Petroleum Geologists, the Canadian Society of Exploration Geophysicists, the Prospectors and Developers Association of Canada, and the Association of Professional Engineers, Geologists, and Geophysicists of Alberta.

More recently, the private sector has been responding to our fundraising efforts and we are grateful for significant donations from Arc Financial, Devon Canada, EnCana, Nexen, Talisman and Teck Cominco. In addition, several individuals and groups have supported the book project by sponsoring individual chapters. Finally, we are grateful to Natural Resources Canada for their significant in-kind contributions to the program.

Our fund-raising is still in progress and if any readers of this article feel that they, or their company or organization, might be willing to support the goals of IYPE, please feel free to contact the author or any member of the Canadian National Committee.