Horizons

Houston, Texas June 1992

Chairman's Corner

Dr. Zafar Taqvi
Chairman

While the 1991-92 administrative year is fast drawing to a close, our efforts have started to identify those who contributed immensely to the implementation of Section goals and services to our membership. We will honor those who have made significant contributions to the arts and science of aeronautics and astronautics at the section level. Our June meeting is traditionally tagged as Honors and Awards as well as installation of new officers. We will be honoring all the outgoing officers, committee chairmen and all those members who have made outstanding contributions to the Section.

We will be nominating key candidates for prestigious annual awards given by the Clear Lake Council of Technical Societies.

May is traditionally the month of the Annual Technical Symposium. Wednesday, May 20, is the day for our 17th Annual Symposium at the University of Houston-Clear Lake. A reception following the Symposium sessions provides the climax of the activities, and is organized in lieu of a May dinner meeting. This year, in addition to the Annual Technical Symposium, we will have a special luncheon on Friday, May 15, in connection with the International Space Year. We will use this opportunity to honor those AIAA veterans who have completed 25, 40 and 50 years of AIAA membership. We will also honor a selected group of individuals who will receive special citations from AIAA National for dedicated service to the Section. This special citation effort was initiated by the Section and we are pleased to have succeeded in getting this much deserved recognition for our dedicated members. We plan to initiate such recognition for others in the future.

Besides the May 15 luncheon and the May 20 Technical Symposium, we still have a few Lunch & Learn programs, a video conference, and finally the AIAA Annual Honors and Awards banquet on June 11.

In This Issue...

Horizons is the monthly newsletter of the Houston Section of the American Institute of Aeronautics and Astronautics. It is created by members of the Houston Section and reproduced at the Houston offices of Lockheed Engineering and Sciences Company. Please address all communications to the Chairman, Dr. Zafar Taqvi, LESC/C80, telephone 333-6544, fax 333-7620.

Committee News

Bill Best
Vice-Chairman, Technical

By June 1 of this year, your technical committees will have conducted sixteen Lunch & Learns, the 1992 Workshop on Automation & Robotics (WAR '92), and concluded our 17th Annual Technical Symposium. Your local AIAA Section also hosted a reception for National Technical Committee members in our Section.

Our new TC, History, chaired by Joey Kuhlman, has been active recording oral histories of the earlier days about JSC space projects, has supplied the "25 Years Ago" column to *Horizons*, and has our time capsule in safekeeping. In addition, many of our TCs have contributed material to our newsletter on a regular basis. The Technical Symposium also featured papers from our sister sections in China and India, thanks to Jim McLane and Mallik Putcha.

On the downside, some of our TCs were not active, so a means needs to be devised to prevent section resources from being spent in unproductive directions.

But, all in all, a pretty good year. I would like to thank all the chairmen and chairwomen who volunteered their time and effort to help the Section. I would especially like to thank Michael Laible, Walter Lueke, Bill Geissler and Shirley Brandt of the Technical Symposium Planning Committee, without whose help there would not have been a 17th Annual Technical Symposium. Hope to see you all on May 20 at UH-CL!

Space Station Votes Due

Steve Clifford
Public Policy Chairman

NASA's budget for FY93 is currently working its way through both the U.S. House and Senate. Early indications suggest that the growing federal budget deficit and strong voter opposition to increased taxes are likely to make this year one of the roughest for the space program and in particular for Space Station Freedom. In anticipation of an April 29 vote on the House floor to cancel the Space Station program, the Aerospace Advisory Committee of the Clear Lake Economic Development Foundation, the Legislative and Public Affairs Committee of the Clear Lake Chamber of Commerce, and representatives from a variety of professional and community organizations (including the AIAA) have been coordinating their efforts to organize a massive phone and letter-writing campaign to our elected officials in Washington, D.C. We are also working to develop a longer range strategy to deal with similar crises in the future.

I urge you to write to both your U.S. Senators and to your local congressman to express your support for the NASA budget, and especially Space Station Freedom. Their Washington, D.C. addresses and telephone numbers are:

Address:
The Honorable _____
United States Senate (or United States House of Representatives)
Washington, D.C. 20510

Telephone numbers:

U.S. Senate:	
Lloyd Bentsen (D)	202-224-5922
Phil Gramm (R)	202-224-2934
U.S. House of Representatives:	
Mike Andrews (D, CD 25)	202-225-7508
Jack Brooks (D, CD 9)	202-225-6565
Tom DeLay (R, CD 22)	202-225-5951

Remember, your opinion (and vote) are valued by your elected representatives in Washington—so please call or write. Finally, if you are interested in getting more involved in the effort to save Space Station Freedom, give me a call at 486-2146. If I'm not in, just leave your name and number on my answering machine and I'll return your call as soon as I can.

Student Activities

Michael Begley
Student Activities Chairman

The Student Activities Committee had a very active and successful spring semester this year! Six area schools, from downtown Houston to Pasadena to Dickinson, were visited by AIAA volunteers during Engineers Week. They shared their experience and excitement for engineering with many elementary, intermediate and high school students. Continuing our outreach program, two teachers and four students from the classes we had visited joined us for a fascinating talk with astronaut Story Musgrave at our April meeting.

Our Section served as a special awarding agency at the Houston Science and Engineering Fair. Our volunteer judges evaluated over 60 projects related to aerospace studies from among the 1300 entries present. Several Section members also served as official Fair judges. We presented awards for best junior, ninth grade and senior projects and offered to provide the winners and their families with a guided tour of the space center. After hearing all the depressing stories about the decline of education in our country, it was a real thrill to see so many students taking their own time to participate in this activity. We saw projects ranging from analysis of the space debris environment to designing better airfoils and landing gear to "Can Fish Read?" All the judges had a blast and hope to return next year.

Plans are now in the works for a Texas A&M field trip next September to visit the AIAA student chapter, tour their aerospace facilities, and attend a football game. All you Aggies come on out!

My thanks go out to everyone who has supported these programs this year. I invite all of you that have an interest in stimulating the minds of our future aerospace engineers to join our team and participate in next year's fun activities!

Membership Upgrades and Awards

Max Engert
Honors and Awards Chairman

One hundred forty packages have been sent out to those eligible for advancement to Associate Fellow. Present Associate Fellows who were named as references for those who applied are reminded that their reference forms must be submitted to AIAA Headquarters by May 15.

The Section will soon be nominating to the Clear Lake Council of Technical Societies the following:

Technical Educator of the Year
Technical Person of the Year
Technical Administrator of the Year

If you would like to suggest a nominee, please pass on the name to Zafar Taqvi at 333-6544 or Max Engert at 483-3973 by May 10.

And, if you're eligible, don't forget to submit a Senior Member upgrade application. A copy of the form is attached to this newsletter.

International Space Activities

Dr. Zafar Taqvi/Dr. Larry Friesen
International Space Activities Committee

The ISAC held a brainstorming meeting on Tuesday, March 24. It was decided to continue with the existing activities such as Sister Section liaison, and initiate other new activities when leadership is available.

Jim Oberg of Rockwell volunteered to explore a Sister Section activity with Russia.

Been There, Done That... 25 Years Ago This Month

Joey Kuhlman
Chair, History & Heritage Committee

Once again, history seems to be repeating itself. In the very recent past NASA has sent spacecraft on voyages to distant regions of our solar system. Magellan, in May of 1989, began its trip toward an encounter with Venus. In October of the same year Galileo headed for Jupiter. Most recently, in October of 1990, Ulysses started a swing through the solar system that will bring it to Jupiter and the sun. Only a few weeks ago the COBE satellite startled us with new data on the origins of the universe. Such bold and exciting ventures are not new to NASA. In fact, in this year when Columbus' voyages to the New World are celebrated by festivals and ceremonies in Europe and the Americas, we can celebrate our own first era of deep space exploration.

The *Space News Roundup* reported it this way...

Pioneers VI and VII Gather Data on Earth Magnetosphere, Solar Wind

Some of the more important preliminary results from NASA Pioneer VI and VII interplanetary spacecraft were presented to the American Geophysical Union at its 48th annual meeting last month in Washington, D.C.

The two spacecraft have flown 200 million miles in their orbits around the sun and the scientific information returned to earth includes:

- Limits of earth's protective magnetic envelope, the magnetosphere...
- A better definition of the solar atmosphere...
- Better Data for solar weather forecasts...
- Additional information on the solar wind.

[*Space News Roundup*, May 12, 1967]

Lunar Orbiter IV Begins Mapping Moon Surface in Near-Polar Orbit

The fourth Orbiter mission is a broad photographic survey of the entire front side of the moon, with additional photography of hidden side areas scheduled as well.

the 860-pound Orbiter was launched by an Atlas-Agena D vehicle from Cape Kennedy, Fla., on a flight to the vicinity of the moon which took about 89 hours. Successfully injected on the translunar trajectory, it was designated Lunar Orbiter IV.

The broad, systematic survey of lunar surface features is designed to increase scientific knowledge of the nature and origin of the moon and of processes by which its surface was formed and modified.
[*Space News Roundup*, May 12, 1967.]

Voyager Design Study Contract in Negotiation

NASA will begin negotiating contracts with two industrial firms for feasibility and preliminary design studies (Phase B) of planetary entry capsules for its Voyager Project.

The Martin-Marietta Corp., Denver Division and McDonnell Aircraft Astronautics Co., St. Louis, were chosen from among the four proposers for $500,000 fixed price, three-month contracts.

NASA plans the launch of two Voyager planetary vehicles to Mars in 1973, aboard a single Saturn V rocket.
[*Space News Roundup*, May 26, 1967.]

Plan Ahead

The deadline for inputs for the September issue of *Horizons* is August 21. You can send them either to Steve Zobal at MDSSC/B115 or to Lou Livingston, 1911 Pepper Hill, Houston, TX 77058-2231.

The Members Speak Out

Why Women Should Support Space Station Freedom

One common stereotype featured in movies and on television is the "rocket scientist"—a brainy, geekish white male sporting tape on his heavily framed glasses and a pocket protector tucked religiously in his white shirt. This stereotype came about because at one time the space program and our aerospace industry were almost exclusively the domains of men.

Times have changed. Now women serve in every capacity and at all levels of NASA, from engineering and program management to the astronaut corps. In the private sector, women make up one-fourth of our aerospace work force. Many of these women are among the 100,000 workers across the country who are developing Space Station Freedom. They depend on this program for their livelihoods, support of their families, and for professional and personal gratification.

But all women stand to gain from Space Station Freedom, not just those whose jobs are connected to it. The National Institute of Health is interested in space biomedical research, particularly those studies dealing with the physical problems of aging. Space Station Freedom will provide important medical research into such areas as osteoporosis which affects over 25 million Americans, mostly women.

As parents, women should support Space Station Freedom because, like the entire space program, it offers their sons and daughters professional careers in science, engineering, space medicine, computers, and more. This is especially important for young girls who are discouraged in school from taking science and engineering courses as recent publicized studies have shown.

Perhaps the most compelling reason women should support Space Station Freedom is this: The country or countries that colonize space will determine the status of women in the future. It may not be perfect, but the American way of life certainly beats the Japanese and Russian standards of living for women.

Cynthia Griffin
McDonnell Douglas

Events

Conference Set

Dr. Hatice Cullingford
Chair, Human Support TC

A conference on Human Rating for Space Exploration has been organized under the sponsorship of the Johnson Space Center and the AIAA Houston Section. The purpose of the conference is to bring rigorous multidisciplinary approaches to the business of human rating and promote progress in space exploration.

The conference will be held May 29, 1992, at the JSC Gilruth Center from 8:00 AM to 5:00 PM. For information or reservations, please contact Dr. Hatice Cullingford at 283-8229 or fax 283-5818.

ISAAF Update

Chris Burmeister
International Space Year Committee

The planning of the International Space Activities Awareness Fair (ISAAF), set for Tuesday, July 14, continues. The ISAAF will be held at the JSC Gilruth Center from 9:00 AM to 5:30 PM. The fair is free to the public. We invite you to come and speak with representatives of space-faring nations. As of press time, we have commitments from 15 countries. Brochures, pictures or table models will be shown by Austria, Belgium, Brazil, Canada, the Commonwealth of Independent States, Finland, France, Germany, India, Japan, Pakistan, Switzerland, Taiwan, the United Kingdom and the United States. By June, the name list will be set. For more information, check the flyer in this month's *Horizons* or call Chris Burmeister at 333-6866.

UH-CL Courses Announced

The University of Houston-Clear Lake announces two courses to be offered at UH-CL this summer. Registration is Thursday, April 30, in the lobby of Bldg. 45, JSC, from 10:30 AM to 2:00 PM. Classes begin Monday, June 8.

INDE 6380/04508, Topics in Industrial Automation, L. Schulze. 6:00-8:00 PM Monday/Wednesday, 1-306 Bayou Bldg.

ELEE 6372/05291, Digital Computer Arithmetic, C. Koc. 4:00-6:00 PM Tuesday/Thursday, JSC Bldg. 45.

Former Administration Official to Speak on Politics of Space Station

Steve Clifford
Chairman, Public Policy Committee

Dr. Brenda Forman, currently with Lockheed and a former senior analyst and advisor with the Office of the Secretary of Defense and the Commerce Department, will be giving a talk on "The Politics of Technology: The Saga of the Space Station" at an AIAA Public Policy luncheon tentatively scheduled for Wednesday, June 10, in the Gilruth Center ballroom.

Dr. Forman joined Lockheed Corporation in October 1983 as Corporate Director, Marketing Policy, where she has been actively involved in supporting and furthering U.S. civil space policy and the international development of the space frontier. She received her B.A. at Barnard College in New York City and holds a Ph.D. in Political Science from the City University of New York.

Dr. Forman came to Lockheed after five years at the Commerce Department, where she was the Director of the Division of Policy Planning in the Office of Export Administration. During her last year at Commerce, she was Senior Technology Policy Advisor under the Assistant Secretary of Commerce for Trade Development.

From 1973 to 1979, she was a senior analyst in the Office of the Secretary of Defense, Directorate of Policy Planning, International Security Affairs, where she worked on major policy issues in the areas of security assistance and East-West technology transfer.

Earlier, she spent four years at the MITRE Corporation in Washington, D.C., as a member of the technical staff, working on a wide variety of projects for various elements of the Defense Department.

Dr. Forman authors a monthly column, now in its fourth year, entitled "Washington Watch." She has played a major role in the development of the International Space University (ISU). She is a member of Phi Beta Kappa and a recipient of the Department of Defense Distinguished Civilian Service Award. She was an Honorable Mention honoree at the 27th Annual Wright Brothers Banquet, "The Wright Women," in 1989, and is a member of the Board of Governors of Spacecause.

For confirmation of the date, time and ticket prices of the luncheon, call Steve Clifford by noon Friday, June 3, at 486-2146.

Also Noted

Hubble After Two Years

Andrew L. Klausman

On April 24, astronomers celebrated the second anniversary of the Hubble Space Telescope's (HST) launch. During the anniversary week, NASA unveiled a range of HST images showing objects in our Solar System and then moving out to quasars billions of light years away.

Hubble was launched with all the hype befitting a $2.1 billion space telescope. Despite early difficulties with software and solar arrays, which shake during the night-to-day orbital transitions, everything appeared to be going smoothly until the discovery that HST's primary mirror was incorrectly shaped.

For months, some astronomers believed that Hubble would be useless until repaired. As images of Supernova 1987A and a giant storm on Saturn appeared, many scientists re-thought their earlier opinions on the observatory's usefulness. With the latest batch of discoveries, there is little doubt that Hubble can collect valuable information about the universe we live in.

At an anniversary press conference, astronomers began by showing the first ultraviolet images of Jupiter's northern aurora or "northern light." The images were taken as the spacecraft Ulysses flew past the giant planet. By combining the Hubble data with the information returned by the flyby, scientists hope to learn even more about the magnetic fields around Jupiter.

Based on the data already returned, astronomers are confident that the source of the particles which generate the aurora is not the sun. While Earth's aurora is caused by interactions with the solar wind, Jupiter's appears to be related to particles from one of the planet's giant moons, Io.

Io is the most volcanic body in the solar system. The sulfur volcanoes on its surface are powerful enough to send material into orbit around Jupiter. These charged particles eventually get trapped in Jupiter's giant magnetic field, generating the aurora seen by Hubble.

Astronomers then moved out to the Large Magellanic Cloud and an "object" called R136A. Ten years ago R136A was thought to be a very large star about 100 times more massive than our sun. When Hubble first imaged R136A in August, 1990, it was immediately apparent that R136A was a group of stars.

It was feared that the primary mirror's spherical aberration would prevent any further findings about R136A. However, engineers have been working on improving Hubble with new onboard software and new ground-based image reconstruction techniques. Using the latest photometric reconstruction software, scientists have found over 50 large stars where the R136A "star" was though to be.

Hubble has even imaged a star in the final phases of "life." NGC 2440 was photographed in preparation for work with the Goddard High Resolution Spectrograph, another HST instrument. What scientists saw when reviewing the image was the hottest star ever found, with temperatures at about 360,000° Fahrenheit. The star had already shed some material as it started the red giant phase of stellar evolution.

Finally, delighted astronomers showed an image of a quasar which was directly behind a nearby spiral galaxy. The center of the galaxy bent the light of the quasar into four distinct images. This not only provides further proof of Einstein's gravity lens concepts, but also allows for a precise measurement of the spiral galaxy's mass. The center of the galaxy appears to contain mass 10 billion times that of our sun.

The bending of light also allowed for additional measurements to be taken regarding "dark matter." This missing matter is theorized to have started the

(continued on page 8)

Hubble After Two Years (continued)

formation of galaxies billions of years ago. Thanks to the orbiting observatory, astronomers are confident that this dark matter is not concentrated, but must be spread apart.

The data from Hubble will only become more impressive if Hubble project managers are successful. A November, 1993, Shuttle mission is planned to correct many of Hubble's discrepancies. By replacing the high speed photometer with a corrective lens device, engineers will compensate for the observatory's misshaped primary mirror. When this is combined with the progress made in image reconstruction, Hubble may have an even higher sensitivity than originally planned prior to the 1990 launch.

Astronaut Story Musgrave has been selected as payload commander for the flight. The mission will involve three extravehicular activities as the observatory's solar arrays, gyroscopes, and some of its instruments are replaced. Only time will tell, but NASA and astronomers believe that even more amazing discoveries await the repaired Hubble Space Telescope.

AIAA Calendar

May

20 - Wednesday
17th Annual Technical Symposium.
UH-CL Bayou Building, 8:00 AM-5:00 PM.
Members $2, others $3.
Information: Bill Best, 283-0261.

29 - Friday
Conference on Human P... ...pace Exploration.
JSC Gilruth Cen... ...:00 PM.
Informati... POSTPONED ...e Cullingford, 283-8229.

June

4 - Thursday
Executive Board meeting.
Lockheed Plaza 4, 5:00-6:30.
Information: Dr. Zafar Taqvi, 333-6544.

10 - Wednesday
Public Policy luncheon and forum.
"The Politics of Technology: The Saga of Space Station," Brenda Forman.
Information: Steve Clifford, 486-2146.

11 - Thursday
Honors and Awards Banquet.
JSC Gilruth Center, 5:30/6:30/7:30.
Information: Norm Chaffee, 483-9995.

14 - Tuesday
International Space Activities Fair (ISAAF).
JSC Gilruth Center, all day.
Information: Chris Burmeister, 333-6866.

September

24 - Thursday
Monthly dinner meeting.
JSC Gilruth Center, 5:30/6:30/7:30.
Information: Norm Chaffee, 483-9995.

CLCTS Calendar

May

28 - Thursday
IEEE/CLCTS Videoconference.
"Environment Issues and Impact to Engineers."
JSC Gilruth Center, 10:00 AM-2:00 PM.
IEEE members $50, CLCTS $70, non-affiliated $80, students $15.
Information: Andy :Lindberg, 483-1474.

June

2 - Tuesday
American Society for Quality Control (ASQC).
Program TBA.
American Host Motel, 2020 NASA Rd. 1, 5:00/6:00/7:00.
Information: Hank Williams, 338-2676.

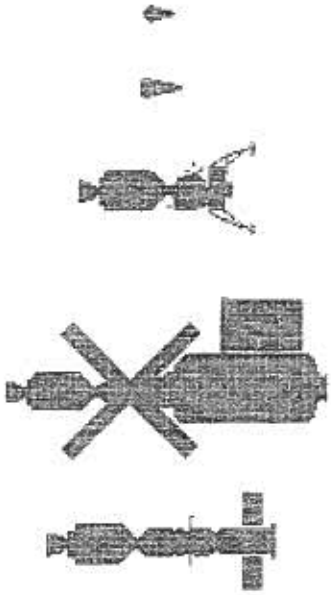
12 - Friday
CLCTS Annual Awards Banquet.
JSC Gilruth Center, 5:30 PM.
Information: Andy Lindberg, 483-1474.

Please send information about your meetings to:
Bill Best, RSOC/R12A-130 283-0261
600 Gemini
Houston, TX 77058

AIAA Horizons

OUTSTANDING SECTION AWARD

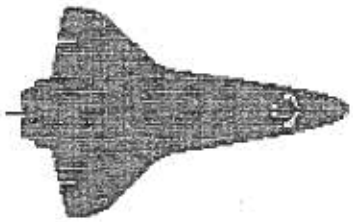
1975-1976
1976-1977
1979-1980
1980-1981
1981-1982
1983-1984
1986-1987
1988-1989



SECTION SPECIAL EVENT AWARD

1971-1972
1972-1973
1979-1980
1981-1982
1983-1984
1985-1986
1988-1989

AIAA Houston Section
P.O.Box 57524
Webster, TX 77598



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Dr Larry J Friesen
[redacted]
League City TX 77573-9220

ZAFAR TAQVI
CHAIRMAN 1991-92

American Institute of Aeronautics and Astronautics

HOUSTON SECTION P.O. BOX 57524 WEBSTER, TEXAS 77598

SPECIAL INTERNATIONAL SPACE YEAR LUNCHEON

Friday, May 15, 1992

SPACE TECHNOLOGY FOR REPAIRING EARTH'S BIOSPHERE

JAMES OBERG
AEROSPACE AUTHOR

PROGRAM/PRESENTER

The known threats to Earth's biosphere continue to increase in number: there are notorious manmade effects such as "global warming", desertification, ozone shield depletion, along with the classic concerns with natural disasters such as ice ages, asteroid impacts, volcanism, and many others. Overconcentration on recent artificial impacts has led to the simplification that merely termination and reversing human disturbances will restore some pre-tecnology "Eden" on Earth. A closer reading of Earth's climatic history, however, suggests that active technological intervention may be required not only to "clean up" human damage but to forestall or repair the kinds of severe natural damages which can be expected. Space technology will play a key role in this process, from detection to understanding to implementing.

James Oberg has been a space engineer for twenty years and a space futures speculator/ author for even longer. In 1981 he published New Earths, the world's only non-fiction book about "Terraforming", the science fiction term for planetary engineering. He is an Associate Fellow of the AIAA and a former counsellor in the Houston chapter.

LUNCHEON MEETING

REGISTRATION: 11:00-11:30
LUNCHEON: 11:30
PROGRAM: 12:15

MENU: TEXAS BAR-B-Q

MEMBERS & SPOUSES	$7.00
NONMEMBERS	$8.00
STUDENTS/YOUNG MEMBERS	$6.00

AIAA HOUSTON SECTION MEETINGS
ARE HELD AT THE JOHNSON SPACE CENTER
ROBERT R. GILRUTH RECREATION CENTER

FRANKIE HAP	SANDY BARRY	ARDELL BROUSSARD	CARROLL ROBINSON	SARAH LEGGIO
333-6064	845-0735	283-4214	283-6000	282-3160
LOCKHEED	COLLEGE STATION	McDONNELL DOUGLAS	EAGLE	BENDIX

NOTE: RESERVATION DEADLINE IS TUESDAY, MAY 12, AT NOON .
ANY CANCELLATIONS ARE REQUIRED PRIOR TO DEADLINE. NO-SHOWS WILL BE BILLED.
ALL ARE WELCOME.
LUNCHEON RESERVATIONS ARE NOT REQUIRED FOR ATTENDING THE PROGRAM ONLY.

American Institute of Aeronautics and Astronautics
HOUSTON SECTION P.O. BOX 57524 WEBSTER, TEXAS 77598

HOUSTON SECTION
17TH ANNUAL TECHNICAL SYMPOSIUM

TAKING THE LEAD

CO - HOSTED BY AIAA HOUSTON AND
THE UNIVERSITY OF HOUSTON - CLEAR LAKE
HIGH TECHNOLOGIES LABORATORY

WEDNESDAY, MAY 20, 1991
AT THE UNIVERSITY OF HOUSTON - CLEAR LAKE

30th Anniversary
Houston Section

General Chairman & Opening Speaker
Robert F. Thompson
Vice President & General Manager
Space Station & Houston Divisions
McDonnell-Douglas Space Systems Co.

Plenary Speaker
Dr. Carolyn Sumners
Director of Astronomy & Physics
Houston Museum of Natural History

8:00 Registration (Bayou Building First Floor)
$2 AIAA Members, $3 Nonmembers

8:30 - 9:10 Opening Session (Bayou Building Auditorium)

FEATURING:

BOB THOMPSON

9:20 - 11:40 Concurrent Symposium Morning Sessions
(Presentations will start at 20 minute intervals)

11:40 - 1:00 Lunch Break
(Food available at the UHCL cafeteria)

1:00 - 3:40 Concurrent Symposium Afternoon Sessions

3:50 - 4:50 Plenary Session (Bayou Building Auditorium)

FEATURING:

Dr. CAROLYN SUMNERS

"TOYS IN SPACE"

5:00 Plenary Reception
(Bayou Building Atrium I)
OPEN TO ALL SYMPOSIUM ATTENDEES

For more information contact:
Program Chairman
BILL BEST
(AIAA-Vice Chairman, Technical)
RSOC/R12A-130
283-0261

AIAA 17th ANNUAL TECHNICAL SYMPOSIUM
TECHNICAL SESSION INDEX
UNIVERSITY OF HOUSTON-CLEAR LAKE, BAYOU BUILDING (1st Floor)
MORNING SESSION 9:20 AM TO 11:40 AM

OPENING PROGRAM: 8:30 - 9:10 A.M. BAYOU BLDG. AUDITORIUM (THEATER)

SESSION NUMBER	SESSION TITLE	ROOM NUMBER	SESSION CHAIRPERSON
1	SPACE STATION FREEDOM	1-220	
2	STRUCTURES AND MATERIALS I	1-222	
3	MANAGEMENT	1-226	
4	COMMUNICATIONS	1-130	
5	INTERNATIONAL SPACE ACTIVITIES	1-311	
6	HUMAN SUPPORT	1-315	
7	SPACE EXPLORATION INITIATIVE	1-316	
8	PROPULSION AND ENERGY SYSTEMS	1-314	

INFORMATION & SPACE ART Atrium II

AIAA 17th ANNUAL TECHNICAL SYMPOSIUM
TECHNICAL SESSION INDEX
UNIVERSITY OF HOUSTON-CLEAR LAKE, BAYOU BUILDING (1st Floor)
AFTERNOON SESSION 1:00 PM TO 3:40 PM

SESSION NUMBER	SESSION TITLE	ROOM NUMBER	SESSION CHAIRPERSON
9	SPACE STATION FREEDOM ASSEMBLY	1-220	
10	STRUCTURES AND MATERIALS II	1-222	
11	MANAGEMENT AND SPECIAL TOPICS	1-226	
12	GUIDANCE, NAVIGATION AND CONTROL	1-130	
13	AEROSPACE THERMAL DYNAMICS	1-311	
14	SPACE SYSTEMS	1-315	
15	ROBOTICS	1-316	
16	COMPUTER AND SOFTWARE SYSTEMS	1-314	
17	SIMULATION AND MATH MODELLING	1-317	

PLENARY SESSION: 3:50 - 4:50 BAYOU BLDG. AUDITORIUM (THEATER)
RECEPTION: 5:00 - 6:00 ATRIUM I COURTYARD

SESSION 1

SPACE STATION FREEDOM

CHAIRPERSON:

ROOM 1-220

AUTHOR	TITLE OF PRESENTATION	TIME
ALLMAN, M.C.	Determination of the Performance-Optimum SSF Orbital Inclination for SSP Support Missions	
CARMODY, C; BLUITT, J. E.; LENNINGTON, K.; MUHM, P.	The SS Freedom Flight Software Build Process	
CHAN, C.Y.	Aerodynamic coefficient of the Rotable Solar Panels for SS FREEDOM	
LEHMAN, R. A.	Software Engineering Contructs of a Command & Control Architecture for the SS Freedom	
McDONALD, B. M.; PUCKETT, R. J.	Effects Of An Off-Nominal Atmosphere On The SSF Mission Planning and Design	
MUNOZ, T.; TEPLITZ, S.	Delivery Augmentation for SS Freedom Resupply/Return Using the National Launch System	
TEPLITZ, S.; MUNOZ, T.	Integrated Operations and Logistics for Space Station Resupply: "It's Not Just A Mass-To-Orbit Problem"	

SESSION 2

STRUCUTRES AND MATERIALS

CHAIRPERSON:

ROOM 1-222

AUTHOR	TITLE OF PRESENTATION	TIME
EDELSTEIN, K. S.	Hypervelocity Impact Damage Tolerance of Fused Silica Glass	
EDELSTEIN, K. S.	Fractional Factorial Techniques in Hypervelocity Impact Damage Tolerance Testing	
HENKENER, J. A.	The Mechanical Behavior of Cross-Rolled Beryllium Sheet	
METTU, S. R.; SHIVAKUMAR, V; *FORMAN, R.G.	Stress Intensity Factors For Surface Cracks In Cylindrical Vessels	
METTU, S. R.; SHIVAKUMAR, V.; FORMAN, R. G.	Stress Intensity Factors For Surface Cracks In Flat Plates	
YEH, F.; METTU, S. R.; FORMAN, R. G.	Analysis of Through Cracks from Holes in Flat Plates usiing the p-version Finite Elements Model	

SESSION 3

MANAGEMENT

CHAIRPERSON:

ROOM 1-226

AUTHOR	TITLE OF PRESENTATION	TIME
BAUCH, G. T.	Space Shuttle Configuration Managment Change Process Concept	
CHIMENE, B. C.	Lessons Learned From NASA's Past Programs Integration, Test and Verification	
CHULLEN, C.; LEIGHTON, A. E.; AUTHIER, A. W.; QUINTELA, D. E.	Innovations In Technical Contract Management Release 2.0	
KUSIK, E. G.	Emergence of Empowerment Engineering Discipline	
KUSIK, E. G.	Empowerment In Organizations	
KUSIK, E. G.	Proactive Management Partnerships For Assuring The Integrity and Availability of Automated Information Systems (AISs)	
ROBERTS, M.; MISTREE, Dr. F.	Decision Based Engineering	

SESSION 4

COMMUNICATIONS

CHAIRPERSON:

ROOM 1-130

AUTHOR	TITLE OF PRESENTATION	TIME
ADKINS, A.	SS FREEDOM Assembly Contingency Subsystem Power Flux Density	
KWON, H.	PN Code Lock Detector Performance In A Linear, A Soft, or A Hard-Limiter Transponder Under CW RFI or Pulse RFI Environment	
LU, B. P.; HWU, S. U.; PANNETON, R.	Multipath Effects of Space Station Structure On S-Band Omni Antenna Performance	
NIKOO, E.; TU, K. DR.; HOOD, L.; COOK, J.	Communications Forward Link Design Of The SS FREEDOM Assembly Contingency Subsystem	
SPAHN, C. J.; HADDICK, C. M.	A Shuttle Uplink Video Capability	
TAQVI, S. Ph.D	Communications Support of Future Space Initiative Projects By Deep Space Network	
TAQVI, S. Ph.D.; CHEN, H.; EARLY, T.	A Communications Subsystem For Common Lunar Lander (CLL)	

SESSION 5

INTERNATIONAL SPACE ACTIVITIES

CHAIRPERSON:

ROOM 1-311

AUTHOR	TITLE OF PRESENTATION	TIME
DULA, A	Possible Causes & Consequences of NASA's Inability to Accurately Asses Russian Space Technology	
HOLCOMG,B.; MICKLE, M.	An International Mars Mission: The International Space University 1991 Summer Session Design Project	
NORTH, S. A.	The International Space University: A Pioneering Forum for Space Education	
OBERG, J.	Development and Trends in the Russian Space Program	
REBMANN, J.; RISHIKOF, B.	The International Asteroid Mission	
	Digital Autopilot Using Self Tuning Techniques	

SESSION 6

HUMMAN SUPPORT

CHAIRPERSON:

ROOM 1-315

AUTHOR	TITLE OF PRESENTATION	TIME
KENNEDY, K. J.	Dust Control Research for SEI	
KENNEDY, K. J.	An Inflatable Habitat Concept for SEI	
KUMAR, K. M.D.; NORFLEET,W. M.D.; LaROCHELLE,T. M.D.	Human Acceleration Tolerance After Long Duration Space Flights	
POWELL, M.; WALIGORA, J.	Joint Pain and Doppler-Detectable Bubbles In Altitude (Hypobaric) Decompression	
POWELL, M.; NORFLEET, W.; WALIGORA, J.	Transcranial Doppler Detection of Gas Bubbles In The Middle Cerebral Artery During Hypobaric Decompression	
POWELL, M.	Decompression In Simulated Micrgravity; Bedrest And Its Influence On Stress-Assisted Nucleation	
WALYUS, D. R.; VEDDER, J.D.; TABOR, J. L.	Orbital Debris Hazard For Electric Propulsion Earth-Escape Trajectories	
SEGA, R. M.; JUSTIZ, C. R.; DALTON, C.; IGNATIEV, A.	The Induced Environment Around Spacecraft in Low Earth Orbit	

SESSION 7

SPACE EXPLORATION INITIATIVE

CHAIRPERSON:

ROOM 1-316

AUTHOR	TITLE OF PRESENTATION	TIME
CLUBB, G. A.; PIRKER, D. M.	Control of Rotating Structures for Artificial Gravity Applications	
CRISWELL, Dr.	Lunar Power Demostration System, SEI And The Initial Manned Lunar Base	
THOMPSON, Dr.; CRISWELL, Dr.	Economic Comparison Of Large Sacle Terrestrial And Lunar Based Power Systems	
WEED, D.; McCLEARY, B.; WOOD,R.	Mars Excursion Vehicle Design and Analysis	
ZIPAY, J. J.; De La FUENTE; NAGY, K. Ph.D; CASTRO, E.O.	Proposal For A Shuttle Derived Vehicle (SDV) Launched Manned Lunar Mission	
ZIPAY, J.J.; CASTRO, E. O.; VALLE, G. D.	Structural Testing of the Aeroassist Flight Experiment (AFE) Aerobrake and Ground Support Equipment	
JIANG, S.; LONG, S.; CRISWALL, Dr.	Survey of Beaming Properties of an Extremely Large Phased Array on the Limb of the Moon	

SESSION 8

PROPULSION AND ENERGY SYSTEMS

CHAIRPERSON:

ROOM 1-314

AUTHOR	TITLE OF PRESENTATION	TIME
DAVIS, S.F.; SPONAUGLE,S.; EVERETT, S. F.	A Performance Comparison of Nuclear Electric and Nuclear Thermal Propulsion For Mars Cargo Missions Across The 15-17 Year Synodic cycle	
EVERETT, S. F.	A Technique for Sizing Liquid Hydrogen Tanks for Nuclear Thermal Propulsion Missions To Mars	
PESEK, D.	Piloted Missions To Mars Using A Nuclear Electric Propulsion Vehicle	
SPONAUGLE, S.	Fast Mars Transits Using A Common Nuclear Thermal Propulsion Piloted Transfer Vehicle Concept	
TONG, R. M.	Spacecraft Electrical Depth of Discharge Analysis	
	The Flight Test of Chinese GaAs Solar Cell On Satellite	

SESSION 9

SPACE STATION FREEDOM ASSEMBLY

CHAIRPERSON:

ROOM 1-220

AUTHOR	TITLE OF PRESENTATION	TIME
BARTLETT, S. T.	SS FREEDOM Assembly Sequence Development Process	
FRICK, D.	Assembly Operations For The Construction Of SS FREEDOM - Flight MB-5	
KOPPPLIN, J.	Assembly Operations For The Construction Of SS FREEDOM - Flight MB-2	
LOUDENSLAGER	Assembly Operations For The Construction Of SS FREEDOM - Flight MB-1	
MORROW, J.	Assembly Operations For The Construction Of SS FREEDOM - Flight MB-4	
PEPPIN, S.	Assembly Operations For The Construction Of SS FREEDOM - Flight MB-3	
RIGSBY, K.	Assembly Operations For The Construction Of SS FREEDOM - Flight MB-6	
SCHULTZ, J.	Assembly Operations For The Construction Of SS FREEDOM - Flight MB-7	

SESSION 10

STRUCTURES AND MATERIALS II

CHAIRPERSON:

ROOM 1-222

AUTHOR	TITLE OF PRESENTATION	TIME
BARRETT, R.; ZOLENSKY, M.; HORZ, F.; LINDSTROM, D.; GIBSON, E.	Suitability of Silica Aerogel As An Interplanetary Dust Particle Collection Medium	
BERNHARD, R.; HORZ, F.	Microanalysis of Spacecraft Surfaces Exposed to LEO Environments	
JANOFF, D.; PEDLEY, M. D.	Effectiveness Of Halon 1301 As A Fire Extinguishment In An Oxygen Enriched Atmosphere	
LUEKE, W. J.	Completion Of The NASA/JSC 10 MW ARMSEF, Building 222 FY89 CofF Project	
MARTINEZ, J.T.; SUPRIS, D.E..	Electromagnetic Interference Coating	
MONTELEONE, F.	Plastic Films/Laminates and Closures For Aerospace Packaging Applications	
NUCHIA, E. L.; JANOFF, D.	Changes In NASA Handbook 8060.IC on Flammability, Odor, and Offgassing Requirements and Test Procedures for Materials In Environments That Support Combustion	

SESSION 11

MANAGEMENT AND SPECIAL TOPICS

CHAIRPERSON:

ROOM 1-226

AUTHOR	TITLE OF PRESENTATION	TIME
KLUKSDAHL,N.; MUZNY, L.; CALLEN, J	An Extensible, Layered Model for Aerospace Control Centers	
KURTZMAN, DR. C. R.	COMET Command and Resource Scheduling	
SANTOS, D. L.; HUNSUCKER, Ph.D, P.E.	Development Of Lower Bounds For Flow Shop Environments	
SATTERWHITE, S	Shifting To A Commercial Space Industry	
SHAH, J. R.; HUNSUCKER, Ph.D, P.E.	Barriers To Operations	
TREBES, J.; PEREZ, C. H.	Our Future In Space As Proposed by Six Presidential and National Space Comissions, 1969-1991	
VOSS, S.; HUNSUCKER, J. L. PhD.	Evolution of the Space Shuttle Flight Production Process	

SESSION 12

GUIDANCE, NAVIGATION AND CONTROL

CHAIRPERSON:

ROOM 1-130

AUTHOR	TITLE OF PRESENTATION	TIME
CRAFT, J. W. Jr	Method For Filter Design	
EVANS, J.	Shuttle Autonomous Insertion and Deorbit Targeting	
JEZEWSKI, D. J.	Solving The J2-Perturbed Lambert Problem	
MULDER, T. A.	Autonomous Rendezvous Trajectory Planning	
PORITZ, D. PhD	Numerical Product Integration of the Attitude Equation	
RISHIKOF, B.H.; McCORMICK,B.; PRITCHARD, R.; SPONAUGLE, S.	SeGRAm: A Practical Tool For Spacecraft Trajectory Optimization	
SIEWART, S.; HOLCOMB, B.	Simulation for Monte Carlo Analysis of Aeroassist and Reentry Trajectory Spacecraft (SMAARTS)	
VARNER, C. C.	Comet Rendezvous And Navigation	

SESSION 13

AEROSPACE THERMAL DYNAMICS

CHAIRPERSON:

ROOM 1-311

AUTHOR	TITLE OF PRESENTATION	TIME
BOUSLOG, S. A.; ROCHELLE, W. C.; CARAM, J. M.; ONDLER, R. M.	Aerothermal Analysis For An Apollo-Scaled Vehicle For Lunar Return Entry Part I I-Convective and Radiative Heating Environments	
MOFFITT, H. II	Real Time Remote Thermal Imaging Of The Space Shuttle	
REDDY, N. M.; SRINIVASA, P.	Experimental Investigations of Hypersonic Flow Over A Bulbous Heat Shield At Mach Number 6	
ROCHELLE, W. C.; TAM, L. T.	Aerothermal Analysis For An Apollo-Scaled Vehicle For Lunar Return Entry Part I-Overview and CFD Applications	
ROCHELLE, W. C.; TIING, P. C.; TAM, L. T.	Two-Layer Aerothermal Analysis For An Aerobraking Vehicle	
SHAPPEE, T.	Evaluation of Heating Trends on Space Shuttle Orbiter	
WANG, K.C.; HUGHES, J.R.; BOUSLOG, S. A.	Modeling Rocket Plumes Radiative Heating Using Backward Monte-Carlo Method	
WILLIAMS, S. D.; GIETZEL, M. M.; CURRY, D. M.	Aerothermal Analysis For An Apollo-Scaled Vehicle For Lunar Return Entry Part III-Thermal Protection System Evaluation	

SESSION 14

SPACE SYSTEMS

CHAIRPERSON:

ROOM 1-315

AUTHOR	TITLE OF PRESENTATION	TIME
BUMP, B. P.; BERTSCH, P. J.	Development Of Space Shuttle Re-entry Techniques For Enhancing Down/Crossrange Preformance	
DORAN, V.	Analysis of Earth-Based Navigational Capability In Support of Manned Mars Missions	
FRAIETTA, M.	Candidate Trajectory For Lifesat Mission: "Double Lunar Swingby"	
GREESON, D.	Lunar Transfer Vehicle Avionics and Software	
GREESON, D.; BALL, J.	Lunar Aerobraked Vehicle Operations & Cost Assessment	
PETRO, A. J.	Scale Models as Engineering Tools In Spacecraft Design	
SAHA, H.	Astrodynamics Standards	
STAAS, S. K.	Proximity Operations Considerations Affecting Spacescraft Design	

SESSION 15

ROBOTICS

CHAIRPERSON:

ROOM 1-316

AUTHOR	TITLE OF PRESENTATION	TIME
BHATTA, M. G.; TRAN, T.	Equations of Motion for the Seven Joint Mobil Servicing Center	
BICQUART, P.	Inverse Kinematics For The 7-Joint Space Station Remote Manipulator System	
CIANGARU, G. PhD	Forward Dynamics of Constrained Robotic Manipulators	
GHOSH, T. K.	Space Station Manipulator Dynamics	
GHOSH, T. K.	SRMS Capture Dynamics	
READ, D. A.	MAGIK Robotics Simulation: A Window on Space Station Freedom	
VEERASAMY, S.	RMS Augmented Damping	

SESSION 16

COMPUTER AND SOFTWARE SYSTEMS

CHAIRPERSON:

ROOM 1-314

AUTHOR	TITLE OF PRESENTATION	TIME
ALDRIDGE, J.; VOMBRACK, E.	FuzzyCLIPS: Combining Fuzzy Logic with Expert Systems	
ALDRIDGE, J.; YASHVANI, J.	Adaptive Fuzzy Control for Autonomous Space Systems	
FRERE, B. A.	Job Abend Analysis System (JAAS)- Hyperclips And Its Role In Space Shuttle Reconfiguration	
MINOR, C. L.	The Institutionalization of Information Systems (A New Management Paradigm)	
NOTEBOOM, R. J.; SHIREMAN, K.	Planning for Change in the Space Shuttle Flight Software - The Simulation Planning Working Group	
PUTCHA, M.; ENOS, V. J.	ADF Software Development Methology and Environment	
SMITH, F. P.	VXI-Bus Based Automated Test Systems	
STROM, S. W.	"Hybrid" Implementation Of An Object-Oriented Design Using C And Unix	
PUTCHA, M.; JAGEN, T.	ADF Software Development Environment and Tools	

30th Anniversary
Houston Section

SESSION 17

SIMULATION AND MATH MODELLING

CHAIRPERSON:

ROOM 1-317

AUTHOR	TITLE OF PRESENTATION	TIME
	Analytical Step-size Control by Uniformization of Propagation Error Growth	
GOVEIA,	Simulation of Shuttle CRT Displays on the Macintosh	
HAYNES, C. S.	A Nickel Hydrogen Battery Model	
JACOBS, R. J.; FEATHERSTONE, C. T.	Automating Simulator Operations	
MATHUR, S. N.	Fourier Transforms of Quaterionic Functions	
PARK, Y. W.	Linear Error Covariance Propagation Tool Development	
PATE, M.	A Multimedia Approach to Spacecraft Visual Simulation	
	An Analytical Study of Test Facility In Hardware-In-The-Loop Simulation Sytem For Homing Missile	

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1. Name DR. S. Z. TAQVI Title Adv. Systems Engg. Specialist

Address LESC, C-80, 2400 NASA RD 1 Phone (713) 333-6544

City HOUSTON State TX Zip Code 77058

The applicant is qualified as a Senior Member. Signature S M Taqvi Date 10/15/91

SM ☐ AF ☒ F ☐ HF ☐

2. Name JAMES T. VISENTINE Title STS EXPERIMENTS MANAGER

Address NASA JSC, ESS Phone (713) 483-8923

City HOUSTON State TX Zip Code 77058

The applicant is qualified as a Senior Member. Signature James T. Visentine Date 10/15/91

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