July 2001

Cosmonotes

Juillet 2001

The Newsletter of the Canadian Alumni of the International Space University

Le Bulletin des Anciens Etudiants Canadiens de l'Université Internationale de l'Espace

President's Message

I am constantly amazed by the quality of students Canada sends to ISU each year – and this year is no exception. As President, I am pleased to welcome to the growing CAISU family a record number of Canadians selected to attend SSP 2001!

- Catherine Beaulieu
- Pierre Boisvert
- Bojana Djordjevic
- Richard Giroux
- Ryan Granlund
- Suzanne Green
- Jameel Janjua
- Catherine Laurin
- Nancy Martineau
- Simon Nolet
- Joanne Patry
- Laryssa Patten
- Kevin Ramchandar
- Joan Saary
- Jennifer Sokol

I can't help but remember my own summer session and wishing I could do it all over again with you - the memories you will take away from the incredible experience we call "ISU", and the friendships made during the summer, will definitely last you a lifetime. To the class of 2001, I wish you an amazing summer, and I know you will make us all proud in Bremen.

Remember that you are now part of a family that is here to support you before, during, and after the summer session. And that goes for all Canadian alumni, SSP or MSS. CAISU, as an association, has grown in leaps and bounds, and it is because of our members that we have accomplished so much. CAISU members are deeply involved in the Canadian space community, visibly promoting space awareness within Canada and internationally, and especially to the next generation. We are setting a great example, and people are starting to notice – hopefully they will all catch the CAISU enthusiasm contagion!!

The CAISU Board of Directors has been hard at work since the Annual General Meeting last November. The many projects that we have taken on have kept us quite busy, and we are now relying on even more CAISU volunteers to help us accomplish all the goals we have set for the continued growth of our association. In particular, several members have taken on the management, and challenge, of several of our larger and longer term projects. These projects will continue after the term of the current BoD is concluded, and hence have the best possibility of success as the focus persons will remain the same irrespective of CAISU elections. As President, I am indebted to my Project Managers for taking on these responsibilities, and for their continued assistance.

Alain Berinstain (SSP 91, MSS1, CAISU CFISU Liaison), as CSA Merchandising Project Manager, has been very dedicated in his efforts to make sure that on-site sales at the Canadian Space Agency in St-Hubert got off to a great start with the shuttle missions of Marc Garneau and Chris Hadfield. CAISU now has an employee, Cathy Showalter, who has taken the position of manager of the sales kiosk, and who also deals with all shipping orders via the website. More merchandise is slowly being added to the inventory, and we foresee continued growth in sales - please visit our sales website at www.space-boutique.com

Thierry Fontaine (SSP 99) has taken on the History of Space as Project Manager. This project is so incredibly vast in scope, Thierry will have his hands full! Already, he has attacked the challenge - please see his article in this issue.

Valery Tessier (MSS5) is our SSP in Canada Project Manager. Yes, CAISU intends on bringing the SSP back to Canada!! Valery, with the assistance of Noemi Nagy (SSP 93), is collaborating with Canadian cities to come up with the best possible SSP bid to ISU. A letter of intent has recently been sent to ISU President Karl Doetsch indicating that CAISU intends on making a bid for a future SSP in Canada. Please see Noemi's article in this issue on the progress to date.

One of our newly appointed managers, Eric Choi (SSP 99), has taken on the challenge of being Web Content Project Manager. His task will be to take over our CAISU webpage www.caisu.ca, to keep it current, and to seek out and provide new and improved content. He will be greatly assisted by Simon Kruijen (MSS5) who has volunteered to become our new CAISU Webmaster. Thank you Eric and Simon for volunteering – your help will be invaluable in disseminating CAISU activities to our members and future applicants, and also in keeping everyone informed and fascinated!

Any support that the CAISU Board of Directors can provide them can greatly be magnified by gaining more volunteers from the CAISU membership. If you are interested in helping out with any of these projects, or if you would like to volunteer new projects or ideas to the BoD, please let me know (clamont@utias.utoronto.ca). The Board is always looking for more volunteers!

The CAISU Board is currently preparing for the SSP 2001 send-off activities – we hope to see many alumni in Cambridge on July 12th for the student send-off banquet. CAISU will be participating in the student briefings, and also providing some entertainment during the evening banquet. The students have been in contact with each other since early May, and this year's group is keen, having their cultural night practically organised before they even leave the country!

Changes are in the air – the CAISU t-shirt has been redesigned by yours truly to more accurately reflect our varied membership. The t-shirt is now black in color, and no longer includes the SSP year and city, just our CAISU

logo on the front, and a new unique design on the back. As of this year, there will only be one CAISU t-shirt, to be distributed to all Canadian SSP and MSS students each year. One CAISU family. One t-shirt. We will also be distributing these t-shirts in the near future to all previous MSS students, from program years 1 to 6, who have never been given a CAISU t-shirt before. (Any CAISU members from past years who wish to purchase one of these new "official" CAISU t-shirts should contact me for information. For those interested, the t-shirt design will be placed on our website after the send-off.)

The best way to learn about CAISU activities is still to attend one of our many alumni gatherings. We strongly encourage the new students and all alumni to join these events as they are also a great way to network and to promote space within Canada. Another great way to stay apprised of our activities is by volunteering to help out with our many projects, or to join the Board of Directors by responding to our Election call for a new CAISU Treasurer (elections will be held in the fall for all other BoD positions for 2002).

Again, our association is only as great as the members we serve – please let us know if the CAISU Board of Directors is doing the job YOU think we should be doing. We gladly accept any suggestions for improvement or future growth you may have, and I hope you are as excited as I am by the projects we have undertaken. 2001 will be an amazing year!

Chantal Lamontagne (SSP 95)
2001 CAISU President

Editor says Goodbye!

Hello, me again!

It is with great sadness that I announce that this issue of Cosmonotes will be my last as Editor. I have enjoyed learning all the facets that CAISU members have revealed to me, and will continue to make contributions to future editions, but I now have to pass on the position of Editor to someone else. Now that I have found a replacement in Johanne Heald (our CAISU Membership Director), I will be better able to concentrate on my responsibilities as CAISU President, and all the duties the position entails (which are many!). The time I dedicated to creating 3 years' worth of Cosmonotes newsletters was amazing, and I will always remember fondly the many hours spent on email querying, cajoling, and downright begging for articles or missing segments. Your contributions have been amazing and well worth the effort.

My heartfelt THANK YOU to all who have made contributions to the Cosmonotes during the last 3 years, therefore making it a true alumni newsletter. An editor is nothing without such contributions, and that's what makes Cosmonotes so great.

Here then is the July 2001 issue of your CAISU Cosmonotes. Thank you everyone who sent in a personal update – these little snippets into your daily lives keep the CAISU family unified (and satisfies the downright curious who think you've disappeared off the face of the Earth). I have enjoyed reading these and incorporating them into the newsletter. Thank you also to those who contributed articles – to my Board of Directors who graciously accepted their "homework", and to CAISU alumni who suggested or volunteered articles. My special thanks to Eric Choi (SSP 99) who went above and beyond by writing no less than 3 articles for the newsletter – this is truly appreciated – please see his articles on the ISU central campus project, the Space Summit 2001, and the newly created Canadian Space Exploration and Development Institute. Stephen Cheung (SSP 94) has contributed a heartfelt article on how ISU has positively changed his life and teaching methods, while Liara Covert (SSP 00) describes progress in space-related education in New Brunswick. Alumni gatherings are described, including Yuri's Night activities in Vancouver from a new CAISU member, Trish Garner (SSP 99 UK). You will also find articles relating to the 2001 summer session program, and an article describing my experiences at the shuttle launch of Chris Hadfield and the SSRMS in April.

This edition of Cosmonotes was slightly delayed to include the published final report from our mini-ISU day conference held last November. We are hoping to adopt the same conference format for our CAISU conference next year – so please read the report, and give the Board of Directors your feedback or suggestions for next year.

I hope you enjoy my last edition of Cosmonotes as Editor!

Chantal Lamontagne (SSP 95)
2001 CAISU President
Departing Editor, Cosmonotes

Election Call for CAISU 2002 Treasurer

Due to professional requirements on the part of our current CAISU treasurer, Isabelle Tremblay (SSP 98), CAISU will need to hold an early election for the position of 2002 CAISU Treasurer. The position would begin in September 2001, to overlap and take over Isabelle's responsibilities, and would then continue into the full 2001-2002 CAISU Board of Directors term. This is a full voting position on the CAISU BOD – please see the CAISU website for a description of the position.

Normally, elections are held at our Annual General Meeting in the late fall or early winter. But the position of treasurer is an integral part of our organisation, and the position cannot be left unfilled without affecting the health and well-being of CAISU and our daily (and diverse!) activities.

Nominations for the position of CAISU Treasurer will be accepted by fax (attention Chantal Lamontagne, UTIAS, 416-667-7799) or by email (clamont@utias.utoronto.ca) until August 1st, 2001. Please include your name, year of ISU participation, and a brief paragraph describing yourself and your possible involvement on the BoD as Treasurer. Only CAISU members are eligible for the position. The nominations will be posted on the CAISU website, www.caisu.ca, by August 8th.

Voting for the position of CAISU 2002 Treasurer can be performed by fax

(listed above), email (listed above) or telephone (Chantal at 905-653-2310) between 3 pm EST, August 13th, and 3 pm EST, August 24th. Due to the unusual nature of this election, no proxies will be allowed, and only members currently in our CAISU Contacts List will be permitted to vote. (If you are not currently on our CAISU Contacts List and you are a CAISU member, please contact our Membership Director, Johanne Heald, at johanne.heald@colorado.edu) The election winner will be notified as soon as all results are tabulated, and responsibilities will commence as of September 1st, in collaboration with the 2001 CAISU Treasurer.

Space Summit 2001

by Eric Choi (SSP 99)

The Canadian Space Exploration and Development Institute (CSEDI) and SEDS-Canada are pleased to present Space Summit 2001, which will take place at the Richardson Labs Amphitheatre at Queen's University in Kingston, Ontario, on Saturday, July 14th. The Summit is an effort to coordinate Canadian space science and education activities. Now in its second year, this one-day meeting will gather Canadian space organizations together to discuss public outreach, government support, and university research. SEDS-Canada and CSEDI are hosting this free event to discuss space policies of interest to the Canadian space exploration community. Again, there is no attendance fee, and attendance by ISU alumni are particularly welcome.

The Summit is also issuing a Call for Speakers on any subject of interest to the space exploration community. To indicate your interest in speaking or attending, please contact Nishi Rawat (SSP 99) at n_rawat@hotmail.com

Space Summit 2001 Agenda

8:30 Room set-up.

9:00 Welcome attendees by Nishi Rawat, SEDS-Canada.

9:15 Presentations by invited speakers.

11:15 Open discussion; divide into working groups.

12:00 Break for lunch (working groups can meet over lunch).

1:00 Working groups meet.

3:45 Working group chairs present summary to the attendees.

4:30 Open discussion, decide future activities.

5:15 Announcement of Call for Papers for the premier issue of the *Canadian Journal of Space Exploration.*

5:30 Closing speaker.

6:00 Workshop closes.

Update on SSP in Canada

by Noemi Nagy (SSP 93)

In the last few years, a group of CAISU alumni initiated efforts to bring the ISU Summer Session Program (SSP) back to Canada. After being approached for support by more than one city group, and after assessing the amount of work and funding needed to prepare a competitive offer, the CAISU Board of Directors assigned Valery Tessier (MSS5) to undertake management of the "SSP in Canada" project, and I volunteered to help with the project coordination.

Summer 2005 was the established target date, however to increase our chances, a bid for an open year will be submitted to ISU. The goal was to find the most suitable site for the SSP, and a city pre-selection is first being performed within Canada, in coordination with the CAISU Board of Directors. At the end of February, a survey was sent out to all CAISU members asking their opinion on where the session should be held and at the same time asking for volunteers to help in preparing a bid at different Canadian locations. In total, 20 people replied and 60% of them were interested in getting involved. Potential locations from across the country were suggested, including Calgary, Halifax, Montreal, Ottawa, Quebec, Saskatoon, Sherbrooke, Waterloo and Vancouver/Victoria. Thank you so much for all your support!

From the level of interest indicated in the survey results, four different SSP in Canada teams were formed in Halifax, Montreal, Ottawa and Vancouver. The teams were asked to gather basic information about the support of potential host institutions and possibilities for lodging, transportation, etc. The preliminary bids are expected by July 15th, and an impartial review committee (the CAISU Board of Directors) will assess and decide on which city CAISU and CFISU will officially support. After the city selection, the actual budget will be worked out and fundraising will commence, to prepare a final bid to be submitted to ISU by the end of 2001.

We encourage everyone interested to get involved and contact Valery Tessier (valerytessier@hotmail.com) or Noemi Nagy (nnagy@chem.utoronto.ca) or anyone on the CAISU Board of Directors (caisu-bod@yahoogroups.com).

Update on History of Space Project

by Thierry Fontaine (SSP 99)

The "History of Space Exploration" project is on track! My name is Thierry Fontaine and I was a student at SSP 99 in Thailand. I am currently serving as the Project Manager for the CAISU Space History project. Historically, the project's spiritual father is Alain Poirier (SSP 89) (former CSA Director, Space Systems). Mr. Poirier has collected and developed an impressive portfolio of space exploration history archives. I attended one of his presentations on the history of space exploration at CSA back at the CAISU AGM in November 1999, which truly inspired and fascinated me! I decided to take on the challenge proposed by Mr. Poirier and contribute to further expand his initiative aimed at the development of a web portal on the History of Space Exploration. This grand project has already several CAISU supporters and team players such as Eric Choi (SSP 99), Angelina Guzzo (SSP 99),

Jonathan Knaul (SSP 98) and Isabelle Tremblay (SSP 98). I invite every ISU alumni interested in participating in this project to get in touch with me as well. As the Project Manager, I will begin by drafting out a development plan for the History Of Space Exploration Project which should be available by the end of the Summer. I will also start reviewing the material that Mr. Poirier made available to us. A preliminary overview of the project plan is presented below. Please step in if you have any comments, questions or feel that you could contribute. The project will need multi-disciplinary (in a true ISU tradition) skills and inputs like project management, web design, space history knowledge, and more.

Thank you and I look forward to hearing from you, Thierry Fontaine, t_fontaine@sympatico.ca

History Of Space Exploration Project Development Plan (Preliminary)

- Overview
- Project scope
- Objective
- Inputs
- Deliverable/Output
- Team organisation
- Project Steps
  - Gather, review and organize material from Alain Poirier
  - Inputs from team
  - Develop concept
  - Develop structure (modular)
  - Develop navigation system/menus/site map
  - Identify implementation solution
  - Prototype
  - Validate and approve solution with BOD
  - Design
  - Implement
  - Test
  - Put on-line
- Logistics
  - Schedule
  - Host/server
  - Free use of space material (verification)
  - Maintenance

Summer Session 2001

The 2001 edition of the ISU Summer Session Program will be held at ZARM - the Center of Applied Space Technology and Microgravity at the University of Bremen, Germany, from July 14 to September 15, 2001. Alumni weekend activities are scheduled from Wednesday, August 22nd, until Sunday, August 26. A preliminary outline of activities includes registration on the 22nd, alumni site tours during the 23rd in the afternoon and an evening art exhibition opening, an Astrobiology Theme Day on the 24th with a distinguished lecture in the evening. The Alumni Conference will be held on August 25 between 9 and 5, and this year's topics are "Space Exploration: New Developments" & "Micro and Mini-Satellite Projects: Market Perspectives and Opportunities". The now famous Space Masquerade Party will be held the evening of the 25th. On Sunday August 26th, an alumni "chill-out" program is offered.

SSP 01 Design Projects

by Josée Adamson (SSP 99, 2001 CAISU Vice-President)

DP 1: Commercializing Space Stations

Mission: To execute a project on the Commercialization of Space Stations. In performing this project the team will first investigate the commercialization of human space flight and of space stations in particular.

In addition, the team will analyze how this commercialization may act as a stepping stone for the future human exploration, whether purely scientific or even commercial, of space beyond the near-earth environment.

The International Space is bound to expand and to become progressively more active and will undoubtedly result in the development of two main branches of human presence in space: the commercialization of stations in space and the human exploration of space beyond the near earth environment. The ISU student team working on this project will address these two expected development lines of human space flight, putting particular emphasis on the common aspects & technologies of the two lines of development identified above and investigating how mutual benefits to both can best be achieved.

The DP will result in a global report laying down a plan for how the human presence in space for commercial purposes and the human presence in space for exploration purposes may be combined or made mutually beneficial.

DP 2: Microspacecraft and Europe's Environment

Mission: To execute a project to use space systems for meeting urgent environmental needs in Europe. In doing a focused European case study the team will develop solutions also applicable in other parts of the world. With microtechnology providing exciting new opportunities for fast action at low cost, the team is expected to show the way to innovative and practical applications of ground, airborne and space systems to improving environments.

Highly industrial civilizations exert great pressure on their natural environments. With the formation of the European Union and various international agencies, plus action by people concerned with saving nature

and maintaining the quality of human and other life, new political opportunities exist for the use of modern space and ground technology in support of environmental goals. At the same time, new micro-systems are

enabling observation and communications missions in a new class with quick response time, low cost and focused objectives. The time is ripe for this convergence to be examined from an international perspective. An ISU student team, unconstrained by previous plans or policies, may document new ways for gathering and disseminating reliable data, to be used in concert with existing and planned ground, air and space

data sources, to open a new era in environmental improvement for Europe.

Canadians in Bremen!!

by Chantal Lamontagne (SSP 95, CAISU President)

Canada will be truly well represented in Bremen for SSP 01. In addition to the 15 Canadian students who will be enjoying a very hectic 9 weeks in Germany, Canada will also be sending alumni and faculty to serve as staff, teaching assistants, co-chairs and lecturers in record numbers.

Morla Milne (SSP 99) will be SSP Assistant Director Academic, and David Kendall (past SSP Director) will be part of the faculty for the Physical Sciences department. Canadian lecturers will include Kamiel Rezkallah (SSP 90) for the Engineering department, and Marianna Shepherd (SSP 90) for the Microspacecraft and Europe's Environment design project, for which Vern Singhroy (Canadian Faculty, CCRS) will serve as co-chair. Alain Berinstain (SSP 91, MSS1) will serve as co-chair for the Commercializing Space Stations design project. Canadian departmental co-chairs include Brian Rishikof (SSP 90) for Space Systems and Architecture Design, Christian Sallaberger (SSP 88) for Business and Management, Doug Hamilton (SSP 92) for Life Sciences, and Lucy Stojak (past SSP Director) for Policy and Law. Departmental teaching assistants include Audrey Robinson-Seurig (SSP 91) for Life Sciences and Elaine Tan (SSP 00) for Policy and Law.

One toy, two toys, green toys, red toys....

by Katia Dyrda (SSP 00)

Toys... I am indeed in great need for toys and here's the reason why. Not so long ago, when I was just a little gal, I loved to play with toys. And when I had a blue day, anything that would allow me to escape into space was particularly welcome. Nowadays, even though I have grown somewhat, I still play with toys. However since the toys that now keep me occupied have become more complex and certainly more costly, I always appreciate going back to basics.

You see, over the past little while I have been working with some young boys and girls who often need to escape from the reality of their cancer and plunge into another world even if only for a few minutes. I like to take them on that imaginary trip, and, to help me along, I brought my LEGO's to the cancer clinic, and then my good old styrofoam rockets and model airplanes. As a result, my little friends and their siblings have built some interesting spacecraft and I have come across a pretty funky alien teddy bear bunch!

But now, we are ready for a bigger challenge! We would like to build a space station (the elevator) and colonize other planets (the physiotherapy and occupational therapy gym) at the Children's Hospital of Eastern Ontario (CHEO) and we need resources! Hence this little missive. If you have any toys you think you may be able to part with, we could certainly use them in our endeavour. Please get in touch with me, I can be reached at katiadyrda@yahoo.ca. I'll be collecting for the next few months. Thanks from all of us!

Retrospective on MSS5

by Simon Kruijen (MSS5, Netherlands/Canada)

My main reason for participating in the International Space University (ISU) Master of Space Studies (MSS) was to gain a more complete knowledge of the space field. I was also interested in learning to solve problems within an international team and discover the multicultural implications of teamwork.

This program allowed me to learn more about diverse fields of study, learn the ways of other cultures and even to find out more about myself. I was able to benefit from this multicultural environment and at the same time contribute to it. It was a unique opportunity for self-accomplishment and a chance to attain my career objectives, which are committed to space-related subjects and research.

At ISU, I learnt from faculty of all backgrounds about many subjects related to outer space exploration and development. I unquestionably benefited from up-to-date training in varied subjects such as space science and applications, engineering, systems and technologies, management and social sciences. I now know the basics of disciplines beyond my field of specialization and I am also able to work within a team more effectively. This is an important bonus when seeking employment in a space-related area. Moreover, the professional placement included in the MSS course undeniably opened many doors for my future. It gave me a new perspective on space business. With respect to my career objectives, this program led me to a new level of competence and opened the path that I am now following.

Subjects related to space will always be among my greatest interests and the curiosity awakened at ISU will remain alive. I consider space to be the most fascinating area ever given the prospect of possible human settlement on Mars. The vision of future in space will be kept alive at ISU - dreams will become reality by developing the necessary knowledge to go beyond frontiers. ISU reminds Humanity that everything is possible if only we dare to move forward with wisdom, vision and effort!

The Long and Winding Road from Barcelona to Halifax

What ISU has meant to me

by Stephen Cheung (SSP 94)

One of the major issues facing space research, and indeed all forms of basic research, is how will investing in Research Program XYZ benefit mankind? It is no longer enough to do research or pursue an activity just because it is interesting. In today's atmosphere of cynical public opinion of space research, proponents have had to defend their efforts through the promise of direct applications of space research and predicting and quantifying the potential for major technological spin-offs. I hope to use a human analogy to demonstrate the vital

importance of investing for the future with no prejudices or direct expectations.

Something has been bothering me for years since my summer in Barcelona with the ISU SSP. Namely, what the heck was CFISU thinking when they selected me? Back in 1994, I was just beginning my doctoral work in Toronto. I will freely admit that, back then, I did not have a huge, or even major, passion for space. My research interests in environmental physiology and human temperature regulation did not revolve around the microgravity environment. Indeed, my M.Sc. research was in undersea diving, the polar opposite to spaceflight, while my doctoral work was steering towards the extreme heat stress found with protective clothing. My Ph.D. work did not change at all due to my ISU experience. Furthermore, I honestly cannot say that my ISU experience drastically changed my perspective on space exploration and development. I am now finishing my third year as a faculty member in the Kinesiology program at Dalhousie University in Halifax, happily ensconced in a region that has minimal space-related activities. As was the case pre-ISU, I am an interested observer of space issues, though now a better-educated one. On a space perspective, I think I was an awful investment for CFISU. However, let me walk through one major way in which ISU has influenced me in my current career in academia.

During the SSP, I was exposed to a chaotic pedagogical style during the Design Project, where we were essentially told to throw out all of the rulebooks that were locked in our heads and to develop our own rules. At the same time, we were given the opportunity to create something that would hopefully be completely new and unique. Just as significantly, I was also exposed to the concept that the process was at least as important as the product. Now that I have delved more deeply into the pedagogical literature, I have discovered fancy theoretical terms for these concepts. However, the important thing is that I had a tremendous amount of fun amidst the confusion and chaos, learned a lot about myself, and had the thrill of creating something new in a challenging setting.

In my second year at Dalhousie, I was given the opportunity to create a brand new 4th year course in Environmental Physiology and Ergonomics. I was very fortunate, as my department essentially gave me a blank cheque to design the course content and pedagogy in any way that I wished. Of course, too much freedom is a double-edged sword, as I had no clues where to begin (very few such courses existed). One major challenge when envisioning how the course would take shape was that no remotely adequate textbook existed. There were a couple of books geared to the general public, and a few very informative but dense books geared for the specialists. I approached all the book reps about this deficiency, but none seemed overly keen on such a book due to the relatively small market. Good thing, I thought, because I would be committing suicide if I got suckered into writing one myself. The other major obstacle to envisioning the course was that I didn't really want to hit the students only on a broad level by touching lightly on all of the different extreme environments humans are exposed to in occupational and recreational settings.

It was at about this time in my desperation that the SSP experience came flooding back. Hey, if nobody else has written a textbook on environmental physiology, and I didn't feel like doing it, why not get my students to write it? Sixty ISUers locked together for ten weeks came up with a pretty solid and unique piece of work, why can't fifteen keen students do the same in thirteen weeks? I had always thought that asking students to write term papers that nobody but I would ever read was a gigantic waste of time. So why not get students to write something new and innovative that my colleagues could actually use as a resource for ideas and for their own students?

In essence, my course became very analogous to the Design Project. Each year, the course would focus on one particular extreme environment (e.g., heat stress, altitude, microgravity). I would present initial introductory lectures on different topics related to that environment. Students are each responsible for a chapter, but the class as a whole is free to develop and delegate the particular topics that would be covered. Process-wise, I treat the course much like producing an actual book. Students have to submit a chapter proposal and also initial drafts of their work for evaluation. Most importantly, students peer-review each other's chapter drafts, and are evaluated on the quality of their reviews. Therefore, they get the complete experience of academic peer-review.

I have conducted the course for two years now, and it has been the most rewarding experience for both the students and myself. The students receive an incredibly in-depth immersion into a particular topic, while getting the thrill of creating their own knowledge and contributing to the literature in a meaningful way. As one of my evaluations noted, "It was not just some paper I would hand in and forget about." As the instructor, I get the thrill of never knowing exactly how the course will evolve, and to ride the wave of energy the students bring to the task. Each year, I distribute the completed book to my network of colleagues for their perusal, leading to the development of a number of collaborative studies and further networks. The course has been profiled in a number of high-profile teaching publications, and the popularity of this course among the students contributed to my being shortlisted for our university's highest teaching award this year.

This is just one small example of how my ISU experience has made me a better scientist and person. So thank you, CFISU, for all of your years of support and scholarships. Like basic research, the basic intellectual development of young and eager Canadians is a critical investment, and your investment in this year's crop of ISUers will continue to pay off in innumerable ways for many years to come.

Beyond Orbit

The Canadian Space Exploration and Development Institute

by Rocky Persaud (Mars Society Canada) and Eric Choi (SSP 99)

Interest in space exploration among the peoples of Canada and the world has never been greater. The United States and Russia have long been dominant in this frontier, but today Europe, China, Japan and India are pursuing their aspirations in space. Canada was the third nation in space, and the first to put a commercial satellite in geostationary orbit. We are respected worldwide as leaders in space robotics and satellite technology, as well as for our active astronaut program with the Space Shuttle and now the International Space Station (ISS). As a spacefaring nation, we have done very well in the world arena. But the time has come to expand our participation in the international exploration of space.

A nation undoubtedly grows by nurturing its young, for they are the explorers who will make advances in all aspects of life. The young need opportunity, vision and inspiration. Great cultures provide these for all their citizens. Many of these advances occur when groups and individuals seek to understand the world around them and the nature of things. Throughout the history of invention and knowledge, all great cultures that sought these were the cultures to advance them. Two interacting forces drove developments in each other: science and technology. Without the one, the other lags – and a culture with it.

If Canada is to follow a successful course in space exploration, then as a nation we cannot afford to support, as we do now, just space applications. We must explore space with minds free to contemplate its nature, not constrained by a drive solely for immediate industrial or economic applications, or bound to the agenda's of other nations. We must support a policy for space that gives our people a chance to expand their horizons in any field we wish to study.

John H. Chapman is hailed as "The Father of the Canadian Space Programme". His work on the Alouette satellites became the bedrock of Canada's space program. Audaciously, his team proved Canada could develop, build and launch one of the most complex scientific satellites of its time. When the government sought to develop a policy on space research in Canada, it turned to Chapman to head a committee on the matter. The Chapman Report recommended that the central theme of the space programme in Canada should be the application of space technology to specific Canadian needs. At the time, this was in telecommunications, for the purpose of knitting together the nation like a trans-continental railroad in its time. The exploration of deep space would be left to others.

Our capabilities in space technology have brought us a well-earned seat at the table for international projects like the ISS. But elsewhere, we currently have few citizens participating in the international dialogue between scientists discussing space and planetary sciences. A generation after the Chapman Report, we are seeking a new national space mission. That mission should be in any and all areas in which our scientists and engineers choose to work. They deserve a chance to participate in the international dialogue we have been missing out on for far too long. Our science goals should be audacious enough to inspire the nation, and bold enough to push our technological capabilities. Canadian scientists and engineers yearn to become involved in space exploration missions to the planets, moons, and other destinations in the Solar System.

This May, former astronaut Marc Garneau, now serving as Executive Vice-President of the Canadian Space Agency, announced that CSA would be significantly expanding its space exploration efforts, with Mars being a major focus. However, this program is still at a young stage, will no guarantees of success or even continuance. So at the present time, career opportunities in space exploration, planetary science, and interplanetary mission design are still quite limited in Canada. The consequence is that many who would like to become involved, who dearly love this country and want to see it be adventurous on the high frontier, have been forced to pursue their careers in the United States or Europe.

But there are limits that are imagined and limits that are real. The reality for space science in Canada today is that what the space exploration community can pursue is limited by constraints in the way space policy is currently formulated. Beyond the Canadian Space Agency, the government as a whole appears to lack a comprehensive vision of how the nation should use its resources to explore the Universe. A gap currently exists between government policy and the needs of the space exploration community. It is therefore not surprising that Canada has no coherent, long-term space exploration policy – or that support for Marc Garneau's bold and engaging vision is still in question.

It is for these reasons that the advocates of space exploration in Canada have gathered to found the Canadian Space Exploration and Development Institute/Institut canadien pour l'exploration et le développement de l'espace (CSEDI/ICEDE). While many institutions provide funding to support individual research projects, none (other than the Canadian Space Agency) hold space science as a specific area of focus or expertise. A credible entity that can act outside of government directives is needed to nurture and convey to the public a vision of a broad and ambitious yet achievable space exploration agenda. Constraints on imagination can be removed. A Canadian space exploration program, directed and nurtured by the space exploration community and their scientific interests, would then be a reality.

If a new space exploration agenda is to be created, the space exploration community itself must draw it. Instead of scattered individual efforts across the country, an institute would give Canadian space researchers a unified voice in shaping the nation's space exploration policy. An institute would focus efforts on creating a mandate for

Canadian space exploration. The entire space community would gain a vibrant program that would inspire public imagination, answer fundamental scientific questions, expand commercial and industrial opportunities, and build a strong future for all Canadian space activities.

CSEDI's first initiative, in co-operation with SEDS-Canada, is Space Summit 2001, which will take place at the Richardson Labs Amphitheatre at Queen's University in Kingston, Ontario, on Saturday, July 14th. The Summit will be an effort to coordinate Canadian space science and education activities. This one-day meeting will gather Canadian space organizations together to discuss public outreach, government support, and university research as it relates to space science, exploration, and education activities. There is no attendance fee and all are welcome to attend. Please refer to the Space Summit 2001 announcement in this issue of *Cosmonotes* for more information, or contact Nishi Rawat (SSP 99) at n_rawat@hotmail.com

The next near-term goal of CSEDI will be to establish a credible voice. That voice will be in the form of the *Canadian Journal of Space Exploration*. The *Journal* will be a forum for Canadians both to present their results and to define new areas of research that should be explored. Published quarterly, the *Journal* will become a respected platform from which the Canadian space science community will speak – and be heard. It will focus on subjects that are both near- and long-term within such fields of science and technology as astronomy, astrophysics, exo/astrobiology, engineering, geochemistry, geology, geophysics, life sciences, medicine, meteorology and atmospheric sciences, mission analysis and design, physics, planetary sciences, robotics, as well as political and policy issues directly related to space exploration. A Call for Papers for the premier issue of the *Journal* will be announced at Space Summit 2001.

An Interim Board for CSEDI has been formed from amongst members of several Canadian space advocacy organizations, including CAISU, the Space Generation Advisory Council, SEDS-Canada, the Canadian Space Society, the Mars Society of Canada, and the Moon Society. Nishi Rawat and Eric Choi of SSP 99, as well as Jessy Cowan of the Space Generation Advisory Council, are currently members of the Interim Board. Once CSEDI is officially incorporated and initial funding is secured, a formal Board of Directors will replace the interim team. This new Board will oversee the development of long-term financial resources for CSEDI, as well as the hiring of support staff as necessary to enact the Institute's mandate.

Already, several individuals who are part of the ISU and Canadian space exploration communities have accepted invitations to join this endeavour. Serving on either the CSEDI Board of Advisors or the *Canadian Journal of Space Exploration*'s Board of Editors, or both, are: Dr. Stephen Braham of Simon Fraser University; Brian Feeney of the DaVinci Project, and Dr. Veena Rawat of Industry Canada. CSEDI is especially proud to have serving on the Boards two noted members of the ISU community: Dr. Christian Sallaberger (SSP 88) of MD Robotics, and Dr. Ram Jakhu of McGill University.

CSEDI is seeking for each Board a dozen Advisors or Editors representing academia, industry, government, and private individuals involved in space exploration. With the help of the ISU community, Canadians will have a chance to build a future in space exploration for themselves and their children. We can affect change. We can do more. We can realize audacious dreams. For more information or to inquire about serving on the Board of Advisors or the Board of Editors, please contact Rocky Persaud at rocky.persaud@utoronto.ca or Eric Choi at figmo99@home.com

SSRMS is Launched!!

by Chantal Lamontagne (SSP 95, CAISU President) and Harold Seaborn

For most Canadians, going to Florida brings visions of Disneyland, orange groves and alligators. The two of us headed off to the Sunshine State with visions of shuttle launches dancing in our heads. Yes, it was our first trip to Florida, and at the invite of the Canadian Space Agency and NASA, our first shuttle launch viewing. You can say we were just a little bit excited. The fact that this mission would include Canada's contribution to the International Space Station was extra icing on the cake - a "Canadian" launch.

Knowing that shuttle launches can often be delayed, we were optimistic about the launch date but still kept a few days in reserve in case of launch scrubs. We departed Canada on April 17th at an insane hour of the morning and landed in Orlando to find that the weather was unusually hot and sticky, at 30+ degrees (yes, Canadians will complain about the weather whether it's hot or cold). We were soon off to our hotel in Cocoa Beach and our first view of the Atlantic Ocean.

Once in Cocoa Beach, we registered with the Canadian Space Agency officials on site, and received posters, pins and other cool Canadian space stuff, including a glossy photo of Canadian astronaut Chris Hadfield in his EVA suit and a Canadian mission patch. We also received a quite detailed program of activities that would keep us busy right until the launch. The rest of the afternoon was spent flying a kite on the beach, visiting the world famous Ron Jon Surf Shop, and avidly watching NASA TV, which rapidly became addictive!!!

On Launch-1 day, chartered buses picked us up early for a VIP tour of the Kennedy Space Center - with a slated return time more than 6 hours later!!

NASA info kits with lots of info about KSC and the shuttle program were handed out - more glossy photos to enjoy! After having been given a special "launch guest" NASA button, we got to rapidly explore the KSC visitor complex before attending a mission briefing specifically for Canadians led by none other than Canadian astronaut David Williams. Following the briefing, we again boarded the buses to view various sights at KSC, with a NASA volunteer guide who was actually an employee of NASA with more than 30 years of engineering experience with the space program. He was as giddy and excited about the upcoming launch as if it was his first, and his enthusiasm was infectious. First off on the tour was the International Space Station Center, with a walk-through of various space station segment mock-ups, and a glimpse of future space station hardware awaiting launch, such as the airlock to be sent up on mission STS-104. We viewed the nearly endless shuttle landing strip, the massive Vehicle Assembly Building, and the monstrous crawler on the move - at a brisk two miles an hour! At that point the tour veered off from the normal KSC visitor route. Instead of viewing the shuttle on the launch pad from the observation gantry several miles away, our bus took us right up to Launch Complex 39 and the launchpads 39A and 39B. We were asked to surrender matches and lighters before entering through the gates into LC-39B, the launch pad without the shuttle (a wise precaution when approaching that much rocket fuel). The bus took us around the perimeter road right up close, giving us a great view of all the launch pad details and mechanisms. Then, it was on to LC-39A - and the shuttle Endeavour and its red external tank towering in the sky. The bus got closer and closer, and to the utter amazement of everyone on the bus, we were allowed to exit the vehicle within 500 meters of the shuttle on the launch pad!!! A flurry of photography followed, and we all fought to restrain the urge to make a mad 500 meter dash to touch the shuttle. We still can't believe how close we were allowed to the shuttle with only one day left before launch!

After the guided tour of KSC, we attended a special STS-100 cocktail reception, hosted by Minister Tobin and CSA President Mac Evans, and co-sponsored by MacDonald Dettwiler & Associates. We talked space for several hours while playing "spot the astronaut" - a highly enjoyable evening - especially after having started with the ample dessert table purely by accident. The Canadarm2 embossed napkins were also a nice touch.

Thursday, April 19th dawned - clear blue skies and few clouds - ideal weather for a shuttle launch. "Shuttle" buses brought us to the Cocoa Beach Country Club for a breakfast reception co-sponsored by MD Robotics in honour of Chris Hadfield and to celebrate the launch of mission STS-100. This was the day Canadians had been waiting for - the launch of Canadarm2 to the International Space Station. The mood was almost giddy, with hundreds of Canadians having made the trip to view the launch in attendance at the breakfast reception. Red-shirted CSA employees and blue-shirted MD Robotics employees filled the room. Congratulatory speeches were made, with many hints about a possible Canadarm3 in the future, and CAISU's own Alain Poirier (SSP 89) was acknowledged for his efforts on behalf of the Canadian space program. Chris Hadfield's family got the greatest of standing ovations, and the proud grins on his parents' faces put the cheshire cat to shame. It was a proud day to be Canadian in that room.

Following the breakfast reception, we boarded our assigned buses to take us to the launch viewing sites - excitement was in the air. Our bus took us to the Banana Creek site - this is the prime VIP viewing site and also where the astronauts' families watch the launch from. It is about 4.5 miles away from the launch pad, with a clear view across the water, and right beside the Apollo/Saturn V Center. After touring the many Apollo exhibits, and gawking at the massive Saturn V rocket slung overhead, we chose our bleacher seats to follow the T-countdown... There was fear that a few wispy cumulus clouds could scrub the launch, but as the countdown neared zero and all stations reported go for launch, the excitement levels rose and all eyes focused on the launch pad in the distance. Main engines were lit, solid rocket boosters ignited, and Endeavour rose majestically into the sky right on schedule. The crowd continued cheering until well after the shuttle was lost from sight, with a reported 1500 Canadians waving the red and white. We were later told it was one of the biggest launches in years, most probably due to the international nature of the launch with 4 nationalities on board - Canadian, American, Russian and Italian. And we could tell this from the 3 hour traffic jam trying to return to our Cocoa Beach hotel!

Pictures do not do it justice - viewing a launch in person from Florida is a special experience, one that my husband and I enjoyed tremendously and will never forget. This launch in particular was special to me as the structure of Canadarm2 is the subject of my doctoral research. As with all Canadians, we are looking forward to the launch of the Mobile Base System and the Special Purpose Dexterous Manipulator in the coming years.

During STS-100, also known as ISS Assembly Flight 6A, astronaut Chris Hadfield performed the first ever EVA by a Canadian, successfully installing Canadarm2 to the International Space Station. Canadarm2 will now play a key role in Space Station assembly and maintenance - its first task will be to mount the airlock to the station during the next shuttle flight of Atlantis in July.

ISU Central Campus Project

by Patrick French (SSP 99 USA) and Eric Choi (SSP 99)

In about two years' time, the new ISU campus facilities will be completed in Strasbourg. However, as we all are aware, it will be the people inhabiting this building, not the structure itself, that will make the spirit, principles, and energy of ISU come alive. We believe that the new central campus building offers the ISU community an opportunity to make our belief in and positive feelings for ISU come alive in a constructive, visible, and permanent

way, one that will be right there before the eyes of every person who walks into the building, and remind them that they are part of something much larger than whatever is happening in Strasbourg on that particular day.

The principal entranceway to the new central campus building will lead into a central hall that will be a large open area at the heart of the building. The actual principal entranceway will be constructed mostly of glass, making it a transparent structure visible from both outside and inside the central campus. This entranceway is in effect a large, glass rectangle with sides of approximately 5 meters by 5 meters, and about 7 meters in height. This entranceway will have a large open area just above your head as you walk through it to enter into the central hall. This area will be ideal for the display of a large, three-dimensional object.

We propose that the ISU alumni community, along with any other faculty, supporters, and friends, take it upon themselves to fill this area with something that reflects the spirit and vision of ISU, and to undertake this challenge in time for the inauguration of the Central Campus building. Whatever we put there, it will be seen every day by those entering the new campus, and remind them that they are part of a much larger community.

Since this project was announced earlier this year, we have received many comments, ideas, and words of encouragement and wisdom The comments fell into two general categories: actual ideas of things to put in the Central Campus entrance, and suggestions on how to proceed and approaches to take.

Some of the ideas for things that could be put in the entrance include:

• Create an olfactory signature or scent for the building that says "ISU". However, another alumnus noted that care must be taken for allergies and personal preferences.

• Something that symbolizes the physics of space and the social ties between all of humanity.

• Artwork based on the ISU 1987 founding conference poster that depicts a space station in Earth orbit that has a Roman-style exterior with columns and steps.

• Develop a space art gallery in the building.

• Create and hang banners for each SSP and MSS class like sports championship banners found in arenas like the Montreal Forum. Yes, a Canadian suggested this one!

• Hang flags representing participation from the various countries. This could be expanded to encompass not just where the students come from, but could also include faculty, SSP host institutions, and affiliates. A variation on this could be a large globe or map where various countries are highlighted.

• Display a statue or bust of Todd Hawley in the building. This could also be expanded for other individuals important to ISU or space history in general.

• Develop an Alumni "Wall of Fame".

• A plaque with the list of individuals who have received alumni scholarships to attend the SSP or the MSS

• For corporate and governmental sponsors, have an area to display their logos, banners, or flags.

• Play space-related music in the background of the entrance, central hall, or other locations in the building.

• Have "International Space University" written in multiple languages and presented in an appropriate area. A variation on this is to record "Welcome to the International Space University" in various languages and play this as individuals pass through the entrance.

• Project slides or videos on screens hung from the ceiling onto the floor or walls. The presentation could be changed periodically and could represent any number of subjects (space, stars, images from past SSP and MSS sessions, etc.).

• Seek the donation of a spacecraft or other space related object from a corporation or space agency for display in the building.

• Incorporate the Todd Hawley rocket sculpture into a fountain or reflecting pool. The water would symbolize the rocket exhaust and the plants would symbolize the Earth. This would give a warm and human dimension to the building, especially during the winter. Donors could have their names put on brass plaques.

• A large sundial could be constructed outside the building. This would be space and science themed, would give people a connection to the Sun, and would be dynamic and constantly changing.

• Display on a screen in the form of a globe real-time or near real-time images of the Earth from operational satellites.

• Seek out a specific individual to create something, such as artist/astronomer James Turrell, or Maya Lin, the designer of the Vietnam Memorial in Washington, DC, or hold a juried competition. Several individuals have suggested this idea and have recommended soliciting space artists like Bob McCall, Paul Fjeld, or even Apollo 12 astronaut Alan Bean.

• Establish a fund to purchase examples of historic space artifacts that come up for sale or auction and display them in the Central Campus. This could be a "space heritage collection" and would protect artifacts from languishing in private collections.

• Put a wooden log in the Central Campus where people could carve an image, phrase, quote, name, etc.

The more general suggestions include:

• ISU is unique and therefore the display should be unconventional.

• Whatever the display is, it should be dynamic and change with time, not the same old “dusty” thing out there year after year.

• Donations of actual hardware for display is fine. However, any money that may be collected for this effort might be more usefully spent helping to equip the new Central Campus, such as for labs or audio/visual equipment.

• Quote from Irene Myers of the ISU Board of Trustees: "Agree that the

piece should be about 'something much larger'. That should be the major unifying inspiration point, beyond individual, cultural, or stylistic restrictions. And since ISU was conceived by the cosmic viewpoint of its three founders, the piece again should derive from a sense of the universal rather than anything that would 'date' this particular point in the development of ISU (i.e., a particular satellite could look outdated very rapidly, a large bronze object might be too gravity bound or 'Earthy', etc. An ultimate goal of ISU is to have a campus in space, so something that inspires towards that goal (amongst others) would be appropriate. The space sector is a relatively new 'industry', but the human endeavour of reaching towards light and space is a universal and timeless one, and shared by other living entities as well...another reason to have the piece reflect an abstract, universal perspective."

Finally, we would like to thank Michael Potter (SSP 88 UK) for his offer to put his outer space stamp collection on display in the Central Campus building. This is the first of what will surely be many offers of tangible displays materials, and we hope to keep working with him as the project proceeds.

As a kick off activity, we have set up a preliminary website that outlines the objectives of the project and includes the full text of the comments that have been received to date. Please note that, like the project itself, the website is still very much under construction, one we hope will grow into an important focus of the project as it progresses. The URL of the website is:

http://www.geocities.com/isucentralcampus/

In conclusion, the feedback to date has suggested two general paths to achieving the goal of contributing something to the Central Campus building. One option is to seek actual space-related objects (satellites, spacecraft, subsystems, rockets or pieces of rockets, spacesuits, etc.) to put on display. This could be through direct donation and/or fundraising. The other options would be to have a design competition to seek the idea that best symbolizes ISU's goals and aspirations. What is very exciting about both these options is that they are not mutually exclusive; it is possible to do both!

For now, it is still far too early to choose, and we would like to hear what you think. There is still a lot of work that must be done and we would like to ask if there are any alumni, faculty, or others who would like to work on a team to help move this along. We should seek inspiration from the great success of the Space Generation Forum, where success was due to the work and contributions of many individuals coming together to build a winning team. If you are interested in helping out, or would like more information, please contact Patrick French (SSP 99 USA) at patrick_m_french@hotmail.com or Eric Choi (SSP 99 Canada) at figmo99@home.com

Dr. Lucy Stojak at CCRS

by Shannon Ross (SSP 00)

On January 15, 2001, the Ottawa Chapter of the Canadian Remote Sensing Society held its first meeting of the New Year and had the pleasure of hosting a presentation by Dr. Lucy Stojak of the International Space University (ISU) and McGill University Institute for Air and Space Law. Dr. Stojak spoke on some basic principles of international law applicable to space activities, including space law treaties, and the role of the United Nations Committee on the Peaceful Uses of Outer Space and its resolutions related to remote sensing. Over 40 people from local Ottawa government and industry attended her presentation and a lot of interesting discussion was generated. This event was an excellent forum to demonstrate the high quality of lectures that ISU has to offer, as well as encourage anyone interested in learning more about ISU to talk to the local CAISU representatives. Participants enjoyed a warm bowl of chili and refreshments which were generously sponsored by CAISU. The Canadian Remote Sensing Society hopes to organize more events involving ISU and CAISU in the future.

Message from Professor Rod Tennyson, President, CFISU

Thanks to the generosity of a growing number of sponsors CFISU will be sending a delegation of a dozen students to SSP 2001. With people being sponsored by other Canadian organizations the total number will grow to around 14. Thanks to our many sponsors and supporters for making this possible. CFISU's administration is being successfully transferred to the Canadian Aeronautics and Space Institute (CASI). Thanks to Marie Juneau and her staff for taking on this task. I urge all CAISU members to join CASI, if they are not currently members. The student send-off banquet will be held at the Holiday Inn in Cambridge the evening of Thursday 12 July. All CAISU members are invited to help us send off the Class of '01.

Prof. Rod Tennyson
President, CFISU
rod.tennyson@utoronto.ca

MSS6 Placement Updates

The 6 Canadians currently enjoying a very hectic MSS program concluded their professional placements May 11th, and after a week of holiday, returned to Strasbourg for the start of Module 5 on may 21st. Sandra Janosik did her placement in planetary geology at the University of Hawaii Institute of Geophysics and Planetology. Rene Kardol was studying space commercialization at the ESA Washington Office. Leila Kheradpir was pursuing a study of the interface systems between ISS, JEM and MAXI NASDA Tsukuba Space Center in Japan. David Phillips was at the Massachusetts Institute of Technology pursing an artificial gravity project. Timothy Radcliffe was studying legal aspects of human spaceflight at the ESA Headquarters in Paris. Nasreen Dhanji was providing real time engineering support to the Space Station Remote Manipulator System at MacDonald Dettwiler Space & Advanced Robotics Ltd.

Yuri's Night Vancouver

by Trish Garner (SSP 99 UK)

"Circling the Earth in the orbital spaceship I marvelled at the beauty of our planet. People of the world! Let us safeguard and enhance this beauty – not destroy it!"

- Yuri Gagarin

When we started Yuri's Night we had no idea it would capture so many people's imagination. We hoped it would but we never fully realised the power of the idea until the night that brought together thousands of people around the world to celebrate space.

Yuri's Night 2001 was the first (of many, hopefully) worldwide celebrations of the first human in space, Yuri Gagarin. April 12th was the 40th anniversary of his launch as well as the 20th anniversary of the launch of the first reusable human spacecraft. Our vision was to inspire people about space again by celebrating these past achievements and then looking to the future at what we can create - through curiosity, exploration, inspiration, and cooperation.

Thinking globally…acting locally. That's what Yuri's Night was all about. People celebrated in their own town, in their own country, in whatever way they wanted. Events ranged from huge dance parties to small dinners with close friends to star-gazing….we even had a Yuri's Night wedding.

Here in Vancouver we had a small rave from 10 at night to 8 in the morning making us one of the last parties going. The event featured DJs Vernon, Robert Shea, Leanne, Amtrak, Kevin Shiu and Martin Sikes and stunning space visuals were provided by Intermission. We transformed a gym into the dance area using huge screens and funky decorations. The effect was awesome, while dancing you were surrounded by images of planets, spacecraft and other cool slides and videos. We had a link to the live web broadcast from the main party in Los Angeles so we could see everything that was happening there. People could also chat to other people at other parties around the world via the Internet. The event was a great success, people came for the music but left with an awe for space – what we have already achieved and what we can achieve in the future.

Yuri's Night was definitely a night to remember. Not only was the atmosphere at this party great but the feeling that you were connected to the rest of the world celebrating the same thing, at the same time was tremendously powerful. The positive energy that Yuri's Night created worldwide was overwhelming and really made me believe that 'anything's possible'.

Check out www.yurisnight.net for more details. Hope to see you there next year.

Space-related Education Activities in N.B.

by Liara Covert (SSP 00)

New Brunswick is a Canadian province that has a large number of space enthusiasts. This article aims to give you a sense of the diversity of choices of activities that are perhaps not as widely known as space-related activities in other parts of Canada. Since returning from my ISU SSP 2000 experience, I have discovered and contributed to a number of developing space projects that I would also like to share with you.

For example, I have been a guest speaker about space for over 400 students at local elementary, middle schools and high schools. In one case, this related to a local 'Marsville' project, though in many cases, my talks have enabled children of different ages to talk about their interests in space that lie outside the current science curricula. Other cases have focused more on promoting space-related jobs, the Canadian space industry, international cooperation and some of my thesis-related experiences abroad. A highlight was when a grade one boy invited me to be his "Show & Tell" for a group of grade 2 classes. The interactive discussions I have initiated also became opportunities for me to provide space and Internet resources to teachers and to help elaborate on existing web pages of local schools in the process of linking to a wider, engineering student-initiated schoolnet.

My exchanges with members of government have also helped me promote the importance of integrating space elements into developing standards for science curricula. New Brunswick is participating with other Atlantic Provinces to revise science curricula from grade 6-10. There is new interest in space science, and innovative course material is being integrated to satisfy newly perceived needs.

With the NB Association of Geoscientists and Engineers (AGEN), I have helped create a spaceboard of information that we update frequently with new links and news. This mentor association is increasing exchanges with other similar Associations in other parts of Atlantic Canada. This is especially relevant to the National Canadian Engineering and Geoscientists Association conference that will take place in St. Andrew's, New Brunswick in May 2001.

Seven Astronomy clubs around the province are linked in part via Internet and help connect French and English Canadians and their planetary science projects. Many of their activities are extra-curricular, though some are linked to Astronomy observatories at the University of Moncton, the University of New Brunswick (Fredericton) and Mount Allison University research in Meteorites and Asteroids in Sackville. Many University Faculty members support these astronomy activities, though they are not limited to the participation of academics. All existing clubs do not have websites, but the network of interested astronomers is increasingly better connected. Members of the general public from elementary school age to retired people take part. In N-B., it is a popular, inter-generational space activity. e.g.: www.osco.nb.ca/nbanb/Home.HTM

The University of New Brunswick (Fredericton) Planetary and Space Science Center is a great addition as the Regional Planetary Image Facility (RPIF). It officially opened April 3, 2001. It is Canada's national database for NASA's space science archives and Canadian space science databases (i.e., spacecraft/satellite acquired data)

and is the result of an initiative by a friend who graduated from high school with me. The aim is to provide a service to Canadian scientists and engineers interested in using remotely sensed data (images of Venus, Mars, etc.). The website is active (www.unb.ca/web/passc/research/index.html) and the team of space enthusiasts involved support space education by offering resources to local teachers and also supporting visits of space-related enthusiasts to classrooms.

My involvement in and interest in promoting space education in international relations has led me to organize six weeks of conference-related activities in May-June, 2001. I will be participating in interdisciplinary, thesis-related discussions and panels where I will speak of outer space as an effective bridge to strengthen interdependence between countries, industries, cultures and academics. These endeavors, with an emphasis on promoting space education, will take me to Finland, Estonia, Kazahkstan, Uzbekistan, and Germany in particular. I will be a guest lecturer at Scandinavian law schools and political science departments as well as participate in exchanges with more technical scientists and members of government. The topics of my talks will range from New Brunswick astronomy activities and potential for international cooperation at the Tartu Observatory in Tartu, Estonia, to contemporary laws and Ethics of multinational space activities that relate to my involvement in the European Center for Space Law (ECSL), and the Space Generation Advisory Council (UNSGAC)-[http://www.unsgac.org] in different countries. There is much potential to strengthen international partnerships, and I look forward to facilitating communication amongst varied stakeholders.

Membership News

by Johanne Heald (SSP 96, CAISU Membership Director)

This year is certainly a year of growth for CAISU! With six Canadians attending MSS 6 and 15 Canadian students leaving shortly for the SSP in Bremen, we're growing by leaps and bounds. Although the SSP students are too numerous to name, here are the current Canadians attending the MSS: Sandra Janosik, Rene Kardol, Leila Kheradpir, David Phillips, Timothy Radcliffe, and Nasreen Dhanji. We'd like to welcome all these new members into the CAISU community, and hope that they will find it a place of support for them. We also hope they won't be too dismayed by our great enthusiasm for enormous get-togethers and much merry-making!

We'd also like to welcome ISU alumni from other countries who are now living in Canada. The most recent of these, Trish Garner of the UK (SSP 99), is now living in Vancouver. Welcome, Trish!

Several members of CAISU are moving to new jobs and opportunities around the world. This includes Josée Adamson (SSP 99), who has just moved to Cleveland to work at NASA Glenn, Jonathon Knaul (SSP 98), who has been posted to France for a year, Gordon Coutts (SSP 99), who is in Malaysia working for Agilent Technologies, and Katia Dyrda (SSP 00) who will be spending the summer in Helsinki, Finland. Also, Eric Choi (SSP 99) has moved back to Toronto after many months in the Washington-area. Many, many people have moved within Canada and are taking on new challenges, from Halifax to Vancouver, and we certainly wish much success to all of you in your latest and greatest endeavours!

So it is a challenge keeping up with everyone in CAISU these days! If you have new contact information of any kind - anything from a new email address to a new country - please send it to me at johanne.heald@colorado.edu.

Another Tanobe Portrait

by Rémi Duquette (SSP 00)

This winter, some of us brave ISUers decided to meet in Ottawa for a memorable "Tanobe" winterfest. Arriving a bit late on a snowy Saturday morning at 2am, with three bottles of red wine in hand, yelling "Party ON!", I burst into my fellow ISUer's apartment, the residence of Katia Dyrda, only to be greeted by her along with Maxime Roy, Marleen VanMierlo looking irritated, dozy and clad in pyjamas. I was a little disappointed, even if it was my fault for being so late. I wish Martin Gascon, who had chickened out of the drive from Montreal to Ottawa, had been with me. But he was comfortably sleeping at home in bed with his cat Capucine, dreaming of satellite launchers.

At this point, I must reassure the reader…we had a blast despite my lateness... But the following morning we had a few unsuccessful launchings out of slumber. First, Maxime tried to wake the group with some upbeat music from Katia's large but mellow CD Collection. All he could find was Zamfir. We drank coffee to a pan flute version of "Tea for Two", and decided that downtown Ottawa might be a little bit more exciting. Hard to believe.

Driving through Ottawa was cool…driving is my favorite sport, after launching rockets, of course. For those of you who don't know Ottawa, it is pretty hard to find a parking spot. Katya, our resident ISU'er there has mastered the art of bullying her fellow drivers into submission and ruthlessly stealing spots from competitors. After a few unsuccessful attempts Katia finally found two parking spots at once! Then we dined in a well known breakfast place… My stomach was very satisfied with a huge omelette, and fresh fruit juice…some more coffee to re-energize us after Zamfir. Another short walk et voila…the sun in a perfectly light blue sky appeared before our very eyes!! Straight out of a Tanobe Portrait!! The Rideau canal was full of its usual assortment of characters: figure skaters, hockey players, and cool speed skater dudes. Marleen, Katia, Maxime, and I got ready to pull some triple loops, quadruple jumps, sit spins, and arabesques, and torpedoed on our speed skates, but it was difficult to do all this with our training chairs.

Other Ottawa ISUer's Morla and Shannon had decided to sleep in and miss our skating adventure. No doubt they would have participated in a few of our favourite moves: "The Rideau Bum Slide", "Training Chair Shuffle", "The Zamfir Ass-Up Jump". But being a good

ISUer, I must draw some space related analogies for our skating skills. I would say that Maxime was probably the Chuck Yeager of the skating crowd, always the fastest, intrepid, and a little too daring from time to time. Then, our host, Katia seemed to pose most like Julie Payette (but without the bushy hair) in her first flight on speed skates as a novice skater, naturally brilliant and at ease even on the bumpy ice. Then Marleen, another Yuri; she clearly enjoyed skating, but she most likely never expected skating to be so hard. Finally, there was me, the Halley's Comet…you see it only a few times per lifetime if you are lucky!

A crowd of expert skaters, cool and not-so-cool amateurs, and the ISUers were all joyfully participating in the Ottawa winterfest. Sky divers even landed on the canal. We missed that—all of us were sidetracked by the International Space Station, TO-31, UO-22, KO-25, IO-26, SO-37,UO-36, and space debris drawing infinitely small and invisible shadows on us. Maxime was preoccupied, however, by using magic marker to draw boundaries for a potential Mir landing on the Rideau, madly waving innocent women and children away from crossing over his square mile plot.

The wind was somewhat cold that day, and we have yet to find Maxime. Last I heard, Katia had tried to fish him out of the Ottawa 52nd Police Division where he was yelling, "the Russians are coming! The Russians are coming!"

As I recall tonight, sipping a good hot coffee from "Aux 2 Marie" in Montreal, it was a delightful weekend. Too bad there weren't more of us ISUer's there, because we might have been able to draw more financial resources together to pay Maxime's bail that way. And next year, I will make sure Martin drives with me to Ottawa—with or without his cat—and I will be on time!!

TOGA June 9th

by Chantal Lamontagne (SSP 95, 2001 CAISU President)

On June 9th, I welcomed local alumni who braved the construction chaos to my new home in Woodbridge, finally completed after more than a year of wait. We ate, we discussed new housing, ISU, hockey, space and science fiction, and I inherited more plants – thank you Yifang Ban (SSP 94), Jonas Spaak (SSP 95), David Kendall (SSP a lot) and daughter Suzie for my new greenery. (Actually, the majority of the many plants I now own were given to me by ISU friends!) And thank you to Eric Choi (SSP 99) who brought Canadarm2 pins and stickers and gossip from MD Robotics (are they hiring?) and the SSRMS. New 2001 CAISU recruits Ryan Granlund and Joan Saary, who were not quite spooked by our reminescing of SSPs gone past, were accompanied by their spouses. Joan's 2 year old son Calum had quite the delight playing with my giant stuffed tiger won at Wonderland, but it was Yifang's and Jonas's daughter Ellen who decided that a giant stuffed tiger made an excellent horse and was the perfect size for her. Having children visit made me realise just how many stuffed animals I had in the house! The evening ended with a hardy few hockey fans staying up to watch game 7 of the Stanley Cup finals.

Ottawa Gathering

by Johanne Heald (SSP 96, CAISU Membership Director)

On May 12th, Gatineau's most frequently admired home, that of Judith Lapierre (SSP 95) and her husband Stéphane, was the site of an Ottawa-area CAISU gathering. There were a few old-timers from the 1996 SSP in attendence (Matt Wuhr and Johanne Heald, as well as Judith, our fearless Design Project TA), as well as a couple of the students who will be off to Bremen, Germany, for the 2001 Summer Session. But the night definitely belonged to the alumni of the 1999 summer session in Thailand (some of the attendees: Angelina Guzzo, Thierry Fontaine, Eric Choi, Bill Stewart and Alwin Cunje) and the 2000 summer session in Chile. Heather Grace took on the duty of semi-official photographer. They ate, laughed, reminisced, shared pictures and stories, and completely took over the hottub!

Although great quantities of pasta were served, and much boasting took place, only Judith, Johanne, Cindy and Kiegan ended up running in the National Capital Marathon the next day, all in the half-marathon event. The half-marathon course was lovely, running from Parliament Hill, down one side of the Rideau Canal, and then back up the other side. The pasta must have worked well, because everyone finished triumphantly, and some even improved on previous race times. It must have been due to the encouragement of our CAISU fans!

Update on ISU Alumni

Is your name missing from this column? Send in your updates to Johanne, johanne.heald@colorado.edu

SSP 89 Strasbourg

Alain Poirier (SSP 89) left his position as Director General, Space Systems, at the Canadian Space Agency in January to pursue work at the National Optics Institute (INO) in Quebec City.

SSP 1990 Toronto

Richard Desjardins (SSP 90) has moved, and is now living in St-Augustin-de-Desmaures.

SSP 1991 Toulouse

Roland Seurig (SSP 91 GER) and **Audrey Robinson-Seurig** (SSP 91) have moved into their new apartment in Feldkirchen, Germany. Audrey will be a TA in the Space Life Sciences department during SSP 2001, and one of Roland's colleagues at Kayser-Threde will be a student at ISU this summer. Roland continues to enjoy his work at Kayser-Threde on the International Microgravity Plasma Facility (IMPF). The Plasma-Krystall-Experiment (PKE), which is the precursor to IMPF, is the first scientific payload on the ISS. PKE was installed and switched on in the ISS for the first time in early March.

SSP 1994 Barcelona

Stephen Cheung (SSP 94) I have just finished my most successful year yet as a faculty member in the School of Health and Human Performance at Dalhousie University. The Environmental Physiology course that I developed based on the ISU style of learning (see accompanying article) has been widely profiled in the teaching

literature, including the London Times Higher Education Supplement (Jan 26, 2001) and Science's Next Wave (www.nextwave.org). It has also contributed to my being shortlisted for the Dalhousie Alumni Teaching Award, the highest teaching award at Dal. I was interviewed on @Discovery.ca and Global TV's national news in late April (coinciding with Chris Hadfield's EVAs) concerning the Thermal Control Suit that I have been designing and validating for the past two years.

Louise Cléroux (SSP 94) Hello to all. If anyone does not believe that time heals all, do believe it. After a few years of personal and professional turmoil, the sun is finally shinning through and the seas are getting calmer. July 3rd 2001, I will be changing jobs. I am still going to work for Bombardier Aerospace in Montreal but I will become Manager for New Manufacturing Technologies. I will be in charge of a new company initiative looking for manufacturing innovations (R&D projects, alliances with universities and companies, etc.) in order to increase our productivity and maintain/increase our quality. I am going to oversee all sites of Bombardier Aerospace and serve as the technical focal for negotiations with the various governments to get tax credits. I am very happy about this change and I am looking forward to a few years of calm seas.

SSP 1995 Stockholm

Chantal Lamontagne (SSP 95, 2001 CAISU President) I had the misfortune of catching some mysterious illness that kept me out of commission for more than 3 months this winter. When not sleeping, I spent my days attempting to read, and visiting yet another medical specialist, feeling like quite the guinea pig as every possible medication was tried. In mid-March, I finally resurfaced and have enjoyed relative good health since then. In April, my husband and I travelled to Florida to view the launch of STS-100 and the SSRMS, and had a ball afterwards enjoying Seaworld and Universal Studios in Orlando, having stayed an extra few days in case of launch scrubs. In May, we finally, finally got possession of our new home in Woodbridge and have been dealing with living in a perpetual construction zone since then – we love it! Though our two green cars now always appear beige, no matter how often we clean them. While not acting as Cosmonotes Editor, t-shirt designer, and CAISU President, I pursue my PhD, studying hypervelocity impacts on the composites used in the construction of the SSRMS.

Derek Plansky (SSP 95) has accepted a position with a new information management company called Seisint (www.seisint.com) in Florida. After a detour/vacation in Hawaii, Derek, his wife Barbara, little Xander and George the cat packed up and moved from California to their new home in Boca Raton in early May.

George Tyc (SSP 95) I have taken a new job at MDA in Richmond, BC, so I am leaving Bristol after nearly 14 years. It was a tough decision as I basically created the business area I was running at Bristol (Control Systems Products), and I am the co-inventor of the main product Bristol is developing called the “Gyro Wheel”...so I had a real attachment to the work and also to our team ... but the opportunity at MDA was just too enticing!! My new position at MDA is "Technical Director, Smallsats". Basically, I will be heading up a team to undertake some new smallsat initiatives MDA is working on ... its very early days for these programs and I will be helping to make them "real". I like to do that as it combines the Technical, Management and Business Development sides of the business ... which is what I love to do ... basically I get to act as an entrepreneur with a big company as a backer in an area I know and love - smallsats. So I am excited about the challenge and the opportunities. So that’s the news ... we sold our house here in Winnipeg and bought a house in Ladner ... a small community just south of Richmond where MDA is located.

SSP 1996 Vienna

Marc Abela (SSP 96) After joining the summer session (for the third time) in Chile as a TA in SSP 2000, I travelled a bit around South-America then made it back to Japan (for the nth time) and now work as an account manager for a company called Deutsche Telekom (mostly in the field of ground telecommunications connecting Japan - Asia-at-large with Germany - Europe-at-large). My private e-mail address has not changed (Marc_Abela@hotmail.com) so if you ever come visit this side of the planet make sure you let me know!

Li-Te Cheng (SSP 96) is still working for Lotus Research, which is now IBM Research (but still located at Lotus in Cambridge, MA, USA).

Johanne Heald (SSP 96, CAISU Membership Director) is in the last year of her Ph.D. at the University of Colorado. Between papers and proposals, she hosts alumni who visit her in order to ski and hike the Rocky Mountains. She is also the new Membership Director for CAISU.

SSP 1997 Houston

Joshua Izenberg (SSP 97) has moved, and is now living in Washington, DC.

SSP 1998 Cleveland

Jonathan Knaul (SSP 98) As of 23 June, the military is officially moving me to France. I will be spending the summer following an aerodynamics and technical vocabulary course in Toulouse at Institut Aéronautique et Spatiale. As of Sep 1, I move to Istres (about 45 min. northwest of Marseilles) where I have rented a small house for the year, until 31 Aug, 2002. My test pilot course begins at the Istres Air Base on 10 Sep. My coordinates in both Toulouse and Istres will follow in an email to all ISU people in the next few days. In the meantime, I would like to extend an invitation to all of you to visit me in the south of France at Château Jonathan, where you will have a place to stay, and found and wine on the table, for as long as you wish.

Troy McConaghy (SSP 98) is doing graduate studies in Aeronautics & Astronautics at Purdue University. He is researching ways to optimize low-thrust spacecraft trajectories that include gravity-assists. This work is being done in collaboration with researchers at NASA's Jet Propulsion Laboratory. Troy will be presenting his most recent results at the AAS/AIAA Astrodynamics Specialist Conference in Quebec City, July 30 - August 2, 2001.

Soeren Peik (SSP 98) I finally decided to change my career. I resigned from my position as a Design Engineer and Project Manager from COM DEV Space, Cambridge, and accepted a position as a Professor at the University of Applied Sciences in Bremen, Germany. Yes, that's right, it is THE CHOSEN city of 2001. For the GPS fans among us its 8 deg, 48' 30 " East 53 deg, 04' 38" North. I will teach microwave engineering with focus on aerospace applications. I am really looking forward to this new opportunity. I hope I see a lot of you this summer during the SSP 2001. During my visit in Bremen for my job interview I found out already Bremen is a really nice city. Don't miss the opportunity and come!

SSP 1999 Nakhon Ratchasima

Josée Adamson (SSP 99, CAISU Vice President) I am now living in Hudson, near Cleveland in Ohio. Even though I was very sad to leave Canada and such a great company as Millenium Biologix Inc., I am

also very excited about all the opportunities here in the US. I am working for the National Center for Microgravity Research (NCMR) at the NASA John Glenn Research Center. Geoff and I are now all settled down here in the US. He is still working for Goodyear but now at the company's headquarters in Akron, Ohio. Our contact information has been updated in the Cosmonotes Contact List, so anybody coming in the Cleveland area, give us a call!

Eric Choi (SSP 99) has returned to Canada and is now at MD Robotics in Brampton, working as an Operations, Controls, and Analysis Engineer supporting the Space Station Remote Manipulator System (SSRMS).

Gordon Coutts (SSP 99) is now working for Agilent Technologies in Malaysia.

Thierry Fontaine (SSP 99) I am extremely happy to announce that after spending lots of my evenings and week-ends during the last months working on my master's thesis, I have finally completed in May both my master's thesis report, AND my master's degree in Aerospace Engineering at École Polytechnique de Montréal. The subject covered by my master's thesis is the process used to manage technical requirements during development projects of aerospace systems. I'm telling you, it's a world in itself, filled by bubble charts, V-shape diagrams and even fractal concepts! I have been working as a full-time engineer (Bombardier Aerospace) and studying part-time for my master's since January 1997. Completing this graduate degree has been a highly instructive, yet demanding, academic experience. I just start to realise all the free time I have now for my personal life… Great, but hey, I'm not used to it anymore. No worries, after working hard, it's time to play hard! Youhou! N'hésitez pas à me contacter si vous passez par Montréal. Au plaisir de vous voir!

Angelina Guzzo (SSP 99) After 4 years of classes and lots of exams, I graduated from medical school at McGill in May. The next stage of my life will take me to Halifax where I will be pursuing my residency in cardiac surgery at Dalhousie University. There are a few other ISUers out there so if you plan a trip to the area, get in touch so that we can have an ISU reunion!

Morla Milne (SSP 99) has now joined the permanent SSP team at ISU Headquarters in Strasbourg, France, replacing Isabelle Bouvet as Assistant Director of SSP. She loves Strasbourg and looks forward to meeting Canadian students and alumni in Bremen and beyond!

SSP 2000 Valparaiso

Elaine Tan (SSP 00) recently graduated with her MBA from McMaster University and has been working with the Canadian Space Agency's ISS Commercialization Office since February. She will be returning this fall after attending this year's SSP in Bremen as TA for Policy & Law.

SSP 2001 Bremen

Catherine Beaulieu (SSP 01) owns a Master's degree in clinical psychology and business administration. Specialized in work performance, she is a consultant for Employee Helping Programs. Since 10 years, she works as a research assistant in the Management and Technology department at University of Quebec in Montreal. She also has a counseling practice in Montreal. After she worked as a department manager, she developed strong interests in employee training. She is currently doing a Ph.D. in Industrial/Organizational psychology where she wants to validate a psychological training program for astronauts assigned to long duration missions. She would like to become a member of an in-flight support team for space missions.

Pierre Boisvert (SSP 01) is a mechanical engineer, graduated from Ecole Polytechnique in Montreal, in 1985. He performed graduate studies in the Master in Aeronautics program from the McGill, Concordia and Polytechnique universities. He currently works as a Payload Integration and Operations Engineer on the ISS program at the Canadian Space Agency. Before joining CSA, he worked for several years in the aerospace industry, namely at SPAR Aerospace (now EMS Technologies) where he worked for about 10 years, specializing in the thermal analysis field. He was thermal lead on several satellite projects such as the Radarsat 1 and 2, and the ASAR antenna for the Envisat spacecraft. He his married and has two daughters. He enjoys biking and playing hockey, and has a private pilot license. He also enjoys making presentations on space topics to kids in schools.

Richard Giroux (SSP 01) got is undergraduate degree in electrical engineering at the Ecole Polytechnique of Montreal, Canada. During his degree, he spent one year at the Swiss Federal Institute of Technology, in Lausanne. He attended a Master's in Applied Science at the Ecole Polytechnique of Montreal in May 1998 and completed it in November 1999. His research was partly sponsored by Bombardier Aerospace and was entitled: "Optimization of observation missions and path following control for a VTOL-UAV". After working for a while at Oerlikon Aerospace, Canada, he has been admitted at the Ecole de Technologie Supérieure, in September 2000, where he is currently a Ph.D. student. He is working on the improvement of electronic inertial navigation system performance and autonomy by use of suitable filtering and data fusion techniques.

Ryan Granlund (SSP 01) is an Advanced Member of the Technical Staff with the COM DEV Space Group specializing in the design and testing of microwave multiplexers, filters and passive structures. He completed a Bachelor of Aerospace Electronics and Systems Engineering from Carleton University in Ottawa in 1999. He has 2 Initial Patent Filings for an RF Microwave to Fiber Optic converter and for a satellite constellation design. He attended Space Academy Level 2 in Huntsville, Alabama in 1992. Ryan is an avid private and glider pilot and a groundschool instructor with the Air Cadet League of Canada. He enjoys hockey, water/downhill skiing, travelling and outdoor activities.

Suzanne Green (SSP 01) My name is Suzanne Green and I work for a remote sensing company in BC, Canada. I was born in the UK and I have dual nationality for both Canada and the UK. I obtained a B.Sc. Hons. Degree in Remote Sensing and Geographic Information Systems from Bath, UK. Since graduating in 1996, I have worked within the remote sensing field in both England and Canada and I have obtained a broad knowledge of the International space community. My current work focuses on optical and radar satellite image processing and analysis. I am a very enthusiastic person and I enjoy learning for the advancement of my career. I am a keen team player and thoroughly enjoy the challenges of problem solving. I am very much looking forward to the opportunity of meeting everyone at Space University and the challenges of the course.

Jameel Janjua (SSP 01) I am currently completing my first year of a Master of Science degree in the Department of Aeronautics and Astronautics at the Massachusetts Institute of Technology. In May 2000, I received a Bachelor of Chemical and Materials Engineering degree from the Royal Military College of Canada and was commissioned as a Second-Lieutenant in the Canadian Air Force. Following the completion of my graduate work, I will return to Canada to continue my wings training as a pilot in the military. In the future, I hope to become involved in the experimental testing and evaluation of aircraft. I hold valid Glider

Pilot's and Private Pilot's Licenses and enjoy recreational aviation. In my leisure time I also enjoy playing most sports, especially ice hockey and football. I look forward to meeting all of you and having an exciting summer.

Catherine Laurin (SSP 01) I was born in Montreal (QC) in 1976, but I grew up in St-Hyacinthe (QC) with two younger sisters and parents that I love. For as long as I remember, space has always interested me. In 10th grade, I had the opportunity to attend the U.S. Space Camp in Huntsville, Alabama. I knew from then on that I wanted to pursue a career in the space sector. Throughout my last year of high school, I looked for universities offering undergraduate programs in a space-related field. The Royal Military College of Canada (RMC) had a space science degree and with its demanding academic program, variety of sport activities and challenges, it sounded like the best option. At 17, I enrolled as an aerospace engineer in the Canadian Forces. I spent the next five years juggling between school, military responsibilities, sports, dancing and friends. After I graduated from RMC in 1998, I went on to do my Master degree at the University of Toronto in atmospheric physics, which I completed in 1999. Since then, I have been working at the Canadian Space Agency in St-Hubert (QC). I am a member of the Mission Management Office for RADARSAT-1 and I love it. But work is not everything. I am a big outdoor fan. I love doing activities outside: hiking, cross-country running, mountain biking, rock climbing, camping, etc. I need to continuously move. I need this feeling of freedom. It is my way of relaxing. I also like listening to music (all kinds), reading space literature and going out with my friends.

Nancy Martineau (SSP 01) Nancy is currently pursuing graduate studies in the field of astrophysics at the Université de Montréal. Her research focuses on the dark matter distribution in spiral galaxies. This project is part of the international collaboration called GHASP (Gassendi survey of HAlpha Spirals) and was conducted at the European Southern Observatory (ESO) 3.6m telescope in La Silla, Chile. During her electrical engineering degree at École Polytechnique de Montréal, Nancy was involved with the development of an active vibration-suppression system applied to twin-tail buffeting of the Boeing F/A-18 jet aircraft at the National Research Council of Canada (NRC). While working for LinCom Corporation, she had performed simulations of escape trajectories for the International Space Station (ISS) Crew Return Vehicle (CRV). As part of exchange programs, she also studied at the University of Alberta in Canada and at the Instituto Tecnologico y de Estudios Superiores de Monterrey in Mexico. Her interests include biking, mountaineering and climbing.

Simon Nolet (SSP 01) I'm 25 years old. I am currently achieving a M.Eng. degree in Aerospace Engineering at MIT. My specialization is Systems Engineering. Before coming to MIT, I completed a B.Eng. degree in mechanical engineering, with a concentration in aeronautics, at Universite de Sherbrooke.

Laryssa Patten (SSP 01) completed a BASc in Engineering (Engineering Science) at the University of Toronto in 1998. She began working at the Canadian Space Agency (CSA) as a Mission Planner on the RADARSAT-1 satellite program and was a member of the operations team responsible for planning payload images. She managed the activities of RADARSAT-1 foreign ground stations and was part of the international team which established the operational baseline of the Charter on Space and Disasters, a Cooperative program set up with CNES, ESA and CSA, to coordinate acquisition and utilization of spacecraft resources to aid in disaster relief. Laryssa is currently working for CSA as an Operations Engineer/Robotics Instructor on Canada's contribution to the ISS, the Mobile Servicing System. She has a personal interest in planetary exploration; she completed a thesis related to development of an atmosphere model of Mars. She speaks English, Ukrainian, French, and is learning to speak Russian.

Joan Saary (SSP 01) I am the Chief Resident in the Occupational Medicine program at the University of Toronto, and am doing a PhD in health outcomes research in the Clinician Scientist program concurrently with my residency training. I recently participated in a one month Aerospace Medicine elective at NASA's Johnson Space Center, for which I was sponsored by the Canadian Space Agency. One of my favourite hobbies is travelling, second only to watching my young son's fearless exploration of the world; which makes me think about the reasons why we are all so interested in the exploration of space. He will see us reach Mars, won't he?

Jennifer Sokol (SSP 01) I was born in Southern Ontario, Canada in August 1972. My undergraduate honors degree in Environmental Studies was completed in 1996 at the University of Waterloo, Ontario. I am currently pursuing my master's degree, part-time, at Carleton University. My research goals are focused on using various remote sensing platforms, both satellite and airborne, for wetland research in Atlantic Canada. I am currently employed as an Environmental Scientist in the Applications Development Section of the Canada Center for Remote Sensing. Personal interests include camping, canoeing, boxing and running.

MSS-3 1997-98

Rachel Zimmerman (MSS3) has spent the past year in Pasadena, California as The Planetary Society's education projects coordinator. She ran an international space art contest and worked with Student Scientists from around the world who earned the chance to take pictures of Mars using the Mars Global Surveyor spacecraft. Rachel is now also responsible for international development and volunteer coordination for Planetary Society projects, focusing on community outreach to increase awareness of space exploration at a grassroots level and on a global scale. She was instrumental in establishing a Planetary Society scholarship for ISU named after Jim and Lin Burke, and for encouraging The Planetary Society to support Yuri's Night, Under African Skies, and the Space Generation Advisory Council. In her free time, Rachel has joined the California Literacy program to teach adults how to read. She has taken up ballroom dancing and swing dancing, and has audited two classes at Caltech on Mars geology. She has given presentations about ISU to local astronomy clubs in southern California, and is working with Peggy Finarelli and Morla Milne to coordinate student-alumni joint social events for SSP'02 in Pomona, California. Any CAISUers who are planning trips to southern California are invited to contact Rachel. She misses her CAISU friends.

MSS-5 1999-2000

Kamran Bahrami (MSS5) has been working for MD Robotics in Brampton since late October. He is in the ISS Mobile Servicing System (MSS) Systems Engineering Group.

Valery Tessier (MSS5) moved to Houston, Texas, last August where she works for Space Applications International Corporation (SAIC), a NASA contractor. Her work consists of real-time support of ISS activities (safety console) as well as performing procedures and flight rules safety analysis. Furthermore, Valery and Ricardo León Jiménez (Mexico, SSP99 & MSS5) tied the knot on June 9, 2001 in Quebec City.