

Mars Settlement Design Competition



Students will be participating in a contest to help develop a fictitious city of the future on Mars. Could this be the shape of things to come? Read the article on page 4.

Horizons

January 2002

AIAA Houston Section ◆ ONLINE ◆ www.jsc.nasa.gov/aiaa

News Membership Upcoming Events Committees Leadership Horizons

Becoming an AIAA member

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 membership website at www.aiaa.org/information.

January 18 Input Deadline for the Next Edition of *Horizons*

Contributions can be submitted by email to Carlos E. Blanco at carlos.e.blanco@boeing.com.

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Chairman's Corner

By Darby Cooper, Chairman

Happy New Year! As we move into the 21st century I am personally excited to be involved with AIAA and all of the activities that are available to our members. As we look back at 2001 we can not help but realize we live in a world that is very much changed by the events of the past year. It is also customary at this time of year to get out the "crystal ball" and look at what 2002 has in store. What follows is a brief preview of 2002 for AIAA.

Already we have held elections for the position of Chair-Elect and we open the year with a new officer filling that role.. Watch this issue of the *Horizon* for further information or watch your Section e-mail. Our 2002 Dinner Program schedule is nearly full - make sure and look at the calendar to see what topics may interest you. There are also outstanding opportunities to participate in a variety of educational programs including the FIRST robotics competition and school visits for E-Week - take some time to volunteer for these wonderful chances to interact with the engineers of the future.

The local section executive council is also busy working on improving the section to better serve our members. We have established an Executive Advisory Board and will continue to use this board to improve our dialogue with local companies. We are working to improve all aspects of our communications with members - newsletter, email, and World Wide Web. Look for some exciting changes in the near future. And of course AIAA elections are just around the corner - have you ever thought about becoming more involved in AIAA?

It certainly looks like this will be another great 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.

NASA Directives for the 21st Century

By Don Nelson, Guest Contributor

The new NASA administrator must be able to balance and influence the internal and external politics that are stagnating the agency. Can Sean O'Keefe handle this juggling act? Like his predecessor he

already has two strikes against him. He is an outsider and he wants to make changes.

The first time Mr. O'Keefe sits behind the administrator's desk, he must be in charge. He must have a plan that excites the aerospace community into action. The threat of closing NASA centers or prolonging the development of the International Space Station will only be the catalyst for more dissension.

Mr. O'Keefe must have knowledge of the key issues that are plaguing NASA. He must be aware that a crew escape module is the number one safety upgrade for the Space Shuttle. He should know that to privatize the Shuttle without first automating the flight system would only continue the operation of an obsolete and cost prohibitive launch system. Automation and privatization are also the key to correcting the space station problems.



Space Shuttle "Glass Cockpit"

The new administrator must have insight into internal working of the agency. Mr. O'Keefe must have a program assessment office that reports directly to his office. His goal to get NASA back to basic research must be supported by the establishment of technology offices for the three technologies that define the capability of space exploration: propulsion, structural materials, and avionics.

It is very doubtful that Mr. O'Keefe is aware of these critical issues, much less the solutions. To inform him, the NASA Advisory Council has been requested to review and advise the new administrator on directives for leading NASA in the 21st century. These directives were formulated from inputs from concerned American aerospace engineers (see: attached and/or "NASA Operations Directives for the 21st Century" at <http://www.nasaproblems.com/>)

NASA is on a collision course with disaster. Can the new administrator correct NASA's direction? If history is an indicator, the answer is no. If the NASA

directives for the 21st century are adopted, it will be one small step in the right direction.

Human Factors “Lunch and Learn”

By William Langdoc, Councilor

On December 4, 2001 the Life Sciences and Space Processing Technical Committee hosted a “lunch ‘n learn” in JSC Building 15 on *Computer Aided Human Factors Analysis*. James Maida, manager of JSC’s Graphics Analysis and Research Facility and Lighting Environment Test Facility gave a presentation on the digital modeling of humans and spacecraft, with particular emphasis on ergonomic and lighting analyses. He discussed the functional relationships between his facilities and the other facilities making up the Space Human Factors Laboratory. Maida reviewed the equipment, techniques, and tools used for measurement, modeling and analysis. He also discussed validation and verification of predictions derived from computer modeling. 10 people attended the presentation.

Mars Settlement Design Competition

By Joy Conrad King, Pre-College Outreach Chair

The NASA Johnson Space Center will be holding an industry simulation game for area high school students on February 22 - 24, 2002. These students will divide into futuristic companies and spend a weekend to prepare a proposal for a fictitious city to be built on Mars. Each company will be composed of approximately 35 students that will be run by one CEO. At the end of the weekend, there will be a competition to select the winning proposal. The competition is open to students, grades 10 – 12 attending a high school in the Southeast Texas area. Space is limited, and the deadline to apply is February 1st.

Adult volunteers are also needed in the following areas:

1. Assist in meeting and checking in the student participants and chaperones at JSC Building 110 (Security) and at the Teague Auditorium on Friday night, February 22, 2002.

2. Serve as overnight chaperone at Gilruth Center either Friday night, February 22 or Saturday night, February 23.
3. Serve as a technical trainer for the students in Building 9 on Saturday morning, February 23, from 8:30 - 10:30 a.m. in the technical areas of:
 - a) Structures
 - b) Operations
 - c) Life support systems
 - d) Automation and Robotics.
4. Serve as mentors/chaperones for periods during the day on Saturday, February 23 (in building 9) and Sunday, February 24 (in Teague Auditorium).
5. Serve as librarian for a shift on Saturday, February 23, in building 9.
6. Serve as a CEO or Deputy CEO for one of the 4-student company teams. This is a major commitment and the volunteer would need to spend all day Saturday and some of Sunday at the competition.



Students from the 2000 Mars Settlement Competition

Students can check with their Math/Science coordinator at their school for applications or they can contact Norm Chaffee. Adult volunteers can also contact Mr. Chaffee at Norman.H.Chaffee1@jsc.nasa.gov or at 281-483-3777. More information can be found at <http://marsbase.jsc.nasa.gov>.

Houston Section Welcomes New Chair-Elect

By Merri J. Sanchez, Councilor

Nicole Smith, Houston Section Vice-Chair for Operations, was recently elected as the new Chair-Elect for the Section.



In a special election held recently, Nicole was selected to fill the vacancy left by Darby Cooper, who assumed the Chair position after Jorge Molina stepped down. The entire Section would like to offer its congratulations to Nicole and good luck, as she takes on this new role.

Evolution of Flight Art Contest

By Joy Conrad King, Pre-College Outreach Chair

The Evolution of Flight Campaign will be sponsoring the 2nd annual AIAA Evolution of Flight Campaign Art Contest for children ages 5-16. This year's theme will be "2102: Life in Space". Entries must be original artwork on an 8-1/2" x 11" sheet of white paper (no computer generated or three-dimensional art is eligible). Artwork should be based on the theme "2102: Life in Space". Imagine that in 100

years, mankind is living in space. Show examples of what you think "Life in Space" would be like – what would your school or home look like, would cars or food be different, what would vacations be like, what kind of pets would you have, or even show how society has benefited by living in space. Use your imagination!



1st Place Winner – 2001 Art Contest (Age 11-20 Category)

To submit your entry, write your first and last name and age on the front of your entry in the bottom right corner in black marker ink. Have your parent or guardian fill out and sign the AIAA Entry/Parental Contest form and mail the entire package to:

Evolution of Flight Campaign Art Contest
Attn: Kimberly Grant
1801 Alexander Bell Drive, Suite 500
Renton, VA 20191-4344

Contest rules and information (including the Parental Contest form) can be found at http://www.flight100.org/activities/artcontest_2002.html. Winning artwork will be featured on the AIAA Evolution of Flight web site and in other AIAA promotional materials. Prizes will be awarded. Deadline for submissions is 1 March 2002.

Space and Exploration Studies at the University of Houston - Clear Lake

By Gretchen Mieszkowski, Guest Contributor

Does exploration send your imagination soaring?

The new Space and Exploration Studies concentration in the University of Houston-Clear Lake's MA in Humanities degree will offer "Literature of Exploration," taught by Dr. Craig White, professor of literature, spring, 2002. This new field of study emphasizes the historical, philosophical, and global meaning of the space pioneers' achievement, and analyzes exploration from a multi-disciplinary perspective. Courses in the history, politics, and literature of exploration examine the relationship of space exploration to exploration through the ages, and develop intercultural understanding for multi-national cooperation in space.

"Literature of Exploration" will be taught Tuesday evenings, beginning January 15. The seminar will concentrate on classic nonfiction and science fiction accounts of journeys across the inhabited earth--to its deserts and poles, to Mars and beyond.

"If you're the first human being to set foot on a continent or a planet, or even the first to imagine this experience in a compelling way," Dr. White comments, "the only way anyone else can ever know what it's like will be through the words you use to describe what you saw or imagined. This course will examine the ways writers use words and stories to create fictionally or re-create in memoir the experience of being there first."

Books for the course will include Cabeza de Vaca's "Account" of his exploration of the Gulf Coast in the 1500s; Edgar Allan Poe's only novel, "The Narrative of Arthur Gordon Pym of Nantucket," which takes its hero to the South Pole; "A Princess of Mars" by Edgar Rice Burroughs, 1912; "Stranger in a Strange Land" by Robert Heinlein, 1962; "The Left Hand of Darkness" by Ursula K. Le Guin, 1969; "Tracks" by Robyn Davidson, 1980; "Red Mars" by Kim Stanley Robinson, 1992; and "Ice: Stories of Survival from Polar Exploration," edited by Clint Willis, 1999.

Application requirement for the Space and Exploration concentration is a bachelor's degree in any field from an accredited institution. Classes are scheduled primarily in the evening, and all classes are given at the University of Houston-Clear Lake campus. Additional spring courses of interest to Space and Exploration Studies students include "Cultures of Asia" (anthropology), "World Futures" (future studies), "Writing for Today's Workplace I (communications), and "Cross-Cultural Communications" (psychology).

For information about the Space and Exploration concentration and enrollment, contact Dr. Gretchen Mieszkowski, director of Humanities, mieszkowski@cl.uh.edu, (281) 283-3312; or Ms. Ann Hinojosa, advising coordinator, hinojosa@cl.uh.edu, (281) 283-3333.

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.

Second Young Professional Career Planning and Development Workshop

By David Lechner, Councilor

The AIAA Houston Section is hosting the second Career Planning and Development Workshop for young professionals on February 16th, 2002. This half day workshop will offer sessions in financial planning, career mapping, conflict management, balancing life styles, business etiquette, career options in uncertain times, time management and improving interpersonal skills. A special guest speaker will end the workshop after lunch with an exciting and motivational talk.

Like the first successful career-planning workshop held in May 2001, attendees at this workshop will have the freedom to attend sessions of their choice. Several local professional organizations, representative of the NASA/JSC professional community, will also sponsor information and membership booths. The career-planning workshop will be held in the USA Training Academy. Due to limits on facilities, registration will be limited to 85 attendees. Advertisement for this workshop will begin in the first week in January 2002 with registration due by the in early February.

AIAA will also be hosting a similar career-planning workshop for mid-level managers in the near future. Contact David Lechner at 281-483-1685 or david.f.lechner1@jsc.nasa.gov for any questions.

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 |
| 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

2/16 Young Professionals Career Planning and Development Workshop

- This half day workshop will offer sessions in financial planning, career mapping, conflict management, balancing life styles, business etiquette, career options in uncertain times, time management and improving interpersonal skills.

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.

2/22 – 2/24 Mars Settlement Design Competition

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

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

5/14 – 5/17 Space Mechanisms Technology Workshop

- Ohio Aerospace Institute, Cleveland, Ohio. The symposium is concerned with problems in design, fabrication and use of mechanisms. The workshop will deal with technology that is needed for the future.

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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