

# Cosmonotes

Spring 1997

The Newsletter of the Canadian Alumni of the International Space University

## President's Message:

Greetings Everyone!

As I'm sure you're all aware, 1997 is a momentous year in the development of ISU, with the 10th anniversary of the founding conference this spring and the 10th summer session in Houston. It has been a truly remarkable decade, from an initial founding conference, to summer sessions all around the world, the establishment of a permanent campus, the inauguration of the MSS program, and an ever-expanding university with over 1000 alumni. CAISU itself has mirrored the growth of ISU, growing to approximately 100 members. CAISU has also promoted space education in Canada by organizing several successful workshops on space education and related topics. I am very proud to have served on the board the past two years, and I look forward to more challenges in 1997.

During 1996, the CAISU board has worked hard on building stronger links between the various alumni associations. Besides strengthening the alumni network, the main purpose was to increase the voice of alumni within ISU, and this issue will remain one of my primary concerns this year. Some of the major steps towards this goal are outlined within this issue. Building stronger links with ISU is a two part process, however. We also require your input and suggestions. The 10th anniversary is a good time for all of us to reflect on what ISU has meant to us, and to consider ways to things we can do to improve both ISU and CAISU.

If you have any suggestions for CAISU, do not hesitate to contact me. In the meantime, I wish you a great spring and summer.

Stephen Cheung ('94, '95)

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A Canadian medical student (the author) had the opportunity to send two space life sciences projects into space in November '96 as part of the STS-80 space shuttle Columbia payload. The experiments also represented the first Israeli-Canadian Joint Space Medicine Project as Kevin paired up with Eran Schenker (ISU'96) from Israel. The opportunity was awarded in an international competition by Instrumentation Technology Associates, a Pennsylvania firm that builds and leases space hardware and shuttle space.

The first experiment investigated why astronauts lose bone mass in microgravity. The experiment involved sending osteoblasts, the cells that make bone, into microgravity and observing how they proliferate and function in microgravity. The second experiment represented the first involving early mammalian embryo development in microgravity. Mice embryos were launched into space to observe their growth and to determine the role of gravity in early cell division. Both experiments were successful and are currently being analyzed.

The experiments provided an excellent hands-on learning experience for both of the ISU alumni. Both of the alumni spent over 3 weeks working at NASA's Johnson Space Centre in Florida preparing for the experiments. Kevin stated "it was an incredible experience that allowed me to learn much about space medicine and the future of space exploration." It is hoped that ISU alumni continue to play a key role in the promotion and development of International Space Projects such as this one.

## CALL FOR PAPERS

### ISU Alumni Conference 1997

**Abstracts are due on or before  
1st April 1997.**

"A Uniting Space Approach for the 21<sup>st</sup> Century"

The United States of America and the great state of Texas await you !!

The sixth Alumni Conference of the International Space University, coordinated by the ISU U.S. Alumni Organization (IUSAO), will be held at the site of the ISU '97 summer session program in Houston, Texas during the ISU Alumni Weekend, held on the 11th (Friday) of July. All alumni of the ISU are invited to submit papers to the conference.

As in previous years, a special effort is being made to solicit papers with a strong connection to the ISU'97 projects. This, plus the addition of some high-profile keynote speakers, will increase '97 student involvement in the '97 ISU Conference. Papers will be given as oral presentations in twelve sessions. Presentation length will be 15 to 20 minutes, including discussion.

The ISU Alumni Conference papers will be formally published. There is a good possibility that the papers will become an annual volume of an "ISU Space Studies" publication series. (The first book of the '97 publication series would be the proceedings from the Feb. '97 ISU Annual Symposium.) Please send your abstracts to the Convenor (see ISU Digest #628) for the session or contact:

Emeline Paat-Dahlstrom.

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## Comet Hale Bopp

photo by Peter Nelson

<http://scienceweb.dao.nrc.ca/comet.html>

If you happen to be looking in the Northwest direction, near the horizon, you may see the head and fuzzy tail of comet Hale-Bopp. Already visible to the naked eye, it will be getting brighter until the end of March. The picture, found on the net, was taken in the morning at MIT's Haystack Observatory (an upper-atmosphere research facility) in Westford, MA. Apparently, the comet was seen in Siberia during a solar eclipse and in the Gatineau Park by skiers that should have been editing.

## International Training for Environmental Leadership (ITEL)

by Michele Shemie (SSP 94)

ISU alumni are involved in the coordination and execution of an annual international training program, ITEL. Marli Alves dos Santos (SSP'94 &'95) from São Paulo, Brazil, coordinated this year's event, assisted by Hedley Richards (SSP'93 &'95) and Michele Shemie from Montreal.

ITEL is a two week training program for professionals and graduate students of all disciplines, in which they attend lectures, workshops, discussions and guided tours all geared towards gaining insight on environmental issues and problems, while focussing on implementable and practical solutions. Potential solutions to certain problems are discussed, however many actual working solutions, from recycling programs to high school education programs, are visited and studied. Each ITEL participant brings to the

program their own expertise and enthusiasm to maximize the exchange of information. A poster session allowing the participants to contribute their own experience is a regular part of the ITEL program.

This year's ITEL brought people from Brazil from cities such as São Paulo and Vitória. Their professions included heads of environmental Non-Governmental Organizations, biologists, chemists, astronomers, educators and consultants in environmental education programs.

The first week of this year's ITEL took place in Toronto. Among the scheduled activities was a half day workshop on global education. Environmental education through wholistic learning were discussed and demonstrated. One seminar was devoted to green-business. The strong conclusion of this presentation is that conducting business in an environmentally friendly way makes very good business sense.

The second week of ITEL was held in Montreal, where lectures included one from the Sustainable Development Research Centre and the Canadian Space Agency, where the role of space technology in environmental issues was addressed. Visits included the CN Tower's Ecodeck, the Ontario Science Centre, the Biosphere and

Biodome. A little bit of leisure time and a few evening outings were of course included in the program

ITEL is run by the Nucleo de Informacao e Estudos para Gestao Ambiental (Information and Resource Centre for Env'tl Management), headed by Marli Alves dos Santos in São Paulo, Brazil. It has run for four consecutive years, each time in Montreal and Toronto with preparatory meetings in São Paulo. The fifth ITEL is now actively being planned.

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## The Alumni and ISU:

Stephen Cheung ('94, '95)

A concern that many ISU alumni seem to share is the lack of alumni input back into ISU. ISU sometimes seems to have so much momentum that it will carry on regardless of our input. Part of the problem also stems from a lack of communication between the alumni and ISU. With the constant expansion of ISU both in its Washington office and its permanent campus in Strasbourg, it is sometimes a daunting task to even know who to send a suggestion to.

One thing I want to impress on everyone is that ISU is indeed willing and eager to receive our input on anything that may improve the program. During focus groups held recently throughout North America conducted by Roland Dore, Roy Bunce, and Greg Richey, the fact that the alumni are ISU's strongest resource was repeatedly stressed by the attendees. In terms of promoting ISU, few things can beat successful alumni. CAISU and the other alumni associations have worked hard over the past year to stress the importance of alumni to ISU, and we have managed to take some significant steps.

The alumni associations have decided to increase the tenure of the alumni representative on the Board of Trustees from one to two years, effective immediately with the 1996 representative from Japan, Dr. Hajime Yano (Japan, '93). One concern felt by the alumni reps was that, with only 3 BoT meetings a year, there wasn't enough time to learn the ropes and to be fully effective. IUSAO will be selecting a rep for 1998-99, and CAISU after that in 2000-01. I remind everyone that Dr. Yano is representing all alumni, not just Japanese alumni. He has done an excellent job, seeking advice from all alumni, and I encourage you to voice any concerns to him (yano@planeta.sci.isas.ac.jp). The next BoT meeting will be in early May, so he will be again seeking your input. Other agreements made over the past few months include the extension of travel funding by ISU for the alumni rep, and the establishment of regular teleconferences between ISU and the alumni associations before each BoT meetings. Please contact me with any concerns.

### ALUMNI HELP NEEDED!

April 12 is the 10<sup>th</sup> Anniversary of ISU. Stephen Cheung will organize a party in Toronto. Help is requested for a party in Montreal! Please call Stephen or John Criswick. Maybe we can conference call between the parties!

Our help is sought in promoting ISU to the world. One project in the works is a web page detailing some of the achievements of alumni, and also what ISU has meant to the alumni, professionally and personally. They are seeking short notes from as many alumni as possible, in order to demonstrate to ISU supporters the benefits of investing in ISU. Please take a moment to write something about yourselves and submit them to Ms. Emeline Paat-Dahlstrom at paat@isu.isunet.edu.

## CAISUer reunites with ISU community

Brian Rishikof

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The community of space professionals in industry and education live in a sort of house. That house has windows and doors; windows through which one can see what is happening, and doors through which one can pass, gaining the opportunity to get involved.

As all of us know, the ISU provides each participant with great views through the windows and keys to those doors. But even with access to the views and the keys, it takes some effort to get your foot in the door. Thankfully, there are those on the other side who can occasionally help you in.

The ISU community is overflowing with examples of such cooperation from people on both sides of the doors -- in Canada perhaps more than anywhere else. These examples stem from the summer session experience, and more recently, the MSS. I will briefly recount the story of a current project that re-invigorated my belief that the ISU alumni will lead (and are leading!) the advancement of humans into space.

Some years ago, I began studying part time-toward an M.Sc. degree at the University of Houston (Clear Lake). While working and studying, I attended the ISU summer session in Toronto in 1990 and went on to work as a staff member in Toulouse and Kitakyushu. As my studies progressed, I searched for a topic on which to base a thesis project. In walks David Kendall, ISU Space Physical Sciences co-chair and Program Scientist for the CSA. With his help, and the cooperation of the University of Houston, a project emerged from a CSA experiment that flew on STS-52.

The experiment, called OGLOW II, sought to study the phenomenon of spacecraft glow which is caused by the atoms and molecules of the upper atmosphere interacting on a spacecraft surface, and with the surrounding

environment, to produce a glowing effect. This effect can occasionally be observed with the naked eye, but is also present at infra-red and ultra-violet wavelengths.

The experiment's predecessor, OGLOW I, flew on STS-41G and identified some important characteristics of the glow, especially its variability with spacecraft surface temperature. OGLOW II results include data which will help identify glow at specific UV wavelengths, and changes in the glow that occur as a result of thruster firings [if you'd like more information, please contact me directly]. This all happened around 1993/94; however, circumstances conspired to keep my attention away from the project until very recently. This "very recently" was January 1997, and I now find myself working on it full time (until around May 1997) thanks to my employer, McDonnell Douglas.

In order to accelerate progress, a trip to Ottawa to confer with David Kendall at the Sussex Laboratories for two weeks in February was arranged. And what a rewarding experience it was. In addition to learning a great deal about the glow phenomenon, the details of the analysis, and the tools with which to perform the analysis, I was re-immersed into the ISU community in Ontario and Quebec.

The re-immersion led to reunion after reunion, meeting old friends and making new ones. For those with a scorecard, it included dinner with Chris Sallaberger (and family) plus distinguished scientists from Canada and the US; a tour of the University of Ottawa's Chemistry Lab for laser photolysis and mini squash tournament with Alain Berinstain and David Kendall; a critical business meeting with Roanie Levy; a pancake brunch with David Kendall, Alain Berinstain, Vivian Welch, Stephen Cheung, and friends; a country feast of raclette hosted by Judith and Stéphane Lapierre, with David Kendall, Jean-François Simard (et sa famille), Simon Dufresne, Sebastien Drouin, Aila and friends, Brigitte Vachon and Joel Bisson; dinner and a hockey game (Go

Senators!) with Alain Berinstain; CSA meetings and tours (including the very impressive virtual reality training environment), followed by a night on the town in Montréal, courtesy of François Terillon, Denis Bourque, Stéphane Lessard, Catherine Casgrain, Gary Crocker and a future ISUer.

One of the unwritten mottoes of ISU -- work hard and play hard -- flooded back, filling me with great emotion and satisfaction, not to mention motivation. Having spent a considerable amount of time "out of the ISU loop" (working on the IRIDIUM project in Phoenix, Arizona), I now realize what a valuable, and rewarding resource the ISU network really is, both personally and professionally. I encourage everyone to search for those windows and doors, and help open them for others if you can. But most importantly, stay involved.

A big thanks to those who made this possible, especially to David Kendall and family. I hope to see you all again soon.

## **SPACE JOBS:**

### **Catering to the Special Needs of the Space Community**

John Criswick (SSP 90) has recently launched a web site, SPACE JOBS, which connects space-related job seekers and employers in a way that allows both to find precisely what they are looking for.

Job seekers can search through career postings at no charge by logging onto the WWW site at [www.spacejobs.com](http://www.spacejobs.com). The site features full descriptions of each opening, summary information about the employer, and links for sending resumes over the Internet.

Unlike many other career sites, visitors are not required to register to view the openings. However, registered job seekers can choose to receive job updates by e-mail, according to specified criteria. Since its startup last summer, SPACE JOBS has attracted

more than 2,000 subscribers. Employers pay for job advertisements at a fraction of the cost of most other media. Employers really like this service because it allows them to specifically target the market. They know that their job postings will go to people who are serious about space careers and have the appropriate experience.

Drawing upon the success of SPACE JOBS, the company will launch a new site-AERO JOBS-in April to provide full coverage of the aerospace field. The new site will be located at [www.aerojobs.com](http://www.aerojobs.com). To check out SPACE JOBS, visit the web site or contact SPACE JOBS Inc. at:

email, [info@spacejobs.com](mailto:info@spacejobs.com)  
tel.: 613-562-2816  
fax, 613-562-1784.

## **CAISU Conference**

by J. Criswick

It is with some relief that I report to you the success of yet another CAISU sponsored conference! My predecessors (those who organized earlier CAISU conferences) will attest to the fact that organizing one of these conferences in your spare time is a lot of work. I was fortunate, though, to have Jean-François Simard '94 involved as co-chair from the beginning. The theme was 'Low Cost Access to Space in Education' and our primary focus in this field was on the development of microsat programs in the University environment.

The conference took place on November 12, 1996 in tandem with the CASI 9th Astronautics Conference in Ottawa. A number of microsat projects have taken place in Canada, but, to date, only on paper. Canada does have some minor involvement in developing components for AMSAT's Phase 3-D spacecraft. However, the most promising project to date is the Sila microsat being designed as a student project at Carleton University.

We felt the idea of holding the LCASE conference would therefore be timely in the 'Canadian context'. One of the features of the conference was to invite speakers with expertise from abroad. All of these speakers had some experience developing and launching microsatellite platforms and their presentations were very relevant to those in attendance.

Invited speakers included: Prof. Robert Twiggs of Stanford University, Dr. Mark Allery, Surrey Satellite Technology Ltd., U.K., Mr. Sias Mostert, University of Stellenbosch, South Africa Dr. Rick Fleeter, President, AeroAstro Corporation, U.S.A

The program was balanced with presentations from Dave Kendall (CSA), George Tyc ('95) (Bristol Aerospace) and Matt Bullock '95 (Carleton Univ.). Overall we had a good response and feedback from the one day event. Some 75 persons were in attendance from the industry, university and government sectors.

I would like to thank, particularly, Jean-François Simard for all his help and time in the planning process and Sebastien Drouin '94/95/96/2 for his help prior to and during the conference (including his production run of the 'Jules Verne Poster'); and the many ISU alumni who provided help during the conference. We would also like to acknowledge and extend a word of thanks for the financial support provided by both the Canadian Foundation for the International Space University and the Canadian Space Program's Space Awareness Grant Program.

## ISU Booth Needed for SPS'97 Conference

An additional component to our involvement in the CASI Astronautics Conference in November was to promote the ISU Summer Session and MSS Programs through a poster presentation of recent ISU student projects. It was also an opportunity to provide application

packages and speak with potential students. We would like to do something similar for the SPS '97 Conference being held in Montreal August 24-28 this year.... But we need a volunteer to take this on. All you need to do is set up an unattended table with information on ISU including application packets (provided by ISU-Washington). If you are interested, please contact John Criswick.

## 2111 FOUNDATION

Mini-biospheres flying on Mir. A native population using remote sensing to preserve an endangered rainforest. An investigation into dolphin communication methods as an analog to extraterrestrial intelligence. These are just a sample of the scientific research partly funded by the 2111 Foundation for Exploration.

This three-year-old non-profit organization, founded by an international group of ISU alumni, has been funding valuable research that links the Earth and space. "We support work in two areas," explained co-founder Charles Cockell (UK, '91). "One area encompasses expeditions that can help us prepare for exploring other worlds, such as isolation studies and scientific work in Antarctica. The other is the use of space-related technologies, such as remote sensing, to solve environmental problems on Earth. Our goal is bring together the space and environmental communities in new ways." The foundation is a direct result of the 1991 session, which featured the International Mars Mission. Co-founder John Criswick (Canada, '91, '94, '95) said doing the project reinforced the importance of creating a balance in Earth and space exploration. "We can't forever remain on Earth," said Criswick. "But, we can't be off exploring space while we're slowly destroying the only habitable planet in our solar system. We need a balance."

Co-founder Doug Messier (USA '91, '92) credits ISU for allowing him to combine his life-long interests in space and the

environment in a new way. An avid recycler since long before it was popular, he gained a deep appreciation for environmental issues while covering them as a journalist in New Jersey. "Some people subscribe to the 'disposable Earth' theory," he added. "It's the idea that if Earth gets bad enough, we can simply start over again elsewhere. The IMM convinced us that this would be a difficult, time-consuming process that might leave many people behind."

In creating the foundation, Cockell drew upon his own experiences in planning expeditions to remote areas around the world. He organized and led the first British scientific expedition to Mongolia in 1990. Three years later, he piloted a microlight aircraft in an attempt to catch moths over the Indonesian rainforest as part of a biodiversity study. He also spent a month at the American Antarctic research base, McMurdo, doing studies on how algae adjust to increased ultraviolet radiation resulting from ozone depletion.

"It's been very rewarding," Cockell said. "We assisted native peoples in Guatamala use remote-sensing data to help preserve a rainforest. It's a great feeling to know the foundation is making a difference in the world." The foundation plans to launch a K-12 education program that will teach children about environmental sciences and space exploration. The funded expeditions will provide real-life examples that bring the excitement of discovery into the classroom.

"We want to make the excitement of exploration real to the students," said Messier, who edits teacher's guides for the National Science Teachers Association. "We're planning to connect them via Internet and other interactive media. All this will be done within the context of a solid education program." The organization is named after the two-hundredth anniversary of the first expeditions to the Earth's South Pole in 1911. The organization expect that explorers will stand at the Martian south

pole by this date. If this has been achieved, we will launch a commemorative martian polar expedition in the year 2111.

The foundation has a series of awards to recognize significant achievements in the exploration of other worlds. Awards will be given to the first groups to reach the martian north and south poles by overland route, circumnavigate the planet, reach the top of Olympus Mons, and pioneer martian aviation.

Similar prizes exist for lunar exploration. "The awards help maintain the link with past planetary exploration," Cockell explained. "We want to recognize the skill and courage of brave explorers who challenge the frontier." For more information

tel: 1-888-THE-2111.

Email: [foundation@twentyone-11.org](mailto:foundation@twentyone-11.org)

<http://www.twentyone-11.org/>

## Canadian ISU alumni

Is your name missing from this column? Send in your updates to Vivian at [labonte@compmore.net](mailto:labonte@compmore.net). We will try to publish updated news for ISU alumni, to help keep people in touch.

## ISU 1989

Bob Cheung is still working as defence scientist at DCIEM in the area of spatial orientation.

## ISU 1990

Brian Rishikof is at McDonnell Douglas, and is reuniting CAISU members in Ottawa.

## ISU 1991

John Criswick has his fingers in every pie. He is running an excellent SPACE JOBS web page, starting another for aerospace, treasurer for CAISU, running an internet service provider, and enjoying himself at Ottawa's most decadent dessert cafe on top of it all.

Marty Pecaric is in the final 6 months of his PhD thesis on aerospace physiology at DCIEM in Toronto.

Gary Leung is at Allied Aerospace.

Alain Berinstain has just landed a job at CSA in the microgravity program, directly as a result of having participated in the 1995 MSS program. He is very happy and almost done his PhD in Chem. at U Ott.

## ISU 1994

Michele Shemie is working at Pratt and Whitney and contributing to ITEL.

Stephen Cheung is practicing the Fiddler on the roof bottle dance, moonlighting as a web-designer and cycled across Canada for Canadian Unity last summer. Somewhere in all that, he plans to finish his PhD this fall.

Eric Epstein is at Allied Signals. He continues as chief CAISU T-shirt designer!

Catherine Beaudry bought a house in Oxford and his continuing her PhD in

business and space.

Kim Barker is completing a residency in Kenora, Ontario. She worked in Africa last summer at a medical clinic.

Louise Cleroux just finished her PhD in robotics at Laval University and is looking for work in Montreal.

Yifang Ban is working at KTH in Sweden, and engaged to Jonas (Swedish SSP 95).

## ISU 1995

Matthew Bullock has finished his M.Eng. and is going to ESTEC to torture astronauts by designing a life-support system.

Vivian Welch was recently awarded a research contract at Health Canada and is skiing up a storm.

Tony Hong got married in Fall 1996 and is starting to look for work after he completes his PhD.

Chantal Lamontagne has started her PhD work at UTIAS on high-velocity impacts in Toronto.

Derek Plansky just got married in Toronto in March 1997.

Judith Lapierre is completing her PhD in Public Health, has been accepted for post-doctoral work at ISU, and is awaiting a scholarship from the French government.

## ISU 1996

Lara Srivastava is working on her end of term at the the Science policy research unit at the University of Sussex in Brighton, England.

**DID YOU GET A CAISU 1996 T-SHIRT?** If you want one, they say "Take Off, Eh? And Decolle-Toi" and have a Canadianized JASA shuttle on the back, complete with tuque. Contact John at the coordinates below. They're \$20.00.

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Johanne Heald is in the last throes of her Master of Science thesis at UTIAS, after which she is off to ESTEC.

Matt Wuhr is working at CAE in Montreal on a contract.

Marc Abela is in Mongolia on a road trip taking the Trans-Siberian to Moscow.