



**STUDENTS
FOR THE
EXPLORATION
AND
DEVELOPMENT
OF SPACE**

**UNITED
STATES
OF
AMERICA**

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PAGE 1

SEDs TOLL-FREE HOTLINE TAKES OFF! 1-888-321-SEDs

Announcing a totally new service in the history of SEDs: SEDs toll-free hotline! SEDs-USA has recently acquired the number "1-888-321-SEDs" (1-888-321-7337) which will be used as a toll-free hot-line for chapter leaders, SEDs members at large, or anyone else interested in obtaining help or information regarding involvement with SEDs.

Currently the number will connect with the voice mail of SEDs-USA Chair, Chris Lewicki, where you can leave a message for a SEDs-USA board member to respond to within a few days. If the service proves to work well, and funds are available, SEDs will obtain a dedicated phone line for this service.

As for the cost of this service, it comes in at a relatively cheap \$5 per month, with a flat rate of \$.19 per minute for all calls. Although you may be tempted, please don't call the hot-line just to "try it out" as it will unnecessarily use up limited SEDs-USA funds. You can be assured that "it works."

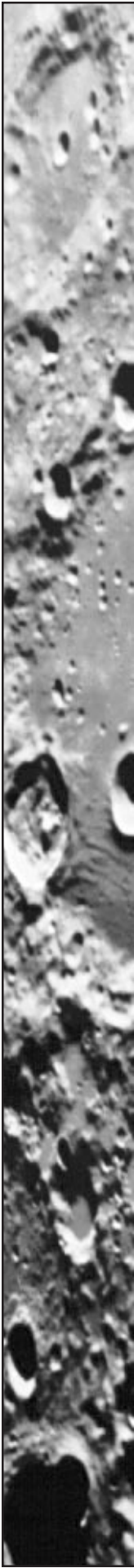
We do, however, encourage you to use the SEDs hot-line if you would like to speak to a SEDs-USA board member, or have any questions relating to SEDs. We hope this will give SEDs-USA one more resource in keeping in touch with chapters and those wishing to get involved in SEDs.

1997 IN SPACE

1997 promises to be an exciting year for space enthusiasts. There are quite a number of things we have to look forward to:

January 12:	5th Shuttle/Mir Docking (STS-81)
February:	Space Summit
February 11:	Hubble Service Mission #2
March 9-14:	March Storm on Washington
March 22:	Comet Hale-Bopp Closest Approach to Earth
April 4-14:	United States Space Foundation 1997 National Space Symposium
May 15:	6th Shuttle/Mir Docking (STS-84)
May 22-26:	ISDC/SEDs '97
June 27:	NEAR Flyby of Asteroid Mathilda
July:	Arianne 502 (and Amsat Phase 3-D) Launches
July 3-6:	Planetfest in Pasadena, CA
July 4:	Mars Pathfinder Lands on Mars
September 12:	Mars Global Surveyor Enters Martian Orbit
September 18:	7th Shuttle/Mir Docking (STS-86)
October 6:	Cassini Launch
October 9:	Lunar Prospector Launch
November:	FGB Launch (First Element of International Space Station)
December 4:	First Space Station Assembly Flight (STS-88)
All Year:	Galileo Continues to return data from the Jovian system

This is by no means a complete list, but only the highlights. For details on events near you, be sure to check out the SEDs Space Events database at <http://www.seds.org/events> !



"LIFE ON MARS: PAST, PRESENT, AND FUTURE" MIT SEDS EDUCATIONAL OUTREACH PROPOSAL

MIT SEDS is working to develop a three-part Mars education curriculum to be used in presentations at local elementary schools. We have adopted the theme "Life on Mars: Past, Present, and Future" for our presentations. The presentations break down as follows:

- 1) Past Life on Mars: Did life one exist on Mars? NASA scientists last year found evidence of primitive life that once existed on Mars, but what does it really mean? Could conditions on Mars have once supported life?
- 2) Present Life on Mars: Could life exist on Mars today? Two Viking spacecraft that landed on Mars more than 20 years ago found no conclusive evidence that life exists on the surface, but could it exist somewhere else? What conditions are necessary for life to exist? How could we look for life on Mars?
- 3) Future Life on Mars: Even if life has never existed on Mars, life could exist there in the future, if humans colonize the Red Planet. How would we travel to Mars? How would we live there, and what would we do? And, perhaps most importantly in today's economic climate, how much would it cost?

After some discussion among MIT SEDS members in the fall, we chose to target elementary schools. While this means simplifying the subject matter to a level that grade-school students can understand, the benefits in the long run will be much greater. By capturing the imagination of students about life on Mars and future missions to Mars at an early age — before they become jaded and convinced space, along with math and science, is "too hard" — we can show just how fascinating the subject is and help create a life-long interest in the subject. Even though only a small fraction of the students are likely to become scientists, engineers, and astronauts, these presentations can help build public interest in the Red Planet among the students and their teachers and parents.

After a series of meetings to plan the curriculum, a group of over a dozen students from MIT SEDS and the MIT student AIAA chapter split up to work on the three main parts of the curriculum. We are planning two types of presentations: a short 30-45 minute presentation which will cover all three parts, and a longer three-part presenta-

tion which spends 30 minutes on each of the three sections, spread out over several days or weeks. While we did fall behind preparing these presentations due to conflicts with end-of-the-term projects and finals, and the holiday break, we are working to finish draft presentations by the end of February.

We feel that this kind of presentation would be suited to other SEDS chapters. Mars has been in the news a lot in recent months, and will again return to the headlines later this year when Mars Pathfinder lands on Independence Day (!) and Mars Global Surveyor goes into orbit in September. The Mars life controversy will also maintain interest in the Red Planet. This interest is nationwide and worldwide, and be used by any SEDS chapter to promote its educational programs.

Once we have finished the presentation plans and conducted a few "test runs" to work out the bugs in the presentations, we will make these plans available to any interested SEDS chapters and members, most likely through the SEDS Web site. These plans will also include information on additional materials that can be used in the presentations, with an emphasis on those materials which can be obtained at little or no charge.

We're looking for any sort of feedback SEDS members may have, whether you've done some educational outreach programs like this or have suggestions on the subject matter for this presentation. Once the plans are released, we encourage people to look them over, try them out, and send feedback on them, so we can improve them. We also encourage people to modify them to fit their own specific needs or use them as the starting point for a completely different presentation.

If you have any questions about this educational outreach project, please contact Chris Deards <cldeards@mit.edu> or Jeff Foust <jeff@astron.mit.edu>. We also have a Web page with some additional background information about the project at <http://www.mit.edu/activities/seds/marsedu.html>.

—Chris Deards is the President of MIT SEDS and the Director of Educational Outreach for SEDS-USA. Jeff Foust is the Educational Outreach Chair for MIT SEDS.

SPACE JOBS SERVICE

So, you're about to graduate from college and want to know what space positions are open out there for someone with your impeccable credentials.

Well, you can always try the Sunday classifieds. That, however, involves spending one of your few free days searching through a thick newspaper section with ink stained hands for a handful of short, vague advertisements that cover the immediate region. Or you could surf the Web. Unfortunately, you have to slog individual company's web sites or visit one of those large, impersonal career pages with postings for everyone from space engineers to space cadets.

A better alternative is SPACE JOBS, a new online career service developed by the Internet Conveyor of Ottawa, Canada. This service provides timely job postings for anyone interested in a space career.

SPACE JOBS is a web site that can be accessed at no charge. Visitors are welcome to search the site for any open positions. The listings have full descriptions of each opening, as well as contact information for sending resumes over the Internet. The postings also include short descriptions of the employers.

"We have detailed descriptions of the job openings," said John Criswick, president of the Internet Conveyor. "It's not going through a newspaper and finding cryptic advertisements. With email and web links built in, it's easy to send your resume off immediately."

Unlike with many other career sites, visitors are not required to register with SPACE JOBS to view the openings. However, job seekers who do register can take advantage of the service's intelligent delivery system. Whenever a job is posted that matches a subscriber's criteria, a copy is forwarded to the person by electronic mail.

SPACE JOBS has attracted more than 2,000 subscribers. The service keeps all personal information on subscribers strictly confidential. Ad-

vertisers, who pay for the service through their listings, are provided only with general demographic data on subscribers.

The great benefit of advertising on SPACE JOBS is that employers can target a specific audience that will have the skills and experience they need to fill jobs. Other benefits are the low cost compared to advertising in a newspaper and the quicker turn around time from submitting a posting to receiving applications.

In addition to job openings, SPACE JOBS also boasts a Space Events and Conferences section with an extensive list of upcoming events of interest to the space community. Criswick believes it is the most comprehensive listing in cyberspace.

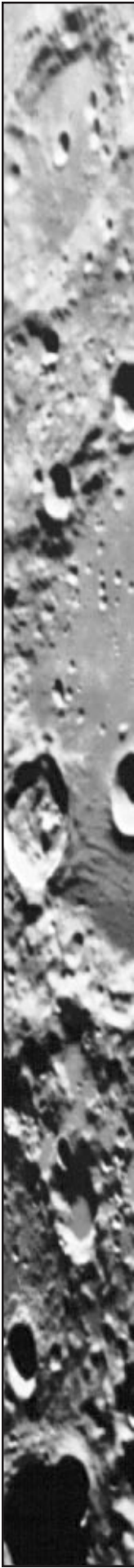
Criswick, who has a Master's degree in space physics, started up SPACE JOBS last summer. His company specializes in providing a web presence for numerous space organizations. His main site at www.conveyor.com hosts home pages for SEDS Canada, the Canadian Space Directory, The Royal Astronomical Society of Canada, Canadian Alumni of the International Space University and the 2111 Foundation for Exploration, among others.

The Internet Conveyor recently registered a new site, www.aerospacejobs.com, that will expand the job service to encompass the entire aerospace field. This new service will be connected with SPACE JOBS to provide a broader menu of choices for people in these fields.

Criswick, a graduate of the International Space University, said he is pleased that this international project is helping to connect employers and job seekers worldwide. "It's been fun and lots of hard work," he said. "I'm happy to be able to combine my interest in space exploration and computers in a way in which I can assist my fellow space professionals worldwide."

To check out Space Jobs, visit the web site at www.spacejobs.com or contact the Internet Conveyor at: email, info@spacejobs.com; telephone, 613-562-2816; fax, 613-562-1784.





STUDENT SPACE CONGRESS, MARCH 3, 1997

A FORUM BETWEEN THE LEADERS OF TODAY, AND THE LEADERS OF TOMORROW

A one day symposium in which students will discuss the space policy issues of the day and talk about the future with our nation's space policy makers. During the week following this one day Congress, attending students will have the opportunity to educate Members of Congress on a "Citizens' Space Agenda."

The students attending this Congress will be the leaders of America's expansion onto the space frontier. They are the "Bridge to the 21st Century." Now is the time for these students to get involved - to begin to take the reins.

Invited speakers include Vice President Al Gore, Speaker of the House Newt Gingrich, NASA Administrator Dan Goldin, and U.S. Senator Barbara Mikulski. These speakers will present their ideas on a strong space program for America and how they intend to achieve their goals.

Who should attend Student Space Congress?

Any student who is interested in or who wishes to affect our nation's Space Program. All students from colleges and universities around the country are encouraged to participate.

Where will Student Space Congress be held?

Student Space Congress will be held at George Washington University. The university is located in Washington DC, near the White House. The day's activities will be in Stuart Hall, located on the campus grounds. For maps and other information on GWU via the Internet, contact <http://www.gwu.edu>.

Hotel Information:

Members of Student Space Awareness will be staying at the Howard Johnson Premiere Hotel in Washington DC. A group rate has been arranged for those attending Student Space Congress. Call the hotel at (202) 965-2700 for detailed information on room reservations.

How much will it cost to attend?

Student Space Congress is FREE for all students who attend. The attending students are responsible for transportation and accommodations during their stay.

SCHEDULED AGENDA

Morning Session:

What is SSA? - the history, significance, and future of the organization * Presentation of the

34th Space Congress paper * Regional and national SSA activity- including how to form a chapter of SSA * The relationship between the federal government, bureaucracy, and the space program * Student discussion on space priorities and goals

Afternoon Session:

Student briefings and updates on current space issues: * Single Stage To Orbit/Reusable Launch Vehicle's (DC-X, X33), International Space Station, Mars Exploration

Speakers: Invited speakers will be given 15 minutes to present his/her ideas for a "strong" space program and then address student questions and concerns for 10 minutes immediately following his/her presentation. Once all the speakers have presented, the students will have the opportunity to address any member of the panel.

RESERVATIONS:

World Wide Web Reservations:

The Student Space Congress home page on the World Wide Web provides a conformation form at <http://seds.lpl.arizona.edu/~ssa/ssahome.html>. This form will allow students to immediately confirm their involvement, and insure their place in the congress.

Email Reservations:

For those without WWW access, to reserve a place in the Student Space Congress, send an e-mail to "ssa@seds.lpl.arizona.edu".

Faxed Reservations:

If you have no Internet access of any kind, you may fax your registration to: (904)-226-6083

US Mail Reservations (Last Resort):

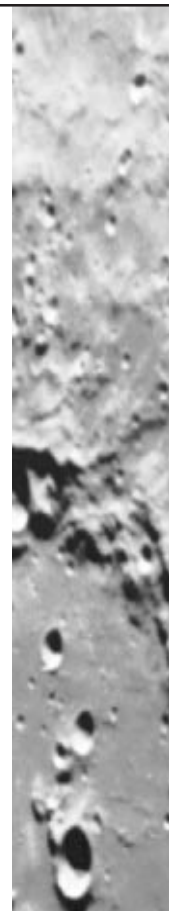
If you have any problems with any of these methods, send mail AS SOON AS POSSIBLE to the following address: Student Space Awareness c/o Student Activities ATTN: Andrew Genduso 600 S. Clyde Morris Blvd. Daytona Beach, FL 32114

Student Space Awareness is a student-run organization that takes an active role in shaping America's Space Program. SSA actively participates in educational programs designed to inform people about Space. From Senators and Members of Congress in Washington to fourth-graders in elementary schools, SSA attempts to increase awareness of America's Space Program. SSA is making a difference by using innovative methods such as on-line petitions and congressional education.

GO FOR THE GLORY: SEDS regional expansion coordinators needed now!

SEDS-USA is launching a campaign to expand the number of chapters across the U.S. in order to have a greater impact in our outreach efforts. A cornerstone of this effort will be volunteers at the regional level, such as within a few states or even around a single city. SEDS needs these volunteers to encourage prospective chapters to organize themselves to the point they register with SEDS. This effort will directly benefit existing chapters by making regional events more possible and providing additional intramural interaction.

SEDS already has quite a few contacts, so no cold calling would even be necessary, and volunteers will receive extensive assistance from the Director of Expansion and other officers where appropriate. To find out more, please telephone or email Mark Ciotola #(415) 564-4114, acentaur@futon.sfsu.edu.



Subscription Form

To receive your monthly copy of NASA Tech Briefs FREE (if you Qualify) just complete the card below and fax to 609-786-2613 or mail back.

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Complete the following 8 questions if applying for/renewing a subscription

1 Do you wish to receive (continue to receive) NASA Tech Briefs? ☐ Yes ☐ No

2 Which of the following best describes your industry or service? (check one)

E ☐ Electronics	D ☐ Defense
S ☐ Computers	Q ☐ Industrial Equip.
X ☐ Communications	R ☐ Research Lab
O ☐ Automotive	Y ☐ Consumer Goods
T ☐ Transportation	U ☐ University
C ☐ Chemicals	L ☐ Library
M ☐ Materials	Z ☐ Other (specify): _____
P ☐ Power/Energy	
B ☐ Bio/Medical	
H ☐ Appliance Mfg	
A ☐ Aerospace	
G ☐ Government	

3 Your engineering responsibility is: (check one)

A ☐ Manage Engineering Department

B ☐ Manage a Project Team

C ☐ Manage a Project

D ☐ Member of a Project Team

E ☐ Other (specify): _____

4 Your job functions are: (please check all that apply)

10 ☐ Design Engineering

11 ☐ Research & Development

12 ☐ Testing & Evaluation

13 ☐ Manufacturing & Production

14 ☐ Management

15 ☐ Other (specify): _____

YOU MUST write in the number of your principal job function _____

5 To which of the following publications do you subscribe? (check all that apply)

- 01 ☐ Computer-Aided Engineering
- 02 ☐ Designer
- 03 ☐ Design News
- 04 ☐ EDN
- 05 ☐ Electronic Design
- 06 ☐ Evaluation Engineering
- 07 ☐ IEEE Spectrum
- 08 ☐ Machine Design
- 09 ☐ Mechanical Engineering
- 10 ☐ Personal Engineering & Instrumentation
- 11 ☐ Product Design & Development
- 12 ☐ Research & Development
- 13 ☐ Sensors
- 14 ☐ Test & Measurement World
- 15 ☐ Laser Focus World
- 16 ☐ Photonics Spectra
- 17 ☐ None of the above

6 How many engineers and scientists work at this address? (check one)

- A ☐ 1
- B ☐ 2-5
- C ☐ 6-19
- D ☐ 20-49
- E ☐ 50-99
- F ☐ 100-249
- G ☐ 250-499
- H ☐ 500-999
- J ☐ over 1000

7 What is your title? (check one)

- 02 ☐ President
- 03 ☐ Owner/Entrepreneur
- 06 ☐ General Manager
- 15 ☐ VP (specify): _____
- 37 ☐ Director (specify): _____
- 80 ☐ Manager (specify): _____
- 39 ☐ Engineer (specify): _____
- 67 ☐ Educator (specify): _____
- 99 ☐ Other (specify): _____

8 Products you recommend, specify, or authorize the purchase of: (check all that apply)

- | | |
|---|--|
| 01 ☐ Electronic components | 26 ☐ Plastics & nonmetals |
| 02 ☐ Board-level electronics | 15 ☐ Vacuum equipment |
| 05 ☐ Electronic systems | 16 ☐ Data acquisition technology |
| 04 ☐ Lasers/optics | 17 ☐ Video/imaging |
| 05 ☐ Software | 18 ☐ Sensors/transducers |
| 06 ☐ Computers/Workstations/Peripherals | 19 ☐ Test/measurement instruments |
| 07 ☐ CAD/CAE | 20 ☐ Motion control/positioning equipment |
| 08 ☐ CAM Tools | 21 ☐ Industrial control systems |
| 09 ☐ Mechanical components | 22 ☐ Laboratory equipment |
| 10 ☐ Fastening/joining & assembly components | 23 ☐ Communications equipment |
| 13 ☐ Ferrous & nonferrous metals | 24 ☐ Composites |
| 27 ☐ Composites | 80 ☐ None of the above |

REMINDER

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The SEDS Electronic Directory is an online index of over 500 seds members, advisors, alumni, and chapters. Please check to see that we have your current information at <http://www.seds.org/ph>

For my part in this month's NOVA, I am soliciting applications for the SEDS annual scholarship. In the past, SEDS has awarded scholarships to students interested or involved in space related activities. This year we are reviving it. Please send all inquiries to the National Office. We hope to have an online application form in the near future so look for it. The National Office address is:

Massachusetts Institute of Technology Room W20-445 77 Massachusetts Avenue Cambridge, MA 02139-4307

or email requests to seds-scholarship@seds.org

New Mexico Tech SEDS.

We have begun construction of the next generation airframe for our ongoing boost glider project. This is our fourth iteration, each slightly larger, stronger and lighter. Construction, testing and data collection will take most of the upcoming semester, with first launch expected late spring or early summer. Subsequent upgrades will include the development and integration of a real-time video downlink and either a liquid fuel engine or launch from a weather balloon to test high speed stability.

"We can lick gravity, but sometimes, the paperwork is overwhelming..." Werner von Braun

Ray Calkins

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Editor: Birgit Dahlberg, KAMSC SEDS

Mail requests for chapter and individual membership information to the SEDS National Headquarters.



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