



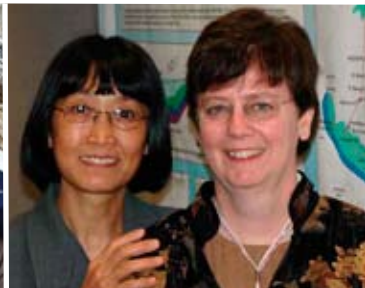
Arctic Institute of North America

Community

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Annual Report 2007

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Photos were taken by Benoît Beauchamp, Gwenn Flowers, Helen Wheeler, Donald James and Trudi Lee.

. . . to advance the study of the Arctic

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Calgary Opera photo by Trudi Lee



Message from the Executive Director

It has been quite an eventful year at the Arctic Institute of North America (AINA). It started with a bang with AINA becoming involved in the world premiere of the opera *Frobisher* by John Estacio and John Murrell, a production entirely created by the Calgary Opera Company. Leading to the premiere, AINA organized and staged three community events that were attended at full capacity and achieved the goal of promoting *Frobisher*. These events, the brainchild of our Director of Communications Dawn Johnston, propelled AINA to the forefront of the Calgary artistic and media scene. Buoyed by the success of *Frobisher*, we continued throughout the year to be a presence in the media and were solicited on a regular basis to comment on many issues of Arctic interest.

Front row centre in 2007 was our involvement with the International Polar Year (IPY). A component of our activity was to make all back issues of *Arctic* journal digitally available, free of charge on our web site. We also engaged in the creation and compilation of the IPY publication database as part of the Arctic Science and Technology Information System (ASTIS). Another significant event was the 2007 Gussow Conference on Arctic Energy Exploration in October in Banff, which AINA co-organized with the Canadian Society of Petroleum Geologists. The Conference was a resounding success.

During the year, we worked very closely with the University of Calgary as it is developing its Northern Strategy. The issues of sovereignty and security as well as energy and the environment were identified as the cornerstones of the university's involvement in the North. Geoscientific research was once again the focus of AINA's expedition to Canada's High Arctic in July 2007. Graduate student Mike Wamsteeker collected data aimed at unraveling an abrupt climate event that occurred some 280 million years ago in the area now occupied by Ellesmere Island. This research will enable Mike to shed new light onto the modern climate change debate.

The Institute continued to provide its many services to the Arctic research community through the publication of *Arctic*, maintenance and growth of the ASTIS database, and the activities at the Kluane Lake Research Station. Thanks to Karen McCullough, Ross Goodwin and Andy Williams, these flagship programs of the Institute continue to flourish at a time when the North is on everyone's lips. But sadly this year also marked the departure of Sonja Hogg, AINA's Business Manager for the past five years, as well as Dawn Johnston. We wish them the best of luck in their new endeavours. We were very fortunate to welcome some excellent new people in Alvina Mountenay, our new Institute Manager, and Ruth Klinkhammer, our new Director of Communications. They were joined by Bobbi Tomchuk, Financial Advisor, as well as Jenny Hoops, Administrative Assistant. With this influx of new energy, AINA is now poised to grow along new and exciting lines at a time when the Arctic is hot.

Benoît Beauchamp
Executive Director

Message from the Chair of the Board



Community. It's a powerful concept. A community is composed of people who share the same goals and values. Community means you do not walk alone. At the Arctic Institute, we are members of a community who hold a common concern and passion for the Arctic.

Our community is growing. 2007 marked the beginning of International Polar Year – a year when the number of people interested in the Arctic grew. At the Institute, we rose to serve this increased demand by meeting and exceeding our previous standards. Our flagship programs flourished, our membership grew, and our expertise was sought by international organizations and individuals.

The Institute made great strides partnering with local organizations to foster within Calgary residents an interest in the Arctic. We worked with the Calgary Opera Society to offer a series of events to mark the world premiere of the opera *Frobisher*. We joined with the Telus World of Science to host a standing-room-only Science Café on climate change. Our Executive Director Benoît Beauchamp spoke to over 1500 students, families and adults at the Canadian Society of Petroleum Geologists' (CSPG) Honorary Address at the Jubilee Auditorium.

This year, our community of board members underwent a sea change. We said a reluctant goodbye to six individuals including Dennis Salahub, Kathleen Scherf, Ingrid Johnson, Liseanne Forand, Louis-Jacques Dorais and Marion LaVigne. I commend these members for the steady support they gave the Institute during their years of service. In particular, I would like to underline the role that Dennis Salahub played, as the University's VP Research, in supporting and guiding the Institute and in helping it foster new and solid relations with the university community. Fortunately, we retain four very strong members who must be thanked for their work and dedication. I know that Carl Benson, David Hik, Cooper Langford and Harry Wilmot will be able to provide sage advice to the excellent new replacements that were recruited. To these new members, Rose Goldstein, Sandy Murphree, Louis Fortier, Henry Sykes, Shawn Marshall and Patrick Borbey, I extend a warm welcome. They bring a breadth and depth of experience that will serve the Institute well as it moves forward.

We also saw turnover in our office staff. Our long-term Office Manager, Sonja Hogg, retired and was replaced by Alvina Mountenay. Our Director of Communications Dawn Johnston moved on and Ruth Klinkhammer took her place. We hired Jenny Hoops to administer member services and scholarships. These enthusiastic people bring fresh energy to their positions and to the office.

I am honoured to be part of a body of people dedicated to increasing the understanding and awareness of northern issues. I commend Executive Director Benoît Beauchamp and his staff at the Arctic Institute for their continued efforts. It is because of this strong group of individuals that I am confident the Arctic Institute will make smart, strategic moves that build on our current strengths and lay the foundations for new initiatives.

Michel Scott,
Chair, Board of Directors

AINA U.S. Corporation

The Arctic Institute of North America (AINA) was founded jointly in Canada and the U.S. in 1945. It grew as a result of recognizing the consequences of ignorance about the Arctic, which became apparent (often painfully) to leaders of both countries during World War II. The changes we are witnessing on a global scale today have an exceptionally sharp edge in the Arctic. Changes in climate and in social activity present new challenges to Canada and the US and emphasize the need for joint, cooperative activity.

The University of Alaska (UA) comprises three campuses: Fairbanks (UAF), Anchorage (UAA) and Juneau (UAS). It has had a memorandum of agreement on academic matters with the University of Calgary (UC) since 2000. AINA U.S. is in a position to enhance this relationship and to extend it to the University of Alberta in Edmonton. This motivating idea shows in the ongoing development of the U.S. Corporation of AINA at the University of Alaska. Indeed, we have a rich history on which to build.

Alaska was a Territory when the University of Alaska was founded in 1917 and residents of the Yukon Territory were given resident status for tuition. Today, this resident status persists for the Yukon Territory and has been extended to the Northwest and Nunavut Territories and to British Columbia. AINA US is devoted to maintaining and strengthening these ties between Alaska and western Canada and proposes to include Alberta in the future. The University of Alaska supports the AINA journal *Arctic* as part of its goal of increasing communication within the Arctic community and increasing the university's national and international visibility as a major Arctic research and teaching facility.

In 2007, we sponsored the 14th Arctic Roundtable at the American Association for the Advancement of Science's (AAAS) Arctic Science Conference in Anchorage. The focus of the roundtable was science and politics. Panel members were Al Teich, AAAS Director of Science and Policy, Michael Halperin, Union of Concerned Scientists, Robert Rutherford, President Emeritus of the University of Texas at Dallas and former head of Polar Programs for the National Science Foundation, and Fran Ulmer, UAA Chancellor and Former Lieutenant Governor of Alaska.



“... the oldest organization in North America dedicated to the advancement of Arctic knowledge.”



In addition to the Arctic roundtable, AINA US joined the US Arctic Research Commission and the University of Alaska Museum of the North in presenting a series of well-received IPY lectures for the general public. The 2007 lectures were:

- The International Polar Years: Past, Present, and Future, presented by Carl Benson, Hajo Eicken, Amy Tidwell and Neil Davis;
- Alaskan Climate Change in a Global Context, presented by John Walsh; and
- Marine Access at the Top of the World, presented by Lawson Brigham.

The US and Canadian Corporations of AINA continued to host the “Arctic Reception” at the fall meeting of the American Geophysical Union (AGU). This reception now has several co-sponsors. The annual reception helps the several hundred people with Arctic interests find each other among the over 14,000 people at the AGU meeting. For many, the reception is a highlight of the fall meeting.

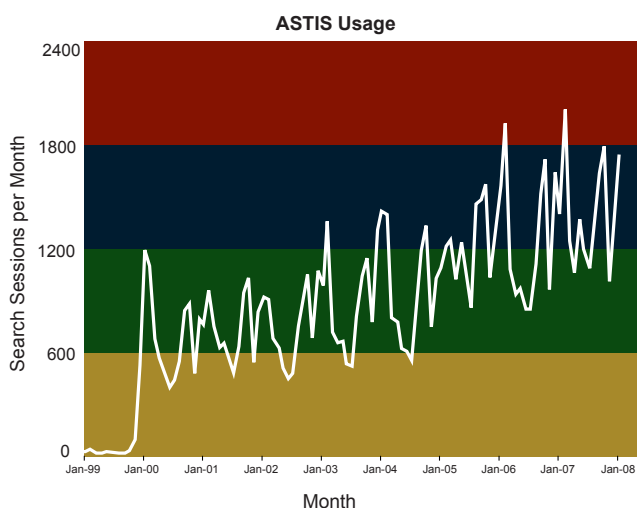
In strengthening ties between western Canada and Alaska it is good to keep in mind that AINA is both an international and a membership organization. It is also the oldest organization in North America dedicated to the advancement of Arctic knowledge. These unique assets are the foundations on which we will continue to build.

Serving Community . . .

At the Arctic Institute we are dedicated to providing academics and researchers with the support they need to further their investigations of the North. Our flagship programs — the information system, our journal, the northern research station and our library — are shining examples of the way we aid northern scholarship.

Arctic Science and Technology Information System (ASTIS)

The Arctic Science and Technology Information System (ASTIS) is Canada's northern database. ASTIS contains 63,500 records describing publications and research projects about northern Canada. ASTIS includes all subjects, has been in operation since 1978, and is funded through contract work and donations. The ASTIS database is available for free on the Arctic Institute's website.



ASTIS is searchable from a Simple Search page, from an Advanced Search page and by clicking on hyperlinks in database records. If the full text of a publication is available online, the ASTIS record will provide a link to it. The bilingual ASTIS website also provides search help, information about the scope of the database, instructions for obtaining publications and a list of the organizations that have supported ASTIS.

The ASTIS database contains 14,800 records describing research projects conducted in Canada's three northern territories since 1974. These records are based on information provided by the organizations that license all territorial research: the Aurora Research Institute, the Central and Arctic Region of Fisheries and Oceans Canada, the Northwest Territories Department of Environment and Natural Resources, the Nunavut Department of Culture, Language, Elders and Youth, the Nunavut Department of Environment, the Nunavut Research Institute, the Prince of Wales Northern Heritage Centre and the Yukon Heritage Resources Unit.

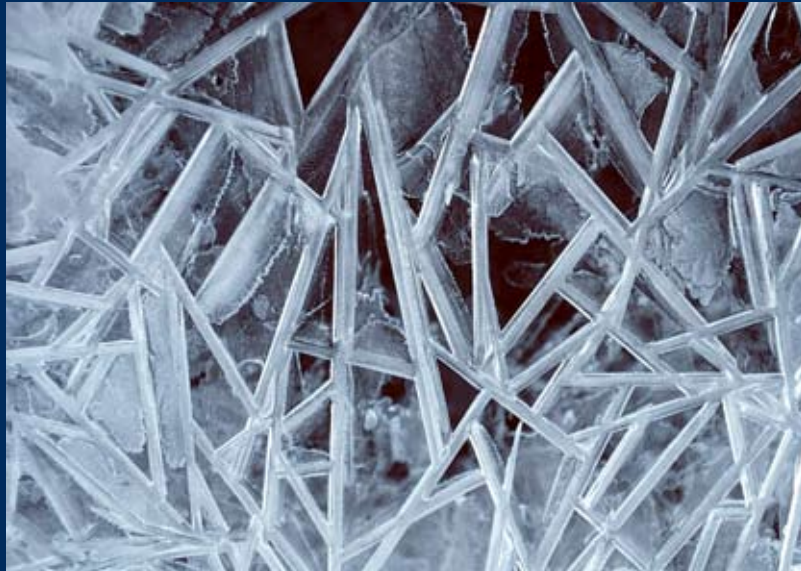
ASTIS specializes in the preparation of bibliographic databases about northern Canada, and can easily make these databases available from customized websites for clients. The ASTIS page of the Institute's website provides access to 13 such databases. ASTIS is also available with the world's other major polar databases in National Information Services Corporation's international Arctic & Antarctic Regions database, which describes more than one million polar publications.



Ongoing ASTIS projects that continued during 2007 included work for Indian and Northern Affairs Canada (INAC) on the Hydrocarbon Impacts database; work with Makivik Corporation, INAC, the Canadian Circumpolar Institute and the Centre d'études Nordiques on the Nunavik Bibliography; work on the Circumpolar Health Bibliographic Database for the Canadian Institutes of Health Research Team in Circumpolar Chronic Disease Prevention; work for the INAC Northern Contaminants Program on the NCP Publications Database; work with the Inuvialuit Joint Secretariat on the Inuvialuit Settlement Region Database funded by Shell Canada and Devon Canada; work for the Nunavut Planning Commission on the Nunavut Environmental Database; work for the INAC Land and Water Management Directorate on the Northern Granular Resources Bibliographic Database; work with the Yukon Biodiversity Working Group on the Yukon Biodiversity Database funded by Foothills Pipe Lines and the Yukon Government; and work for the northern Canadian petroleum industry to describe publications about the Northwest Territories and Beaufort Sea.

New ASTIS projects that began in 2007 included work on the Canadian IPY Publications Database which is funded by the Government of Canada Program for IPY and EnCana Corporation (and which includes work with the American Geological Institute, the Scott Polar Research Institute, the University of Colorado and National Information Services Corporation on the international IPY Publications Database); and work for the Canadian Arctic Shelf Exchange Study to ensure that all of their peer-reviewed publications are described in ASTIS.

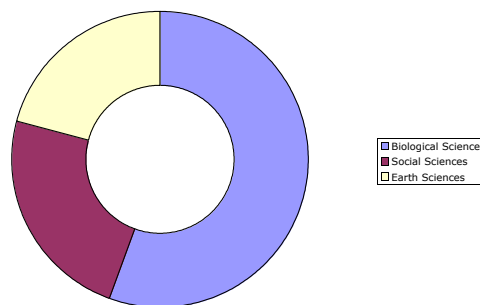
ASTIS also worked on several internal Arctic Institute projects in 2007, including the Kluane Lake Research Station Bibliography; the *Arctic* Contents and *Arctic* Search pages of the Institute website; and maintenance of the Institute's publications server which makes 3400 publications available on the Web as PDF files. More than 9700 ASTIS records now provide links to PDF files using URLs or DOIs. As shown in the graph on page 8, ASTIS usage continues to increase.



Arctic

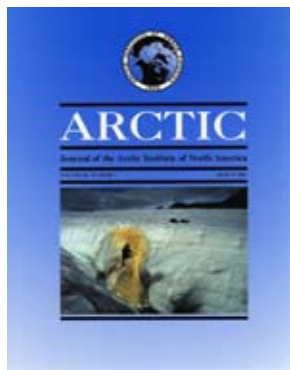
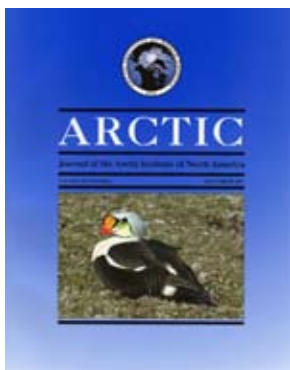
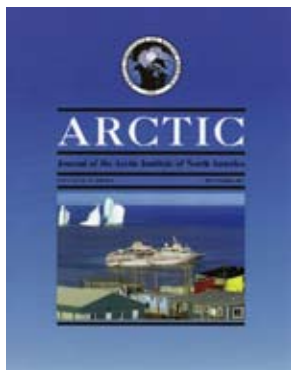
The number of submissions to the journal increased significantly in 2007, with a total of 77 papers received for consideration for publication. An equal number of submissions (32) came from the biological and social sciences, each of which accounted for 41.5% of the papers. The remaining 13 submissions (17%) covered topics in the earth sciences. The four issues of *Arctic* published in 2007 included 34 research articles, 25 book reviews, 3 obituaries, 1 Arctic profile and 2 commentaries. The chart shows the breakdown of the research articles by major disciplinary category. Although biological papers continue to dominate, several papers published in 2007 were truly interdisciplinary, integrating approaches that span both the natural and social sciences.

Papers submitted to *Arctic*



In June 2007, we received 15 papers for a supplementary issue arising from the “Arctic Change and Coastal Communities” conference, held in Tuktoyaktuk in August 2006. Over a five-day period, representatives from government, universities, and Inuit and Inuvialuit northern communities met to discuss the changes being seen in Arctic marine and coastal areas, the impacts of these changes on coastal communities, and the policies affecting marine management in the Arctic. The papers to be published in the supplementary issue of *Arctic* cover the three main themes of the conference: Drivers of Change in the Arctic, Community Well-being, and Arctic Ocean Management and Governance. The cost of this supplementary issue will be covered by a subvention from the Department of Fisheries and Oceans.

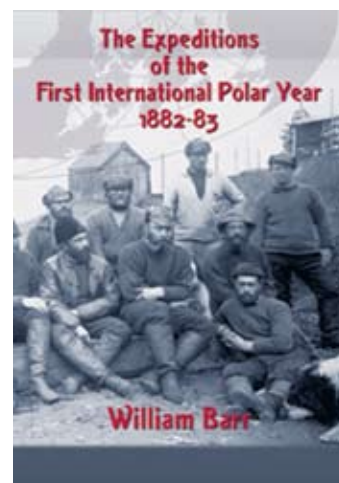
Five essays were published in the InfoNorth (IN) sections of *Arctic* in 2007. In the March 2007 IN, Gunter Weller and colleagues treated us to a retrospective on the past 50 years of research on the McCall Glacier in the eastern Brooks Range of northern Alaska. In the June 2007 IN, Doug Stenton from the Department of Culture, Language, Elders and Youth, Government of Nunavut, described the efforts of the community of Mittimatalik (Pond Inlet) on northern Baffin Island to preserve the graves of traders Robert S. Janes and Hector Pitchforth, both of whom died on Baffin Island in the 1920s. In September 2007, Norbert Untersteiner and other scientists involved in the American–Canadian Arctic



Ice Dynamics Joint Experiment (AIDJEX) project presented the history behind the AIDJEX project, which was designed to develop a comprehensive model of sea ice cover. Isla Myers-Smith, the 2007 winner of the Jennifer Robinson Memorial Scholarship and Heidi Swanson, recipient of the 2007 Lorraine Allison Scholarship, provided essays on their research in the December 2007 IN section.

IPY Book

During 2007, substantial progress was made on the republication of the second edition of AINA Research Associate William Barr's history, *The Expeditions of the First International Polar Year, 1882–83*. Initially published by the Arctic Institute in 1985 as Technical Paper No. 29, the book has been out of print for several years. As we are now in the midst of the Fourth International Polar Year (2007–08), we felt that this was an ideal time to reprint this book in a more popular format for a general audience. The text of the revised edition has been updated where necessary, a new map has been added, as well as a comprehensive index.



Arctic Institute Library

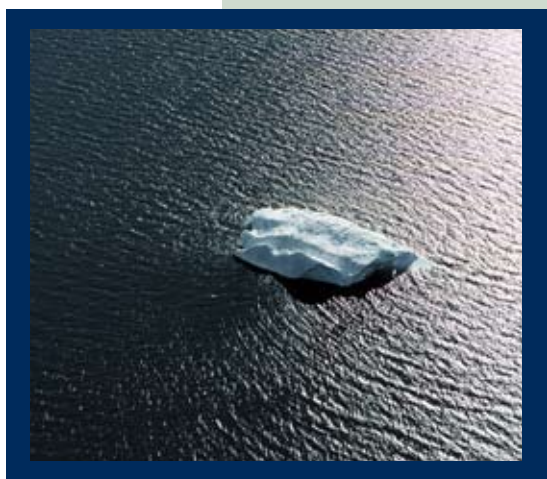
The Arctic Institute of North America collection relocated in the summer of 2007 from the MacKimmie Library to the Gallagher Library in the Earth Sciences building. The move increased the visibility of the Institute's collection to researchers in other disciplines, namely geoscience, geography and engineering. Researchers who use the collection are also benefiting from the close proximity of library staff who can provide support in mediating the collection.

The collection continues to grow through the addition of materials received from the Arctic Science and Technology Information System (ASTIS) and from material previously held in the Pipeline Room. With assistance from Bibliographic Services, 476 copy records for 443 titles were added to the collection in 2007. An additional 33 titles were ordered through the Northern Studies fund.

The Arctic Institute collection interests researchers worldwide. During the last year requests to borrow material have come from as far away as Australia.

Information regarding petroleum exploration in the north accounts for most of the requests. Interest has also been sparked by International Polar Year. For an overview of the collection and links to other research resources visit the MacKimmie Library's Northern Studies page (listed on the Subject Resource page).

Claudette Cloutier, the Liaison Librarian for Northern Studies, provides research assistance to students, faculty, staff and visiting researchers looking for Arctic and polar related information. Please contact her at ccloutie@ucalgary.ca for research assistance.



Kluane Lake Research Station

Since 1961 the Kluane Lake Research Station (KLRS) has been a leader in providing researchers with a base to study the unique environment offered by the St. Elias Mountains. KLRS provides an entry point to the Icefield Ranges of the St. Elias Mountains, which comprise Canada's highest mountains and largest inland glaciers. The extreme elevation difference between Kluane Lake and the crest of the St. Elias range establishes a strong environmental gradient and creates exceptionally diverse research opportunities within a small geographic area.

Each year the Research Station is home to a number of individuals and teams who study a diverse array of topics (see Table 1). This past year was no exception. Scientists from 8 different projects used the site as a base. In addition, 3 field schools offered by separate universities provided 25 third and fourth year undergraduate students with the opportunity to work alongside top researchers.

Three major geological events brought attention and action to the research station. Both the Tweedsmuir and the Donjek Glaciers experienced surges last year. In addition, one of the largest ice and rock avalanches ever documented in the Canadian Cordillera occurred in July on the north face of Mount Steele, which is located some 80 kilometres northwest of the Kluane Lake station. The avalanche triggered a 5.2 seismic event that was detected around the world. It also generated stories in several national science and news organizations including the *Globe and Mail*, CBC and the Discovery Channel.

These 3 events attracted the Geological Survey of Canada, the Yukon Geological Survey and the U.S. Geological Survey to the region. The Kluane Station offered logistical support to the researchers who wanted a closer look at the sites and they used the station as a staging base. In addition, base manager and pilot Andy Williams flew several people to view the avalanche area.

Funding

Dr. Benoît Beauchamp, in collaboration with the KLRS Users Committee, obtained infrastructure funding of \$100,000, to be allocated over a 5-year period, from the Natural Sciences and Engineering Research Council of Canada (NSERC). Additional funds for operational costs were generously offered by the Universities of Calgary (\$5,000), Alberta (\$5,000), British Columbia (\$10,000), Ottawa (\$5,000) and Toronto (\$6,000).

Brett Wheler, a second-year Master of Science student in Simon Fraser University's Earth Sciences Department, installs equipment on a new weather station located on a small glacier in the St. Elias Mountains. Wheler's work will improve our understanding of the relationship between climate and glacier change.



Facility Improvements

Although the research station is well used, the aging infrastructure is in need of repair. Some of that work was completed in 2007. Electrical wiring and connections were made to the new science building. Two new winterized residential cabins were constructed. Replacement equipment (hot water heaters and water pumps) was purchased and is being installed. The satellite Internet system was upgraded to meet increased demand.



TABLE 1: KLUANE LAKE RESEARCH STATION USE - 2007

Principal Investigator	Affiliation	Research Summary
Dr. D. Hik	University of Alberta	Ecosystem dynamics, alpine and glaciated environments. Remote sites occupied include Pika Camp (Ruby Range), Vulcan Creek, and Upper Kaskawulsh Glacier.
Dr. C. Krebs	University of British Columbia	Continuation of the Kluane Ecological Monitoring Project
Dr. R. Turkington	University of British Columbia	Botany and boreal forest ecosystem dynamics
Dr. R. Boonstra	University of Toronto at Scarborough	Biomedical studies: relationship between stress and snow-shoe hare population.
Dr. G. Flowers	Simon Fraser University	Glaciology and climate studies, Upper Kaskawulsh Glacier
Dr. G. Holdsworth in collaboration with Dr. K. Moore	AINA (Holdsworth) & University of Toronto	Climate studies and snow chemistry, Mount Logan and Eclipse Glacier
Dr. K. Kreutz	University of Maine	Climate studies and snow chemistry, Kaskawulsh Hubbard divide area
Dr. L. Copland	University of Ottawa	Glaciology field school (Divide). Geology field school (KLRS and environs.)
Dr. G. Clarke	University of British Columbia	Fast flow dynamics, Trapridge Glacier
Dr. S. Slocombe	Wilfred Laurier University	Social Geography field school
D.B. Liddle	Yukon College	Environmental field school

Building Community . . .

Research is at the core of the Arctic Institute's mandate and we are committed to providing support to the growing community of young researchers interested in the the North. To that end, we administer scholarships and grant programs to help these young scientists and students follow their passions.

Scholarships

The Arctic Institute takes a keen interest in building the community of scholars who are interested in pursuing northern studies. We administer three scholarships established by the families and friends of Jennifer Robinson, Lorraine Allison and Jim Bourque, Privy Counsellor.

The Jennifer Robinson Memorial Scholarship, valued at \$5,000 is awarded for academic excellence in field-oriented research in northern biology. The Lorraine Allison Scholarship, now valued at \$3,000, is open to Canadian graduate students who have demonstrated academic excellence and a commitment to northern research beneficial to Northerners. The Jim Bourque Scholarship, valued at \$1,000 is open to Canadian Aboriginal students who intend to take post-secondary training in education, environmental studies, traditional knowledge, or telecommunications.

2007 Winners

Jennifer Robinson Memorial Scholarship – \$5000

Isla Myers-Smith, a PhD student in the University of Alberta's Department of Biology, is the recipient of the 2007 Jennifer Robinson Scholarship. Isla is examining the causes and ecological implications of increased distribution and density of woody shrubs in sub-Arctic mountains.

Lorraine Allison Scholarship – \$2000

Heidi Swanson, a PhD student in the Department of Biology at the University of New Brunswick, was awarded the Lorraine Allison Scholarship. Heidi is researching the effects on coastal Arctic lakes of Arctic char that migrate from oceans to freshwater lakes to breed.

Jim Bourque Scholarship – \$1000

David O'Soup, a fourth-year student in the University of Saskatchewan's Indian Teacher Education Program, won the Jim Bourque Scholarship for the second year in a row. David, a member of the Key First Nation, is happy to be pursuing his dream of becoming a teacher. After graduation, he would like to return the Key First Nation reservation to teach.



Isla Myers-Smith, winner of the Jennifer Robinson Scholarship and a Grant-in-Aid, installs temperature-instrumented stakes to measure snow depth in September 2007 at Pika Camp in the Ruby Range Mountains near Kluane Lake.



Grant-in-Aid Program

For 13 years, the Grant-in-Aid program has provided funds of \$1,000 to augment the research budgets of young investigators, especially graduate students. Applications for this joint Canadian-US program are encouraged from researchers who are focusing on the natural and social sciences. Eligible projects include field, library or office-intensive investigations and awards can be used for travel, supplies and equipment, but not salaries or wages.

This year the volunteer Grant-in-Aid committee reviewed 25 applications for funding. Sitting on the bi-national committee for the 2007 year were chair Erich Follman, Stephen Braund, in Alaska, Matthew Sturm with the Cold Regions Research and Engineering Lab in Alaska, and Peter Johnson in Canada. Matthew Sturm did not participate last year because of travel.

Recipients

Gregory Goldsmith, University of Alaska Fairbanks, Genetic characterization of interrelatedness and clonality in expanding populations of arctic willow (*Salix spp.*) shrubs.

Jennifer Rohrs-Richey, University of Alaska Fairbanks, Mortality of alders in Alaska: Investigating the deadly combination of drought stress and the canker pathogen *Valsa melanodiscus*.

Linda Gormezano, American Museum of Natural History, Estimation of polar bear abundance, spatial distribution and genetic structure using passively collected hair and feces.

Shelly Rayback, University of Vermont, Reconstruction of recent past climate of an alpine site at White Pass, Yukon Territory, Canada, using dendroclimatological and stable-isotope techniques.

Michael Sheriff, University of British Columbia, The enigma of hare population cycles: Explaining the low phase through stress and material programming.

Dawn Hoogeveen, Simon Fraser University, Diamonds and employment in the North.

Kelly Johnson, Memorial University of Newfoundland, Utilization of biomarkers to assess contaminants in northern environments.

Isla Myers-Smith, University of Alberta, Shrub expansion in alpine tundra of the Kluane Region.

Bryanne Hoar, University of Calgary, Impact of northern climate change on the development and survival of *Ostertagia Gruehneri*, a pathogen nematode in barrenground caribou.

Karen Wittke, University of Toronto, Defrosting gender: Understanding changing gender relations in Thule society.

Arctic Institute Expedition to Northwestern Ellesmere Island

For the second year in a row, the Arctic Institute of North America staged an expedition to Canada's High Arctic, this time to study the growth and demise of ancient reefs on northwestern Ellesmere Island. The expedition provided a research platform for graduate student Mike Wamsteeker of the University of Calgary. It also involved the collaboration of Dr. Steve Grasby of the Geological Survey of Canada. Building communities of researchers, tapping into the know-how of established scholars like Grasby, and engaging a new generation of young researchers, like Wamsteeker, contributes to AINA's mission.

Carbonate reefs, and to a lesser extent bedded carbonates in between them, are treasure troves of marine ecological information. The study of reefs can yield deep insights into the environmental conditions that accompanied their growth. Modern reefs for instance are rapidly declining in numbers and diversity and several factors have been invoked to explain their demise, a phenomenon known as "reef bleaching." One such factor is global warming which is affecting the symbionts essential to the rapid growth of carbonate reefs. Reefs are thus sensitive indicators of even the most subtle stresses brought on by climate change. While their growth rate can be remarkable under optimal conditions, minor variations in their surroundings can lead to a much slower rate of growth, and ultimately death.

The Sverdrup Basin of the Canadian Arctic comprises a multitude of reef mounds that accumulated in various areas, where they represent sedimentation on a rapidly subsiding shelf. Three dozen such reefs are known in a series of outcrops on NW Ellesmere Island. With support from the Polar Continental Shelf Project, AINA's Executive Director Benoît Beauchamp, GSC scientist Steve Grasby and University of Calgary's M.Sc. student Mike Wamsteeker, set out in July 2007 to study the reefs and the strata between them. Reefs were examined in the area west of Tanquary Fiord and North of Greely Fiord. Transects along the exposed face of the reef and across the strata between them were carried out. Observations were gathered about the bedding characters of the reef core, flanks and crest, and an inventory of recognizable mega fossils was conducted.



Mike Wamsteeker, a graduate student working with Executive Director Benoît Beauchamp, writes field notes while on Ellesmere Island, west of Tanquary Fiord. Wamsteeker, who won an NSTP grant, is examining fossils to decipher the magnitude, duration and rate of change of an abrupt climate change event in the distant geological past.

This research is relevant to the modern climate change debate as these reefs straddle an interval of time some 270 to 280 million years ago when the area now occupied by the Arctic Islands was at the western margin of the supercontinent Pangea. This time interval saw a very rapid climatic change from warm tropical conditions, when the early reefs were formed, to a time of much colder oceanic conditions immediately after. It has been suggested that it is a rapid change in the thermohaline circulation system of the Earth that may have caused the abrupt climatic/environmental shift that was felt all along the NW margin of Pangea. Interestingly, this happened at a time when global temperatures were rising as shown by the contemporaneous disappearance of glaciers in the Southern Hemisphere. The study of ancient reefs on both sides of this dramatic environmental shift will provide invaluable information on the processes of ecological replacement in response to climate change. This information will be of interest to modern climate change specialists as they are developing various scenarios to understand how global warming will affect our world, and in particular our oceans.



Northern Scientific Training Program

Although the Arctic is rich with opportunities for researchers, travel costs can be prohibitive. The Northern Scientific Training Program (NSTP) grants are designed to encourage young scientists in Canada to undertake research in the North by offsetting the significant expenses of northern travel. The Arctic Institute adjudicates and administers the NSTP grants, which are funded by the federal Department of Indian and Northern Affairs.

2007 NORTHERN SCIENTIFIC TRAINING PROGRAM GRANT RECIPIENTS		
Name	Discipline	Project
Ave Tressa Dersch	Archaeology	Material culture change among the Dene
Michael Lee Wamsteeker	Geology	Sedimentology and biostratigraphy of Lower Permian Shelf carbonate of the Sverdrup Basin Ellesmere Island
Bryanne Michelle Hoar	Biology	Impacts of climate change on the development and survival of <i>Ostertagia gruhneri</i> , a Trichostronglid parasite in barren-ground caribou
Jennifer Talerico	Life Sciences	Bats and the midnight sun
Lea Randall	Biology	Small mammal response to disturbance in the boreal forest of the Southwest Yukon
Patricia Curry	Veterinary Medicine	A new community-based technique for monitoring disease in caribou

Research Associates

Arctic research involves areas of expertise not encompassed by any one discipline or department. This multidisciplinary approach to scientific exploration is reflected in the Institute's Research Associates. They are a diverse group of individuals whose work is advancing the study of the North and the mission of the Arctic Institute. Their interests cover a wide range of disciplines in the natural, physical and social sciences, the humanities and fine arts.

- Don Albright, Biology
- Cindy Allen, Dene Musicology
- Charles Arnold, Archaeology and Museology
- William Barr, Geography and History
- Margaret Bertulli, Archaeology
- Ellen Bielawski, Anthropology
- Lloyd Binder, Economic Development
- Jean Blodgett, Art
- Rai Brown McCutcheon, Gender Studies
- Dave Button, Education
- Garry Clarke, Glaciology
- Helen Corbett, Film and Journalism
- Peter Dawson, Archaeology
- Ken de la Barre, Human Geography
- Mark Dickerson, Political Science
- Elmer Ghostkeeper, Aboriginal Studies
- Jeff Gilmour, Law
- John Graham, Social Work
- Norman Hallendy, Ethnohistory
- Alexander Hill, History
- Gerald Holdsworth, Glaciology
- Gunhild Hoogensen, Political Science
- Robert Huebert, Political Science
- Martha Johnson, Anthropology
- Peter Johnson, Geography
- Karim-Aly Kassam, Social Science
- Barbara Kingscote, Veterinary Medicine
- Heidi Klein, Environmental Planning
- Susan Kutz, Veterinary Medicine
- P. Whitney Lackenbauer, History
- Nic Larter, Zoology
- Allice Legat, Anthropology
- David Lertzman, Aboriginal Studies
- Robert MacDonald, History
- Sean Maher, Anthropology
- Constance Martin, Art History and Curator
- Virginia McGowan, Health Sciences
- Robert McPherson, Geology & History
- Frank Miller, Wildlife Biology
- Magdalena Muir, Law, Environment and Resource Management
- Dave Norton, Ecology
- Martin Raillard, Arctic Ecology
- Alan Smart, Anthropology
- Jane Sproull Thomson, Inuit Art & Culture, Heritage Planning
- Mary Stapleton, History and Planning
- Susanne Swibold, Film and Journalism
- Darielle Talarico, Ecotourism
- Callum Thomson, Archaeology and Expedition Cruise Tourism
- Jack van Camp, Environmental Science
- Robert van Everdingen, Hydroecology
- Wanda Wuttunee, Native Studies, Law and Management
- John James Yackel, Geography
- Jose Zorrilla, Interdisciplinary





Selected Publications

The measure by which research institutes and their associates are judged is publication in peer-reviewed journals. It is through the process of publication that information is disseminated throughout the world and it is this cumulative buildup of knowledge that allows for the forward movement of science.

By this measure, the Arctic Institute receives high grades. Many of our research associates, members and fellows have active research programs and are renowned in their fields.

Following is a short list of selected publications from a few of the researchers who are associated with AINA.

Barr, W. (2007). Discovery of the wreck of the Soviet steamer Chelyuskin on the bed of the Chukchi Sea. *Polar Record* 43(224): 67-70.

Barr, W. (2007). Confirmation of the identity of the wreck of the steamer Chelyuskin. *Polar Record* 43(226): 275-276.

Huebert, R. (2007). Canadian Arctic Maritime Security: The Return to Canada's Third Ocean. *Canadian Military Journal* 8(2).

Huebert, R. (2007). Continental Defence at Sea – The Canadian Challenge. *Journal of Military and Strategic Studies* 11(2): 1-9.

Jenkins, E.J., Veitch, A.M., **Kutz, S.J.**, Bollinger, T.K., Chirino-Trejo, J.M., Elkin, B.T., West, K.H., Hoberg, E.P. & Polley, L. (2007). Protostrongylid parasites and pneumonia in captive and wild thinnhorn sheep (*Ovis dalli*). *Journal of Wildlife Diseases* 43(2): 189-205.

Marshall, S.J., Sharp, M.J., Burgess, D.O. & and Anslow, F.S. (2007). Near-surface temperature lapse rate variability on the Prince of Wales Icefield, Ellesmere Island, Nunavut: Implications for regional-scale temperature downscaling. *Int. Journal of Climatology* 27(3): 385-398.

Muir, Magdalena A.K., Climate impacts and adaption framework for the Coastal and Marine Wikipedia.

http://www.encora.eu/coastalwiki/Category:Articles_by_Magdalena_Muir

Reid, C., James, N.P., **Beauchamp, B.** & Kyser, T.K. (2007). Faunal turnover and changing oceanography: Late Palaeozoic warm-to-cool water carbonates, Sverdrup Basin, Canadian Arctic Archipelago. *Sedimentology* 249: 128-159.

Scharien, R.K., **Yackel, J.J.**, Granskog, M.A., & Else, B.G.T. (2007). Coincident high resolution optical-SAR image analysis for surface albedo estimation of first-year sea ice during summer melt. *Remote Sensing of Environment* 111: 160–171.

Shea, J.M. and **Marshall, S.J.** (2007). Synoptic controls on regional precipitation and glacier mass balance in the Canadian Rockies. *Int. Journal of Climatology* 27(2): 233-247.

Stewart, E. J. & Draper, D.L. (2007). A collaborative approach to understanding local stakeholder perceptions of tourism in Churchill, Manitoba (Canada). *Polar Geography* 30(1&2): 7-35.

Stewart, E.J., Howell, S.E.L., Draper, D., **Yackel, J.** & Tivy, A. (2007). Sea Ice in Canada's Arctic: Implications for Cruise Tourism in the Northwest Passage. *Arctic* 60(4): 370-380.

Yackel, J.J., Barber, D.G., Papakyriakou, T.N. & Breneman, C. (2007). First-year sea ice spring melt transitions in the Canadian Arctic Archipelago from time-series synthetic aperture radar data, 1992-2002. *Hydrological Processes* 21(2): 253-265.

Engaging Community . . .

At the Arctic Institute, we take seriously our mandate to educate and inform the public about the North. We have developed an ambitious plan of public outreach and engagement to foster a better understanding of Arctic issues and science in Canadians.

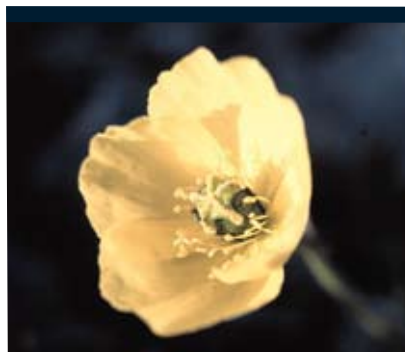
Arctic Institute in the News

The public image of the Institute has been flourishing. There is increased public interest in all things Arctic, and our staff and research associates are regularly fielding calls from the media. In addition, AINA hosted several excellent public events that were very well attended. All of this bodes well for the future of the Institute. AINA is becoming one of the first sources that Canadian media turn to when they need information about the Arctic.

Benoît Beauchamp, Executive Director, was frequently called on to answer questions about his research on Ellesmere Island and on resource development in the Arctic. For example **CBC News Online** ran an article in July titled “Arctic bacteria could hold clues to life outside earth.” The **Siku Circumpolar News** also ran a story on his work on Ellesmere Island. In the fall, **Oilweek Magazine**, the **Calgary Herald** and **Far North Oil and Gas** featured Beauchamp in articles on northern development and Canadian sovereignty.

Institute research associates and employees also made local, national and international news. The following is a sample of activity:

- A crew from the **BBC** was on campus in September to interview AINA research associate Dr. Rob Huebert for a documentary on Arctic sovereignty.
- The German radio station **Bavarian Radio** interviewed Dr. Rob Huebert on northern sovereignty. The radio station journalist also spoke to Dr. John Yackel, an AINA research associate and U of C geographer, and Diane Draper, also a U of C professor, on the impact of melting Arctic sea ice on northern cruise ship tourism.
- **Reservoir**, the magazine of the Canadian Society for Petroleum Geologists, ran an article on the Gussow Conference written by Director of Communications Ruth Klinkhammer.
- The **Edmonton Journal** and the **Toronto Star** ran an article which mentioned the Kluane Lake Research Station and its manager Andy Williams.



Community Outreach

The jewel in the Institute's crown was certainly our partnership with the Calgary Opera in January 2007. We collaborated with the Opera Association for the world premiere of the opera *Frobisher*. To celebrate the occasion, a week-long symposium of activities was planned with AINA sponsoring three: a climate change panel, a presentation on Inuit art, and the world premiere screening of *Kiviug* by acclaimed Canadian filmmaker John Houston.

These events drew rave reviews from the community and the climate change panel pulled in a standing-room-only crowd.

In April, Benoît Beauchamp, Executive Director, and John Kendall, professor emeritus with the Faculty of Science, debated on climate change at a Science Café at the Unicorn Pub. These cafes are hosted by the Telus World of Science and the University of Calgary. This event also drew a standing-room-only crowd.

In June, AINA was one of over 60 booths at the University's annual Campus Fair, a community event aimed at the public, in particular families with young children. In 2007, the Fair was attended by more than 8,000 people.

In October, AINA co-sponsored the annual Gussow Conference with the Canadian Society for Petroleum Geologists (CSPG). Among the speakers at the conference were Michel Scott, chair of the AINA board and Devon Canada Vice President; Henry Sykes, new board member and President of MGM Energy; Benoît Beauchamp, AINA Executive Director; and Dr. Rob Huebert, AINA research associate. This meeting attracted over 100 participants from around the world.

The Institute co-hosted two guest speakers in the fall. In October, Brigadier-General Whitecross spoke on Canadian Arctic security. The talk was jointly sponsored by AINA and the Centre for Military and Strategic Studies. In November, we partnered with the Calgary Zoo to host a talk by Dr Hans Larsson, a McGill University paleontologist who hunts for fossils in the Arctic.

Also in November, Benoît Beauchamp was one of the featured speakers for the CSPG's annual address at the Jubilee Auditorium. Beauchamp and a second speaker, explorer Jeff MacInnis, spoke to a total of 1500 junior high school students and members of the public in the morning and evening sessions.

Northern Lights Series

The mandate of this joint Institute and University of Calgary Press series is to publish works of a nontechnical nature from all disciplines including the natural, social and earth sciences and the humanities. The series covers the geographic area of the North, which is defined as those circumpolar regions situated within the zone of continuous and discontinuous permafrost. William Barr continued as the series editor in 2007. There were no books published in 2007, but work was underway on three titles which should be published in 2008.



Photographic North

Work has been ongoing to make our photographic archives more accessible to local, national and international communities. In the past year, the collection has grown and has attracted the attention of researchers, news media and filmmakers from around the world.

In August, the University's Digital Imaging Centre completed scanning and uploading the majority of photos from our archives. There are now 2,228 images online. While the project is not yet complete, the bulk of the work has been finished. There are negatives and slides that need to be added to the online collection. In addition, metadata must be added to some online images and the number of search terms must be increased.

The online archives have attracted international attention:

- Archive photos of the Baffin Island expedition were used in a non-commercial documentary film being produced by Swiss film company Weissfilm.
- Negotiations with the BBC are ongoing about the possibility of the corporation using photos from the archives in a documentary it is producing.

One of the most exciting developments in 2007 was the donation of a diary and photo album that, together, provide a vivid picture of the maiden voyage of the Hudson's Bay schooner, the *Lady Kindersley*. In 1921, the *Lady Kindersley* left Vancouver to make a run to the Hudson's Bay outpost at Tree River, NWT. On board was Gladys O'Kelly, wife of Hudson's Bay employee P.T. O'Kelly. While on the trip, Mrs. O'Kelly kept a detailed diary that tells a harrowing story of a crew and ship battling fog, ice and fierce storms on their five-month journey. The diary and photo album are valuable new additions to the collection and they have been scanned and placed in our digital archives.

We are also happy to note that the photographic project received new funding from Atco Frontec and Devon Canada. Their generous donations will allow us to continue work on this valuable resource.



In 1953, Director of the Arctic Institute's Montreal office, Patrick Baird, led an expedition to the Cumberland Peninsula on southeastern Baffin Island. Pictured are members of the expedition on Mt. Asgard. These photos are from the Institute's online archives.



The Photographic North



In 1921, Frances Gladys O'Kelly began an adventure that few women of her day could or would want to make. She and her husband, Patrick Thomas O'Kelly, sailed to the Arctic on the maiden voyage of the Lady Kindersley, a schooner owned by the Hudson's Bay Company.

The details of her grueling journey are captured in her diary and photo album. Diaries like O'Kelly's put a human face on the dates and places found in official record books. This diary was generously loaned to the Arctic Institute of North America (AINA) by relatives of the O'Kelly family so that the images could be placed in AINA's online archives.

The Arctic Institute's collection contains over 4000 photographs taken by scientists, military personnel and explorers. The images are a valuable tool for researchers who want to explore the geography and culture of the north as it existed in the early part of last century.

To view the photographic archives visit www.arctic.ualgary.ca



Frances Gladys O'Kelly christening ship

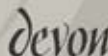
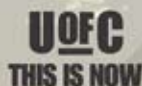


Frances Gladys O'Kelly with Inuit women



The Lady Kindersley

With thanks to our Photographic North sponsors:





Financial Report for the Fiscal Year Ended March 31, 2007 (Condensed)

The Institute's financial year ends on March 31 and the figures here reflect the latest complete year and comparatives. The information presented in this document is an extract of the financial statements. This summary financial information cannot be expected to provide as comprehensive an understanding of the performance of the Institute as the full financial statements. Audited financial statements can be obtained by contacting the Institute. The Institute is a wholly owned subsidiary of the University of Calgary. The results of operations and the financial position of the Institute are included in the consolidated financial statements of the University, which are audited by the Auditor General of Alberta. To reflect the total amount of Institute activity, project grants of \$30,200 (2006-\$27,000) and expenses in the amount of \$28,200 (2006-\$27,000) were also administered. These grants were received by the University of Calgary and were administered by the Institute. Funding for general and administrative expenses is received from the Province of Alberta, Department of Advanced Education and Technology, through the University. The University has also provided substantial in-kind support.

STATEMENT OF FINANCIAL POSITION AS AT MARCH 31, 2007

	2007	2006
ASSETS		
Current assets		
Due from University of Calgary	\$ 785,347	\$ 787,282
Petty cash	400	400
Accounts receivable	105,813	97,933
Inventory	12,102	14,332
Prepaid expenses	2,745	1,740
	906,407	901,687
Investments	1,216,597	1,188,646
Capital assets and collections	619,421	600,365
	<u>\$2,742,425</u>	<u>\$2,690,698</u>
LIABILITIES AND NET ASSETS		
Current liabilities		
Accounts payable and accrued charges	\$ 87,291	\$ 89,216
Deferred revenue	65,555	63,641
Deferred contributions	107,398	115,149
	260,244	268,006
Unamortized deferred capital contributions	112,747	79,852
Net assets		
Unrestricted net assets	1,293,501	1,255,802
Investment in capital assets and collections	506,674	520,513
Internally restricted net assets	117,135	133,249
Endowments	452,124	433,276
	<u>2,369,434</u>	<u>2,342,840</u>
	<u>\$2,742,425</u>	<u>\$2,690,698</u>

STATEMENT OF REVENUE AND EXPENSE FOR THE YEAR ENDED MARCH 31, 2007

	2007	2006
Revenue		
University of Calgary and Government grants	\$435,293	\$407,592
Sales of services and products	367,353	361,562
Donations and other grants	151,144	207,283
Investment Income	127,041	144,770
Earned capital contributions	6,996	4,621
	<u>1,087,827</u>	<u>1,125,828</u>
Expense		
Salaries	632,969	641,930
Benefits	96,992	101,566
Materials	259,287	283,870
Grants, scholarships and awards	24,250	22,135
Amortization of capital assets	24,346	20,299
Travel and meeting	38,530	24,021
	<u>1,076,374</u>	<u>1,093,821</u>
Excess of revenue over expense	<u>\$ 11,453</u>	<u>\$32,007</u>

STATEMENT OF CASH FLOWS FOR THE YEAR ENDED MARCH 31, 2007

	2007	2006
Cash provided from (used in):		
Operating activities:		
Excess of revenue over expense	\$ 11,453	\$32,007
Items not affecting cash flow:		
Amortization of capital assets	24,346	20,299
Amortization of deferred capital contributions	(6,996)	(4,621)
Gain on non-endowed and internally restricted endowment investments	(20,391)	(63,500)
Net change in non-cash working capital	(14,417)	(25,089)
Cash (applied to) generated from operating activities	(6,005)	(40,904)
Investing activities:		
Purchase of capital assets, net	(43,404)	(33,449)
Increase in long-term investments, net	(1,415)	(769)
Gain on investments related to externally restricted endowments	(6,143)	(19,142)
Cash applied to investing activities	(50,962)	(53,360)
Financing activities:		
Endowment contributions	8,998	770
Capital contributions	39,891	29,277
Gain on externally restricted endowments	6,143	19,142
Cash generated through financing activities	55,032	49,189
Decrease in cash and cash equivalents	(1,935)	(45,075)
Due from University of Calgary at beginning of year	787,282	832,357
Due from University of Calgary at end of year	\$785,347	\$787,282
Net change in non-cash working capital:		
Accounts receivable (increase)	\$ (7,880)	\$(26,506)
Inventory decrease	2,230	1,275
Prepaid expenses (increase) decrease	(1,005)	1,242
Accounts payable (decrease) increase	(1,925)	21,133
Deferred revenue increase (decrease)	1,914	(20,992)
Deferred contributions decrease	(7,751)	(1,241)
	\$ (14,417)	\$(25,089)



Arctic Institute of North America MEMBERSHIP APPLICATION

Thank you for your interest in becoming a member of the Arctic Institute of North America. The only requirement for membership in AINA is an interest in the North. Members receive the quarterly journal *Arctic* while supporting a vibrant organization devoted to the dissemination of northern research and knowledge.

MEMBERSHIP IS BY CALENDAR YEAR, JANUARY TO DECEMBER. DUES ARE AS FOLLOWS:

- ☐ Member\$ 65
 - ☐ Student\$ 42
 - ☐ Retired (65 or older).....\$ 42
 - ☐ Subscribing Organization.....\$ 150
 - ☐ Lifetime Membership\$ 650
 - ☐ Corporate Associate\$ 2500
- (Corporate Associate dues include Subscribing Organization fee and GST)

*Inside Canada, add 5% GST
(or 13% HST where applicable)
Outside Canada, dues are in
U.S. dollars*

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Gift from: _____

PAYMENT:

Total amount of payment, including taxes:

\$ _____ Canadian Funds _____ U.S. Funds _____

Cheque _____ VISA _____ Master Card _____

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2500 University Drive NW
Calgary, Alberta, Canada
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Financial Support

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- ATCO Frontec
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