# THE SPACEXPLORER

THE NEWSLETTER OF THE ASSOCIATION OF SPACE EXPLORERS • USA FEBRUARY 1998


## Association Headquarters Moved to Houston

On February 14, 1998 the Association of Space Explorers-USA ceased operations in the District of Columbia and transfered its headquarters office and staff to Houston, Texas. Formerly in the offices of Calspan SRL Corporation, ASE-USA received the support of United Space Alliance Chief Operating Officer and ASE member Jim Adamson in securing space in the U.S.A. headquarters facility. Operations commenced in Houston on March 1.

It is expected that an ASE presence in Houston will significantly enhance its ability to fulfill its mission as a professional association of space fliers. The increased proximity and access to space professionals, facilities and organizations will allow ASE to better reach out to and connect with the majority of its current and future members, particularly with regard to active US and international astronauts. It is also expected that the move will foster an enhanced relationship with the Johnson Space Center and the Astronaut Office.


**Association of Space Explorers-USA**
**1150 Gemini Blvd.**
**Houston, TX 77058**
**(281) 280 8172**
**(281) 280 8173**
**ASEED@AOL.COM**


## Bobko, Fabian and Precourt Join ASE-USA Board

Elections to the ASE-USA Board of Directors yielded Bo Bobko, John Fabian and Charlie Precourt to fill slots by outgoing board members Dick Covey, Fred Gregory and Steve Nagel with 78% of the ballots returned. The transition comes at a critical time for the association with the transfer of operations to Houston, and the new board will be called upon to provide significant leadership in the coming year.

In the first board teleconference of the new year, Jon McBride was retained as President, Charlie Precourt was elected Vice-President and Bo Bobko replaced Joe Allen as Treasurer.

***INSIDE***

# President's Report by Jon McBride



**The SPACEXPLORER**
*est. 1985*

The SPACExplorer is published by the Association of Space Explorers-USA, a nonprofit, tax-exempt 501(c)3 organization.

Please send all correspondence to:
ASE-USA
1150 Gemini Blvd.
Houston, TX 77058

# Letters from the Outpost

*by Andy Thomas*

*This is the third in a series of letters home written by Andy Thomas, who has been living and working on-board the Russian space station Mir since January. Thomas is scheduled to return to Earth on STS-91 in June. Printed courtesy of NASA and the Johnson Space Center.*

A Typical Day on Space Station Mir

Although we are orbiting the Earth every 90 minutes and see a sunrise 16 times a day, we still base our activities on a normal 24-hour day using Moscow time. We generally get up at about 8:30 each morning, clean up, shave, brush our teeth, etc. It may sound simple, but it all takes time because we can not easily do things in zero gravity that we normally take for granted on Earth. For example, you might think it would be easy to just cup your hands full of water and splash it on your face. However, in space, water will not stay in your hands but will creep around all over them and be drawn along the backs of the fingers under the action of capillary effects, or more correctly, surface tension forces. In any case, we would not want to splash the water as that would send the water everywhere in an explosion of droplets. So we have to use a wash cloth, and have to carefully wet it down from a water bag, taking care not to let drops of water escape to float around the cabin.

Washing our hair and rinsing under a stream of water is also not possible, so we use no-rinse shampoos that can be toweled out. But we have to do it slowly or soap droplets will end up floating around in the air we breathe. Even brushing our teeth is more challenging as we need to keep our lips pursed around the toothbrush so that droplets of toothpaste will not spray out into the cabin. It all takes time and requires learning new methods to maintain hygiene.

After cleaning up, it is time for breakfast and we generally eat our meals together in the Base Block or core module of the station. At one end of this module is a table with foot restraints in the floor and a hot and cold water dispenser. The foods we eat come in a variety of forms and are much like the food you might take on a camping trip. We have both American food and Russian food in rehydratable packs, or in cans, and juices in drinking bags with a drink straw that can be closed off. For breakfast I usually have scrambled eggs, juice, bread, and coffee. The hot food is prepared by injecting hot water into the packet to rehydrate it. But eating in zero gravity is another one of those challenges that makes space flight interesting. As you cut open the food pack, you need to be careful to make sure that the food stays in the pack and does not come loose. The moisture in the food helps it cling together, but you need to spoon it out very carefully or it will come free.

Of course, powdered salt and pepper are out of the question. Instead we use water solutions of salt and pepper that are in small squeeze bottles that we can spray on our food to taste. And contrary to many beliefs, swallowing food and drinks in space is not difficult and does not present any gastric problems. It is just like on Earth. Also, I have found no deterioration in the ability to taste food either, as has been occasionally reported.

After breakfast we begin the work day. Each morning we receive a radiogram that outlines the tasks for each crew member and the approximate times that they need to be done. Most of my work takes

## ASE Members to Participate in United Nations Day Activities in Stockholm

Following the 14th Planetary Congress in Belgium, several ASE members will participate in United Nations Day activities at the Globe Arena in Stockholm, Sweden. The effort, sponsored by the Globetree Foundation in Stockholm, is designed to bring together two children and two adults from each country in the world to participate in the building of the "Future Vessel" on October 23 and 24, 1998. The foundation of the project is built on two principle sources of inspiration: the UN Convention on the Rights of the Child, which was adopted by the UN General Assembly in 1989, and Agenda 21, a multinational effort adopted at the Earth Summit in 1992 to accurately characterize the Earth's ecosystem and develop ways to promote sustainable development in the 21st Century.

The project is designed to generate "a great number of ideas and impulses [that] will come together and make the Future Vessel, like a rain forest that is maintained by innumerable species interacting and living together. It is in this multitude that unexpected meetings may happen. The Future Vessel is needed because society is often so very subdivided and specialized that different people hardly ever meet; in Future Vessel we will experience how it is when people with different life histories, of different ages and with different ideas meet and integrate their experiences and insights." Through these interactions and the building of the metaphorical Future Vessel, the participating children will express their vision and hope for the future in an increasingly fragile and complex world.

Led by Loren Acton and Alexei Leonov, the ASE contingent will lend a unique perspective to the central theme of Future Vessel that all of humanity shares a common home and that solutions to our common problems are best solved through communication and cooperation. Leonov and Acton will join other scientists, philosophers and artists as speakers at several seminars to give the space traveler's perspective on the fragility of our home planet and it's environment.

The Future Vessel is sponsored by the city of Stockholm (European Culture Capital-1998); the National Environmental Board of Sweden; the Foundation for Knowledge and Competencce; the Future Culture Foundation; the Council for the Prevention of Crime, and the NGO Association for Development Cooperation. For more information on the Globetree Foundation and the Future Vessel, visit the Foundation's web site at:

http://wwis.upnet.se/globetree

place in the Priroda module and is dedicated to the scientific experiments that we are carrying. My cosmonaut colleagues, Commander Talgat Musabaev and Flight Engineer Nicolai Budarin, have both scientific studies and preventative maintenance and operation of the station systems. And we all have housekeeping tasks that are needed to keep the station habitable.

I will usually start the experiments over the course of the first several hours after breakfast, sometimes stopping for a coffee break. Occasionally, I will receive additional instructions via voice radio from the mission control center in Moscow, or text messages sent through the radio link.

At about 1:00 in the afternoon I will stop to do some exercise. This helps to prevent some of the deconditioning effects of zero gravity and we have two treadmills and a cycle ergometer at our disposal. I use a cassette player to provide music while I work out on the treadmill. Of course running in zero gravity without restraint is not possible so we have to wear a harness that has elastic bungies to hold us down to the treadmill platform. It is quite effective, and applying a load to your leg muscles and feet after a long time in weightlessness feels very good.

## ASE Committee to Lead International Crew Safety Effort

The ASE Committee on Crew Safety and Technology Development held its first formal teleconference January 26, with eight members from the United States and Germany participating. Chaired by NASA Associate Administrator for Safety and Mission Assurance Fred Gregory, the committee unanimously approved its operating charter and discussed plans for implementing its provisions. Tasked to identify critical crew safety issues as well as promising technological advances that enhance crew safety, the committee agreed to take a risk management approach to the crew safety issue. This includes includes identifying potential or existing crew risk issues, analyzing their impact and severity and the time frame for resolution, recommending mitigation plans and tracking implementation of proposed solutions.

Several general areas of concern were identified as warranting committee investigation, including international standards of caution and warning, crew/vehicle systems interfaces, critical system redundancy requirements, standardization of EVA suit design and interfaces and EVA/IVA environmental hazard identification and mitigation.

The committee will establish baseline assessments of identified issues using data culled from current flight-crew inputs as well as historical data accumulated over forty years of human space flight. Recommendations will be based on the premise that the growing international cooperation in space requires increased commonality of vehicle design and interfaces, particularly with regard to crew safety systems and technologies.

Recently, the committee developed a set of initial safety guidelines for contestants registered to enter the X Prize competition, a $10 million award for the first person or team to privately build a spacecraft capable of flying three persons to a sub-orbital altitude of 100 kilometers on two consecutive flights within a two week period. The committee provided a set of initial and pre-flight performance standards for minimizing the risks to the vehicles, flight and ground crews and mitigating third-party hazards.

The Risk Management Approach as Applied to the Work of the Crew Safety and Technology Development Committee

Often, after the exercise session I will float over to a window in Priroda or the Kristal module, and remain there quietly listening to music while watching the Earth go by. I try to time this so as to be during a night pass as I find the stars and the distant city lights below me particularly peaceful.

After the exercise session, we usually have lunch together and I then return to work on the scientific program, or perhaps housekeeping duties if necessary. But even the housekeeping in space presents some interesting problems. For example, occasionally we have to clean up water that has condensed from the air onto cold surfaces behind some of the walls. In zero gravity, it does not drip to the floor as on Earth so you cannot just wipe it up with a towel. Instead, it congeals under capillary action in different locations as large globules of liquid. It is quite amazing to see these silver spheres of water clinging to the crossbeams. We use a small electric pump to suck them into a tank.

Unfortunately a lot of air gets drawn in as well which poses another kind of problem because the water, of course, does not just settle down to the bottom of the tank. There is no down in space, and no bottom to the tank. Instead, you end up with water and myriad air bubbles suspended in it. In fact the tank can

The Executive Committee of the Association of Space Explorers met in Brussels, Belgium April 15-18, 1998 to discuss plans for the upcoming 14th Planetary Congress in October. In addition to Belgian flier and 14th Congress host Dirk Frimout, the meeting was attended by Jon McBride (US), Ulf Merbold (GER), Miroslaw Hermaszewski (POL), Dumitru Prunariu (ROM), Gennadi Strekalov (RUS) and Victor Savinykh (RUS). Also attending were staff and interpreters from the US and Russia. The three-day meeting provided executive committee members witha detailed overview of the proposed technical and cultural programs as well as an opportunity to promote the event through local and European press and media representatives.

The executive committee approved the theme of the 14th Congress, "Space and Education--A Message to the Youth", reflecting the Association's belief that space exploration plays an important role in expanding the frontiers of knowledge in science and technology. The congress program includes many activities designed to facilitate public awareness of the many achievements in the human exploration of space as well as how education, space science and technology impact the social, economic and cultural development of humankind.

The Congress will open Monday, October 19 at the Congress Palace in Brussels with the King of Belgium in attendance. Following remarks by the congress host, the ASE co-presidents, the Belgian Minister of Science and the Director of the European Space Agency a reception and lunch will be held in honor of the attending astronauts and cosmonauts. Later that day, the theme and award session will be held and the ASE's annual award, the Crystal Helmet, will be presented to Mrs. Edith Cresson, member of the European Commission responsible for research, education and youth.

Included in the program for the remainder of the week are a session on crew safety and technical issues, an update and review of the past year's accomplishments in space, a visit to the Euro Space Center in Transinne, and community day activities with fliers visiting scientific and educational institutes in many different Belgian cities. In addition to discussing the 14th Congress, the committee tentatively approved the sites for the 15th, 16th and 17th congresses in Romania, Spain and Kazakhstan, respectively.

# Call for Papers

## 14th Planetary Congress
## Brussels, Belgium

**The ASE International Committee on Crew Safety and Technology Development** will hold its second annual forum at the XIV Planetary Congress which will take place October 19-23, 1998 in Brussels, Belgium. The focus of this session will be the identification and discussion of issues specifically relating to crew safety. The purpose of this call for papers is to provide prospective authors with background on the committee and information on the types of papers that would be most useful to the Committee's purposes.

**Committee Goals:**

The Committee's primary goals are to facilitate the safe exploration and settlement of the solar system; the achievement of safe, routine space travel; and the enrichment of life on earth through people living and working safely in space.

**Committee Objectives:**

a. Identify the factors that will be critical to the safety and health of human crews on extended stays in space, along with ingenious and revolutionary solutions for overcoming potential obstacles;

b. Identify promising advanced technologies that will enable practical human exploration of the solar system and make recommendations for development and implementation;

c. Promote and assist in the international standardization of space flight design and operational requirements with an emphasis on crew safety.

**Committee Strategy:**

The International Committee on Crew Safety and Technology Development will employ a risk management approach to working its focus areas. This involves the identification of safety risks; the analysis of risks, including assessing probability, impact/severity and time frame in which action should be taken; and planning the mitigation of risks. The Committee's deliberations will always attempt to cover the full range of solutions made possible by existing and expected human space flight technology.

**Papers Desired:**

Papers should fit the specific objectives of the committee and should employ a risk management approach as described under "Committee Strategy". Papers should attempt to identify, analyze and recommend mitigation plans for resolution of crew safety risk issues. Presentations should be tailored for 15-20 minutes, with 10-15 minutes for questions and discussion.

**Submission of Abstracts:**

Please submit a summary (approx. 500 words) of your proposed paper to:

Frederick D. Gregory, Chair
NASA HQ, Code Q
300 E St., SW
Washington, DC 20546

Phone: 202 358 2406
Fax: 202 358 2699
E-mail: fgregory@hq.nasa.gov

Abstracts are due byAugust 1, 1998

# 14TH PLANETARY CONGRESS

**Preliminary Program**

## Space and Education — A Message to the Youth

*Saturday/Sunday, October 17/18*

All Day Arrival of Delegations & Check-in

*Monday, October 19*

0700-0830 Breakfast
1000-1200 **Opening Ceremony** @ Congress Palace

1200-1400 Lunch
1430-1700 **Theme Session** @ Congress Palace

1930 Awards Banquet

*Tuesday, October 20*

0700-0800 Breakfast
0900-1230 **European Space Program Session**

1300-1430 Lunch with European Commission
1500-1700 **Crew Safety & Technical Issues**

1730-1900 Poster Signing
2000 Dinner (Vlaamse Gemeenschap)

*Wednesday, October 21*

***Community Day***

1900 Opera: La Noce de Figaro

*Thursday, October 22*
*Day Trip to Euro Space Center-Transinne*

0700 Breakfast
1000-1200 **International Space Programs Review**

1200-1230 Press Conference
1230-1330 Lunch
1400-1630 **Executive/Legislative Session**

1630-1700 Cocktail Reception
2000 Dinner in Namur

*Friday, October 23*

0800-1600 Day Excursion to Bruges
2100 Closing Banquet

*Saturday, October 24*

All Day Departures

be quickly filled with this mixture even though only a small fraction of it may actually be water. So we use a separator to spin the mixture allowing the heavier water to be centrifuged out and fill the tank for later disposal. All this is necessary just to clean up the condensation and it demonstrates how even a simple task on Earth can become quite complicated in space.

By about seven o'clock at night, we wind down the work day and it is time for the evening meal. Often we will watch a video while we are eating, and talk about the day's work, and what lies ahead for the next day. After dinner is a good time to write letters, or read, or just watch the world go by out the window. We are usually in bed by about 11:00 and use sleeping bags that we tie to a wall or to the floor. Sleeping in zero gravity is actually quite easy as you do not have the discomfort of a mattress pressing against you making you toss and turn. In fact there is no point rolling over in zero gravity, because with no up or down, nothing changes by rolling onto your side. Also, I have found that it is unnecessary to use a pillow as my head will just float to its most comfortable position and I can drift off to sleep.

## Upcoming Events

**Astronaut Reunion**
August 28-29, 1998
Houston, TX

**TFNG Reunion**
August 28-29, 1998
Houston, TX

**14th ASE Planetary Congress**
October 19-23, 1998
Brussels, Belgium

### *On the Runway*

STS 90

### *On Orbit*

**MIR 24**

**Talgat Musabayev**, CDR
**Nikolai Budarin**
Andy Thomas

### *On the Pad*

STS 91
6/2/98
OV 103
PAD: 39A
INC: 51.6 DEG
ALT: 173 NM
S/MM-09
Spacehab-SM
9 Days

**Charlie Precourt**, CDR
Dom Gorie, PLT (R)
Wendy Lawrence, MS
**Franklin Chang-Díaz**, MS
Janet Kavandi, MS (R)
**Valery Ryumin**, MS
Andy Thomas, (down)

Address Correction Requested

**Houston, TX 77058**
**1150 Gemini Blvd.**
**Association of Space Explorers-USA**

## *ASE-USA Corporate Members*

| | | |
|---|---|---|
| **AlliedSignal Technical Services** | **IMAX** | **SpaceVest** |
| **The Boeing Company** | **INTEC** | **Thiokol Propulsion Group** |
| **Computer Sciences Corporation** | **Reed Brothers LP** | **United Space Alliance** |