

AMERICAN INSTITUTE OF AERONAUTICS AND ASTRONAUTICS  
HOUSTON SECTION  
NEWSLETTER



December 1981

IN THIS ISSUE

- o Editorial..... 2  
Those Firsts (Kitty Hawk  
Got Off the Ground; STS  
Got Off the Earth!!!)
- o Mini Symposium, 1982..... 2  
Update; Chairmen Identified  
Alert to Authors
- o Space Policy White Paper  
Coming..... 3  
Dr. Victor Reis  
Addresses AIAA
- o Council Election Coming..... 4  
...Comments requested
- o Houston Members Appointed  
to National TC's..... 5
- o Technical Corner..... 5  
...Advisory
- o Engineering = Jobs + \$..... 5
- o Committee Reports..... 5  
Continuing Education..... 5  
UH/CLC Offers Courses
- Public Affairs..... 6  
Student Tours: 80 from  
TAMU
- Three Conferences in San  
Diego..... 6  
FM, G&C & Astrodynamics
- Student Affairs..... 7  
Get Away Specials  
Sponsored
- Young Member Committee..... 7  
Wanted: New Members
- o Mental Exercise Department.... 8  
Another "Cruncher"
- o Calendar of Events..... 9

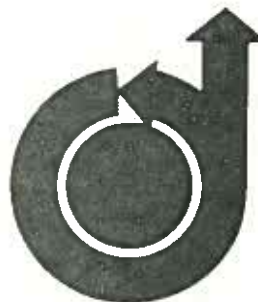
The Houston Section NEWSLETTER is published periodically at the Houston Offices of IBM by the Houston Section AIAA. Address all communications to Carolynn Conley, Associate Editor, NASA-JSC, Mail Code CH4, Houston, Texas 77058.

W. A. Stewart, Editor



AIAA HOUSTON SECTION 1981-1982 DINNER MEETINGS  
HELD AT JOHNSON SPACE CENTER  
ROBERT R. GILRUTH RECREATION CENTER

Social: 6:00  
Dinner: 7:00  
Program: 8:00



AMERICAN  
INSTITUTE OF  
AERONAUTICS AND  
ASTRONAUTICS

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

**TUESDAY- JAN. 19, 1982**



## SPACE LAW

S. NEIL HOSENBALL  
GENERAL COUNSEL  
NATIONAL AERONAUTICS AND  
SPACE ADMINISTRATION  
WASHINGTON, D. C.

FOR DINNER RESERVATIONS, CALL:

DOLIA	JOANNE	CINDI	NANCY	SYLVIA	ENTREE BEEF MANDARIN
333-6161	333-2030	488-5660	483-3995	845-7541	MEMBERS & SPOUSES \$7.50
(Lockheed)	EXT. 211	EXT. 211	(NASA)	(College Station)	NON-MEMBERS \$8.50
	(Rockwell)	(MDTSCO)			STUDENT DISCOUNT \$2.00

RESERVATIONS DEADLINE IS FRIDAY - JAN. 15 at 12:00 NOON

DINNER CANCELLATIONS ARE REQUIRED

ALL ARE WELCOME

THERE IS NO CHARGE FOR ATTENDING THE PROGRAM ONLY



## NOW ABOUT STS-2



*Is this a special AIAA meeting or are these AIAA members just waiting for Columbia's wheels to touchdown so the STS-2 flight patch can find its home on the wall of the Mission Control Center.*

*Don Puddy holds the flight patch, while other AIAA members, Bob Crippen, Rick Hauck, Pete Frank, Aaron Cohen and Glynn Lunney, finish up their final STS-2 duties.*



## THOSE FIRSTS - 1981, A VERY GOOD YEAR

The STS-1 and STS-2 flights provided many firsts for our nation:

- The first flight of a complex launch vehicle without prior unmanned flight testing.
- The first reuse of a manned orbiting space vehicle.
- All this done before a worldwide audience of several billion people.

Most essential to these successes was the dedicated team of people who with the new Space Shuttle technology maintained and extended the learning curve. The team is a national resource which now returns added value to the nation with each additional landing.

The length of the Orbiter Columbia is but a few feet more than the distance first flown by the Wright Brothers at Kitty Hawk. For us this represents "The Measure of Progress."

There are many who have made notable and significant contributions, and we wish to honor one and all.

Next year, 1982, naturally brings the continuing and expanding challenge.

- Jack C. Heberlig  
Chairman

## MINI-SYMPOSIUM, 1982

Planning for this important Houston Section event is well underway with operating committees defined, and chairmen identified as listed below:

- o General Arrangements - Norman Chaffee
- o Abstract Screening - Charlie Wolfers
- o Technical Session Organization - Loren Wood
- o Conference Manual Development - Charlie Wolfers
- o Session Conduct Rules - Hugh Davis
- o Session Chairmen and Author Communications - All TC Chairmen

The theme of our symposium being "Shuttle Flight Results," all authors who can are urged to report on that subject; however, papers on any Aerospace technical work are welcome. Papers on Space Policy, Law and other relevant quasi technical subjects will also be considered.

Alert to Authors - Due to the increased size and scope of this symposium, the March 15 tentative abstract deadline is advanced to a firm deadline date of March 1, 1982. Because our abstract requirement is 250 words or less, with no formal manuscript needed, this 2-week acceleration in schedule should not work a hardship on anyone. Any abstract received after March 1 might not be printed in the conference manual, and may have to be rejected due to lack of time to work it into the session time scale.

The General Arrangements Committee will be meeting on or about the time this newsletter goes to press. Some exciting new ideas are in prospect which promise to add still more to expand the overall significance of this event. If you are a potential author, put March 1 on your calendar and start organizing your presentation now. If not an author, put April 20 on your calendar as a must day for enjoying one of the worthwhile privileges of being a Houston Section AIAA member.

## SPACE POLICY WHITE PAPER COMING

The maturing of the Space Transportation System is the nation's top priority in space, even if it means other space programs must take a "step backwards," says Dr. Victor H. Reis, the leader of the U.S. Space policy formulation. Dr. Reis is the Assistant Director for National Security in the Office of Science and Technology Policy. He heads the third major Presidential review of space policy in 24 years.

Dr. Reis told Houston members of the American Institute of Aeronautics and Astronautics at the November meeting that he personally feels the space telescope, which he said is a high priority item, is the answer to growing concerns about the possible decline or end of American planetary exploration: "The diminution of the planetary program is not the end of space science; it is a change in priorities." Whereas a planetary mission is "an event," in his words, the space telescope will be a laboratory offering experimental flexibility.

"Over the next decade, if we have to take a step backwards in other programs by making the Shuttle into an STS, we will be a lot better off," Reis said. "You need a policy specifically when the budget is tight." NASA's budget reportedly is being deeply axed in non-Shuttle areas by the Office of Management and Budget.

To be revealed in 1982, the space policy will address how the nation should use the Shuttle, its long-term launch needs, and who should operate it in the long term. "The name of the game is exploitation," he said. Reis feels private industry must lead this exploitation of space. "There are a lot of people in government who argue that if industry wants it, they should pay for it."

"Users are not aware that the Shuttle is a miniature lab," he said. The capabilities of the STS are such that development of a space operations center (SOC) or a Shuttle-derived space freighter will not be required, in the near term, Reis predicted.

"I don't understand why you need a permanent man in space," Reis said. "I'm not sure why. You will have a situation that is very close to manned permanent presence in space when the STS starts working." Shuttle enhancements will be a priority, Reis revealed, although four to five Orbiters will probably be sufficient.

"No company has asked for a space freighter," he said, noting that developments of this size must be justified economically. Reis said the cooperative pharmaceutical venture in space by Johnson & Johnson and McDonnell Douglas exemplifies the kind of private space industrialization that is needed.

The policy-maker foresees an equivalent role for military and civilian uses of space. Space-based command, control, communications, and intelligence will be aggressive, he said, but Reis does not see "battleships in the sky." The Global Positioning System and Vandenberg-based STS operations will be the key to the military space program, he predicted.



STS should not go commercial while it is an experimental system, Reis said, and that is "a long time." "Until on a very routine basis, it (the Shuttle) has to stay with the people who put it together, although it is important to have the Air Force operate it," he said.

Reis wondered whether NASA could transfer operation of the Shuttle to the private sector "gracefully."

The forthcoming space policy will not tell NASA how to do its job, but may direct the Agency to avoid projects which commercial industry can do.

Reis quoted Science Advisor George Keyworth as saying President Reagan "has a very strong commitment to the space program." Reagan visited NASA's Mission Control Center here during the recent flight of STS-2.

Despite the gloomy forecasts for the NASA budget, Reis said America remains the leader in space technology and space operations. "We are first in this business. We will maintain this."

-Dennis Stone

#### COUNCIL ELECTION COMING

The time is drawing near for a Nominating Committee to start preparing a list of candidates for the Section election next year. Since I will be leading this Committee, I would like to get an early start by making an inquiry regarding the membership's interests, availability, and qualifications for the positions open for election.

In the next Newsletter there will be a brief description of all Executive Council and Officer positions that are elective in 1982. A form will be included for inputs from the membership concerning these positions. In this way, it is hoped that all who are interested will have a fair chance of becoming a nominee or officer of the Houston Section-AIAA, and that fairness will propagate a manifest into the dedication that is needed to effectively manage the Council and lead the membership.

Please look for the Nomination Announcement in the next Newsletter. It is the spirit of cooperation and openness that the incoming administration wishes to emphasize and maintain.

- Sharon Barnes  
Chairman Elect

## HOUSTON MEMBERS APPOINTED TO NATIONAL TC'S

The following Houston Section members have recently been selected to serve on AIAA National TC's:

Software Systems TC - Steve A. Hudson - IBM  
- Wayne T. Musial - MDTSCO

Communication Systems TC - Charles V. Wolfers - MDTSCO  
- Phillip M. Hopkins - LEMSCO

These men were appointed by AIAA President Joe Gavin with their committee memberships to be effective January 1, 1982.

## TECHNICAL CORNER

### ●●● Advisory.

Of particular concern during the recent STS-2 mission was a problem with the fuel cells. Failure of one of the fuel cells early in the flight resulted in the planned five day mission, being cut short by about two days. Studies are being conducted by personnel in the Propulsion & Power Division of JSC at this time to determine the possible cause and impact of this failure.

In the next issue of the Newsletter, the Technical Corner will feature a discussion by members of the Power Generation Branch of PPD concerning fuel cells in general, and the STS-2 fuel cell failure in particular.

## ENGINEERING = JOBS + \$

According to the College Placement Council, only 7 percent of the bachelor's degree candidates last spring were engineering majors, but they got 65 of every 100 job offers made.

Not only that, but engineering graduates also cornered the highest salary offers. Top of the line were petroleum engineering majors who averaged offers of more than \$26,000 and chemical engineering majors with average offers in excess of \$24,000.

In contrast, humanities and social science majors, who constituted 33% of the spring graduates, ended up with only 4% of the job offers and average starting salaries of about \$14,000.

## OPPORTUNITIES FOR CONTINUING EDUCATION

The following courses are among those offered at University of Houston at Clear Lake City during the Spring Semester. They may be of particular interest to the JSC Community.

	TITLE	INSTRUCTOR	TIME	PHONE
<u>PROCESS CONTROL TECHNOLOGY</u>				
PROC 3132 01	Linear Integrated Circuits	Dickerson, E.	1730 1850 MW	488-9430
PROC 3331 01	Control Systems	Leibfried, T.	1600 1720 MW	488-9284
PROC 5533 01	Communication System Principles	Dickerson, E.	1600 1750 TR	488-9430

	TITLE	INSTRUCTOR	TIME	PHONE
PROC 5332 01	Stochastic Process Control Systems	Hasdorff, L.	1730 1850 TR	488-9410
PROC 5531 01	Optimum Feedback Control Systems	Hasdorff, L.	1730 1850 MW	488-9410
PROC 4931 01	Topic: Final Cntrl Elements	Fullen, W.	1900 2145 T	488-9430
PROC 5931 02	Topic: Transform Methods	Smith, T.	1900 2145 R	488-9430
PROC 5931 03	Topic: Multivvable Control	Basu, J.	1900 2145 R	483-2094

#### ELECTRO-OPTICAL TECHNOLOGY

EOPT 4534 01	Fundamentals Fourier Optics	Harman, T.	1900 2145 R	488-9394
EOPT 5130 01	Quantum Optics	Lawrence, W.	1900 2145 R	488-9285

John Sunkel  
Education and Professional  
Development Committee

#### STUDENT TOURS HELD

Eighty Texas A&M AIAA student members toured JSC and Ellington AFB November 20, 1981. Participating Houston Section Members were Dave Huntsman, Stan Faber, and Butch Kirby. Special thanks go to Joe Algranti, Jim Rippey and the JSC Public Affairs Office for their help in making arrangements for such a large group.

#### THREE CONFERENCES SET FOR SAN DIEGO

Clarification to authors is due with respect to this conference, instructions for which were printed in the last newsletter.

- (1) The instructions we printed covered only one of three simultaneous conferences held in San Diego on the same dates; namely, the Flight Mechanics Conference. There is also a "Guidance and Control" Conference and an "Astrodynamics Conference". Nobody officiates over all three.
- (2) The three conferences each have separate General Chairmen and Program Chairmen. Their names are given in the latest A&A magazine. Drs. Nelson and Oberkampf hold those positions respectively for the Flight Mechanics conference only.
- (3) The authors themselves are to decide which Shuttle Conference sessions their papers best fit. Two conferences; "Flight Mechanics" and "Guidance and Control" will have Shuttle sessions. If the author is uncertain and sends his abstract to both Program Chairmen, he should let each chairman know to avoid being signed up in both conferences through lack of coordination.
- (4) In accordance with phone conversations I had with Bill Oberkampf, the only AIAA form needed to transmit an abstract is Form B46. (I have copies of that available). The last three lines of the form are

redundant to the abstract itself and should simply be marked "see abstract". Disregard the request to fill out abstracts in accordance with an AIAA Bulletin called "Instructions for Preparing Meeting Abstracts". It has been replaced by B46.

C. Wolfers  
VC-Technical

#### SECTION SPONSORS GET AWAY SPECIAL PAYLOADS

There are several nearby schools that have reservations for Space Shuttle Get Away Special (GAS) payloads. The GAS program provides opportunities for individuals and organizations to prepare experiments that the Shuttle will carry into space at a relatively low cost. Schools that have reservations include:

- Clear Creek Independent School District
- Prairie View A&M University
- Rice University

Our Houston AIAA section sponsored the Rice University reservations.

Experience with student GAS projects throughout the country indicates that best results are being achieved where there is strong student leadership supported by consultation from those in the space business. Our Houston AIAA section plans to work through AIAA student chapters to offer consulting support to the GAS projects at each of the schools mentioned above. Our objectives are to stimulate enthusiasm and enhance the technical quality of the experiments.

Our Student Affairs Committee will work with each school's AIAA student chapter to arrange for a speaker at that school who will discuss the Space Shuttle and the Get Away Special program. The speakers need to be knowledgeable and dynamic, so they can stimulate enthusiasm. Our Space Systems Committee will arrange to provide a consultant to each school's Get Away Special project. The consultant will meet frequently with student leadership, answer questions, identify information sources, conduct design reviews, ask thought-provoking questions, and try to sustain student enthusiasm. The students have responsibility for the design of their experiments and they are the ones that make the decisions.

If you would like to volunteer as a speaker or a consultant, or if you would like to suggest some good candidates for these roles, please call Bob Pannett at 488-5660, ext. 407.

#### WANTED NEW MEMBERS

Would you believe that the average AIAA member age is now 47 and increasing one year every year? Obviously this is a trend that we need to reverse. In order to help attract and retain members under age 31, AIAA is forming a Young Member Committee's at the section level.

The first item on the agenda for the Young Member Committee will be to identify the needs of the "typical" young aerospace professional and discuss how AIAA currently addresses these needs. Then the YMC will propose and when possible, carry out solutions to any problems uncovered. This committee will be permanent

and composed entirely of members under 31 years of age.

If you are interested in being part of the Young Member Committee please call Butch Kirby, 483-3796.

### DECEMBER CRANIUM CRUNCHER

OH GLORY! I STUMPED YOU! HOO-HAH! NOBODY got the November puzzle! The answer was not 30, 63, 40, 46, 30, 28, or 27 miles. ( A lot of you suggested 30 miles was the right answer). So keep trying; I'm reprinting the November puzzle with a double prize---two dinners for the right answer. Here it is again:

"Between Kroflite and Beeline are five other towns. The seven towns are an integral number of miles from each other along a straight road (e.g. each town is an integral number of miles from the other six towns). The towns are so spaced that if one knows the number of miles a person has traveled between any two of the towns, he can determine the particular towns uniquely. What is the minimum distance between Kroflite and Beeline to make this possible?"

By the way, I got a number of correct but belated answers to October's puzzle, so let me acknowledge the following folks who figured out that Martians have 13 fingers. Congratulations!

Jose Porteiro (Texas A&M)  
Robert Castle (JSC)  
David Mercier (Singer)  
Gregory Desobry (MDTSCO)  
Ken Wohllait (Boeing)

And if you want to try an easier puzzle (after all, its Christmas and I want to give each of you a gift) here's your December puzzle.

"Using mathematical symbols to modify four fours, it is possible to write expressions for all the numbers from 0 to 100, as well as millions of others. Examples:

$$\begin{aligned} 1 &= 44/44 \\ 2 &= 4/4 + 4/4 \\ 12 &= (44+4)/4 \\ 64 &= 4! + 44 - 4 \end{aligned}$$

and so forth. In this manner, can you manipulate four fours to equal these progressively more difficult numbers?"

13  
19  
33  
85

Send your answers to: Norman Chaffee  
NASA-JSC  
Mail Code EP  
Houston, Texas 77058

First correct answer wins a free dinner at an upcoming AIAA meeting, and we'll acknowledge all the correct answers we get in the next Newsletter.

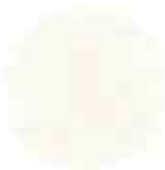
Merry Christmas!



1912



1912





AMERICAN  
INSTITUTE OF  
AERONAUTICS AND  
ASTRONAUTICS  
.....  
HOUSTON SECTION

# newsletter

## UPCOMING AIAA HOUSTON SECTION MEETING

DATE	TOPIC	SPEAKER
January 19	"SPACE LAW"	S. Neil Hosenball NASA General Counsel
April 20	MINI-SYMPOSIUM	STS Flight Results Presentations



Non-Profit Organization  
U. S. POSTAGE  
PAID  
Webster, Texas  
Permit No. 1

M292-0189 MEMBER HO  
MR LARRY JAY FRIESEN  
MC DONNELL DOUGLAS TECH SERV CO  
A4  
16441 SPACE CTR BLVD  
HOUSTON TX 77000 R

