April 2000

Cosmonotes

Avril 2000

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

A big welcome to the new group of students that has been selected for SSP 2000!

- Frédéric Bourgeault
- Barry Cayen
- Carol Chahine
- Liara Covert
- Fahreen Dossa
- Rémi Duquette
- Katia Dyrda
- Martin Gascon
- Arif Janjua
- Raffi Kuyumjian
- Marius Ochisor
- Laura Sie

I am always so envious of people embarking on this journey for the first time - and experiencing all the wonderful things they are about to encounter. To the SSP 2000 group - good luck, do us proud, and I know you will do well. Remember that you are now part of a group of people who are here to support you before, during, and after the SSP. The friendships and links you will make will probably be the most valuable things you will take away from the summer session. Take me with you! Along with your attendance at ISU, being a member of CAISU includes certain privileges and responsibilities that you will learn about at your send-off in Toronto. We'll be there to greet you.

Last fall's CAISU annual general meeting really gave us a lot to think about and has motivated your Board and the general membership to pick up new projects and to improve on projects we have already been working on. We have so much stuff brewing in our plans for CAISU for this year and beyond. The people involved in CAISU are what make the difference. Our Board members have taken on the official responsibility to lead some projects on behalf of its members, but if you see anything in this issue of the Cosmonotes that interests you, please do not hesitate to contact us to get involved. As our projects get more ambitious, so do the requirements for more involvement from our members. We need your help in order to pull these things off in the usual professional manner that we do things. And of course, we're always open to new ideas. Our potential as an organisation is only limited by our imaginations and by the amount of time we can afford to put into the projects we undertake.

As you probably know, our annual operating funds come from CFISU, after a review of our current financial situation, our past performance, and our plans for the year. This year, the Board of Directors of CFISU has granted our proposal for supporting us very generously. We sometimes use this money to leverage funding from other sources, and having this continued backing from CFISU is key to our success.

As CAISU matures as an organisation, CAISU and CFISU are exploring ways of working jointly in whatever ways are appropriate. We have some exciting plans for working with CFISU on the alumni scholarship program, and CAISU plans to start to take on some responsibilities in raising funds for potential MSS student scholarships. We will continue to work closer together in some aspects, to maintain complementarity and to make sure there is no unnecessary overlap in our activities.

Each of our Board members has taken on certain projects as their personal responsibilities. Just to show you a sample of our ambitious list of projects, and also to give you an idea of an initial contact for a given project, here is how things have been distributed for the year:

Brian: ISU BOT alumni representative, alumni scholarship, CFISU fall conference

Isabelle: History of Space project, maintaining legal status of organisation, insurance, post-SSP promotional activities

Sebastien: Potential SSP in Canada, Webmaster, Kingston Alumni Gathering

Chantal: Cosmonotes, membership database, SSP 2000 t-shirts

Josée: CFISU liaison, CAISU pins, Space Day project, robotics contest project

Rachel: CSA merchandising project, CAISU documentation and archives, Canadawide Science Fair

Jonathan: SSP 2000 send-off, Montréal Alumni Gathering

Rob: Space Scholar Travel award project, Vancouver Alumni Gathering

Alain: BOD administration, planning for welcome back events and CAISU involvement in Garneau launch

Even if you don't get involved with any particular project, please make it out to our social events and please also send any personal updates and changes in contact information to your Membership Director, Chantal. We can be contacted at bod@caisu.ca.

We're off to another great start and I hope you share our excitement with all the projects we have on the go.

Alain Berinstain (SSP 91, MSS1)
2000 CAISU President

CAISU Board of Directors - 2000

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Letter from the Editor

Thank you to all alumni who submitted articles for this April 2000 issue of Cosmonotes. Your time and effort are greatly appreciated by this Editor, who cannot create the newsletter alone. The scope of this issue is wide, encompassing more than just CAISU BOD activities. You will find inside this issue many articles written by CAISU members describing their research, activities, and involvements, such as the Mars Society, ADAM Montréal and Toronto, the EROS satellite constellation, updates from MSS4 students, an update from the MSS5 class and descriptions of their professional placements, the June gathering of alumni in Montréal, the Japanese Cultural Night in Toronto, and many more.

In lieu of career profiles for this issue, I have asked two of our alumni who this year found themselves in unusual circumstances to write about their experiences. Judith Lapierre (SSP 95) shares with us a bit of the daily life of her 110 day isolation stay in Russia, and Jonathan Knaul (SSP 98) shares some of his thoughts about serving as a Canadian peacekeeper in Kosovo. Both found the time to write articles while under immense pressure, and I for one think this issue of Cosmonotes is more special thanks to their thoughtful contributions and I thank them both.

Enjoy the Easter issue of Cosmonotes, and once again, any feedback is appreciated!

Chantal Lamontagne SSP 95
2000 CAISU Membership Director
Editor, Cosmonotes

Isolation Simulation Study in Russia

by Judith Lapierre (SSP 95)

(Note from the Editor: The following diary entries were written by Judith during her isolation stay in Russia. She has since returned to Canada and is kindly, at my request, sharing her experiences with us now. Chantal)

December 12th 1999 "Landing" in a simulation chamber in Moscow!

I am happy to be sharing these very special moments with you. I hope you will enjoy and accompany us throughout our journey…

A week ago, we were entering the chambers in Moscow. Although our environment may seem quite modest, all that is needed for a rather comfortable life is present. What is a comfortable life is a relative concept, of course. From the outside, life in simulation chambers appears obviously not to have much opportunities for exploration, discovery and beauty. This forced closed environment, from our point of view and short experience with it, tells us differently, we seem to encounter a new type of openness. One that does appear to be shaped by the individuals, who bring along with them, different suitcases loaded with personal and social values, cultural ways of thinking and behaving and ultimately particularities that may brighten and add colors to our space without sun. The unequalled competence of life in confinement of our Russian neighbors and colleagues has been most helpful during this first week. In addition to fulfilling our daily tasks and varied experiments, we have had to learn how to operate a variety of environmental parameters (electrical, water and air purification systems, etc.). The intensity and multiple levels of learning comprised in the experience of living in confinement makes it, for me, the most enriching so far. We took pleasure also in adding a personal touch to our environment. Not much free time really this past week. However, the weekend has been mostly appreciated for its rest and has seen our first sharing of chamber cleaning duties. All of us are looking forward to the next weeks into virtual space odyssey.

Le 12 décembre "Aterrissage" sur une planète virtuelle de Moscou

C'est avec un immense plaisir que je vous transmets ces premières impressions d'un espace virtuel hors du commun. Je souhaite que cette aventure à la fois profondément humaine et scientifique vous plaise. Votre accompagnement est sans égal…

La semaine dernière, nous entrions dans ce qui allait devenir notre nouvelle demeure pour les prochains 110 jours. Quoique modeste comme environnement, nous y trouvons tout ce dont nous avons besoin pour une vie confortable, ce concept étant certainement relatif… Vue de l'extérieur, notre nouvelle demeure apparaît bien évidemment assez petite pour certains et n'offrant que très peu d'occasion d'exploration, de découvertes et de beauté. Mon équipage semble être d'un avis différent, la fermeture sur le monde entraînée par le confinement et l'isolement, laisse place à un autre type d'ouverture. Une ouverture unique sur l'importance de la reconnaissance de perspectives différentes, sur l'élément transculturel de notre équipage international et finalement, et non le moindre, sur les défis posés par l'exploration spatiale du prochain millénaire. Ces divers éléments offrent une saveur bien pétillante ainsi qu'une couleur à notre espace sans soleil. Nous avons la chance d'avoir des voisins bien sympathiques en nos collègues russes, leur compétence inégalée en vie confinée nous apparaît fort importante en cette première semaine. En plus d'accomplir l'ensemble des études, nous avons dû apprendre à contrôler certains paramètres environnementaux de notre nouvelle demeure (différents systèmes électriques, purification de l'air et de l'eau, condensation, etc…). L'intensité et la variété des apprentissages liés à la vie en confinement en font l'expérience personnelle la plus enrichissante, jusqu'à maintenant. Nous avons également pris beaucoup de plaisir à apporter une touche personnelle à notre environnement. Très peu de temps libre au cours des premiers jours. Notre fin de semaine à surtout été marquée par une récupération importante de sommeil, l'accomplissement de certaines tâches ménagères et d'heureux moments dans la poursuite de notre odyssée.

Le 19 décembre 1999 Une journée dans la vie d'une canadienne a Moscou, en confinement!

Bonjour, j'ai pensé qu'il vous plairait de connaître le déroulement typique d'une journée dans un simulateur spatial.

Notre journée débute toujours de la même façon. Vers 7h30, nous sommes contraints de quitter notre monde de songes… pour le contrôle médical! Tension artérielle, rythme cardiaque, température, poids, … tous les matins. Nous procédons de plus à la préparation de nos échantillons d'urine. Il nous faut presque oublier l'utilisation d'une toilette, toutes nos mictions sont collectées dans un récipient particulier! Par la suite, nous nous retrouvons tous pour un petit déjeuner bien commun. Céréales à partir de lait en poudre, pain avec beurre d'arachide du Canada… ce goût particulier plaît énormément à certains des membres de mon équipage mais pas à l'équipage russe! Par la suite, il y a environ 3 études qui sont régulières, nous les répétons tous les matins. Elles concernent surtout le sommeil, notre moral et notre bien-être. En suite, viennent des études de coordination et de mémorisation, des expériences de mesures des capacités mentales, des questionnaires sur nos relations interpersonnelles, sur notre perception de l'image globale d'autrui et parfois, des discussions en groupe. Des thèmes nous sont assignés, nous sommes observés par des caméras supplémentaires et nos discussions sont enregistrées. Les autres heures de la journée passent tellement rapidement que très vite, il est 16h00, heure habituelle où chacun s'entraîne sur l'appareil spécialisé mis à notre disposition. On prend notre repas du soir très tard… puisque chacun prend environ 1h00 à 1h30 pour son entraînement. La gastronomie du soir consiste presque toujours de kasha (si je peux me permettre cette traduction d'un met russe populaire), une sorte d'orge avec diverses viandes. Nous avons 5 types de kasha; en deux semaines, nous en avons fait le tour! Nous avons aussi des légumes marinés, du pain et des fromages. Puis, en soirée, il nous arrive de regarder des films russes ou anglais mais le plus souvent, nous prenons beaucoup de plaisir à se parler de nos pays, de nos habitudes et de nos vies. Ainsi, à partir des différences et des similitudes de chacun, nous apprenons à nous connaître chaque jour de plus en plus. Nous sommes déjà convaincus que le baromètre de l'expérience de la plus grande satisfaction d'une journée en confinement, c'est l'entente et l'harmonie dans l'équipage.

Bons préparatifs du temps des Fêtes!

December 26th 1999 A day in the life of a Canadian in Moscow, in isolation!

This short report will highlight our Christmas celebration. Most of you are all now celebrating with family and friends. I am also celebrating with my new family for 110 days and new friends. Before the start of the Holiday season, we put down on a list all the different holidays and celebrations each of our country has. The first to come in our common mission was Christmas. On Christmas Eve, I have invited all crewmembers to join for a typical réveillon de Noël à la canadienne. However, since cooking facilities and options are limited, no meatpies, no wildmeat ragoût, or fruit cakes or pies were offerred. We took, my crew and I, all afternoon to prepare a fresh salad with vegetables that we had received that day and with the fresh fruits, we made a huge fruit salad. Even though only three weeks has passed, you can not imagine how tasty this all was to us! Our guest crew had organised a major suprise to us; at midpoint during dinner they went to their chamber and brought back a cooked turkey for all of us. I do not know why but nobody spoke for at least 15 minutes… each enjoying this very tasty and different dinner. We took special care in cutting bread differently, adding special attention to the preparation of the table and decoration in the room. These little details made the difference I believe. Of course, this event brought us closer as each individual is contributing to the building of a new micro-society for this rather long and intense mission. We also had our own Santa and small special canadian gifts were offerred. Most popular ones were a small 3-D canadian made puzzle of the Egyptian Sphinx (being also the name of our experiment : SFINCSS), a small first nation totem, an original dreamcatcher and western red cedar seeds. We did some singing and more discussion. We are planning another celebration for January 1st. Then, there will also be the Russian Christmas (January 7th plus Old Russian New year, January 13th), and, and, and… until March 22nd. Of course, experiments are still being performed but during those days, we have much less to do and can enjoy the Holiday spirit.

I wish you all the best for this Holiday Season, much happiness and peace. May the New Milleneum bring you much joyful moments, health and new aspirations to be fulfilled.

Le premier janvier 2000 Un nouveau millénaire, un tournant de siècle mémorable, un moment historique…

Il m'est impossible de vous écrire aujourd'hui sans vous souhaiter mes vœux les plus chaleureux. Que ce nouveau millénaire vous porte dans son univers d'espoirs et de fraternité pour tous. Choisissons judicieusement chacun de nos gestes et faisons en sorte que nos réalisations soient à la hauteur de nos aspirations et de nos rêves pour nous-mêmes et notre prochain! Recevez, de notre vaisseau virtuel nos réelles pensées pour un avenir meilleur…

Malgré les dernières célébrations de Noël et du jour de l'an, nous avons poursuivi chacune des expériences tel que l'exige le programme SFINCSS. J'étais heureuse cette semaine de compléter, en français, deux études dont une en psychologie et l'autre en technique d'amarrage de vaisseaux. Effectivement, les deux chercheurs auxquelles appartiennent ces études ont procédé à la traduction du matériel dans ma langue maternelle. Ce fut grandement apprécié puisque la plupart des études doivent être complétées en anglais ou dans un environnement informatique russe. Par

ailleurs, je poursuis mon entraînement physique quotidien et j'y prends de plus en plus plaisir. L'appareil que nous utilisons permet de faire une série d'exercices à partir desquels nous ajoutons, à l'aide d'un ordinateur, différents poids. Je trouve que le temps file à vive allure, déjà un mois est passé. Il nous arrive parfois de souhaiter ouvrir une fenêtre et de respirer l'air frais. Un regard suffit, un sourire moqueur et nous changeons rapidement de sujet de conversation. On parle alors de notre prochain repas, question d'y ajouter des éléments différents ou bien, on parle de projets futurs… Je vous retrouve la semaine prochaine!

January 8th 2000 The parallel worlds…

"After this out-of-time experience, I see things from the past with new eyes, and my eyes are made new also by the viewing of those things that are new to me…"

Pawels & Bergier (1960) – Le matin des magiciens…

This citation (personal translation from French) comes from the book I am reading at this moment. It is very refreshing in its way to convey that modern science can not evolve from a tabula rasa but only through a dialogue with human intuition and subjectivity. The latter being a paradigm that filters, sometimes unconsciously, our way of thinking and like glasses of different tints and strengths alters our vision. Since that by now, you know a little more about our daily routine and tasks, I would like this week, to share with you three of my thoughts that emerged after one month of this unique intense life-sharing with my international crewmembers.

More than ever before, I am experiencing that there exist not one unique way to deal with situations, but a plethora of options. We all have different ways to see things because of the paradigm that guides us. The only unproductive way to think is to make the assumption that our way is the only right way. It became clear to me in such simple daily activities as preparing food or in more complex situations involving problem-solving or group discussions. Another important realization that strikes me more than ever is related to communication. This is even more obvious here where the common language of interactions implies the use of our second language and not our mother tongue. Therefore, the concept of definition and meaning is extremely important. I hold a strong belief that it is better to confirm a meaning attributed to a comment for the sake of clarification (to the point of being taken for never understanding the first time!!) than to take for granted a meaning that was perceived completely or partly wrong. I believe that a very strong openness to sharing personal thoughts has to prevail to prevent misunderstandings. Last thought I wish to share is related to the ability of the funambulist to walk the fine line of equilibrium in altitude. This equilibrium in our virtual space is related to being able to judge when silence should be listened to and when speaking should be heard…

Le 16 janvier 2000 À moitié chemin!

"Fermez les yeux. Après quelques minutes ouvrez-les sur la voute étoilée. Vous aurez le vertige. Vous vous sentirez dans l'espace… goutez-en l'ivresse."

Hubert Reeves (1981), Patience dans l'Azur.

J'adore lire Hubert Reeves, il m'inspire toujours beaucoup. Cet autre livre m'accompagne aussi dans cette aventure. La semaine passée, je vous ai fait part de mes réflexions, maintenant à moitié chemin, un bilan s'impose! Je dirais que les 7 premières semaines nous ont bien servis: s'acclimater à notre nouvel environnement, créer des liens, délimiter son espace, découvrir de nouveaux plaisirs, prendre conscience des limites et acquérir une plus grande habileté dans la performance des différents tests. Bien que toutes les expériences à mener soient connues à ce jour, on ne sent pas encore la routine et la monotonie s'installer. Les heures passent toujours aussi rapidement. En fait, j'ai eu très peu de temps à consacrer à mes loisirs personnels et cela me fait presque plaisir… Ne pas avoir à recourir à mes loisirs m'indique que l'accompagnement des membres de mon équipage est suffisamment riche en découvertes et en sourires pour m'en passer! Ce qui me manque surtout c'est ce tableau magnifique du grand manteau blanc et du ciel bleu du Canada. Malgré la distance, je me sens très proche de l'amitié, de l'affection et du soutien de ma famille et de mes amis. La semaine prochaine, je vous présenterai l'un des membres de mon équipage en entrevue spéciale, pour vous…

January 23rd 2000 Interviews with my crewmembers

As promised, I will present to you my three crewmembers. The first one is Norbert Kraft, medical doctor and invited researcher at the Japanese Space Agency (NASDA). He is commander of crew-3, my crew.

Q : Dr Kraft, what types of research you do at NASDA?

A: I study physiological and psychological parameters in isolated confinements. In addition, I do research on countermeasures to limit effects of microgavity on muscles and bones during long duration space flights.

Q: Why are you joining this experiment?

A : I am joining this experiment as a scientist and as a subject. I do research on medical, physiological and psychological factors during confinement. As a subject, I joined to find out by myself what may happen during long duration confinement. No test is good enough to cover the whole spectrum of this experience, the only way to get the whole picture is live it. This will help me understand better how to improve research in this field and also to find out about issues that are specific to the selection of astronauts for long duration flights. I wish to understand which types of psychological supports are really needed.

Q : What makes, in your opinion, a good mission?

A : From my experience, it is the relationships between the

crewmembers that determine mission success. It is not important from which continent they are coming, it is not important in which fields they are experts, but the whole crew should share some common fundamental values about human factors. These values ideally should be ranked similar. We should select individuals not only based on academic and professional achievements but most importantly on human qualities such as ability to convey empathy, patience, humour, sensitivity, sense of caring for the others, peaceful individuals, self-control, etc. What is difficult however is to assess these human qualities, you do not have diplomas that tell you that person has some expertise in that field. This is where confinement isolation studies come to play a major role in the case of long term space flights with mixed gender crews. As a commander, I can say that our intercontinental crew, from Asia to America, has shown so far that understanding between each other is not, as most would say, depending on overcoming cultural differences but rather a matter of sharing some fundamental principles of life and the same cherished values on human interrelationships.

Now I wish to introduce to you our Russian crewmember, Dima Sayenko, also medical doctor and working at the institute where the experiment is taking place.

Q : Dr Sayenko, why did you join the experiment?

A: I join because I was interested in participating in an international experiment that would give me more experience into the field of my own research area. Other motivations for me to participate were the salary for my participation and finding out about my own tolerance to this confinement.

Q : What is your area of specialization?

I specialize in neurophysiology, physiology of locomotion and countermeasures of motor disturbances during space flight. I take interest in studies of the effects of real and simulated micro gravity on the posture control. I took participation as a researcher in the Extended Head Down Tilt Bed Rest (ANOG-96 project).

Q : You are also directly working with cosmonauts?

A : Yes, I take part in most clinical/physiological investigations of cosmonauts. I was The principle investigator of the ESA-IBMP contract in which the goal was operational, physiological and psychological assessment of exercises with the Fly-Wheel device within the SFINCSS-99 test program. That device was proposed by the European Space Agency to test its usefulness for the international space station. I was the author of several papers and presentations at international conferences on human locomotion and posture control in space flight and simulated micro gravity.

Now let me introduce our Asian crewmember, Masataka Umeda.

Q: Why did you join this experiment Mr. Umeda?

I joined this experiment partly because I wanted to earn some amount of money to study at PhD level in USA and partly because I wanted to observe something meaningful for my study interest such as interpersonal relationship, cultural difference and so on.

Q: What was your topic of research for your master's degree?

I had earned Master's degree at the department of Health Education in Tsukuba, near Tokyo. And my major in Master course is the intervention study for HIV preventive behaviour on the basis of psychological theory.

Q: You have travelled abroad to further your research interests?

A: Yes, I have been to Nepal to study the actual status of the spreading of HIV. I also went to Turkey to get a more personal idea of some of the health problems that these populations are facing.

As you can see, all my crewmembers have very fascinating professional interests. I hope that you have enjoyed learning a little bit more about them.

Le 29 janvier 2000 Une grande perte pour notre équipage et pour la science du confinement

Cette semaine, nous avons appris que notre coéquipier japonais souhaitait mettre fin à sa participation à l'étude SFINCSS. La perte soudaine d'un membre avec lequel j'entretenais des relations harmonieuses et amicales m'attriste. Nous allons manquer sa coopération, sa grande précision et sa joyeuse personnalité. Nous avons tous appris par lui, son respect profond pour les relations humaines et son sens aigu des questions éthiques en recherche sont le reflet de questions fondamentales à se poser, particulièrement dans un contexte scientifique de collaboration internationale et interculturelle. Vous trouverez dans le texte qu'il nous laisse, les raisons qui ont motivé sa décision. Notre équipage traverse alors une période de réadaptation importante. Nous attendons avec intérêts le 11 février, jour d'arrivée d'un équipage international en mission pour 7 jours avec nous.

Statement of our Japanese crewmember:

"I leave the chamber on February 1st on the basis of my voluntary will.

The most dominant reason why I have decided to leave chamber is written below with additional information:

I am a Japanese subject, one of the international crewmembers. I am employed temporarily by Japan Space Agency only to participate in this experiment. The main purpose of my participation is to earn some amount of money for my future study. In other words, I am a layperson in the field of space development. The field of my study to date is health education and promotion, especially for those who have disadvantage in terms of health such as people in the developing countries. I have to date devoted and will devote myself to this field of science, because I believe that health is a basic human right everyone has by nature.

We, international crewmembers, have been discussing the reaction to the

unexpectable two events with the responsible institution of this experiment – fighting and forced sexual behavior - since December 31, 1999. Both events made me totally unhappy. The former is a behavior that only children are allowed to adopt, only to learn "how stupid it is", "how it hurts others" and so on. However, who is child in both groups that consist of highly-selected subjects? No one is. On the other hand, the latter was the event that made me feel more disgusted, because I think that the event is generally caused by distorted thinking pattern or attitude with women. If I am allowed to state my personal opinion on it in more detail, I think that the only men commit this case who consider women only to be a sexual outlet of men. What is worse in the case we faced, it seems that this was committed with clear intention.

I strongly believe even at present that both perpetrators are not appropriate for this highly scientific study and are wrongly selected to participate in this study. Therefore, I had been asking responsible institution for strict reaction to them with other two members. However, what I found in the reaction from the responsible institution gradually was the core idea of them on "how they view these events", "how they treat us" and "what is invaluable to them". These led me to having a doubt in my mind such as "Do they regard us as a laboratory animal?", "Is all they are interested in not to take the best care of us human subjects to manage this study well, but to obtain valuable scientific data?". It was easy to find in my mind the destruction of trust with responsible institution. And, at the same time, these days were enough tiring for me to lose my motivation completely to continue this experiment.

As mentioned above, I am much interested in the issue of human rights. I asked myself several times "their ideas are for my belief, or against my belief?". I asked myself again "should I follow them?" I thought that I would be able to follow them only for the sake of earning money. However, I reached the conclusion after some conflict in my mind that I should not follow them for the sake of my belief. I am a layperson who is not so interested in the field of space development and employed temporarily by Japan Space Agency. Therefore, it is also true that I could not find any more meaning to stay in this condition where researchers view us like laboratory animal without greatest care to us and, in addition, I did not feel like recovering and could not recover my motivation to cooperate with this experiment, not directly related to my study interest."

February 6th 2000 Routine but no monotony!

After 65 days in our adventure and pursuing now without one of us, we have had to reflect on the significance of the word "mission". A mission that exclusively takes into account the parameters of performance on specific experiments without looking at components of human relationships is doomed to fail, especially on long-duration space flights. Even if all the best preparation and training is offered to individuals before their missions, if no attention is given to human factors of which intercultural values, trust between scientists and subjects and gender-relations training, events will occur that will jeopardize whole missions. This is one of the most significant lessons learned so far with our experiment. We are now awaiting the arrival of an international visiting crew on February 11th. It will be composed of two Russian cosmonauts and two scientists, a French and a Japanese. Their arrival is welcomed as it coincides with our sense of routine being well established, in terms of experiment and schedule. For the first time this week, I have had time to work on my personal professional and leisure interests. There is now more free time and that leaves me with more motivation in learning my crewmember's languages. My three-year high school of Spanish also serves me here; I have enjoyed watching the Spanish channel on television. I am keeping up with the physical training. However, I believe that because of the restriction in mobility in the chambers, which is felt more now, that physical training will not improve my physical shape as much as I would have wished. It certainly prevents any deterioration and that alone is important. Next week, I will tell you more about how 12 people can live together in confinement!

Le 14 février 2000 Des invités venus d'ailleurs!

Vendredi le 11 février, nous avons accueilli 3 scientifiques venus de l'Agence spatiale européenne, de l'agence spatiale japonaise et de l'Université de Berlin en Allemagne. Nous avons l'honneur aussi de compter sur la présence de Dr Valery Polyakov, cosmonaute ayant sejourné le plus longtemps dans l`espace. Il a fait deux séjours de longue durée dont le dernier en 1994 avec un record de 435 jours à bord de la station Mir. On se sent un peu plus a l'étroit avec un total de 11 personnes réparties dans les trois modules. Six pays sont représentés. SFINCSS atteint alors son point culminant avec un équipage aussi international! Les moments passés avec ce cosmonaute à nous raconter des anecdotes inouïes de son séjour dans l'espace sont mémorables. J'ai trouvé 4 nouveaux partenaires pour jouer aux échecs et pour partager des stratégies! Certains d'entre nous avons aussi discuté de l'importance des facteurs humains pour les vols de longue durée et pour les missions de la Station spatiale internationale. Les différences culturelles ainsi que les variations dans les habitudes de travail semblent être des facteurs clés qui détermineront certainement l'ambiance des missions. Une gestion adéquate de ces éléments, incluant le développement de lignes directrices communes de conduite pour l'ensemble des pays impliqués dans l'opération de la station spatiale internationale ainsi que la promotion d'une formation transculturelle, sera cependant garantes du succès de ces missions.

Joyeux carnaval et heureuses fêtes des neiges!

February 21st 2000 Six nations together for this one-week special mission

Our guests have left Friday. They all enjoyed their week in virtual space and they have brought to us friendly

cooperation and a refreshing sense of humor. Stories from space told by cosmonaut Dr Polyakov and movies from his flights on Mir were fascinating. I could have listened to him for hours. All of them performed a specific scientific program and it was simply integrated into the whole program. No difficulties were noted and we took pleasure in sharing some of our knowledge of living in confinement with them. The only difference we noted with them around is having less liberty when it comes to toilet and shower since their living/eating quarter was in the same area! I specifically enjoyed speaking French with the French visiting member! When they left, some silence was suddenly very apparent to us all. There are now 4 weeks left only. I am thinking more and more about what I will be doing later after this experience, planning my first hours out in the sun of Moscow and eating fresh vegetables somewhere in a nice restaurant!!

Le 27 février 2000 Un colis attendu

Cette semaine, j'ai attendu avec impatience un colis provenant du Canada. A cette période du confinement, j'ai fortement apprécié recevoir quelques uns de mes cd laissés derrière moi en novembre puis en plus, le récent album de Patrick Bruel. Il y avait aussi des produits pour soins personnels, savons préférés, gel de douche, etc. Cela peut paraître sans importance mais ces articles ont largement contribué à augmenter mon bien-être. Il y avait aussi des trucs pour les loisirs, dvd, revues, etc. L'attente de ce colis et sa réception ont alimenté et énergisé sans aucun doute la poursuite de notre mission. Il est clair que de tels gestes de soutien par des proches permettent aux individus en confinement de contrer les sentiments de routine et de limiter la privation sensorielle qu'ils peuvent parfois ressentir. Nous avons, par ailleurs, dit aurevoir à l'équipage russe à sa sortie le 26 février après 240 jours de confinement. Au même moment, l'un de ses membres se joignait à nous pour nous accompagner jusqu'au terme de notre aventure de 110 jours, prévu le 22 mars. Il assurera la gestion et la maintenance des systemes opérationnels de notre environnement. La semaine prochaine, nous accueillerons un nouvel équipage composé de 4 russes. Ce dernier occupera le module laissé libre depuis hier. Leur mission, pincipalement médico-physiologique, vise la vérification de nouvelles stratégies pour les vols en microgravité. Ces stratégies serviront à contrer l'atrophie et la perte de fonctions neurologiques des muscles, observées en apesanteur.

March 5th 2000 Countdown to March 22nd started, International Women's Week

Bonjour! We are now 4 in our chamber. All of us are doing well and enjoying more free time. Our experiments are performed as usual. Some of us seem to increase steadily their performance on tests. That goes against many studies that tend to show a decrease in performance in the last quarter of any mission. Maybe this Friday, we will have 4 new Russians joining us, I have not been informed yet.

I am leaving you with this inspirational quote and since this week is International Women's Week, I wish to dedicate this week's work to all women. Let's celebrate women's courage, determination and perseverance and their contribution in all scientific/art/humanities fields to make this planet a better place to live!

Reach for your star

Do not take anything as being forever, because forever is only as long as today.

Know that the people who are the richest,

Are not those who have the most, but those who need the least

That we are at our strongest when life is at worst,

And our weakest when life no longer offers a challenge.

That it is wiser not to expect but to hope,

For in expecting you ask for disappointment, whereas in hoping you invite surprise.

That unhappiness does not come from not having something you want.

But from the lack of something inside that you need.

There are things to hold and things to let go of,

And letting go doesn't mean you lose,

But that you acquire that which has been waiting around the corner.

Most of all, remember to use your dreams

As a way of knowing yourself better, and as an inspiration to reach for your star…

Le 12 mars 2000 Notre logo et son explication

Vous recevez, en primeur, le logo de notre mission spatiale virtuelle et son explication. J'espère qu'il vous plaira. Je vous retrouve la semaine prochaine pour un dernier rapport…

HFS-1 International mission

This crest commemorates international confinement mission HFS-1, the Human Factor Science mission that was started in December 1999 and lasted 110 days, ending on March 22nd 2000. Under the responsibility of the Institute of Biomedical Problems of Russia, this space simulation study is a

HFS-1 International Mission Crest, made in Moscow on March 2nd 2000

stepping-stone in the area of space-related human factors. As part of a larger isolation program called SFINCSS*-99/00, this specific mission breaks the record of long-duration space flight simulation for a fully international and intercontinental crew of mixed-gender. Its uniqueness lies as well in the involvement of three space agencies at different levels. The National Space Development Agency of Japan/NASDA supported the scientific, crew and operational programs during the whole SFINCSS program, including the visiting-crew composition, the Canadian Space Agency/CSA supported the crew program and the European Space Agency/ESA contributed also with one member in the visiting crew (February 11th to 18th 2000). With the design of the crest, crewmembers wished to stress the significance of isolation studies for long-term space missions, either on the International Space Station (ISS) or during interplanetary missions such as a journey to Mars. The isolation chambers are represented flying into virtual space carrying with them the destiny of the science of human factors related to space. Mars has been selected as it is one of our future interplanetary mission targets and it is also the name of the habitat-module of the crew during SOUL.

SOUL, the name given to this mission on its 80th day, symbolises what came to be most significant for us during our 110 day-mission. It comprises, through its meaning, what should be the essence of any international space mission with humans as they leave their Earth cradle. Furthermore, each letter stands for a human factor that emerged as an essential factor for such future endeavors. The letter S reminds us of the exponential energy that Solidarity and togetherness bring. The letter O stands for Openness of minds, of perceptions and of visions. The letter U refers to Universality and to the fundamental recognition that we are one with our environment. Finally, the letter L calls our attention to Light for its brightness that chamber life deprived us from and most importantly, for the meaning of bringing to light some fundamental human factor issues. This mission has proven meaningful in showing true colors and revealing psychosocial issues yet unreported and unexplained. These issues constitute the building blocks upon which to further expand knowledge and develop theories about human factors as they are specifically related to space exploration.

"The important is not to stop questioning"

Albert Einstein

* SFINCSS-99/00: Simulation of Flight of International Crew on Space Station

Le 17 mars 2000
Remerciements et dédicace

Ce séjour en confinement, hors du temps et de l'espace tire à sa fin. C'est l'occasion pour moi de remercier tout ceux qui ont rendu possible cette aventure spatiale. Je dois remercier d'abord le bureau des astronautes canadiens de l'Agence spatiale canadienne pour tous ces instants magiques depuis plus d'un an maintenant, où le rêve et la réalité se sont confondus. Cette expérience a aussi entraîné une rencontre extraordinaire avec notre astronaute canadienne Madame Julie Payette. Au fil des mois qui se sont écoulés, sa vision, son enthousiasme et sa générosité me sont apparus comme des éléments de motivation importants. Les nombreux courriers des membres de ma famille dont ma grand-mère, mon père, mon mari, ma sœur et de ma famille élargie ont ajouté du soleil à mes journées. Les lettres et l'affection de mes amis et de mes collègues de travail m'ont fait grandement plaisir. L'intérêt des enfants de l'École PieIX de Hull et du Camp d'été de Val-des-Monts ont contribué à donner un sens plus large à cette expérience.

Par ailleurs, cette expérience de confinement est dédié à mon neveu qui fête aujourd'hui ses 15 ans. Son courage et sa soif de vivre sont ma plus grande source d'inspiration quotidienne. Atteint de paralysie cérébrale, il possède cette force remarquable de transformer l'environnement autour de lui, sans même dire un mot, sans même poser un seul geste. Chaque levée du soleil lui annonce le renouvellement d'une lutte sans fin. Son univers est marqué par la noirceur et le silence, sa communication avec son environnement est extrêmement limitée. S'il pouvait nous parler de sa propre expérience de confinement et d'isolement, je crois qu'elle rendrait ma propre expérience de confinement bien banale. S'il pouvait lui aussi concrétiser ses rêves, petits et grands, il découvrirait ses propres passions et sa vie, comme la mienne, serait une grande école….

Experiences in Kosovo

by Jonathan Knaul (SSP 98, CAISU Québec Director)

Less than 5 kilometres northwest of Pristina, my helicopter passes over the monument on the Field of Black Birds that commemorates the 1389 battle between the Serbians and the Ottoman Turks. It was here on June 28th, 1389 that the Turks delivered a crushing defeat to the Serbians and left their bodies to be picked at by the carrion birds. Sitting on a ridge line overlooking Pristina, this brown and plain monument is a tall rectangular structure that towers about 100 feet and dominates the surrounding landscape for miles. A few kilometres to the west is the coal burning electrical plant at Obilic. The winds are from the north this day, and one can readily see the brown swath in the snow extending for miles beneath the rancid smoke plume that emanates from Obilic. Just south of Obilic lies the town of Kosovo Polje (Polje in Serbian translates to field, and Kosovo means black bird) a suburb of Pristina. For me, Kosovo Polje is a town that is the cover story to Kosovo, the province. It is one of the few remaining settlements in which Serbians, Albanians, and Gypsies are living together. But then again, "living together" is not really what they are doing, because scarcely a day has passed in the months that I have been in Kosovo that a house has not been burning in Kosovo Polje.

With the defeat of the Serbs at Kosovo Polje in 1389 came a change in my life over 600 years later. In the spring of 1987, on the anniversary of the lost battle, then Serbian communist party

leader Slobodan Melosovic stood on the plain of the Black Birds and before an attentive crowd of mostly Serbians, he stated, "Nobody, either now or in the future, has the right to beat you". Two years later the Berlin wall fell, and General Tito, whose iron fist had brought a hard life but also stability to the former Yugoslavia, was long dead. By the outset of the following decade, ethnic cleansing in the Balkan region had reached such sickening proportions that the face of Western world wanted only to turn a blind eye. But it was not for long that we could do so, and soon after the fighting broke out in what is now Bosnia and Croatia, the United Nations sent in peacekeeping troops.

My helicopter, a Bell 412 Griffon, proceeds north from the monument on the Field of Black Birds to the border with Serbia where we will conduct a reconnaissance patrol. My mind drifts back to this time last year, the spring of 1999, when I volunteered to be a member of the Canadian Forces (CF) contingent that would peace-keep Kosovo (as of the winter of 2000, there were approximately 48 000 troops from over 20 different nations involved in peacekeeping duties in Kosovo) after the NATO bombing ended. It was in March of 1999 when I had to do what I never wanted to do – to tell my mother that I would be sent on military duties in the Balkans. It was also what no mother ever wants to hear, let alone face. Time passed by rapidly that year, and it was on the 18th of December that I arrived in the Canadian camp at Donja Koretica just 30 minutes drive west of Pristina, along with my squadron, 430 Escadron Tactique d'hélicoptère, from Québec City, Québec.

The Canadian camp lodges approximately 1000 soldiers. My squadron makes up approximately 150 personnel. The majority of the troops in the Canadian camp are with the Royal Canadian Dragoons (RCD) and the Royal Canadian Regiment (RCR). The men and women of the RCR and RCD units conduct a wide range of peacekeeping operations on the ground including such things as mine clearing, surveillance, riot control, medical assistance, and many other demanding activities. The missions that my squadron flies include surveillance, reconnaissance, insertions and extractions of troops, medical evacuations, assistance to vehicle and drug interdictions, humanitarian aid, and administrative movements of people and equipment. In a typical day, I fly two to three missions, many of them with the RCR and RCD soldiers. Now in the fourth month of my tour, I have already amassed 250 hours of flying.

On the way to the Kosovar/Serbian border, my helicopter passes over several villages, some Serbian but most of them Albanian. Many of the homes that I see are in a terrible state and it is hard for me to understand how people can live in them. The sight causes me to think of the facilities in my camp. Our sleeping quarters are called "weather-havens" which are soft roofed half-cylinder shaped huts with raised wood floors. We are six people per weather-haven. The food is prepared by Canadian Forces cooks and they do an excellent job. Of course, there are other amenities like videos, CBC via satellite, an excellent gymnasium, and the Internet. I always find it a paradox that I am living in Kosovo with 24 hour access to the Internet and email, while one hundred metres down the road, the farmer is planting his field using archaic farm machinery that is being pulled by a donkey. In his house, he probably does not even have a heating system.

Having completed our patrol at the border, we turn our helicopter toward home base. A few minutes north of the Canadian camp, we pass over Poklek where one of my scouts, Sheremet, lives. Along with several other Canadian Forces service personnel, we supervise 21 children of the 1st Kosovar Scouts, boys and girls, ages 10 – 17, for 2 hours a week. We meet in the Canadian camp every Sunday. Our activities include everything from basic camping skills to dental hygiene and mine awareness. They are the type of children who are always smiling and full of vigour. At first sight, you would not know that they have been through a war. I will miss them all when I return to Canada.

On final approach for landing at the Canadian camp, I reflect back on my time so far in Kosovo. It is April now, and I will return home to Canada in 2 months. I ponder on how much I have changed since I arrived in Kosovo. I know that I have learned a lot more about myself, and I know too that my eyes have been opened wider as to what humans are capable of – both good and evil. My most comforting thoughts are about how lucky and proud I feel to be a Canadian.

Message from CFISU

SSP 2000 looks ready to roll. CFISU will be sponsoring 11 students this year and you'll have a chance to meet them in June. All CAISU alumni are invited to meet the SSP 2000 students at their send-off dinner. The dinner will be held at the Holiday Inn, Cambridge, Ontario, the evening of Thursday 29 June, starting at 18:30 hrs. Please let Ron Freedman know (ron@impactg.com) so he can reserve a place for you.

Rod Tennyson
President CFISU

Election Results: Alumni Representative on the ISU Board of Trustees

by Alain Berinstain (SSP 91, MSS 1, 1994 Alumni rep on ISU BOT, CAISU President)

Congratulations to Brian Rishikof for being elected as the ISU Board of Trustees Alumni Representative. Voting took place in January; we had such a strong list of candidates and we want to thank everyone who volunteered to do the job. It's a huge responsibility and all the candidates were willing to take this on and do it well. Brian takes over the position from Mark Matossian from the United States who has held the position for the last 2 years.

Since 1994, there has been a seat on the ISU Board of Trustees for an alumni representative, and the position has been rotated through the world alumni organisations. Canada was first in 1994. It is now Canada's turn again

and CAISU elected Brian to fill this important role.

The ISU Board of Trustees is the highest adminstrative board of ISU; the president of ISU reports to the Board of Trustees. Among other things, the BOT is responsible for strategic decisions, staffing the highest positions within the ISU administration, ensuring the financial well-being of ISU, and dealing with major issues that face the institution from time to time. There are representatives from government, industry, and academia on the BOT, and the alumni rep is a full, equal member.

All the best to Brian and we look forward to reading your reports.

Thailand T-Shirts

SSP 99 CAISU t-shirts are still available! The front has the usual CAISU logo with the year. The back of the t-shirt has an igloo, with a blue-clad polar bear being trained by a red-toga'd Yoda. The caption reads: "Continue the training at ISU - Continue ton entraînement à ISU". If you would like to purchase one of these t-shirts, please contact Sebastien Drouin at drouin_sebastien@hotmail.com

CAISU Day at CASI Astro 2000 Conference

by Brian Rishikof (SSP 90, CAISU Vice President)

This year, the Canadian Aeronautics and Space Institute (CASI) will hold its biennial space conference, ASTRO 2000 in Ottawa from Nov. 7-9, 2000. And as has now become a tradition at this very large and important meeting of the Canadian and, indeed, the international space community, CAISU will host a special day prior to the conference to educate, encourage, motivate and stimulate the young and aspiring space professionals of Canada.

Two years ago, a very spirited group organized a hugely successful CAISU day focusing on careers and opportunities. This year, our theme is a little different. Borrowing from our common experience at ISU and related acitivities at the UNISPACE III-Space Generation Forum (SGF) last summer, we will hold a "Mini ISU Day". Yes, ISU in ONE day!

The general program will (tenatively) look like our familiar ISU session:

Morning: Multi-disciplinary lectures

Afternoon: Some sort of design project or workshop with a REAL product

Evening: CASI Social, "Special Guest" space plenary lecture, Cultural event

CASI has already agreed to publish whatever tangible item(s) we produce from the afternoon activity in one of their formal publications.

So summarizing:

DATE: Monday Nov. 6, 2000 (CASI Astro 2000 continues Nov. 7-9)

TIME: ALL DAY (and night?)

PLACE: Crowne Plaza Hotel, Ottawa

For more information on CASI, check out http://casi.ca

And hopefully by the time you read this, our flyer will be going out with the official CASI flyer, and also viewable on our website!

Sound impossible? Certainly not, but we need help!! Organization of this event will involve the following areas:

1. Lecture Program (including inviting lecturers, lecture format, topics, content, etc.)

2. Project/Workshop (or brainstorming) -- equivalent to mini-project at ISU.

3. Recruitment of Participants and publicity. CASI is going to provide us with a list of their contacts at universities around the country. This may also involve press releases alone or in conjunction with CASI, and maybe we can even get organized with the media! And of course, our beloved website.

4. Registration and Registration Kits. CASI will likely help whoever works on this by providing certain material and possibly handling the registration itself at the hotel.

5. Special Event(s): plenary lecture, culture night, CASI mixer (we just join in on this one), lunch and dinner.

6. Ottawa Details

6a. Logistics: AV equipment, computers (? -- maybe for the project), etc.

Please write if you want to participate. My contact coordinates for this are: casiu1@aol.com

CAISU PINS

Did you know that every year, Canadian alumni are given a commemorative CAISU pin? If you never received a pin, please let us know! We are cooking up a new batch to be distributed shortly.

Membership News

by Chantal Lamontagne (SSP 95, CAISU Membership Director)

It is a new year, and with every new year ISU brings us new alumni. At the end of the summer, we will welcome 12 new SSP 2000 alumni from Chile, and 4 new MSS5 alumni when they complete their masters in Strasbourg.

As our numbers grow, so does the effort in keeping track of each and every busy CAISU member. If you are moving, have new contact information, or have any changes, please let me know at:

Chantal Lamontagne
UTIAS, 4925 Dufferin Street
Downsview, Ontario
Canada, M3H 5T6
Tel: (416) 667-7701
Fax: (416) 667-7799
Email: clamont@utias.utoronto.ca

so I can update your entry in the CAISU Contacts List.

If you need to reach anyone on the Board of Directors, please email bod@caisu.ca, or alumni@caisu.ca to reach every alumni on our email distribution list.

Lost in Space Alumni

The next issue of Cosmonotes will include the CAISU Contacts List, a list published and distributed to our members once a year. Every effort is made to keep this list up to date, but several alumni still remain "lost in

space", with no current contact information.

Peter Lee (MSS2)
Céline Lévesque (SSP '91)
Kathy McCuaig (SSP '89)
Derek Plansky (SSP 95)
Hedley Richards (SSP '94)
Bill Unger (SSP 88)
Jesko Von Windheim (SSP '89)

If you have any information on the whereabouts of these alumni, please contact the Membership Director, Chantal, at clamont@utias.utoronto.ca so we can quickly get them back in touch with the rest of CAISU.

Paper or Electronic?

As the number of alumni we need to keep track of increases, so does the length of our Contacts List, and the postage necessary to reach every alumni with the list and the Cosmonotes. With the internet age upon us, it has been suggested that CAISU investigate possible means of distributing the Contacts List and/or the Cosmonotes electronically, either by email or via an ftp site.

In the next few days, shortly after you receive this issue of Cosmonotes, we will be setting up a link on our CAISU website (www.caisu.ca) where each alumni can enter their mailing preference. You will have the choice of paper or electronic, for both the Contacts List and the Cosmonotes. If you prefer reading a bona-fide piece of paper, we will still mail you all communicatons via Canada Post – we're not changing over completely! It's on a purely voluntary basis. If no vote is entered, we will assume that you prefer a paper copy (or that we have your wrong address and that you never received this issue of Cosmonotes!!) So please, visit the website and let us know your preference(s), or add some comments or suggestions on how we should proceed.

Alumni Scholarship Fund

by Brian Rishikof (SSP 90, CAISU Vice President)

Many of you are familiar with the relatively new Alumni Scholarship Fund (ASF), and many of you have given to ISU in one form or another for a long while. Now in its second year, the ASF is again soliciting the entire ISU community for contributions. You may have already received a letter endorsed by representatives of many formal ISU alumni organizations (including CAISU) and by the Board of Trustees representative (whoever that is!). The general aim of the letter, of course, is to encourage support for ISU. But it is important to remember that support can take many different forms. The ASF is asking for monetary contributions to maximize BOTH the total amount AND the number of contributors -- so simple participation sends a strong message.

As the concept matures, the process is also changing somewhat, and will continue to change. This year, there are two alternatives as we iron out something that is workable for everyone. First, you may contribute directly to ISU as instructed in the letter, or you may contribute through CFISU, but be sure to specifically designate your gift to the Alumni Scholarship Fund. Either way, you will be eligible for the (legal) tax incentives associated with giving to charitable organizations.

So as the ISU community grows, with Canada and CAISU leading the active charge, I do encourage support of the ASF to help the most deserving students in the world participate in a truly life-changing, perspective-altering and infinitely memorable experience.

(If you would like more information, check out http://www.helping/org/donate or write to me brishikof@aol.com and I'll try to help)

THE QUÉBEC AREA ISU GATHERING (QAIG)

by Jonathan Knaul (SSP 98, CAISU Director Québec)

It is always pleasant to plan a party at someone else's home and once again this year, the QAIG will be held at Alain and Louise Poirier's house in Montréal. The date is Saturday, June 17th, 2000. Times and theme to follow. However what we know so far is a few important items of note:

Last year's party was a great success. We had over 50 peoples and a few phone calls from alumni around the world (sorry about the bill to your cellular, Alain).

BYOB

The party will start in the late afternoon and last until the following morning.

There will be an awesome BBQ funded by CAISU.

Bring your bathing suit.

Please do not hesitate to bring children.

More information will follow via email and the CAISU web page. In the meantime, points of contact are:

Jonathan Knaul mail280f@dnd.ca, and
Rachel Zimmerman
rzimmerman@globalserve.net

Speak to you soon and we hope to see you on the 17th at Louise and Alain's.

Message from your ISU BoT Alumni Rep

As the new alumni representative to the Board of Trustees, I want to express my very sincere thanks to everyone who participated in the election. It is certainly an honour and a great responsibility which I will take very seriously. While it is CAISU's "turn" to provide a representative, it is a role that embodies the entire alumni community. I intend to follow the examples of my predecessors by providing candid feedback and by respecting the delicate balance of the goals and needs of both the institution and its former students.

I look forward to the challenge and will keep you appraised of progress through this forum and the isu electronic network (isu-talk, isu-news). The first meeting which I will attend will take place in Strasbourg in conjunction with a very happy occasion for ISU: the ground-breaking for construction of its dedicated Permanent Campus building on May 22nd, 2000. A series of meetings will be held around this date including the Annual General Meeting and an "ad hoc" Board of Trustees meeting. Following consultation with our previous representative, Mark

Matossian (USA 88), and other experienced, former participants, I am looking forward to a seamless transition.

If anyone would like to discuss issues of relevance to the ISU community, please do not hesitate to contact me at brishikof@aol.com.

Brian Rishokof (SSP 90)
2000 CAISU Vice President
ISU Board of Trustees Alumni Representative

Japanese Cultural Night in Toronto

by Audrey Robinson-Seurig (SSP 91 USA) and Roland Seurig (SSP 91 GER)

Audrey Robinson-Seurig (SSP '91) and Roland Seurig (SSP '91) hosted a Japanese Cultural Night in Toronto on Saturday, February 19, 2000. We organized this event to celebrate our birthdays this year, because Japan has played an important role in our lives. For three years, Roland worked on the International Space Station program at Mitsubishi Heavy Industries in Kobe, Japan. During the 1994 National Science Foundation Summer Institute in Japan Program, Audrey participated in an internship at Sumitomo Chemical Company and attended Japanese language classes in Tsukuba, Japan. For this festive occasion, we were joined by 21 guests, including Roland's colleagues from Honeywell (formerly AlliedSignal Aerospace Canada), fellow Canadian alumni of ISU, and members of the Toronto Chapter of The Mars Society. The event consisted of a group dinner followed by a concert performed by the world-famous Kodo Drummers of Japan.

To set the cultural theme for the evening, we held the dinner at NAMI Japanese Seafood Restaurant in downtown Toronto. (The name NAMI means "wave," like "tsunami"). This lovely Japanese restaurant offers authentic Japanese cuisine in an elegant traditional setting. We hosted our dinner party in the beautiful tatami (straw) mat room. After being escorted past the grill bar and the sushi bar by servers in brightly-coloured kimonos, guests removed their shoes and stepped past the paper screens to enter the tatami mat room.

Following the dinner, the Kodo Drummers of Japan, who play on traditional Japanese taiko drums, performed at Massey Hall in downtown Toronto. Massey Hall's website describes the concert: "World-famous for the visceral frenzy of their virtuoso performances, Japan's Kodo drummers continue to dazzle audiences of all ages with earth shattering rhythms punctuated with magical moments of lyrical, mystical calm." The group was sitting in the centre section of the second balcony. Sometimes the drums were struck so powerfully that part of the concert hall's structure behind us began to resonate!

Based on the positive interest in the Japanese Cultural Night, we are considering hosting another cultural event in the future.

Earth Remote Sensing Observation System (EROS) Satellite Constellation

by Gary Crocker (SSP 90)

Watch out IKONOS here comes EROS. After much anticipation, Canada Centre for Remote Sensing (CCRS) has partnered with Core Software Technology (CST) to collect the EROS high resolution imagery.

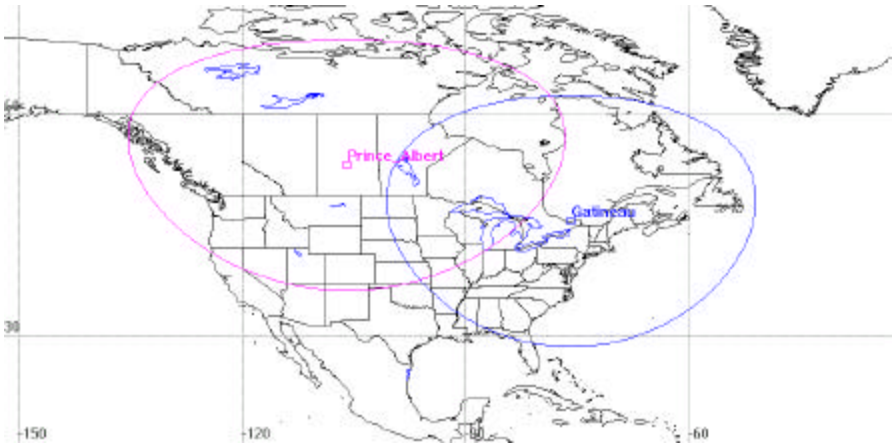
The EROS constellation of 8 satellites is being assembled by West Indian Space (WIS) an international joint venture composed of Core Software Technology, Israel Aircraft Industries, Ltd. and Electro Optics Industries, Ltd.

The first EROS satellite, designated EROS-A1, will be launched from the Plesetsk Cosmodrome this summer by a modified Russian SS-25 ballistic missile called Start-1. The Start-1 with a launch capacity to Low Earth Orbit (LEO) of 600 Kg is a good fit for the 280 Kg EROS-A1 flying in sun-synchronous orbit of 480 Km.

The EROS-A1 and A2 satellites have a panchromatic imager with a spectral sensitivity between 0.5 to 0.9 microns. The image's swath widths are at least 12.5 Km wide with a resolution of 1.8 meters. In addition, the EROS-B1 through B6 satellites will have multi-spectral capability with swath width of 16 km and a resolution of 0.82 meters.

CCRS brings to the partnership two fully operational ground stations, the Prince Albert Satellite Station in Saskatchewan and the Gatineau Satellite Station in Cantley, Québec. With each ground station having two X-band downlink antenna systems, high reception availability of extensive North American coverage is assured. This partnership also allows Canadian Federal and Provincial Government agencies access to high-resolution imagery for operational use. Visit CCRS at www.ccrs.nrcan.gc.ca.

Core Software Technology provides software and services for the archiving, management and dissemination of geospatial information. For the EROS mission, CORE provided the business plan and financial packaging, and will provide the satellite information product management and distribution. Visit Core at www.coresw.com. (Image: CCRS Prince Albert and Gatineau Satellite Station coverage at 5° elevation and 480 Km)



Our First Visit to the ISU Central Campus in Strasbourg

by Audrey Robinson-Seurig (SSP '91)

After visiting Roland's family in Gomaringen, Germany, in January 2000, Audrey Robinson-Seurig (SSP '91) and Roland Seurig (SSP '91) visited the ISU Central Campus in Strasbourg for two days. Kamran Bahrami, one of Roland's former co-op students at AlliedSignal Aerospace Canada (now Honeywell), is now an MSS 5 student and graciously hosted our visit to the Campus. Eric Doré, Assistant Director, Student & Alumni Affairs, enthusiastically welcomed us to the Campus, introduced us to the ISU staff members, and gave us a tour of the current ISU facilities, including the impressive library, which had grown substantially in size from our 1991 Summer Session Program. Eric showed us the design for the permanent campus and conveyed the staff's excitement about the upcoming groundbreaking ceremony.

Audrey and Roland attended a few MSS classes in Space Life Sciences and Reusable Launch Vehicles, as well as a team design project meeting and a student council meeting. Based on his expertise as a Senior Project Engineer on the X-33 Single-Stage-To-Orbit Technology Demonstrator Program at Honeywell, Roland offered some design project advice to a team of MSS students. We wondered whether a more official alumni mentoring program should be implemented for alumni to act as consultants to the MSS design projects.

Kamran gave us a tour through part of Strasbourg. We especially enjoyed visiting the beautiful old section of the city, including the cathedral with its intriguing Astronomical Clock. For dinner, the three of us were joined by Claude Rousseau, Manager, Professional Development Programs and Forum Activities, and Henry Schniewind, Assistant Director, Marketing – Corporate Relations.

After visiting ISU, Audrey and Roland spent three lovely days in Paris before returning to Toronto. We look forward to seeing ISU's permanent Central Campus on a future trip overseas.

RADARSAT-2 Report

(wherein the author discovers that photography can be a hazardous hobby)

by Larry Reeves (MSS2 96-97)

Standard disclaimer: opinions expressed here are my own, not the company's, yada yada.

A hearty "Hello!" to everyone. It's a pleasure to present you this RADARSAT-2 update. As you all (hopefully) know, MacDonald-Dettwiler is the prime contractor for the project, and it's a huge privilege to be a member of this team. So many aspects are fascinating, from the enhanced capabilities over RADARSAT-1, to the trend-setting commercial operation of the mission.

The biggest news in the past while is that just before Christmas we signed a sub-contract with Alenia Aerospazio (headquartered in Rome) to build the bus. Originally, Orbital Sciences (our parent company) had the contract, but the U.S. State Department's restrictions on the export of technology made it impossible to continue (we couldn't get any technical information about the bus, e.g., specifications, interfaces). So, having signed with Alenia, we're moving once again.

But now, on to the explanation of the secondary title of my article.

A group of us from MDA went to Vandenberg AFB (about 250 km north of Los Angeles) in March, to tour the facilities and to watch the launch of the NASA IMAGE satellite. I had my own 35-mm camera, plus a video camera, to get some momentos for the RADARSAT-2 team.

Friday morning we started off at the launch pad. We met the launch pad director, who gave us a tour of the Blockhouse, previously containing the launch crew (they're now located several km away for safety reasons), then into the Support Tower, still enclosing the rocket, up to the business end of all the nozzles. After that, we went over to the payload processing facilities area, which had an almost-assembled rocket body in storage, then it was in to see the nearby control centre, which concluded the tour.

Next morning we got up and left the hotel at 3:30 a.m. (ugh!) in order to go watch the roll-back of the support tower from the launch pad - a photo opportunity. Now, my 35-mm camera's battery was getting weak, and it gets worse when it's cold (it actually was a bit chilly at that hour of the night - for California, that is), and it was shutting itself off frequently. I had to stow it inside my jacket for a while to warm it up enough that it would work. As we were about to leave, I suggested a team photo, using my timer, of course, so that I could get into the picture. Well, on the first attempt I forgot to turn the flash on. So I turned it on, reset the timer, pressed the button, and re-joined the group. Halfway through the timer countdown, the battery had again had enough, and it just stopped. It just was not going to work. With all the NASA folks there watching, it was rather embarrassing. Yes, "Mr. Camera" was now the designated target of team ridicule.

Launch was scheduled for just after noon. The viewing area was a parking lot beside the driving range of a golf course on the Base. They had NASA TV set up with some big speakers, so that we could hear the countdown and control centre proceedings. I set the video camera up to get a great view of the rather obvious tower in the distance. I planned to leave the camera running on it from about T-1-minute, then I would go over to another vantage point to watch & take photos.

Unfortunately, the tower *wasn't* the launch pad - it was way the hell over to the left.

Huge, heart-dropping "oops." Yes, in that single instant at launch, I realised that my reputation as a photographer was finished, and that I would suffer ungodly, unbearable embarrassment and ridicule at the merciless hands of my dear colleagues.

So, I captured all the countdown audio, with a wonderful picture of this inactive

tower, along with the occasional snippet of the top of the driving range ball-collector driving by. And, yes, back in Vancouver, word of my photographic incompetence quickly spread.

Cheers to all, and please, *please,* don't let that happen to you!

The Mars Society

by Audrey Robinson-Seurig (SSP '91)

In a few short weeks, the groundbreaking ceremony will be conducted for the new ISU permanent campus in Strasbourg. Once ISU has established its home base on this planet, perhaps we should construct a satellite campus on Mars! One international organization, The Mars Society, is presently leading efforts to launch humanity toward Mars. The purpose of The Mars Society is to further the exploration and settlement of the planet Mars through:

1. Broad public outreach to instill the vision of pioneering Mars
2. Support of more aggressive Mars exploration programs around the world
3. Conducting Mars exploration on a private basis.

The Mars Society has chapters in Australia, Austria, Canada, France, Germany, Japan, Mexico, the Netherlands, Poland, Russia, the United Kingdom, and other countries. The Mars Society of Canada is currently becoming incorporated as a non-profit organization and is seeking volunteers to participate in leadership positions at the national level (for more information about The Mars Society of Canada and its Chapters, please refer to http://canada.marssociety.org/). In Canada, Mars Society Chapters have already been founded in Guelph – Kitchener – Waterloo, Montréal, Ottawa, Toronto, Vancouver, and Victoria. Chapters are planned for Calgary, Edmonton, and Winnipeg.

Flashline Mars Arctic Research Station

The first major project of The Mars Society is the creation of a Mars Arctic Research Station on Devon Island in the Canadian Arctic. This base will allow scientists, engineers, and even astronauts to test Mars exploration equipment and procedures under the analogous conditions of the cold and dry Arctic climate. Devon Island also exhibits many geological features that are paralleled on the Martian surface. The base is expected to be operational by the summer of 2000.

As the world's first fully-simulated Mars Base, the Flashline Mars Arctic Research Station shall be the foundation of a series of bold steps that will pave the way for the eventual human settlement of Mars. The next step will be to send a hitchhiker payload, such as a balloon equipped with an aerial photographic gondola to Mars in 2003 on either the NASA or European probes scheduled to launch in that year. The Mars Society intends to follow this up with a full-scale robotic mission of its own in 2007.

For more information about the Flashline Mars Arctic Research Station, please visit http://arctic.marssociety.org/.

Next International Mars Society Convention to be Held in Toronto

The 1998 Founding Convention of The Mars Society attracted 700 participants from 40 countries, featured over 180 papers and presentations, and received extensive press coverage in some of the world's leading media.

The 1999 Convention drew over 1000 attendees, including scientists, sci-fi authors, actors, singers, engineers, journalists, designers, teachers, and writers. Papers were presented on a variety of subjects ranging from advanced propulsion, planetary resource utilization, and terraforming, to questions of politics, law, education, ethics, the arts, and the significance of Martian frontier in human history. The Convention also featured exciting panels, debates, and talks given by those on the forefront of Mars research and exploration.

The first two Mars Society Conferences were held in Boulder, Colorado, U.S.A. As Konstantin Tsiolkovsky wrote, "The Earth is the Cradle of mankind, but one does not live in the cradle forever." Similarly, The Mars Society itself is evolving by holding the Third International Mars Society Convention from August 10 to 13, 2000, at Ryerson Polytechnic University in the heart of downtown Toronto. As in the past, the Convention will encompass a variety of Mars-related topics, with sessions addressing social, scientific, and technical aspects of Mars exploration and settlement. This year's Convention is expected to be the largest gathering of space pioneers in history.

Last year's Conference featured: Buzz Aldrin, pilot of Apollo 11; James Cameron, film director; Everett Gibson, "Mars Rock" team; Chris McKay, NASA exobiologist; Pascal Lee, NASA geologist; Robert Zubrin, author of "The Case for Mars"; Kim Stanley Robinson, author of the "Red Mars" trilogy; Peter Smith, Mars Polar Lander; and many more.

Conference Sessions

36 different Conference Sessions are currently planned for the upcoming Mars Society Convention.

1. Concepts for Privately Funded Mars Missions
2. Current Plans for Robotic Mars Exploration
3. Mars Meteorite AH84001: Evidence for Life?
4. Latest Findings of Pathfinder & MGS
5. The Search for Life on Mars
6. The Contamination Hazard: Fact or Fiction
7. Future Robotic Mars Exploration Missions
8. Piloted Mars Exploration Missions
9. Use of Local Resources
10. Methods of Construction on Mars
11. Advanced Propulsion
12. Options for Producing Power On Mars
13. Gaining Access to the Martian Hydrosphere
14. Biomedical Issues in Mars Exploration
15. Space Launch Options for Mars Exploration
16. Life Support Technology
17. Human Factors
18. Long Range Mobility on Mars
19. Concepts for a Permanent Mars Base

20. The Economics of Mars Colonization
21. Social Aspects of Mars Colonization
22. Timekeeping and Calendar Systems for Mars
23. Mars as a Way Station to Worlds Beyond
24. Terraforming Mars
25. Mars Exploration and Public Policy
26. International Collaboration as a Path to Mars
27. The Need for Law on Mars
28. Risk: How Much is Acceptable?
29. Methods of Public Outreach
30. Mars and Education
31. Mars and the Arts
32. Women in Exploration and Settlement
33. Philosophical Impacts of Mars Exploration
34. The Human Need to Explore
35. The Significance of the Martian Frontier
36. Strategy and Tactics for The Mars Society

Call For Papers

Papers for presentation at the Convention are requested dealing with all matters (science, engineering, politics, economics, and public policy) associated with the exploration and settlement of Mars. Abstracts of no more than 300 words should be sent by June 30, 2000 to: The Mars Society, P.O. Box 273, Indian Hills, CO, USA 80454. Or via e-mail to: mzubrin@aol.com.

Registration

For reference, the Convention registration fees are:

Student $60 US $90 CDN
Regular (before June 30)
$180 US $270 CDN
Regular (after June 30)
$240 US $360 CDN

Ryerson Polytechnic University has reserved a block of 150 dormitory rooms that can be rented by Convention attendees at a rate of $22 (US) or $32 (CDN) per night for students with ID, or $33 (US) or $46 (CDN) per night for others. An extended list of accommodations is provided at www.marssociety.org.

Poster Contest

Design a flashy, attractive poster advertising the Third International Mars Society Convention for the chance to win a free pass to the Conference. The contest is open to people of all ages.

Toronto Chapter of The Mars Society – Highlights of its First Year

Besides helping to organize the Third International Mars Society Convention, the Toronto Chapter of The Mars Society has actively contributed to a variety of space-related activities since its formation in March 1999. The Chapter is participating in the Marsville program by pairing mentors from the Chapter with schoolchildren in order to design elements of simulated Mars missions. In addition, the Chapter is directly involved in research relevant to Mars exploration and is assembling a website featuring Mars-related educational resources. The Chapter has sponsored three public lectures related to Mars exploration, and Chapter members have spoken to space enthusiasts at a number of events. Through these activities, the Toronto Chapter has attracted substantial media attention on behalf of The Mars Society.

The Chapter is planning the logistical support for the upcoming Mars Society Convention. Chapter members have formed task teams to handle specific duties for the Conference, including Public Relations/Outreach, Media, Sponsorship/Program Book, Banquet/Entertainment, Content, Toronto/Ontario Tourism, Education, and Exhibits. If you have experience in organizing conferences, or innovative ideas for this Canadian celebration of Mars exploration and settlement, please contact the Chapter.

The Toronto Chapter is currently helping with the design of the Marsville curriculum. Marsville is a project conducted among schoolchildren in Grades 5 to 8 to imagine and design mock-ups for a colony of 200 settlers on Mars. This year the project will specifically focus on the Mars Arctic Research Station, with help from the Toronto Chapter to inject more geology, biology, and engineering into the program. Chapter members will serve as mentors to various classrooms participating in Marsville, and will be actively recruiting members from the community, and across Canada. During the "link-up" day, students will gather in central locations in each major Canadian city to link up their habitation modules and rovers through teleconferencing. Contact Sheila Rhodes for more information (e-mail: sheirhod@enoreo.on.ca) or to become an online mentor.

Also, members of the Chapter (e-mail: vesna.nikolic@home.com) are working on the design of a rock-sample loading crane for the Mars Arctic Research Station. A webpage http://chapters.marssociety.org/toronto featuring educational materials, such as the model kit for the Mars Arctic Research Station, is being compiled.

Two weeks after its founding, the Chapter hosted its first free public lecture. Dr. Chris McKay of the NASA Ames Research Center spoke to an audience of nearly 150 about "Bringing Mars to Life," exploring the past, present and future possibilities for life on Mars, terraforming, and our ethical responsibilities. On June 10, 1999, Dr. Christian Sallaberger (SSP '88, TA '89-91, STAFF '92-94, Co-chair '95-99, some MSS) of the Canadian Space Agency delivered the second public lecture, which focused on Canada's role in space exploration, to an audience of approximately 60 individuals. Dr. Sallaberger is the Manager of CSA's new Space Exploration office, which will help Canada expand its role in international missions to solar system bodies such as Mars. On October 30, 1999, the Chapter hosted its third talk at the University of Toronto by Dr. Pascal Lee, entitled "The Mars Arctic Research Station - Exploring Mars and Canada". The talk was very well received by the audience of over 90 people. Within the next few months, the Chapter may be hosting at least one more public lecture by a Mars or space scientist.

From July 2 to 5, 1999, the Toronto Chapter hosted a booth at the Universe'99 astronomical conference.

With over 800 people visiting exhibits, listening to speakers, and participating in teachers workshops, the Universe'99 conference was a part of the larger "Partners in Astronomy" meeting from July 1 to 7. This event was hosted by the Royal Astronomical Society of Canada, the Astronomical Society of the Pacific, and the Association of American Variable Star Observers. Chapter members sold copies of "The Case for Mars" books and "Mars Direct" videos. Featured at the Toronto Chapter's booth was a model of the Mars Arctic Research Station, constructed by Guelph Chapter member Richard Miller.

Chapter members have given talks to the North Shore Erie Astronomy Association, the Students for the Exploration and Development of Space at York University, and other groups. Rocky Persaud and Darlene Lim chaired a panel on Mars Exploration at the Ad Astra 2000 Conference, and Chapter members will likely make appearances at additional local conferences and events as they arise.

The Toronto Chapter has locally designed and produced a representative Mars Society T-shirt with the slogan "Mars: Object Is Closer Than It Appears." The item has proven so popular (receiving requests from elsewhere in Canada, the southwestern US, and Europe) that the Chapter has decided to sell them to all who believe in a future on Mars.

The Chapter has been interviewed by several media organizations, including the Toronto Sun, CBC Radio/Television, the National Post, BBC Worldwide, the Austrian Broadcasting Corporation, City TV (Toronto), and others. On January 29, 2000, Chapter Representative Darlene Lim was interviewed by CBC Radio about the Society and NASA's Haughton-Mars Project. The Chinese daily Ming Tao and the popular space news source SpaceDaily also published an article with Darlene about this summer's Mars/Canadian Arctic work. Roland Seurig (SSP '91) appeared with Darlene on CTV Newsnet to provide commentary during the descent of the ill-fated Mars Polar Lander.

The Toronto Chapter has broadly diversified its Mars-advocacy activities and is looking forward to its second year.

The Chapter will next meet on Tuesday, April 18, 7:00 PM at the University of Toronto's Earth Sciences building. Meetings are held typically every two weeks. New members are always welcome!

How Could CAISU Become Involved in the Mars Society Conference?

Since the Conference is being held in Canada this year, CAISU could play a significant leadership role in representing ISU as an important space education resource. Bob Richards, founder and trustee of ISU, has suggested that some ISU alumni could present their Mars mission designs at the Conference. Perhaps CAISU would be interested in setting up and staffing an exhibit/vendors table providing literature about ISU and selling the CD-ROMS featuring ISU design projects. Alternatively, CAISU could sponsor some aspect of the conference. Please contact Audrey Robinson-Seurig (SSP '91), the liaison between the Toronto Chapter of The Mars Society and CAISU, with your ideas and suggestions (e-mail: aarobins@alumni.Princeton.EDU).

Contact Information

For more information about the Toronto Chapter of The Mars Society, please visit
http://chapters.marssociety.org/toronto/
or contact Rocky Persaud at Rocky.persaud@utoronto.ca.

To learn more about The Mars Society or to register for the upcoming Convention, please refer to www.marssociety.org or send an e-mail message to info@marssociety.org.

ISU Pres Visits Canada!

In March, ISU President Dr. Karl Doetsch made a whirlwind tour of North America, stopping by Ottawa, Montréal and Toronto before heading off to Washington. Along the way, he had the pleasure of meeting and greating alumni in each city through welcome dinners organised by our own CAISU members Matt Wuhr (Ottawa, SSP 96), Marlène Grenon (Montréal, SSP 98) and Denise Campbell (Toronto, SSP 98).

On March 6th, Matt Wuhr (SSP 96) organised a fun evening at The Fish Market Restaurant (which has more than just fish!) in the heart of the Byward Market in downtown Ottawa. On March 9, Dr. Doetsch met with students at Weinstein and Gavino's restaurant in downtown Montréal. On March 13, several alumni hosted Dr. Doetsch and his wife at Le Matignon, a lovely French restaurant.

Thank you to all alumni who turned out to great Dr. Doetsch on his visit to Canada, and special thanks to Matt, Marlène and Denise for their organisational skills!

MSS4 – Where are they now?

by Claude Rousseau (MSS4)

Five Canadians attending MSS4 all received their degree from ISU President Karl Doetsch in July 1999 at a very special graduation ceremony at ISU Central Campus in Strasbourg. Indeed, the keynote address for the ceremony was given by none other than Marc Garneau, Canada's first Astronaut and proud father of MSS4 graduate, Simone Garneau.

Where are they now?

Vaios Lappas is presently doing his PhD in the Surrey Space Centre, at the University of Surrey (UK). He is a member of the ADCS Team and working on the SNAP-1 Nanosatellite mission to be launched this June. Simone Garneau is at the Space Science program of the Canadian Space Agency in Ottawa. Andrew Ray is working at MDA in Vancouver. Claude Rousseau is now Manager of Professional Development Programs and Forum Activities at ISU Central Campus in Strasbourg. These new Alumni prove that Canada once again is a strong and active participant in the ISU community.

The 1998-1999 MSS-4 Canadian laureate after their graduation ceremony last July 29, 1999 at ISU Central Campus. From left to right: Vaios Lappas (Toronto, Ont.), Martha Milkeraitis (Barrie, Ont.), Andrew Ray (Halifax, N.S.), Simone Garneau (Ottawa, Ont.) and Claude Rousseau (Montréal, QC).

Update from MSS5

The end of module 3 and the exciting professional placement

by Rocco Locantore (MSS5)

Friday February 11 was the final day of scheduled lectures for the MSS 5 class. Appropriately, it was a workshop entitled: Future of Space Exploration; the faculty panel included 5 time NASA astronaut Jeff Hoffman and ISU President Dr. Karl Doetsch. It was an interesting discussion and a good conclusion to a series of thought-provoking lectures throughout the first three modules. The following week the students wrote their two final exams, the first being disciplinary in nature concerning the material taught in Module 3, and the second was an all-encompassing interdisciplinary exam which required a good understanding of everything taught during the first three modules. After the exams, the students were confident that the overall results would be good because as the faculty pointed out to the students, the class as a whole has a better understanding of the concepts.

Soon after the final exam on Thursday February 17, students began to depart for the next phase of the MSS program: Professional Placement. Over the course of the next four days, students left the ISU Central Campus to work in various organisations around the world. While half of the class went to various NASA centres in the United States, other students went to organisations in Canada, England, France, Germany, Holland, and Japan. The placement period officially began Monday February 21st, and the scheduled date of completion is Friday May 12th. Module 5 officially begins Monday May 22nd and so the students get a well-deserved one week break between Modules 4 and 5.

The class is looking forward to returning to ISU in Strasbourg for a variety of reasons. During the first week of Module 5 the annual ISU Symposium will be held. This should prove to be an interesting function not only for the ideas and information shared among the members of the space community, but because it will also provide the MSS students to meet and network with many prominent members of the space community. At that time, many students will be actively engaged in getting employment, and the ISU Symposium will provide an excellent opportunity for the students to further their careers.

After years of preparation and planning, the ground-breaking ceremony for the ISU Central Campus will be held the first week of Module 5. This is a major milestone in the maturity of ISU, and is cause for celebration. And of importance to the university and its alumni, the permanent campus will lead to accreditation by the French government, recognising ISU with full university status and the MSS alumni with a fully accredited degree.

The ISU experience is not just academics, but fun as well. The students are looking forward to enjoying the summer in France, taking part in summer activities and visiting Europe. The ISU has graciously arranged a class trip to visit the facilities of Aerospatiale in Cannes, France. Obviously the students are eager to go to the French Riviera in the summer, and visiting Aerospatiale makes the trip all the more interesting.

MSS5 Placements

Kamran Bahrami (Toronto) is carrying out his MSS placement at the NASA Goddard Space Flight Center in Greenbelt, Maryland working on the recently launched IMAGE (Imager for Magnetopause-To-Aurora Global Exploration) spacecraft. IMAGE is dedicated to examining the Earth's magnetosphere during the solar maximum occurring this year. It will also be utilised to monitor and forecast "space weather". Kamran is working on the operations phase of the mission, specifically pertaining to the Radio Plasma Imager (RPI) antennas. These antennas consist of two 500 m (0.4 mm diameter) tip-to-tip dipole antennas in the spin plane of the spacecraft and one 20 m dipole antenna along the spin axis. These antennas will make IMAGE one of the largest man-made objects in space (for reference: the CN Tower is approx. 553 m tall). Kamran will be examining the deployment phase of the antennas and comparing the actual

characteristics to the predicted. His mentor is Dr. James L. Green, the chief of the Space Science Data Operations office at GSFC. Dr. Green has much experience with the ISU SSP, but Kamran is his first MSS placement student.

One of the benefits of being an ISU student was demonstrated when Kamran was invited by NASA to be present at the launch of IMAGE from Vandenberg AFB atop a Delta II launch vehicle. "This was my first experience with a launch and it is very difficult to put into words the feelings I experienced. I am also very thankful to Dr. Green for allowing me to get a glimpse a science mission that will be looking at the Earth's magnetosphere in a never before done way. Being with the scientists and engineers when the spacecraft launched and seeing the glee and excitement in their faces will be a very memorable experience for me."

More information on IMAGE can be found at the following web site: http://image.gsfc.nasa.gov

Simon Kruijen (Montréal) is fulfilling his placement at the European Space Technology and Research Centre (ESTEC) of the European Space Agency (ESA) in Noordwijk, The Netherlands. He is working on the Concurrent Design Facility (CDF) concept within the Structures Section of the Mechanical Systems Division.

The Concurrent Design Facility is a new experimental mission design environment that offers an alternative to the classical approach by using concurrent engineering to provide a preferred design method by taking full advantage of modern information technology. The Concurrent Design Facility joins a multidisciplinary team that performs pre-Phase-A assessment studies as part of the definition of future space missions. One of the goals of this new way of working is to evaluate the benefits of the concurrent engineering approach to these studies. The purpose of the studies is to assess the feasibility of new space missions from the programmatic, economic, and technical points of view. This is usually achieved by producing a preliminary conceptual design of the mission and of the whole space system. The resulting study report is used as an input to the industrial Phase-A design studies.

Simon is participating in these studies to gain knowledge about the complex interactions between disciplines and to find new ways to co-ordinate the concurrent design process. Many suggestions and improvements can still be implemented to improve the multidisciplinary interaction process. Simon has noted that during the design sessions the tasks and requirements for the team members are not always well defined and require clarifications in order to get the systems operating efficiently.

To improve the design process, Simon is developing software for the structure section of the Concurrent Design Facility. The goal is to develop a user-friendly tool to allow a fast design and analysis during the design assessment sessions. This state of the art tool will allow the performances of the whole team to increase by reducing the total design iteration time. Multiple databases are created to reduce the duplication of information and to store the design results for future use and consultation. As an example a launcher database has been created as input for the tool. Also, the preliminary design program includes multiple visualisation tools that facilitate the design analysis. The goal of the preliminary design tool is to quickly output and refine the parameters needed by other team members of the study.

Simon has realised that the space industry still has many challenges in the matters of teamwork and concurrent engineering. Many different paths can be chosen to reach a better way of achieving our goals. Simon has put in practice what he gained with the ISU and is proud to contribute to the space arena here at ESA.

Rocco Locantore (Toronto) is carrying out his MSS placement at the NASA Glenn Research Center at Lewis Field in Cleveland, Ohio. The project under study is concerned with solar power satellites. The concept of the solar power satellite was invented by Peter Glaser in 1968 as a way of providing electricity on a global basis from an ecologically-friendly source. A solar power satellite would make use of the high solar flux available above the Earth's atmosphere, convert it to microwave power, and beam it down to a receiving rectifier antenna (rectenna) on the ground. Tentatively titled: *New Concept: Synergistic Relationship Between Ground Solar and Space Solar*, the project will be a study of Dr. Geoffrey Landis' concept for a simple, low-cost design which would work together with established ground solar facilities, as opposed to treating ground solar as a competitor. While solar power satellites are decades away from possible implementation, it is necessary to study the various concepts so as to develop a low-cost

and efficient system capable of reliably delivering electric power to meet future needs.

The placement mentor, Dr. Geoffrey Landis, is well known and highly regarded in NASA circles. Currently working with the Power Technology Division at NASA GRC, Dr. Landis had an experiment on the 1997 Mars Pathfinder mission (he also named one of the boulders – Yogi), and will have an experiment on the planned 2003 Mars robotic mission. He is also involved in numerous advanced concepts, and writes science fiction in his spare time. Dr. Landis has been involved in ISU Summer Sessions.

In the month of April, Rocco Locantore attended a three-day NASA/National Science Foundation (NSF) conference in Washington, D.C. – *Research Issues in Space Macrosystems: Autonomous Construction and Manufacturing for Space Electrical Power Systems*. This was a good opportunity to engage in intelligent discussions with prominent members of the space power and construction community, and to open one's mind to potential possibilities and applications of space solar power.

Valéry Tessier (Québec City) is carrying out her MSS placement at Johnson Engineering (Spacehab) in Houston, Texas. She is working in the Habitability Design Center under the supervision of Dr. John Evanoff and is involved in two projects: Bio-Plex and the ISS Hab module.

BIO-Plex is a Mars outpost simulation test-bed. The main objective of this simulation is the testing and integration of a Bioregenerative Life Support System to answer the fundamental needs of the crew. However, many other studies will be carried out over the whole experiment. Bio-Plex is a multichamber complex composed of 7 chambers connected to a tunnel. Valéry is currently working on the wardroom configuration of the habitat chamber and will draw recommendations for the area. BIO-Plex should be operational in 2003 at 50% with an initial simulation of 120 days. The experiment will be conducted over several years and in three phases, the last one being 524 days with 95% LSS efficiency.

Valéry is also participating in the design of the wardroom inside the ISS Hab module. The table being the main element in this area, Valéry is helping to improve the current design proposed. This table will accommodate seven crewmembers for multiple uses. It will also be used as the early wardroom table inside the Lab module until the Hab module is launched.

Working on the same area in two different environments helps Valéry have a better understanding of the various stressors present in a confined environment. She is also realising that the two environments may be similar but are also very different and habitability issues cannot be solved in the same way. She is involved in a lot of professional events and so far, the experience has been great.

Ricardo Leon (Mexico): Far away from his homeland Mexico, Ricardo Leon is working in Vancouver, Canada, carrying out his professional placement in MacDonald Dettwiler (MDA) and Radarsat International. His project is entitled: Utilisation of SAR Images for Disaster Management of Floods in Developing Economies.

Floods are considered one of the most destructive natural disasters. With almost one billion people living in unplanned urban areas, developing nations must develop effective ways to prepare and respond to the devastating effects of floods. The utilisation of geospatial information is revolutionising the way disaster management agencies are solving real-world problems by finding better methods to organise, share, and visualise data for improved communication and enhanced decision-making throughout the disaster cycle.

The application of space based remote sensing, in particular, Synthetic Aperture Radar (SAR), is increasing in response to flood disaster management. SAR all-weather, cloud penetrating capabilities, and sensitivity to surface roughness and soil moisture, are critical characteristics providing a cost-effective, reliable and accurate information system to map and monitor flooding, pre-flooding, and post-flooding events. The benefits and constraints of the use of SAR must be identified to ensure a sustainable development.

ADAM Montréal Update

by Marlène Grenon (SSP 98)

Here is a little update on recent ADAM activities. As you'll see, things have been moving since last fall!

In January, ADAM celebrated the new millenium! Mr. Mac Evans, President of the Canadian Space Agency, spoke on "The Role of Today's Youth in the Exploration and Peaceful Uses of Outer Space," a lecture attended by 150 McGill students and the media. This activity would not have been possible without the support of CAISU and its president, Alain Berinstain.

In February, Rachel Zimmerman gave a lecture at McGill on "Space Technologies for People with Disabilities: Medical and Rehabilitation Applications of Space Technology". From this presentation was born SATURN, Space and Assistive Technology Universal Research Network, established as an ADAM spin-off. Pat Sullivan, of the Operational Space Medicine group at the Canadian Space Agency, spoke on "Decompression Sickness." An excellent presentation that we hope to get on our website soon. First "members talk" with McGill students Scott McFadyen on "Special Relativity" and Albena Davidova on "The Space Shuttle." This series of lectures presented by ADAM members rather than guest lecturers aims to give students a chance to research a subject and present it to a space-interested group.

The second ADAM space education and outreach program at the Montreal Children's Hospital took place in March, with nine ADAM volunteers. Once again, ADAM members had the chance to interact with sick children and to teach them about space and science trough games, bricolages and other activities. ADAM and CAISU alumni met with ISU president Karl Doetsch in Montréal, where Dr. Doetsch was bestowed with a superb ADAM t-shirt! Also in March, Alain Poirier, Director General of Space Systems at the Canadian Space Agency, spoke on

"5000 Years of History Leading to Human Exploration of Space." This amazing presentation was followed by a cultural event at Hurley's to celebrate ADAM vice-president Carol Chahine's acceptance to ISU this summer. Bravo! A second ADAM chapter was formed in Toronto, Ontario, by Denise Campbell (SSP 98), with Dr. Gary Gray of DCIEM and McGill ADAM president Marlène Grenon guest speakers at its first event. ADAM Montréal also held its second member's talk; Shawn Arseneau spoke on "Artificial Intelligence" and Natalie Galley and Chris Watson on "Astrophysics and the Death of Stars".

Elections were held in April for the new 2000-2001 ADAM executive. Keegan Boyd, Scott McFadyen, Carol Chahine (SSP 00), Angelina Guzzo (SSP 99), Natalie Galley, Albena Davidova, and Rachel Zimmerman (MSS3) are the new executive, while Marlène Grenon (SSP 98) will be moving to Halifax and founding a chapter of ADAM there. Finally, out of 30 new clubs on the McGill University campus, ADAM had the distinction of winning the University's best new organization of the year award.

That's it (for now!). We have other activities and lectures planned for the summer; please check our website (www.ssmu.mcgill.ca/adam) for more information. Stay tuned for next year, with great new projects to come: web-site discussions in space medicine, SATURN's first project, Space Day at McGill, and many others.

Lastly, thanks to all of CAISU for their help throughout the year. ADAM's first year has really been a wonderful experience for all of us.

ADAM Toronto Chapter

by Audrey Robinson-Seurig (SSP '91)

The Association for the Development of Aerospace Medicine (ADAM) held its first meeting in Toronto on Monday, March 20, 2000. Marlène Grenon, ADAM's co-founder and President of the Montréal chapter, was one of the inaugural guest speakers. Following Marlène's introduction to ADAM and its activities, Dr. Gary Gray, flight surgeon for the Canadian Space Agency, provided an excellent overview of aerospace medicine. He discussed the historical development of aerospace medicine in Canada, health-related effects of spaceflight on the human body, the medical requirements for astronaut selection, and Canadian aerospace medicine training opportunities. About 20 people attended this event, including several CAISU members. For more information on the new Toronto chapter of ADAM, please contact Denise Campbell (ADAM Toronto founder) at denise.campbell@utoronto.ca.

Update on ISU Alumni

Is your name missing from this column? Send in your updates to Chantal at clamont@utias.utoronto.ca

SSP 1991 Toulouse

Alain Berinstain (SSP 91, MSS1) Please see Alain's update under MSS1.

Jean-Christophe Terrillon (SSP 91) is now a senior researcher at the Core Laboratory of Regional Intensive Research Project at the Softopia Japan Foundation.

SSP 1992 Kitakyushu

Dr. Douglas Hamilton (SSP 92) was recently in Toronto as a keynote speaker/to take part in the University of Toronto's 14th Annual Medical Student Reseach Day. Doug, Flight Surgeon at NASA's Johnson Space Center Medical Operations, spoke on the topic of "The History of Space Medicine and It's Challenge in the Future...What should Canada's role be?"

SSP 1993 Huntsville

Rémi Cabanac (SSP 93) Our family welcomed a newcomer born on March 18, 2000: Gregoire (another lucky boy that won't find difficult to recall his age). On the working side, I have accepted a position at the European Southern Observatory Research Center of Santiago de Chile for three years. My duty tasks include the operation of an astronomical instrument on one of the 8-m telescopes recently built on the top of a dead volcano in the middle of the Atacama desert. The work begins on October the 1st, 2000.

SSP 1994 Barcelona

Stephen Cheung (SSP 94) It's approaching lobster season in Nova Scotia once again, making me a happy man. I am maintaining my focus on the extremes of human performance. In addition to designing a Thermal Control Suit for use in thermal physiology and clothing studies, I am doing research on escaping from marine helicopters and offshore oil rigs. But the biggest and best news of all is that Debbie and I are expecting our first child in early August! Suggestions for names would be greatly appreciated, as my first choice of "Fabrizio" Cheung keeps getting rejected.

SSP 1995 Stockholm

Chantal Lamontagne (SSP 95) Since the last issue of Cosmonotes, I have been busy with my PhD research at UTIAS, and looking for a home in Toronto. After suffering quite the sticker shock at the cost of housing in TO and the speed at which homes leave the market, my husband and I finally settled on buying a new house, to be built by January 2001. So many months to wait!! And I never knew there could be so many useless clauses in a legal contract… I look forward to meeting the SSP 2000 students at the send-off dinner in Cambridge, and presenting them with the SSP 2000 t-shirts I am designing for CAISU. Hope everyone still enjoys the Cosmonotes!

Judith Lapierre (SSP 95) has finally returned to Canada after her 110 day isolation study in Russia. Please see her article in this issue relating to her experiences in isolation in Moscow.

SSP 1996 Vienna

Marc Abela (SSP 96) Je viens de mettre un terme a mon ancien emploi mais resterai encore a Tokyo. Je serai au Chili pour la saison d'ete 2000. De retour au Japon vers le mois de septembre 2000.

Li-Te Cheng (SSP 96) Li-Te is finishing up his Ph.D. (really!) at Memorial University of Newfoundland. Among other things, he made a wearable computer aid for memorizing piano music and for ballroom dancing. Stranger still, he managed to make them relevant to his thesis. If all goes well, he will be CRC Manager yet again for SSP00 in Chile. After that, he'll be working full-time somewhere in the US or Canada.

Kevin Forkheim (SSP 96) is still in Vancouver, and is currently completing his second year of Radiology at the University of British Columbia. Kevin is still working on osteoporosis detection research, but now also using MRI. He's also enjoying skiing and learning to sail.

Daniel Rey (SSP 96) Justine Claire Marguerite Rey, March 6 2000, 7 lbs - Hooray! Mother and daughter are doing fine and father is actively pursuing sleep deprivation experiments.

SSP 1997 Houston

Ratan Bhardwaj (SSP 97) finishes up his MD at Queen's this spring and will start his residency training in neurosurgery in Toronto this summer. He will now focus his attention on understanding the intricacy of the squishy sounds that your brain makes in your head as you are subjected to conditions of microgravity as well as the great accelerations felt in take off and landing. Before starting this he hopes to travel to Spain and trek through Tibet and Nepal. He also fondly laments on the humidity of Houston.

SSP 1998 Cleveland

Marlène Grenon (SSP 98) Just a few words to let you know what is happening with me. I am leaving Montreal and going to Halifax as I have been accepted to Dalhousie for a residency in cardiac surgery. I'll be there for 6 years, and will try hard to build links between cardiac surgery/trauma and space through research. Like this, we'll be ready to do a few heart transplants on the first mission to Mars if needed. I am a bit sad to leave all the CAISU group from Montreal and particularly ADAM, which has been my little baby this year. But that's life, and I'll try my best to start an ADAM chapter there, and to get a few "Halifaxians" to go to ISU. Big change, big challenges, but hopefully, all for the best! You can reach me at the following e-mail: smgrenon@hotmail.com. Everyone is welcome to visit Halifax!

Jonathan Knaul (SSP 98) Please see Jonathan's Kosovo article elsewhere in this issue.

SSP 2000 Chile

Frédéric Bourgault (SSP 00) was born in Montréal in 1973. He received his Bachelor's degree in Mechanical Engineering with a specialization in Aeronautical Engineering from Ecole Polytechnique de Montréal in 1996. In addition, he spent one year in Toulouse, France, where he studied at Ecole Nationale Supérieure de l'Aéronautique et de l'Espace (SUPAERO). Until recently, Frédéric held a Research Assistant position at the Massachusetts Institute of Technology (MIT), Space Systems Laboratory (SSL) where he earned his Master of Science degree in Aeronautics and Astronautics. His research at MIT SSL involved developing modeling tools for the design and control of large flexible space structures such as the Space Interferometer Mission (SIM) and the Next Generation Space Telescope (NGST) of the NASA Origins program. During the summer of 1995, Frédéric worked at Bombardier Canadair on both performance predictions and the Pilot Manuel edition of the executive jet Challenger 604E. In 1996, he worked at Aérospatiale, Space and Defense Division, on structural modeling of the Etage Principal Cryotechnique (EPC) of the new rocket launcher Ariane-5. Frédéric also taught "Thermodynamics" and "Introduction to Aircraft Engines" for one semester at Ecole Nationale d'Aérotechnique (St-Hubert, Canada) before joining his research team at MIT SSL in 1997. Frédéric holds power aircraft and scuba diving certifications. He also enjoys soaring and going out regularly for a run. As a "typical" Canadian, he plays ice hockey and heads to the slopes for downhill and cross-country skiing. Frédéric will pursue his doctoral studies in the field of autonomous space robotics, as he is particularly interested in the use of robotics for planetary exploration, in situ resources transformation, and space construction.

Barry Cayen (SSP 00) I'm Barry, yet another physician in training who's pumped to meet you all. I've got a graduate degree in cardiac rehabilitation and exercise sciences. I hope to apply some of that knowledge in the future to study wasting in the elderly using astronauts in microgravity as models. Enough shop talk. In my "spare" time I enjoy playing raquet sports and running. I like puppy dogs and long walks on the beach... Seriously though, it seems that we've got a very fun group and I'm looking forward to learning a lot from all of you.

Carol Chahine (SSP 00) is currently pursuing a degree in Dentistry at McGill University. She previously attended Marianopolis College and obtained a D.E.C. in Health Sciences. This past summer, Carol acted as one of nine Canadian Delegates to the Space Generation Forum, the youth parallel conference to UNISPACE III, the United Nations conference on the Exploration and Peaceful Uses of Outer Space. While at McGill, Carol collaborates in the organization of the annual McGill Model United Nations Conference, a forum for over 1000 youth worldwide. As well, she is co-founder and vice-president of the Association for the Development of Aerospace Medicine, (ADAM). Carol is the recipient of the McGill University Hugh-Brock Scholarship (1996-2001), Dean's Honor List (1996-1999) and ranked second in her class. Carol plays piano and paints. She is an avid canoeist, kayaker and hockey player. Carol is fluent in French, is thoroughly conversational in Hebrew and has a working knowledge of Arabic and Spanish.

Liara Covert (SSP 00) Exploring links between human innovation and cultural and linguistic spaces, I have discovered that I thrive in foreign environments where effective interdisciplinary communication can facilitate international space relations. My undergraduate thesis (McGill) was a psychosocial analysis of multiple personality disorder (MPD) in North America. Here, critical approaches to cinema and text enabled me examine the evolution of public perceptions and also medical diagnosis and treatment of MPD. My master's research (Sorbonne) between Canada and France linked diplomatic and commercial spaces as I interned in an Embassy and also in the telecommunications sector. Currently a doctoral candidate (CEDS), I am analysing ISS Partner strategies of cultural internationalism on multilateral management in International Space Station (ISS). This pragmatic study into Space Agreements and negotiation studies co-opetition partnerships evolving toward and beyond the execution of the Astonaut Code of Conduct (CoC).

Fahreen Dossa (SSP 00) is currrently enthralled with the study of international health and medicine at McMaster University. A chem grad of the University of British Columbia, Fahreen got hooked on space while working at the Dominion Astrophysical Observatory in Victoria. Having spent long hours on Earth working with molecular crystal structures, she has developed a certain appreciation for microgravity and space laboratory research. Fahreen hopes to pursue research and holistic healing in an international sphere. When not wandering the halls of Hamilton's community hospitals, the Vancouverite enjoys running, biking, and hiking through the city's well-hidden trails. Fahreen especially cherishes the year she spent abroad on exchange in Sweden, studying chemistry and chasing the tail of comet Hale-Bopp at Lund University.

Rémi Duquette (SSP 00) is attending the University of Toronto Institute for Aerospace Studies as a full-time student completing a M.A.Sc. in Aerospace Science and Engineering. His thesis work is concerned with the analysis, design and multi-disciplinary optimization of the structural and thermal components of MOST, Canada's first Micro-satellite mission and Canada's first space telescope. He

obtained a B.A.Sc. in Honours Mechanical Engineering with Aeronautical option at McGill University, Montreal, Canada in 1998. He gained substantial research experience through undergraduate thesis and research assistant work at McGill University and research assistant work at the National Research Council (NRC) of Canada. He is a short track speed skating provincial champion, member of team Canada at the first worldwide games of intercrosse, triathlon adept, cross-country runner, soccer player and coach, scuba diver, and was a pair dance figure skater.

Katia Dyrda (SSP 00) obtained both B.Sc. and M.Sc. in Engineering Physics from Queen's University in Kingston, Canada. During her undergraduate years, she participated in an exchange program with Leeds University in England. She then became involved with the Queen's Solar Vehicle Project where she led the composites team and traveled to Japan and Australia to compete in international solar car events. She cycled around Australia before returning to Queen's to enroll in a Masters program in Applied Solid State Physics. Her research focused on the mechanical properties of industrial ceramic coatings. She then worked with industry to implement her testing unit, and to obtain professional engineer status. Katia is currently studying Medicine at the University of Ottawa. She hopes to continue her engineering work within medicine to help bridge the gap between the two fields. Throughout her educational and professional training, Katia has been a dedicated rower and coach, and competes internationally.

Arif Janjua (SSP 00) I am currently completing my 2nd year of an MD degree at the University of Alberta and am about to embark on my clinical clerkship. I have a background in biomechanics and completed a Double Major Program in Physiology and Physics at McGill University. During my undergraduate and pre-clinical training, I have developed an interest in Aviation and Space Medicine and have pursued this interest by exposing myself to several areas of space-related medical research. In my future, I hope to continue research into the physiological adaptations which occur during space travel and the ramifications that this may have on our life on Earth. Furthermore, I hope to obtain specialized post-graduate training in Aviation and Space Medicine and become involved in the process of technological innovation made as a result of space life-science research conducted during space missions. In my leisure time I enjoy a variety of sports and also hold a Glider Pilot's and Private Pilot's License and maintain an interest in recreational aviation.

Raffi Kuyumjian (SSP 00) I am a Canadian of armenian descent, raised in Lebanon, Cyprus, Greece, Germany and Montreal, Canada. I recently started working as a physician in a remote and isolated community in Quebec near the border with Labrador. I graduated from Collège Marie de France in 1988 with a French Baccalauréat in Natural Sciences and Mathematics, from the Ecole Polytechnique de Montréal in 1992 with a Bachelor of Civil Engineering (Structural) degree and from Laval University in 1997 with a Doctor of Medicine (M.D.) degree. I completed my residency training last year, during which time I participated in aerospace medicine training programs at NASA-KSC and JSC. I enjoy flying, backpacking, travelling, sports (SCUBA diving, racket sports, soccer, hiking), music and reading.

Marius Ochisor (SSP 00) Mr. Ochisor joined the Canadian Space Program in 1993. He has been part of the Space Systems Operations Group and in 1994 he assumed responsibilities within the Mobile Servicing System (MSS) Training Group. Mr. Ochisor brings over 10 years of experience in fields such as aerospace & aeronautics, robotics operations, software design & development, and procurement of high-tech training systems. Mr. Ochisor's involvement in the Canadian Training Program resulted in the development of over 10 hours of Computer Based Training for the Mobile Servicing System and delivery of several robotics training courses to International Space Station astronauts and cosmonauts, mission controllers and ground support personnel. Mr. Ochisor also represents the Canadian Training Organization in the international working group dealing with International Space Station On-board Training. Mr. Ochisor holds a Bachelor's degree in Aeronautics Engineering from the Polytechnic Institute of Bucharest, Romania and a Master's degree in Aerospace Engineering from McGill University in Montreal, Canada.

Laura Sie (SSP 00) The one thing I love doing most is traveling. At some point, I would like to take a 5-year hiatus, buy a round-the-world ticket and venture to every corner of the globe. After my academic career, I intend to pursue international development work for a few years before getting involved with the Canadian space industry. I also have an ardent interest in languages. I am fluent in English, have a cursory knowledge of French, Indonesian and Malay and have studied Spanish, Mandarin and Japanese. Currently, I am looking to commence my post-secondary degree in engineering and would like to contribute to space research and development at the national level.

MSS-1 1995-96

Alain Berinstain (SSP 91, MSS1, CAISU President) set a personal gliding record on January 13, 2000, in Minden, Nevada by flying to an altitude of 28000 feet in a DG-300 sailplane. Alain will be competing in the Canadian national gliding championships this summer near Ottawa (www.sac.ca/nationals2000) in his new Genesis 2 sailplane (www.groupgenesis.com).

MSS-4 1998-99

Please see MSS4 updates in the article "MSS4 - Where are they now?" by Claude Rousseau.

MSS-5 1999-2000

Please see the MSS5 Update and MSS5 Placements articles written by Rocco Locantore.

Next Issue...

Look for more fascinating articles from CAISU in the next issue of the Cosmonotes in the summer. And look forward to receiving your copy of the CAISU Contacts List!

GOOD LUCK SSP 2000!!!