

STS-108 Poised for Late November Launch



The crew of STS-108 (including the outgoing Expedition 3 and the incoming Expedition 4 crews) pose for a formal crew portrait. STS-108 (also known as ISS flight UF-1) is currently scheduled for launch on November 29, although there is concern regarding corrosion found on the wheels of other shuttles. *Endeavour* currently waits for launch on the pad at the Kennedy Space Center.

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December 13 Input Deadline for the Next Edition of *Horizons*

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Chairman's Corner

By Darby Cooper, Chairman

Welcome to the second *Horizons* issue for 2001-2002!! Although our "first" newsletter of the year was a bit later than normal, the section has already been active and continues to work to serve the aerospace community and our membership.

We are currently working hard to hold the elections for the position of Chair-Elect that is currently vacant. Watch the upcoming issues of the *Horizons* for further information or watch your Section e-mail.

The section has already had two outstanding events and we are working hard to build on their success. Coming up are some very exciting Dinner Programs, which are listed in this month's *Horizons* Calendar of Events. I encourage everyone to attend as many of these events as possible, as they can be extremely educational and entertaining. In addition, our mentoring programs will soon be in the forefront, with the next FIRST robotics competition looming in the horizon (*no pun intended!*).

It is promising to be an exciting year for the Section. I hope that if you have any suggestions, questions, or concerns, you will feel free to contact me or any of the executive council members.

New NASA Administrator Nominated

By Carlos E. Blanco, Newsletter Editor

After months of speculations, the mystery of who will lead NASA into the future has finally been resolved. On November 14, the Bush administration finally ended the various rumors that had been circulating for some time within the corners of the space industry by officially announcing the nomination of Sean O'Keefe, formerly of the White House Office of Management and Budget (OMB) to succeed Daniel Goldin as the next administrator of NASA. Mr. O'Keefe arrives at a time when many analysts, critics and politicians feel that NASA is at a crossroads

in its storied history.



Syracuse Univ.

Under the leadership of Daniel Goldin, the longest-serving administrator in the history of the agency, NASA charted a course, which, at times, was fraught with turbulence and difficulty. Goldin's policy of "faster, better, cheaper" led to many brilliant successes (e.g. Mars Global Surveyor, Mars Pathfinder, EROS, Genesis, Deep Space 1), with an equal number of impressive failures (e.g. Mars Observer, Mars Climate Orbiter, and Mars Polar Lander/Deep Space 2). Many critics cite Goldin's policy as the reason for the failures at Mars, noting that the space agency pushed the technology and people too hard, with too little funding or testing. Perhaps the greatest target for criticism for both Goldin and NASA is the beleaguered International Space Station project. Already facing a \$5 billion cost overrun, the nominee for NASA administrator has been one of the biggest critics of how the program has been run.

The obvious question then becomes, how will a critic of NASA's human spaceflight program handle the responsibility for those very programs? Will we see a return to the decade-long absence of US manned spaceflight that occurred at the end of the Apollo era? I firmly believe that these are the questions we need to be asking ourselves. With what has been going on in the world, it's been very difficult for anything related to space to rise above the din and noise. When the nation is more concerned about an on-going war in Afghanistan and the threat of bio-terrorism at home, there seems to be little time or interest in what NASA is or isn't doing these days. But, we who work in this industry need to care. We need to concern ourselves with what's going on, not only from an employment point-of-view, but from a more practical point-of-view. Since the 1990s, the United States has been steadily spending less and

less in Research and Development. Our once vast lead in aerospace has been dwindling, leading some European nations to boldly boast that they will replace America in the forefront of aerospace research. Given their greater investments in this field, that claim doesn't seem too far-fetched. Make no mistake, aerospace leadership affects more than just the next NASA project. America's aerospace leadership affects many industries from defense, communications, manufacturing, and now, tourism.

So, in this time of uncertainty, we find ourselves looking towards our leaders for a vision of the future. This vision is critical, since at some point we will emerge from our current crisis and will have to continue in the tasks we have left to do. That would not be the time to start looking for a vision, unless we want to fall behind. What, then is Mr. O'Keefe's vision? That is a difficult question to address, as he has not made any public disclosure of a vision for NASA, whether he has one or not. However, we can make assumptions of what that vision might be, based on Mr. O'Keefe's previous work and statements.

No one should mistake Sean O'Keefe for a space enthusiast. His harsh criticisms of NASA and the ISS budgets are proof enough of that. In one round of testimony before Congress, Mr. O'Keefe was quick to point out how NASA's budget for human spaceflight dwarfs other federally funded research and development programs, "a huge amount when compared to other science and technologies opportunities." However, should we now circle the wagons at NASA and its contractors? Not necessarily. Mr. O'Keefe is also a professor of Business and Government Policy at Syracuse University. In many lectures, he has advocated a looser management culture for high-technology enterprises. Speaking directly of NASA, he said the agency needs a "cultural change". He advocates an environment in which NASA puts "management excellence" at par with technical excellence. While he has been critical of NASA's finances and management practices, he has praised the work done by the agency and the advances in human spaceflight.

There are many who believe that Mr. O'Keefe's lack of technical expertise will put him at odds with those inside the agency, while others feel he will be unable to handle all the various endeavors that NASA is attempting across its various centers. On the other hand, there are others that feel that all that is irrelevant, as the current problem facing NASA is a management one, not a technical one. This is an area that Mr. O'Keefe excels at, say many supporters. One thing is certain, the solution to NASA's woes is not going to be easy. O'Keefe is a

firm supporter of the Young Report, which has advocated, among other things, cutting back on the number of shuttle flights to the ISS per year, as well as slowing down the pace of construction for the orbiting complex. Missions like STS-108 (see the cover page), may not happen as frequently as before. More troublesome is whether the station will ever grow to the planned six-person crew capacity, without which scientific research is nearly impossible.

I can't vouch for Mr. O'Keefe and I'm not exactly overcome with joy over his nomination. Of course, that has less to do with him and more to do with an administration that has been less than enthusiastic in its support of NASA and spaceflight. Nevertheless, I take some measure of comfort in the fact that one of NASA's most successful administrators, James Webb, also came from the world of management, politics, and finances. In time, Webb became a strong supporter of NASA and helped steer the agency during the hedy days of Apollo. Perhaps Mr. O'Keefe can become just a big fan of NASA. If so, it falls on us to show him the great and exciting things that we can do over here. Not only that, but perhaps the looser, modern management techniques he currently teaches would benefit us all. It stands to reason that with fewer management layers above, we could accomplish more. There are so many exciting things coming, it would be a shame if we let them fade away because we couldn't pass on our enthusiasm to someone else.

Of course, this is just my opinion. I could be wrong.

FIRST Robotics Team Looking for Volunteers

By Steven King, Publicity Chair

La Porte High School (LPHS) will compete in the 2002 FIRST robotics competition and is looking for part-time technical mentors. FIRST (For Inspiration and Recognition of Science and Technology; www.usfirst.org) is a program started in 1989 to excite young people about the fun, accessibility, and importance of science and engineering. It now is a nation-wide program with more than 500 schools participating yearly in the 13 regional competitions and one national competition at Disney World. The robotics competition teams up high school students with engineers from local businesses and universities to get a hands-on, inside look at the engineering profession. In six intense weeks, students, teachers

and engineers work together to brainstorm, design, construct and test their "champion robot." These six weeks makes all jobs critical and helps to develop the student's teamwork, communication, decision making, and leadership skills. The teams then compete in spirited, no-holds-barred tournaments complete with referees, cheerleaders, and time clocks.

The 2002 competition will kickoff the weekend of January 4th followed by the 6-week design, build, and test period. LPHS plans to participate in the Lone Star Regional competition in Houston, March 14-16, and has qualified for Nationals being held April 25-27. The team holds roughly 3-work sessions per week at LPHS during the 6-week construction period including a Saturday session. Volunteers donate time as their schedule permits. A lot of good hands-on experience can be gained with mechanisms, controls, software, electronics, machine tools, etc. Plus, seeing it all come together and participating in the competition can be a lot of fun. Please contact either Steve King (281-483-4359, steve.king@lmco.com) or Trey Hall (281-483-4300, thomas.h.hall1@jsc.nasa.gov) about volunteering or with any questions about FIRST.

More *Horizons* Submissions Needed

By Carlos E. Blanco, Newsletter Editor

Although its not customary to hear from the editor in the body of a newsletter (usually, we reserve our comments for editorial pages, if there are any), I decided to speak briefly to all the readers of this newsletter. Being that this is only my second contribution to the Section's newsletter, I hope that everyone will bear with me. Should I ever decide to grace the pages of your newsletter, I will make every effort to be more eloquent, or at least a great deal wittier.

In any case, what I do want to address is a sad trend that I've noticed since taking over the helm of the *Horizons*. This is the rather meager amount of submissions to the newsletter. Given that we are fast approaching the end of the year and it's associated holiday season, I hope that this accounts for the quantity of material that I have received. I am putting my faith in the Section's membership that this is all there is to it. If not, I can only say that it is a very disappointing trend, especially given the amassed talent that I see in the Section.

We have experts, beginners, near-experts and old hands in the space industry gathered here in Houston. I don't know about anyone else, but the sheer amount of knowledge, experience and stories avail-

able here is nearly overwhelming. It's precisely for that reason that I'm so disheartened to see my Inbox quite so empty as the submission deadlines approach. Perhaps there are those of you that are not aware of what can go on the *Horizons*. Allow me to elaborate.

The *Horizons* is a forum for more than just what events are coming up for the Section or what has transpired recently. It is a place for members of the Section to share with everyone else exciting developments in their fields. It is a place where we can freely express our opinions and, hopefully, start an interesting discussion across disciplines or groups. If nothing else, it's an exceptional way to transmit your thoughts and get people thinking. Perhaps you have some thoughts concerning the direction in which the US space program is headed? I know that I do. By all means, share it! Let others hear your thoughts. You may be surprised by how many people have similar ideas and/or thoughts. Maybe you have a first-person perspective on some pivotal or historic moment in human spaceflight. That is the kind of material that belongs on this newsletter, so please share it. For that matter, maybe you have some humorous anecdotes relating to the history of the space program? We'd love to hear them. I've been of the opinion that the AIAA newsletter can be a bit dull and dry at times. A little humor could help spice things up!

In my opinion one of the greatest tragedies of the space program's history is that Robert Goddard, the father of America's rocketry program chose not to share his ideas with others. In time, his particular branch of rocketry gave way to those in which people shared their ideas. Thus, instead of Dr. Goddard designing NASA's Saturn V moon rocket, it was another man, Wernher von Braun who would receive that distinction. Ultimately, ideas are merely random thoughts in our heads if we don't ever expose them to the light of day. We have to be prepared to be knocked down, if we are to rise above the clouds.

I hope that you, the readers, will forgive my slight turn of melodrama. While I'm not necessarily suggesting that what appears on the *Horizons* will revolutionize humanity, I'm not suggesting that it will not, either. That depends entirely on what you choose to contribute. It could be awe-inspiring, as it could be merely informative. However, rather than you deciding beforehand which it is, I suggest that you let the other readers decide for themselves, which it is. In the meantime, keep reading the newsletter. Feel free to drop me a line and let me know how I'm doing or to suggest a way in which I could improve things. I certainly could use all the help I can get.

AIAA Member Visits Girl Scout Troop

By Joy Conrad King, Pre-College Outreach Chair

On October 7th, I went to a Girl Scout troop in Friendswood and showed them some physics demonstrations for their science merit badge. I showed them the effect of outer space with a vacuum pump and demonstrated why airplanes fly with a beach ball and leaf blower. They then made paper rockets and shot them off with Alka Seltzer and water. They had lots of fun, especially with the rockets. They found out that biggest rocket didn't necessarily go the highest.

The Houston section has a collection of science equipment available for members to check out for events such as these. If you would like to borrow the following equipment, contact Joy Conrad King at jconrad@averstar.com or (281) 480-4101 x220.

1. Vacuum pump and bell jar for demonstrating pressure and the outer space environment.
2. Supplies to make Alka Seltzer rockets.
3. Magnets (permanent and electromagnets).
4. Optics (lens and color filters).
5. Gyroscopes.
6. Tornado bottles.
7. Inclined plane for demonstrating angular momentum and mass distribution.

Is Your Company Getting Timely AIAA Announcements?

By Steven King, Publicity Chair

The Houston Section maintains a media contacts (public affairs) e-mail distribution list of various organizations so that event announcements, press releases, urgent AIAA news, etc. can be distributed widely in a timely and efficient manner. A recent audit of this list found the following local organizations are missing from the list or do not have a working e-mail address: Allied Signal Aerospace, Booz-Allen & Hamilton, CLAEDF, Computer Sciences Corp, Draper Lab, GB Tech, Hernandez Engineering, Honeywell, Houston Technology Calendar, Johnson Engineering, Kelsey-Seybold, LinCom, ILC Dover, Muniz Engineering, Raytheon, Teledyne Brown Engineering, TRW, and Wyle Laboratories. If

you have a lead as to an appropriate point of contact within one of the missing organizations, please forward it to Steve King (281-483-4359, or steve.king@lmco.com).

Help AIAA Help You - Update Your Member Records

By Sophia Bright, Membership Chair

It is often said that the aerospace industry is the only place where you can have the same job for five years and work for five different companies. That is especially true given the industry wide consolidation that has happened in the last few years. As companies have changed so have the building signs and the business cards. Additionally, our environment provides most people with the ability to move from one company to another as we try to expand our occupational horizons.

With all of these potential changes have you verified if your AIAA member record is up to date? Knowing where our members are working is vital to the Houston Section in obtaining corporate support for local AIAA activities (such as our monthly dinner meeting, workshops, etc.). Please take a few minutes and visit the AIAA website at <http://www.aiaa.org/> to update your member information or call customer service at 1-800-NEW-AIAA (639-2422). Feel free to also contact me, Sophia Bright, Houston Section Membership Chair, at 281-461-9300, Ext 234 if you have questions regarding your membership.

Becoming an AIAA Member or Renewing Your Existing Membership

By Sophia Bright, Membership Chair

Are you interested in becoming a member of the AIAA or renewing your membership? You can fill out a membership application online by going to the AIAA National website at <http://store.aiaa.org/memberships.cfm> or call 1-800-NEW-AIAA (639-2422).

Please note, if you have not used the AIAA on-line store then you will need to set up an account before purchasing a new membership (or even if you are renewing your membership). If you are purchasing a new membership the “store” will assign a temporary account access number to you until you have an AIAA membership number assigned to you. All existing members will use their membership numbers to establish an account.

Also, if you know any students who would like to upgrade from a student member to professional member, all they need to do is submit a professional membership form and indicate that they are upgrading. This will enable that person to receive their first year of professional membership free.

If you are or know someone who needs to transfer their membership affiliation to the Houston section,

please go or direct them to the following website to update membership information, <http://www.aiaa.org/Members/index.hfm?memo=2>.

If you know anyone who is interested in becoming an AIAA member please direct him or her to the AIAA National website (<http://store.aiaa.org/memberships.cfm>). Table 1 also summarizes the available types of membership and their associated fees. Renewing your current membership can also be done via this website and the fees shown in Table 1 are applicable.

If you have any questions regarding any of the items addressed above please feel free to call AIAA National customer service number listed earlier or contact me, Sophia Bright, at 281-461-9300, Ext. 234. You can also try e-mailing me at sbright@tietronix.com if that is more convenient.

Table 1: Membership Type Description

Membership Type	Description	Fee
Student	Persons interested in aeronautics or astronautics whose primary activity is study at a recognized college, university, and secondary schools offering curricula and studies acceptable to the Institute.	\$10 (1 February to 30 June) \$20 (1 July to 31 January)
Return to Full-time Study	Members are eligible for this dues discount when taking 12 credits or more at a recognized college or university. You retain your professional member status.	\$42.50
Associate	Persons interested in the development or application of aeronautics and astronautics.	\$85.00
Young Professional	If you meet the qualifications of Member or Associate Member, are within your first five years of professional practice, 35 years of age or younger and have never been a student member, you are eligible to join at half the current dues rate.	\$42.50
Professional	Persons shall have achieved a Bachelor degree in science or engineering, or equivalent qualifications through professional practice.	\$85.00
Fellow	Fellow Renewal	\$100.00
Spouse	When two members, who meet the requirements of Member or Associate member are married to each other, one of the spouses may pay dues at half the current dues rate. Both members will receive full privileges, but only one copy of Aerospace America will be mailed. Spouse name and ID number are required.	\$42.50
Retired	Any member in good standing who has fully retired may take advantage of this rate. (excludes Fellows, see Retired Fellows).	\$42.50
Retired Fellow	Any Fellow in good standing who has fully retired may take advantage of this rate.	\$50.00

Table 1: Membership Type Description (cont'd)

Membership Type	Description	Fee
Lifetime	Persons shall have achieved a Bachelor degree in science or engineering or equivalent qualifications through professional practice and wishes to make a one-time dues payment.	\$1275.00
Unemployed	Any member in good standing may take advantage of this rate. You will have to indicate your status at renewal time.	\$42.50

Calendar of Events

January 2002

- 1/14 – 1/18 Aerospace Sciences Meeting
- Reno, Nevada
- 1/30 Boeing Delta/Sea Launch Dinner Program
- Part of the Section's Dinner Lecture Series; will cover the Boeing Delta and Sea Launch programs.

Future City Design Competition

- 7th and 8th graders use SimCity™ computer software to design futuristic cities.

January – February 2002

FIRST Robotics Competition

- Use hands-on engineering to help high school students build a robot to compete with others in national competitions.

February 2002

Mars Settlement Design Competition

- Industry simulation weekend for high school students to design a futuristic Mars community.

2/17 – 2/23 National Engineers Week

- Visit classrooms around the Houston area.

2/21 Aging Aircraft (sponsored jointly by ASME)

- Part of the Section's Dinner Lecture Series; will cover the modes, causes, effects of aging on aircraft, as well as possible means to arrest this phenomenon.

March 2002

3/20 Nanotube Technology

- Part of the Section's Dinner Lecture Series; will cover the evolution, development and applications of this emerging technology.

3/22 Science and Engineering Fair of Houston

- Judge middle and high school projects to select the AIAA Houston Section prizewinner.

April 2002

4/25 Meteoroids, Space Debris and Related Space Hazards presented by Dr. William Ailor

- Part of the Section's Dinner Lecture Series; our distinguished lecturer will discuss this fascinating subject which is of special importance to anyone interested in near-Earth orbital operations.

TBD Region IV Student Paper Conference

- Austin, Texas

May 2002

TBD Global Air and Space 2002 Conference

- Washington, D.C.

TBD WAR 2002

TBD Innovations 2002

June 2002

TBD AIAA Houston Section Annual Awards Banquet

October 2002

10/11 – 10/20 World Space Congress 2002

- George R. Brown Convention Center, Houston. Event is billed as the "meeting of the decade for space professionals."



Houston Section

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