

NOVA

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From the Chair

Happy Summer Everyone! Now that final exams are over and school is out, you have time to do some summer reading. Below are the titles of some of my favorite books about space and the space industry. So, if you have some free time over the summer by the beach or pool or on your lunch break, check some of them out. One of two of the books should be in any SEDS members' repertoire.

1. **The High Frontier**, *Gerard K. O'Neil*. If there is one book you should check out, this one would be it. O'Neil touches on all of the aspects of creating a self-sustaining, large-scale, human habitat in outer space as well as the key business aspects in building such an environment. If you are interested in space art, the book also includes many colorful pictures, some of the most well-known in the field.
2. **Return to the Moon**, *Rick N. Tumlinson (edited)*. This is a collection of essays by lunar experts and policy leaders on why the moon should be used as a stepping stone to space travel and exploration. Although the end message is the same, each author comes to it through different philosophies and backgrounds.
3. **The Man Who Sold the Moon**, *Robert A. Heinlein*. This science fiction book is one of Dr. Peter Diamandis's (founder of the X-Prize) favorites. It follows the dream of a billionaire who will do whatever it takes to open space for everyone.
4. **Women of Space**, *Laura S. Woodmansee*. A compilation of profiles, this book touches on many different careers people can take and still be involved in the space industry. The everyday lives of engineers, scientists, astronauts, psychologists, pilots, machinists, lawyers, educators, accountants and artists are explained in detail.
5. **Rocket Boys**, **The Coalwood Way** and **Sky of Stone**, *Homer Hickam*. These are the memoirs of Homer Hickam, the man who was the inspiration of the movie *October Sky*. Together, the three books follow Homer through his journey of building rockets, struggling through engineering school and life's joys and tragedies along the way.

Happy Reading! See you next month!

Elizabeth Bozek

FEMALE ASTRONAUT SETS RECORD

By Mike Schneider, Associated Press

HOUSTON—Atlantis was cleared Saturday to return to Earth this coming week after the space shuttle's heat shield was judged capable of surviving the intense heat of re-entry, and a U.S. astronaut reached a milestone with the longest single spaceflight by any woman.

Atlantis is set to land at Cape Canaveral, Fla., on Thursday, although NASA officials were still deciding whether to keep the shuttle at the international space station for an extra day because of a failure of computers that control the station's orientation and oxygen production.

"That's great news," Atlantis commander Rick Sturckow said of the landing plan.

The shuttle's 11-day space station construction mission had already been extended to 13 days so a thermal-protection blanket could be fixed during an unscheduled spacewalk. NASA has been particularly sensitive about the space shuttles' heat shields since the Columbia accident killed seven astronauts in 2003.

Also Saturday, U.S. astronaut Sunita "Suni" Williams set a record for the longest single spaceflight by any woman. Williams, who has lived at the space station since December, surpassed the record of 188 days set by astronaut Shannon Lucid at the Mir space station in 1996.

"It's just that I'm in the right place at the right time," Williams, 41, said when Mission Control in Houston congratulated her on the record. "Even when the station has little problems, it's just a beautiful, wonderful place to live."



AP Photo/NASA TV

Those "little problems" had been considerable in recent days with the computer system failure on the Russian side of the station. Russian cosmonauts Fyodor Yurchikhin and Oleg Kotov got four of six processors on two computers working again on Friday, and on Saturday they got the remaining two on line.

Engineers in Moscow and Houston had not yet conclusively determined what caused the failure, although the leading theory was changes to the electrical system from the space station's growth.

The cosmonauts started turning on systems — such as an oxygen machine, a water processor and a carbon dioxide remover — that had been turned off while the computers were down. On Sunday, they planned to test the station's orientation system, which will be the final benchmark for deciding whether the computers work properly and whether the shuttle needs to stay an extra day.

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Space News

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"The bottom line is it appears that the command and control type computers are functioning just fine," said Mike Suffredini, NASA's space station program manager.

In preparation for Tuesday's scheduled undocking of the shuttle, astronauts and cosmonauts spent Saturday moving supplies and trash between the shuttle and station after several days of gruelling work.

Friday's tasks had included spacewalks to repair the torn thermal blanket on Atlantis and to retract a 35-metre solar energy wing that will be moved to a different location on the space station.

Williams' former crew mate at the space station, astronaut Michael Lopez-Alegria, holds the U.S. record for longest continuous stay in space with 215 days. The longest stay in space was 437 days by Russian Valeri Polyakov.



Expedition 14 Mission Patch

In February, Williams set another record for the most time spent spacewalking by a woman, kicking off a year of achievements by women in space.

In October, U.S. astronaut Peggy Whitson will become the first woman to command the space station. Later that month, Air Force Col. Pam Melroy will become only the second woman to command a space shuttle mission; Eileen Collins was the first, in 1999.

If Whitson and Melroy's time at the space station overlap, it could be the first time there are two female commanders in space at the same time. "The first time we have two female commanders in orbit – that will be neat," Whitson said.

Almost three decades after the first women joined the astronaut corps in 1978, only 17 of the 94 current active astronauts are women.

Lucid says part of the problem may be the pipeline that delivers pilots to the astronaut corps – the U.S. military. Women didn't start entering the military service academies until the late 1970s.

"I think it's really great that all of this is happening, but obviously, you wonder, why did it take so many years?" asked Lucid, who is in astronaut office management. "At some point, you would like the field to be such that it doesn't make any difference whether you're male or female."

On the ground, Mission Control had its first female flight director in 1985. All three space station flight directors working the current Atlantis mission, and the lead shuttle flight director, are women. Women make up about a third of NASA's 33 flight directors, who are responsible for running the spaceflight missions.

"So many times, the room is filled with female flight controllers," Lucid said. "I just think it's just a wonderful thing that people are getting the chance to do what they're capable of doing."

Letter to the NOVA

It is hard to imagine a time when space was really the final frontier, when men actually looked at the heavens with awe. The 1960s was such a time. In grade school I remember reading a book about what it would be like to walk on the moon. No one thought it could happen.

As July 20, the 38th anniversary of the first moon landing, approaches, I can still remember watching Mr. Neil Armstrong step out of the lunar module and move toward the surface of the moon. He, as a civilian, represented world peace. In my memory I can see him and Buzz Aldrin raising the US flag and hearing one of the news reporters saying that the moon was not made of green cheese, but American cheese. We were all proud to have beaten the Soviets in the space race.

As the next few years came and went and Apollo missions continued, Americans, me included, became complacent with the moon landings. We sent men into space to do whatever they did up there and then they came back. We did like to watch the splashdowns. No one really paid that much attention, except my grandmother. She was convinced that the change in weather patterns that were occurring over New York City were a direct result of "whatever those men were doing up there." If they stayed off the moon, things would return to normal. I am sure many of her generation felt that by visiting the moon we were affecting not only the tides on earth but other things as well.

Space travel has not advanced as much as we thought it would. In the 1970s we thought that by 2000 people would be living on other planets and that growing plants in outer space would solve our food shortage problem.

The exploration of space has come a long way since America set the goal of showing the Soviets that we were more powerful. The technology still has a way to go to make it accessible to everyone who would want to travel. I am very thankful that there are men and women today who step up to the challenge and take that final frontier one step further.



Conference Opportunities

1. NSS INTERNATIONAL SPACE DEVELOPMENT CONFERENCE

Date: May 24-28, 2007

Location: Dallas, Texas

Website: <http://isdc.nss.org/2006/>

For Info: (202) 429-1600

2. SPACE FRONTIER FOUNDATION'S NEWSpace CONFERENCE

(Former *Return to the Moon Conference*)

Date: July 18-21, 2007

Location: Washington DC

Website: [http://www.space-frontier.org/](http://www.space-frontier.org/Projects/)

Projects/

Moon

For Info: krukin@spacefrontierfoundation.org

3. MARS SOCIETY CONFERENCE

Date: August 30-September 2, 2007

Location: Los Angeles, CA (University of California)

Website: <http://www.marssociety.org/convention/2006/>

For Info: MarsSocInfo@aol.com

4. X-PRIZE CUP

Date: mid-October, 2007

Location: Las Cruces, New Mexico

Website: <http://www.xpcup.com/index.cfm>

For Info: (323) 957-0729

Discounts: Volunteer Opportunities Available

Volunteers get free admission

5. SEDS NATIONAL CONFERENCE SPACEVISION 2007

Date: November 9-12, 2007

Location: Cambridge, Massachusetts

Website: <http://spacevision.seds.org>

For Info: (704) 609-7416

6. SAIG: AIAA SPACE EXPLORATION CONFERENCE

Date: December 4-6, 2007

Location: Houston, TX

Website: <http://www.aiaa.org/content.cfm?pageid=230&lumeetingid=1487>

For Info: exploration@aiaa.org

E-MAIL RYAN MCLINKO AT MCLINKOR@MIT.EDU IF YOU HAVE ANY QUESTIONS.

Please send comments on the newsletter to publications@seds.org.

Students For the Exploration and Development of Space

