

Horizons

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Winter 2007/2008



Photographs courtesy of Navigant Vacations and Virgin Galactic



AIAA HOUSTON
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Horizons is a quarterly publication of the Houston section of the American Institute of Aeronautics and Astronautics.

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Winter 2008

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Horizons and AIAA Houston Web
Site
AIAA National
Communications Award
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2005 2006 2007

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Cover: Images Courtesy of Navigant Vacations & Virgin Galactic

From the Acting Editor

DOUGLAS YAZELL

Jon Berndt took this newsletter, Horizons, to a new level the past 3 years, winning 1st place in our category nationwide 3 years in a row. He now moves on to other roles, but he will be nearby to advise us. He gave Horizons a new, modern look with a strong visual emphasis. He wrote an editor's column each quarterly, online-only issue. And he found cover stories and other features that inspired us.

Our current candidate for editor (see below) has not met Jon yet, so I am acting editor for now, aiming at bimonthly releases on February 25, April 25, and June 25. Our AIAA year ends on June 30, and we will return to a quarterly schedule at that time.

Dr. Rattaya "Chow" Yalamanchili/Jacobs has volunteered as editor. He works in the same

building as Jon at Space Center Blvd and Bay Area Blvd, so they will meet soon.

Jon gave me a customized template in Microsoft Publisher format, so I will use Publisher and Jon's template.

Bill Miller gave us another Cranium Crunch for this month. Let's give him lots of replies!

BeBe Kelly-Serrato will write about her first AIAA lunch-and-learn, "Lunar Communications Updated", presented by Oron Schmitt, as soon as her article is OK'd regarding various categories such as Sensitive But Unclassified. About 35 people attended that event, so BeBe is off to a good start as Chair of our section's Space Operations technical committee.

Linda Phonharath, our College and Co-op Chair, wrote about Bill West's visits to Texas A&M University and Rice University to talk to our student sections. He took a Russian Orlan spacesuit with him for both visits. Linda and I joined Bill at Rice to meet those 8 students.

We don't have a cover story about Virgin Galactic, but I hope you are seeing these photos for the first time. Below is "Mothership Construction". Elsewhere in this issue is "SpaceShipTwo_technical diagram". On the cover is "Spaceship Two and Burt Rutan". And I added a photo of our local Virgin Galactic Accredited Space Agent Tara Hyland of Navigant Vacations. She is shown in a recent photo with Sir Richard Branson and Burt Rutan.

?

Photo of our next editor





Chair's Corner

DOUGLAS YAZELL, AIAA HOUSTON CHAIR

Enthusiasm is high as we work in Houston on shuttle, ISS, and a shuttle replacement. The upcoming International Year of Astronomy is 2009, and we thank our French sister section member Michel Bonavitacola for calling this to our attention. Space and Astronomy: Decade by Decade, was the title of our popular lunch-and-learn on January 11, 2008, described elsewhere in this issue of Horizons. We plan a fitting set of events for National Engineers Week, February 17-23, 2008. This issue of Horizons should be online by February 25, 2008. We plan two more bi-monthly issues, online April 25, 2008 and June 25, 2008, then a return to a quarterly schedule.

Our AIAA year ends on June 30, 2008. Our search for a new slate of candidates will begin soon. The organization chart at www.aiaa-houston.org describes what we need, and bylaws at the same web site supply the rest of the details. Our 1100 membership includes 850 professional members and 45 positions on the org chart. The elected members number only 20, and these are the ones with the privilege of voting on questions that come before our council. Eight of our ten councilors will be up for election to two-year terms. Chair and Past-Chair will not be on the ballot, but the other positions coming up for election to one-year terms are Chair-Elect, Secretary, Treasurer, Vice Chair – Operations, Vice Chair – Technical, Programs, Membership, and Communications. A call for candidates will go out in late March. Based on

the schedules of the past two years, Thursday, April 10, 2008, will be the date of confirmation of our ballot, the closing date for petitions, and Friday, April 11, 2008, will be the date we post the ballot online. Twenty days later, on Thursday, May 1, 2008, all ballots must be in. A teller committee will report election results on or before May 15, 2008.

Our search for a new editor led us to Dr. Rattaya ("Chow") Yalamanchili of Jacobs. I am acting editor for now, but Chow will probably take over ASAP. Thanks go to Jon Berndt, our outgoing editor, for his prize-winning years of work and his intention to stay close and advise us.

Webmaster Gary Cowan volunteered to update our web site's backbone, if that's the right word. That will change the web site's look. At the same time, we will follow the results of a credit card feasibility study by our section's Communications Chair, Gabe Garrett, by starting the use of PayPal. The date for this change is not yet decided, but it will be as soon as possible.

Congratulations to our section's History Committee Chair in our technical branch, Chester Vaughan, on the acceptance of the nomination of the 1940 Air Terminal Building (www.1940airterminal.org) at Hobby Airport as an AIAA Historic Aerospace Site! Chet has been documenting the history of our section, and we are working to place those documents on our web site for easy viewing. A recent example of a successful nomination is our

section's good work in having Johnson Space Center selected for this honor. The plaque is shown in Chet's photograph on its granite base which was donated by JSC. It rests in its place of honor near the Saturn V building. A similar plaque will be presented in a ceremony at the 1940 Air Terminal Museum in the coming months. A list of these 33 AIAA Historic Aerospace Sites from past years is presented on the next page.

Note that every third Saturday is Wings and Wheels Day at this museum at Hobby Airport. For \$10 admission for adults, a casual lunch (burgers, hot dogs, soft drinks, etc.) is included, along with special outdoor displays, museum tours, etc.

I was fortunate to see the launch of Atlantis and STS-122 on February 7, 2008, as a guest of a French astronaut's family. Thanks to wisdom, organization, and sacrifice on the part of my wife of 22 years, my 3-day trip to this historic event was possible. This launch of the European Laboratory module Columbus was historic for our international ISS partnership and the space programs of all of those nations. I return to this work in Houston and worldwide with renewed humility, pride, and enthusiasm.



An antique plane owned by the museum at the 1940 Air Terminal Building (www.1940airterminal.org) is seen with a taxiing Southwest jet during a typical Wings and Wheels Day, which is every third Saturday.

33 AIAA Historic Aerospace Sites Prior to 2008's Addition of the 1940 Air Terminal Building at Hobby Airport

1. Cincinnati Observatory, Cincinnati, Ohio (last site listed, 2007)
2. Arnold Engineering Development Center, Tennessee
3. Woomera, South Australia
4. Marine Park, Great Kills, Long Island, New York
5. Picatinny Arsenal, New Jersey
6. Travel Air Manufacturing Company, Wichita, Kansas
7. Local de nascimento de Alberto Santos-Dumont (Portuguese)
8. Birthplace of Alberto Santos-Dumont, Cabangu, Minas Gerais, Brazil
9. NASA Johnson Space Center, Houston, Texas
10. Patuxent River Naval Air Station, Patuxent River, Maryland
11. Naval Ordnance Test Station, China Lake, California
12. White Sands Missile Range, White Sands, New Mexico
13. Reaction Motors, Inc., Denville, New Jersey
14. Aeronautical Concourse of the 1904 Louisiana Purchase Exposition, St. Louis, Mo.
15. Purdue University Airport, West Lafayette, Indiana
16. Bendix Aviation Corporation, Teterboro, New Jersey
17. Thiokol Chemical Corporation, Elkton Division, Elkton, Maryland
18. Naval Air Missile Test Center, Pt. Mugu, California
19. College Park Airport, College Park, Maryland
20. The Boeing Red Barn, Seattle, Washington
21. North Island Naval Air Station, San Diego, California
22. First Aerojet Manufacturing Facility, Pasadena, California
23. NASA Marshall Space Flight Center, Huntsville, Alabama
24. Allegheny Ballistics Laboratory, Rocket Center, West Virginia
25. Oakland Airport, Oakland, California
26. Site of First Balloon Launch, Annonay, France (French)
27. Site of First Balloon Launch, Annonay, France
28. Langley Memorial Aeronautical Laboratory, Hampton, Virginia
29. Rocketdyne, Canoga Park, California
30. "Aunt Effie's Farm," Site of First Goddard Rocket Launch, Auburn, Massachusetts
31. Air Force Flight Test Center, Edwards Air Force Base, California
32. Dutch Flats Airport, San Diego, California
33. "The Rocket Site," Edwards Air Force Base, California (first site listed, 2004)a



Two snapshots of the 1940 Air Terminal Building at Hobby Airport (www.1940airterminal.org)



The plaque designating Johnson Space Center an AIAA Historic Aerospace Site, displayed outdoors near the Saturn V building in Rocket Park near the main gate



NASA/JSC donated a monument of solid granite. It is no longer sitting squarely on its cement support. It was probably bumped by a delivery truck. Our request to JSC will probably fix it, but if not, our members may want to try.

Address by NASA Administrator Michael Griffin



**Douglas Yazell,
Chair & David
Segrera, Councilor**

Administrator Michael Griffin addressed a crowd of NASA employees and contractors on Monday, January 7, 2007 at the Gilruth Center Alamo Ballroom at NASA/JSC. After a few brief remarks from JSC Center Director Michael Coats, Mr. Griffin made one or two prepared remarks and then took questions for almost an hour. From some notes we took, we present a rough summary which will certainly contain errors since we cannot write as fast as we would like, read our own hurried handwriting, or remember the comments made while we wrote.

Congress approved the magnitude of the NASA budget request from the President's office, but moved about \$10M to earmarks, an improvement over about \$85M in earmarks in 2006. NASA is doing well on the hill. Congress wanted to send NASA more money than the President would accept. If we don't do well with our launches, space station work, etc., we don't get that kind of support, so, "Good work!"

Question: What is the probability of success for our ambitious work on Moon, Mars and Beyond with a constant budget from year to year?

Answer: We are not that far along. For now, the focus is 6 crew members in orbit in the Crew Exploration Vehicle (CEV). Then ARES V, then the Moon. For now, it's a constant budget and on to Mars. I think we can get there in the mid-2030's. For me, the Moon comes first. This is the correct order. I don't have a success probability.

Question: September 2010 is the deadline to stop space shuttle operations and retire the shuttles. Someone proposed

extending that date to 2013. What do you think of that? Answer: That's a bad idea. It's a financial question. The space shuttle program has a high ratio of fixed cost to variable cost, and I speak as someone who earned an MBA (Masters in Business Administration). It costs \$300B per year to own this space shuttle fleet. Until and unless we stop, we can't free up that money for ARES, Orion, Altair, etc. We won't get enough money to keep the shuttles flying and do these other things, though I wish we could. CAIB (the Columbia Accident Investigation Board) said that after 2010 the space shuttle fleet would need recertifying. That is very expensive, so the Bush administration cut the cord. All of our programs then planned on that. It seems like a good idea to close the gap (from 2010 to the time CEV is ready), but saving \$100M now would cost \$140M later. We are doing what is needed to get past the limits of the space shuttle program and out of Earth orbit. I am sorry our leaders won't provide more money. We must sometimes remind ourselves: we execute policy, we don't make it.

Question: Would you stay in your job if the new President asked you to stay?

Answer: I am often asked that question, and I can never tell if they want me to stay or go. Here is what I tell them. I serve at the pleasure of the President. I am required to submit my resignation. If asked to stay, and if I have a chance to be successful, which means no budget cuts, then I would stay. We are doing well with our budget requests. Early 1970's space policy hurt our nation, since human space flight was stuck in low Earth orbit. I also want to create my own team.

The new President probably won't ask me to stay. A new president has about 414 appointments to make, and only 1 or 2 stay on from the past administration. My chances are better trying to make a hole in one on a par 3.

Question: How are we doing with systems engineering, which is something you have worked with?

Answer: My best work was with systems engineering. The is the most crucial part of NASA's work for our country and sometimes for the world. Even big companies merge these days, as they should when it is in the best interest of stockholders. But we do the systems engineering. Recent decades gave us less of that work. Now we are doing new things. Systems engineering cannot be taught from a book or even a university course. Once you have done it, then you know.

Question: We have walked on the Moon but not Mars. What technology can help us get to Mars?

Answer: We need lots of mass in low Earth orbit (LEO), about one million pounds, less if we use nukes and have some favorable opportunities. So we start by recreating our heavy lift launch capability, which we will do for the next 10 years. Then we will work on Entry, Descent and Landing (ED&L) technology. Mars has just enough atmosphere to be a pain. In the mid-1970's we had Viking, and the Mars Surface Laboratory (MSL) is about the same size. We will increase that size by an order of magnitude. But we will work these tasks one at a time. Apollo had a big budget increase for 4 or 5 years to work technology tasks in parallel. We will do ours se-

(Continued on page 7)

quentially. "Mars in its own time."

Question: My neighbor thinks astronauts are rich and the new capsule is old fashioned. How do we educate the public?

Answer: We can do better with public outreach. Here are some things I tell people I meet. Why does Orion (CEV capsule) have this look? The goal is not LEO. We knew this capsule shape for space vehicles. It works. It goes to the moon. Its insides are not like Apollo. The shape can come back fast, from the Moon. It can go the Moon and stay there for six months. Why do most planes look alike, with a tube for a fuselage, wings, a tail, etc.? We need to convince one person at a time.

Question: It seems the press is not interested in telling our story.

Answer: I am making some efforts now with the fourth estate. The agency was stillborn 35 years ago. As a nation, we need to leave LEO. Don't let the discussion be the shape of the OML (Outer Mold Line of the CEV). We need to interest the media. I used to say ISS (the International Space Station) was for science. It is not just for science. It is an outpost which is only of value if we leave LEO. We need to tell that to the press and public. ISS is how we learn to be in space. We never told the story that way.

Question: Do we need CEV landings on land?

Answer: We won't lose our crews. We must do both. Then it's economics. Engineering and economics hats are needed. The bottom line then becomes the lowest life cycle costs.

Question: Please comment on the Chinese space program.

Answer: I have not given it much thought. I traveled there once. I read the open literature. I have some contacts. I am impressed. They are committed as a nation to being a big nation as befits the size of their population. They completed two manned flights in orbit, but their first one accomplished what we did with our first six Mercury flights. Their second one matched half of our Gemini flights. Their third one will put 3 men in orbit and leave a small module in space to dock with future flights. Their steps are being done in a measured way. Our first moon landing was our 21st human spaceflight. China will need more time but fewer launches. In some lines of work, we focus on intentions, not capabilities.

Question: Please comment on COTS (Commercial Orbital Transportation Systems).

Answer: Congress cut \$75M. I will ask them to restore it. COTS will help commercial spaceflight capabilities. Aviation had a good mix of commercial and government financing, but space has been all government. The cut to the COTS budget was very damaging.

Question: Please comment on international cooperation.

Answer: Great nations make some things for themselves and hope other nations make their own. It is unfit and unseemly to rely on other nations for human spaceflight capability. ISS is a good example. We maintain one lab and the infrastructure. Three labs come from IPs (international partners). This provides redundancy for the capability provided by the labs. This could work for the Moon. We need things our country cannot afford. We chose to do the transportation part. We welcome other nations, and this

strategy welcomes them. There are many pieces of this Moon mission to work on. We spent a couple of years devising that strategy. We received kudos from Europeans recently where Americans have not been getting so many of those lately.

Question: Please comment on the European space program.

Answer: They want to see us meet our existing obligations. They invest as much in ISS as we do proportionally. For me, the ISS exists for the Moon and Mars, but that debate is over. I think the Europeans like the Moon mission. Keep your eyes on the results of the European Ministerials of 2008 and 2011.

Question: What is the minimum number of space shuttle flights needed before they retire in 2010?

Answer: We tried to make the last flights less important. Like Clint Eastwood said the a Dirty Harry movie, "Do you feel lucky?" From what we know about failure rates, we will need those last flights.

Question: We have a lot of retirements and fewer graduates. What human capital resources are needed for 2030?

Answer: I don't know. We must reverse the trend of fewer graduates in engineering, science, and math in our country. If not reversed, it will cause us a lot of grief, and not just in space. When I was a graduate student, many of my fellow students came here to study, then stay, but now they go back. We need incentives for them to stay here, and we need more homebred graduates. We need excitement attributed to math and science as it was during the Apollo era.



STS-122 launch, operations with the European laboratory Columbus, and landing. Photos courtesy of NASA.



Dinner Meeting Address by NASA/JSC Cen- ter Director Mi- chael Coats



State of the Center by Michael Coats

ELLEN M. GILLESPIE, COUNCILOR

A joint dinner meeting of AIAA Houston Section, United Space Alliance Leadership Association (USALA), and SouthWest Aerospace Professional Representatives Association (SWAPRA) was held on Friday, January 25th, at the JSC Gilruth Center Alamo Ballroom. Michael Coats, JSC Center Director, was the featured speaker, and drew a crowd of approximately 150 people.

The dinner meeting started at 5:30 PM with registration and a cash bar social. Dinner was served at 6:15 PM, and Michael Coats spoke at 7:00 PM on the state of JSC.

JSC's core competencies are Mission Control Center (MCC) operations, astronaut training, human health space science, space debris center, engineering, and large program management. Mr. Coats cited excellent teamwork with our international partners and superb large program management as JSC's key strengths. The future of JSC is to complete ISS assembly via the final space shuttle missions, conduct a Hubble Space Telescope servicing mission, support Orion development with new facilities and hardware testing, continue to serve as a space debris collection center, perform medical research for extended space missions, and provide program management for all projects.

JSC is to support Michael Griffin's "Ten Healthy Centers" policy to ensure that all

ten NASA centers are active with timely aerospace projects. Until recently 3,000 NASA workers did not have projects to support. That number has been reduced to 300.

The biggest concerns faced as JSC Center Director are conducting safe Space Shuttle Program (SSP) missions, and avoiding workforce upsets associated with the end of the SSP. To fly the CEV 4 ½ years of SSP budget, without supporting the SSP, is needed to fund the Orion program. This 4 ½ year program gap should be minimized to avoid a problem with the American public, who will realize that the US is no longer a space faring nation. Fortunately, the Space Exploration Act was approved by Congress, and a new administration will have to pass new legislation before a NASA program redirection could occur.

Mr. Coats provided commentary on the problems in work at NASA and JSC today:

- Transportation to Low Earth Orbit (LEO) is to be given to the commercial sector, which could provide this service 30% cheaper.
- The Human Health Sciences team is working on how astronauts could obtain vitamin D in space, as this vitamin is normally obtained by spending time in the sunshine outdoors.
- NASA databases are being enhanced to work together, and include information from Apollo, Gemini, and Mercury programs.
- JSC is currently working to do a better job of track-

ing lessons learned.

- To eliminate problems associated with a "not invented here" mentality at JSC, Mr. Coats is encouraging diversity of professions and backgrounds on key project teams.
- Benchmarking is in work by visiting other organizations to share ideas, such as sharing MCC concepts with US Air Force Control Centers and the NY Terrorist Control Center. This could help JSC reach its goal of reducing the cost MCC operations by 50%.
- Stress is being placed on leadership. JSC's leadership programs are available to everyone, and these classes encourage a concern for others.
- JSC facilities are being enhanced with environmentally friendly building upgrades. A new fence is to be installed around the center.
- While NASA is ranked the fourth best government agency to work for, people who work for JSC tend to have high expectations that create challenges in our work/life balance and lead to burn-out. A policy is in place at JSC to help prevent workplace violence. Employees are now required to report any threat of violence in the workplace. There were cases reviewed at JSC since the recent murder-suicide, and 8 individuals have since been fired, or at

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State of the Center by Michael Coats

ELLEN M. GILLESPIE, COUNCILOR

(Continued from page 8)

least lost the privilege of having a JSC badge. Anger management classes (as advertised in JSC Today, a daily e-mail note) are available for those in need. (Note from the editor: those who need it are the last to know it, but we, I mean they, usually get the message eventually.)

- JSC is partnering with schools (elementary and middle schools) to encourage children to select a technical career.

We have completed 50 successful years of space operations this year, and should celebrate our JSC accomplishments.

Mr. Coats kindly allowed us to put his charts on our web site at www.aiaa-houston.org. They are on the opening page in a section called, "Take a Closer Look?" Thanks to Programs Chair Nick Pantazis, Treasurer Tim Propp, our section's other volunteers, USALA, and SWAPRA, who make such dinner meetings so successful.



Left to right: John Bailey (SWAPRA), AIAA Houston Section Programs Chair Nick Pantazis, Gary Waits (USALA), Janet Morris (USALA), Mrs. Coats, JSC Center Director Michael Coats.



ISS016-E-029873 (16 Feb. 2008) --- STS-122 and Expedition 16 crewmembers pose for a group photo following a joint news conference in the Columbus laboratory of the International Space Station while Space Shuttle Atlantis is docked with the station. From the left (bottom) are NASA astronaut Steve Frick, STS-122 commander; and Peggy Whitson, Expedition 16 commander. From the left (middle row) are NASA astronaut Daniel Tani, STS-122 mission specialist; European Space Agency (ESA) astronaut Leopold Eyharts, Expedition 16 flight engineer; and cosmonaut Yuri Malenchenko, Expedition 16 flight engineer representing Russia's Federal Space Agency. From the left (top row) are NASA astronaut Stanley Love, ESA astronaut Hans Schlegel, NASA astronauts Leland Melvin, Rex Walheim, all STS-122 mission specialists; and Alan Poindexter, STS-122 pilot. Tani, who joined the station's Expedition 16 crew in October, is being replaced by Eyharts, who arrived at the station with the STS-122 crew. Photo courtesy of NASA.

Staying Informed

COMPILED BY THE EDITOR

PlanetQuest

<http://planetquest.jpl.nasa.gov>

<http://www.nasa.gov/50th/home.html>

Better-suited for the moon's surface

NASA revising astronauts' wardrobe for missions on dusty landscape

BY MARK CARREAU

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<http://www.chron.com/dispatch/story.mpl/front/5488918.html>

"Finally, I need to ask, plainly and simply, for recognition from the science community that NASA is not solely, or even primarily, about science. Yes, science is a very important part of NASA, and I have in numerous speeches, including this one, reinforced its seminal importance to me, to the agency, and to the nation. The goal of scientific discovery is a noble one. I will never feel otherwise. I am incapable of believing otherwise.

But does the science community understand it when I say, with equal emphasis, that expanding the range of human presence is a goal fully as noble as that of scientific discovery? Where is the mutual respect for goals that are linked by the common disciplines of flight in air and space, but disparate in their specifics, that is necessary if we are ever truly to be a "space community"? I believe this is not only desirable, but needful, in the sense that Ben Franklin meant when he said, "We must all hang together, or most assuredly we will all hang separately."

Michael Griffin
NASA Administrator
Keynote Address
American Astronomical Society
Austin, Texas
8 January 2008



Another Virgin Galactic milestone, unveiling the design of White Knight 2 and Spaceship 2 in January 2008. Photo courtesy of Houston Clear Lake area Accredited Space Agent Tara Hyland (license plate ZERO-G) of Navigant Vacations.

Staying Informed

COMPILED BY THE EDITOR

Space Center Lecture Series *Dr. Harrison "Jack" Schmitt*



Return to the Moon

DATE: Thursday, March 13, 2008

TIME: 4:30 PM: Informal Q&A

5:00 PM: Lecture

6:15- 6:45 PM: Questions

PLACE: Space Center Houston, 1801 NASA Pkwy

ROOM CAPACITY: 550 (IMAX Theater)

COST: Free (limited seating, reservations recommended)

Reservations: www.aiaa-houston.org

Space Center Lecture Series aims to bring the wonder and excitement of space science and exploration to the public in the form of monthly lectures from renowned scientists, engineers, physicians, and astronauts. From plasma rockets of the future, to scientific expeditions to the South Pole, to heroic repair missions of the international Space Station, to past and future missions to the lunar surface. Join us at Space Center Houston's IMAX theater for an hour of science, exploration, and excitement.

Dr. Harrison H. Schmitt is currently the last human being to have stepped onto the Moon. As an Apollo 17 astronaut and geologist, he spent three days in December 1972 on the lunar surface, sampling, documenting, and interpreting the Moon's geological features and potential resources. Schmitt was trained at Caltech and at Harvard, where in 1965 he received his Ph.D. in geology. He was first introduced to astrogeology by the late Eugene Shoemaker, and was a Fulbright scholar in Norway in 1957-58. Schmitt has been involved in the space program, space science, and space policy for more than 40 years, including 10 years as an astronaut with NASA, 6 years with as a United States Senator, and more than 20 years as a consultant and businessman, a professor (at the University of Wisconsin), and an advocate for space-based private enterprise.

Dr. Schmitt will share his experience with the Apollo 17 mission, lunar resource utilization, and his thoughts on the future of lunar exploration. The Apollo 17 mission was the last of the great campaigns to the moon and included the longest lunar surface interval of any mission in history. Don't miss Jack's exciting tales of past lunar exploration and NASA's future plans to return to the Moon.

For more information: profdev@aiaa-houston.org or events@aiaa-houston.org or www.spaceCenterLectureSeries.com or contact Space Center Lecture Series co-founder Benjamin Longmier, Ph. D. at 281-526-0554

New Members

LISA VOILES, MEMBERSHIP CHAIR

Report of November 1, 2007:

New members:

Leif Anderson
 Scott Bird
 Kevin Choi
 Griffin Corpening
 Thomas Hart
 Kathryn Hurlbert
 Wes Kelly
Beatriz Kelly-Serrato (chair of our section's Space Operations technical committee)
 Samantha Kujala
John Lach (member of our section's GN&C technical committee)
 Jeffrey Lasater
 Prasenjit Sengupta
Lisa Voiles (our section's Membership Chair)
 Michael Wells

New student members:

Michael K Aparicio
 Brad L Belcher
 Chris Brammer
 Jessie H Daniel
 Daniel D Hult
 Andrea D Ilg
 Sungeun Jeon
 Omari R Nundu
 Robi Resnik
 Keenan J Turner

New educator associates:

Melissa A. Smith

Members transferred in:

Joseph Buontempo
 Majinn Chen
 Kevin Choi
 Griffin Corpening
 Neal Hammond
 Thomas Hart
 Jennie Hulse
 Heather Love
 Ram Poudel
 Matthew Snelling

Student members transferred in:

Sarah Canterbury
 Brandon Carringer
 Chi Mai

Educator associates transferred in:

James A. Meyer

Report of December 1, 2007:

New members:

Robert Carmody
 Jimmie Dowd
 Chun Yin Fu
 Robert Gordon
 Andrea Hsu
 Justin Johnson
 Dipankar Sahoo
David Segrera (Councilor for our section)

New student members:

Lindsey Edwards
 Celine Kluzek
 Ian Nelson
 Rebekah Reed
 Yun Wong

New educator associates:

Amanda L. Davis

Members transferred in:

Reynaldo Gomez
 Gary Lantz
 Gregory Potts
 Chad Rasmussen
 Alessandro Vagata

Student members transferred in:

Denise Brown
 Daniel Decino
 Daniel Hult
 Lauren Hunt
 Ashley Sparkman

Educator associates transferred in:

James W. Bourland
 Susan S. Fontanilla

Report of January 1, 2008 & February 1, 2008 (some problems reported: next report March 1, 2008):

New members:

Brian Anderson
 Kevin Colburn

David Cooper
 Tarun Dhall
 Steven Everett
 Michael Lamberty
 Julie Robinson
 Kelly Soich
 Haoyu Wang

New student members:

Gaurav Agarwal
 Steven E Anderson
 Grant J Atkinson
 George C Bagnall
 Brittany J Barth
 Alex C Bayeh
 Andrew R Benson
 Kyle C Benson
 Erin D Bishop
 Andrew L Boles
 Alicia J Broederdorf
 Eric W Bryant
 Michelle K Caron
 Jerry W Carter
 Brannen M Clark
 Aaron Colunga
 Travis A Condit
 Jacalyn L Cossette
 Austin B Cox
 Brian Crawford
 William N Cunningham
 Christina M Daughtrey
 Nallely E Davila
 Stephen S Davis
 Richard A Deresz
 Glen T Duncan
 Mary Tess Eggebrecht
 Aaron M Embry
 Danielle M Fitch
 Monica A Foster
 Matthew P Fritz
 Adam J Galli
 James A Gaston
 David R Gilchrist
 Stephen T Glenn
 Daniel W Greisser
 John M Guthery
 Bilel Hadri
 Luis G Hedina
 John M Hibbeler
 April E Hughes
 Adam W Hughes
 Sarah E Hunsinger

(Continued on page 13)

New Members (continued from page 12)

LISA VOILES, MEMBERSHIP CHAIR

| | |
|-------------------|--------------------|
| Travis R Husman | Bradley W Toellner |
| Justin P Jackson | Brad J Tribley |
| Brian W Jacobs | Christy L Tucker |
| Blake A Jasken | James A Vollenwei- |
| William P Jinkins | der |
| Nathan H Jones | Adam J Watkins |
| Ryan M Kelley | Casey A Whalen |
| Dastan Khussainov | Brad D Whelan |
| Lucas T Krehbiel | Jared O Wissel |
| Arthur R L'Roy | Jacob N Yunis |
| Randell M Labio | Nicholas E Yunkun |
| Joshua K LeBlanc | Altay Zhakatayev |

New educator associates:
Anny Lee
Kimberly R Liotta
Scott P Loftin
Jennifer S. King

Members transferred in:
Kimberly Campbell
Jarvis C Lehmann
Anne V Martt
Jeffrey McQuillan
Matthew J Rood
Haoyu Wang

Student members transferred in:
Brad L Belcher
Jeffrey R Bell
Richard S Margulieux
Clark K Moody
Renato Zanetti

Educator associates transferred in:
William L. Decker

Important notes:

- Not a member? See the end page.

Nominate a Colleague for One of AIAA's Top Awards

Do you know of a colleague who has made significant contributions to aeronautics or astronautics or to AIAA? Nominate them for one of AIAA's top awards.

Visit <http://www.aiaa.org>



New member and Councilor David Segrera at the registration table (at right) with Scholarship Chair Douglas Schwaab at our section's National Engineering Week workshop on February 20, 2008, at the NASA/JSC Gilruth Center

Membership News

Please verify 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).

AIAA Houston Section welcomes our membership chair back from Moscow. Lisa Voiles can be reached at membership@aiaa-houston.org. She submitted the following reports. Our membership in November 2007 was 1086, which included 844 members, 166 student members, and 76 educator associates. For December, that was down to 1075 from 1086, and for January/February of 2008 (some problems occurred in these

reports and the next one will be released on March 1, 2008), the total was up to 1150, with 813 members, 255 student members, and 82 educator associates.

Welcome to the two new members from our membership drive of February 20, 2008: David Marmarosh and Vaelia (Lia) Patterson. Several more plan to join at www.aiaa.org thanks to our events of that day.

Lunch-and-Learn **Space and Astronomy: Decade by Decade** Summary DOUGLAS YAZELL, ASTRODYNAMICS TECHNICAL COMMITTEE

Marianne Dyson spoke about her new book, *Space and Astronomy: Decade by Decade* (Facts On File, 2007), at the NASA/JSC Gilruth Center on Friday, January 11, 2008. We started out in the Coronado room, but when 30 people showed up, we moved to the Longhorn room next door. Her presentation was so popular that she stayed an extra hour to talk about this science history, bringing it up to the present, and half of the attendees stayed for the extra time.

Who is Marianne? In short: the author of five published books, Assignments Editor of *Ad Astra*, the magazine of the National Space Society, a freelance writer, editor, webmaster, and technical reviewer who has a degree in physics from Rice University; was one of the first ten women flight controllers for NASA; has won the Golden Kite and American Institute of Physics Science Writing awards; has a black belt in Kuk Sool; has two brilliant sons; grew up in

Ohio and now lives in Houston with her husband and cat; and who speaks about space to thousands of children every year. She is also the program book coordinator for the RNASA (Rotary National Award for Space Achievement) Foundation. The Foundation will announce the winner of the National Space Trophy by the end of this month.

Dr. Albert A. Jackson, Chair of our section's Astrodynamics Technical Committee, introduced Marianne after a round of applause in honor of his recent election to the member grade of AIAA Associate Fellow. Marianne told entertaining stories about the remarkable people featured as scientists of the decade in her book. For 1901-10, she selected Percival Lowell (1855-1916) who firmly believed that intelligent beings had built canals on Mars and pushed the state of the art in astronomy to prove it. He also searched in vain for "planet x" that was found by Clyde Tombaugh

years later using the observatory that he built. The "PL" in Pluto are initials used in his honor.

For 1911-20, she selected Henry Norris Russell (1877-1957). He is credited with the discovery of the main sequence, that most stars lie along a specific curved, diagonal band when their brightness (absolute magnitude) is plotted against their temperature (also labeled spectral class and color). This band is shown on a plot called the Hertzsprung-Russell Diagram. She explained that Russell was a Puritan and had done his thesis work on an unnamed asteroid. When that asteroid was then named Eros, he was teased mercilessly for being an expert on the God of Love.

For 1921-30, she selected Edwin Powell Hubble (1889-1953). She explained that Hubble was not famous until Einstein said he had changed his mind about his static universe theory because of Hubble's data showing the expansion of the universe.

For 1931-40, she selected Robert H. Goddard (1882-1945). In the 1920's, some of his rockets pulled themselves up instead of pushing, since the exhaust nozzle was near the nose of the rocket, well above the fuel tanks. He launched the first liquid-fuel rocket in 1926. In 1935, one of his rockets became the first to break the speed of sound.

For 1941-50, her choice for
(Continued on page 15)



Space and Astronomy: Decade by Decade

Lunch-and-Learn Summary

(continued from page 14)

scientist of the decade is Werner von Braun (1922-77). In late 1944, von Braun is quoted as saying, "I had 10 orders on my desk. Five promised death by firing squad if we moved, and five said I'd be shot if we didn't move." His team moved to the US side, which later allowed the US to beat the Soviets to the Moon.

For 1951-60, her choice is Sergei Pavlovich Korolev (1907-66) who barely survived being sent to the gulag in Siberia. His career rose in secret when he began working with the new USSR leader Khrushchev. He "...delivered the first spacewalk, the first flight of a woman in space, the first photos of the Moon's far side, and the first impact on the Moon and on Venus." He worked on plans to allow Soviets to land on the Moon using an N-1 rocket, but he died at age 59, early in 1966, when a tumor was discovered during a routine polyp removal.

For 1961-70, her choice is Robert Rowe Gilruth (1913-2000), a surprising choice for the decade when we first walked on the Moon, but soft spoken Gilruth formed the Space Task Group that became NASA. He hired and managed the first NASA engineers, scientists, and flight directors, and built the Manned Spacecraft Center that became Johnson Space Center.

For 1971-80, her selection for scientist of the decade is Carl Sagan. He was never given tenure at Harvard despite packed classes. Later, after he

was a household name from the TV show *Cosmos* and appearances on the *Tonight Show* (and he had a \$2 million advance for his book), he was refused admission to the National Academy of Sciences.

For 1981-90, her choice is Vera Cooper Rubin (1928-present) who confirmed the existence of dark matter by studying the velocities of stars in Andromeda. Many astronomers did not take her work seriously because of her gender.

For 1991-2000, her choice is Geoffrey Marcy (1954-present) who discovered many exosolar planets. He would have discovered the first one if he hadn't assumed that giant planets in other solar systems take years to revolve around their stars like Jupiter does in ours. After someone else found one with a period of days, he went back and found he already had data for several

planets.

We will work to persuade Marianne to return to tell some of these and other tales about the history of science and astronomy and these great scientists and engineers at our section's Annual Technical Symposium in this same building on Friday, May 9, 2008. Her web page is www.mdyson.com, and anyone interested in purchasing copies of her books may use the e-mail contact there to make arrangements.

We are always looking for new members to join Al Jackson, Tim Crain, Prerit Shah, and me in the volunteer work of our section's astrodynamics technical committee. A web page exists at www.aiaa-houston.org/tc/astrodynamics, and our e-mail contact is astro@aiaa-houston.org. We hope you join us in our efforts to be of service to our profession.



Banner Display, Workshop, and Lunch-and-Learn



AGI employees earned some fun: left to right: Robert Hammett, Todd Modi, and Joshua Lane



Gregg Singer accelerates

Gregg Singer and a friend pose for a souvenir picture



National Engineers Week

DOUGLAS YAZELL, CHAIR

Celebrating National Engineers Week from 17-23 February, 2008, AIAA Houston Section displayed its banner near the main gate at NASA/JSC just off Saturn Drive ("Go Engineers!"), conducted a workshop at the Gilruth Center from 08:00 to 13:00 hours on Wednesday, February 20, and completed a lunch-and-learn at Ad Astra Rocket Company in the Houston Clear Lake area on Thursday, February 21.

The latter event was so successful that 120 signed up for it despite the limit of 60 US citizens, so we agreed to repeat the event a week later to handle the overflow crowd. Our thanks go to Andrew Ilin of AARC as well as tour guides Jared Squire and Tim Glover. And we thank AARC employee Ben Longmier who initiated this event after volunteering to be our section's professional development chair.

Ad Astra Rocket Company (AARC) is a rocket propulsion company dedicated to the development of advanced plasma rocket propulsion technology. The company is continuing with development of the Variable Specific Impulse Magnetoplasma Rocket (VASIMR) and its associated technologies. AARC was incorporated on January 14th, 2005 and officially organized on the 15th of July of 2005. Dr. Franklin Chang Diaz serves as company CEO and comes from a 25 year career as a NASA astronaut. Dr. Chang Diaz invented the VASIMRTM concept and has been working on its development since 1979, starting at the Charles Stark Draper Laboratory in Cam-

bridge, Massachusetts and continuing at the MIT Plasma Fusion Center before moving the project to the Johnson Space Center in 1994, and into the private AARC laboratory in 2007.

Dr. Jared Squire received his Ph.D. in experimental plasma physics from the Massachusetts Institute of Technology in 1993. With a 10 year background in fusion research, Dr. Squire joined Dr. Chang Diaz at the NASA Johnson Space Center in Houston Texas, starting the beginning of a 10 year research and development phase for VASIMR technology. Dr. Squire is currently the director of research for the Ad Astra Rocket Company.

The workshop planners aimed at attracting 50 attendees on Wednesday, February 20, 2008, and 38 signed up advance, so we knew we could relax somewhat before that day. We started at 08:00 hours with a light continental breakfast. At 09:00 hours AGI, the makers of Satellite ToolKit (STK), gave their presentations with principal speakers Joshua Lane and Todd Modi, who were joined by their colleague Bob Hammett. At 11:30 hours, our buffet BBQ lunch was served, and we thank AGI for both meals.

Our luncheon speaker was Robert Curbeam, VP of Ares Corporation, who recently left his NASA job as an astronaut and veteran of three space shuttle flights. Those flights were STS-85 in 1997 (with a CRISTA-SPAS payload deployed and retrieved by the crew and operation of the

Japanese Manipulator Flight Demonstration (MFD) robotic arm), STS-98 in 2001 (with 3 spacewalks by Mr. Curbeam and delivery of the U.S. laboratory Destiny, and STS-116 in 2006, when Mr. Curbeam became the first person to conduct four spacewalks in a single mission. That last spacewalk with Swedish astronaut Christer Fugelsang helped in the retraction of a sticking solar array.

A membership drive was a part of this workshop, and two new members signed up. Several more are probably on their way to sign up at www.aiaa.org, thanks to our volunteer work.

A unique part of this event was our enjoyment of the technology of Segway Personal Transporters, available here from 08:00 to 13:00 hours and even a little later. For this we thank our sponsors Navigant Vacations and Virgin Galactic (and Tara Hyland, a local Virgin Galactic Accredited Space Agent at Navigant Vacations in our Houston Clear Lake area), who helped us to ensure that we had 8 Segways available along with their owners and instructors. And our thanks go the two Segway owners who conduct tours via their companies Lean and Glide (Mr. Pat Patterson, near Kemah, see www.LeanAndGlide.com) and Cajun 2 Wheels (Mr. Jay Guillot, at the Strand in Galveston, see www.Cajun2Wheels.com). Our attendees kept them busy starting at 08:00 hours, and that continued all during this event except for a short spell

(Continued on page 17)

National Engineers Week

DOUGLAS YAZELL, CHAIR

(continued from page 16)
of rain at about 11:00 hours.

These Segways contain aerospace-like technology with their stick-balancing type of control system and redundant computers. When I first stepped onto one, Pat told me not to try to balance myself while stopped there, but to allow the Segway to do the balancing. For the first minute or so, I was doing it wrong, making the Segway work much more than necessary. The sensation of leaning forward to accelerate from a dead stop is exhilarating, though a speed limit is set at either 5, 7.5, or 12 miles and hour. A pilot told me that helicopters might have a similar feel when the nose is lowered in order to accelerate. I am told that turns with a Segway sometimes feel like water skiing or snow-skiing, a smooth and pleasant form of exercise.

Sincere thanks go to our volunteers who were led by Councilor David Segrera. They included Jim Palmer, Douglas Schwaab, Ludmila Dmitriev-Odier, Tim Propp, and BeBe Kelly-Serrato. These events provided something of great value to our attendees as we continued our work to be of service to our profession.



Above: Thanks to Jay Guillot of Cajun 2 Wheels, we can see inside a Segway. Five silicon gyroscopes are mounted with different orientations to be used as sensors.



Above: Eight Segways take a break for lunch



Above: Left to right: Scholarship Chair Douglas Schwaab and Councilor David Segrera at the registration tables

Below: Todd Modi of AGI begins the presentations to a crowd which quickly grew in size



Below: Our National Engineers Week banner on display February 17-23, 2008, at the NASA/JSC main gate near Rocket Park



Below: Pat Patterson of Lean and Glide introduces the Segway experience to a workshop attendee



Section News **International Space Activities Committee (ISAC)**

DOUGLAS YAZELL, CHAIR & LUDMILA DMITRIEV-ODIER, CHAIR OF ISAC

Our section's International Space Activities Committee added a few names to our membership list on our web page (www.aiaa-houston.org/tc/isac). New names include Dr. Gary Turner, Dr. Albert A. Jackson, David Jih, George Abbey, Jr., and Michael Kezirian.

The two of us are working to organize a Houston Section lunch-and-learn or an informal dinner meeting before April 2008. Speakers and speech subjects have not yet been selected. We have an excellent restaurant in mind, but its new location in the Clear Lake area is not open just yet: 888 Chinese Restaurant (www.888chineserestaurant.com). As of February 10, 2008, its new location will be open in 4 or 5 weeks, or by about March 16, 2008. Its new location will be at or near the corner of Bay Area Boulevard and El Camino Real. David Jih might be available to advise us when we order, though his volunteerism is not focused on our Chinese sister section. Douglas first went to this restaurant at the Dickinson location with him and a few others. David ordered for our group of six using the Chinese menu, but the English language menu has plenty of delicious items.

Our French sister section relationship is going strong in its first year of its 3-year charter (and planned work includes renewing it regularly after that). We are exchanging two newsletter articles, one written in France and one written in the USA. The Toulouse – Midi-Pyrenees branch of AAAF has advertised its

planned short trip (about 12 days) to Houston, Orlando, then DC, starting in late October of 2008. They are working to find 30 members to complete that delegation. We offered to open some of our homes to them. We are working to prepare their welcome here and in DC. In Orlando, Disney and other attraction parks will roll out the red carpet for them.

Mila is working with her many contacts in Houston to start a Russian sister section relationship or activities focused on our Russian professional colleagues in Houston. Pat Norris contacted us from the UK to talk about being a dinner speaker using the subjects of the book he authored, *Spies in the Sky*. Mr. Norris is also active as a volunteer in professional societies in the UK, and he will join us (Dr. Gary Turner, Dr. Albert A. Jackson, and Sheikh Ahsan) in our ongoing work of looking into the creation of a British sister section.

Our Chinese sister section relationship is showing signs of life after a dormant period, and we call attention to its long history of excellent work since 1986. Coincidentally, our Chinese sister section member James McLane III recently had dinner with a famous World War II aviator. The photo on the next page shows Jim with retired Colonel Dick Cole (http://www.af.mil/news/airman/0706/PDFs/40-43_HumbleHero.pdf), the copilot in the leader's plane, the first plane to take off from the aircraft carrier Hornet in the Doolittle Raid on April 18,

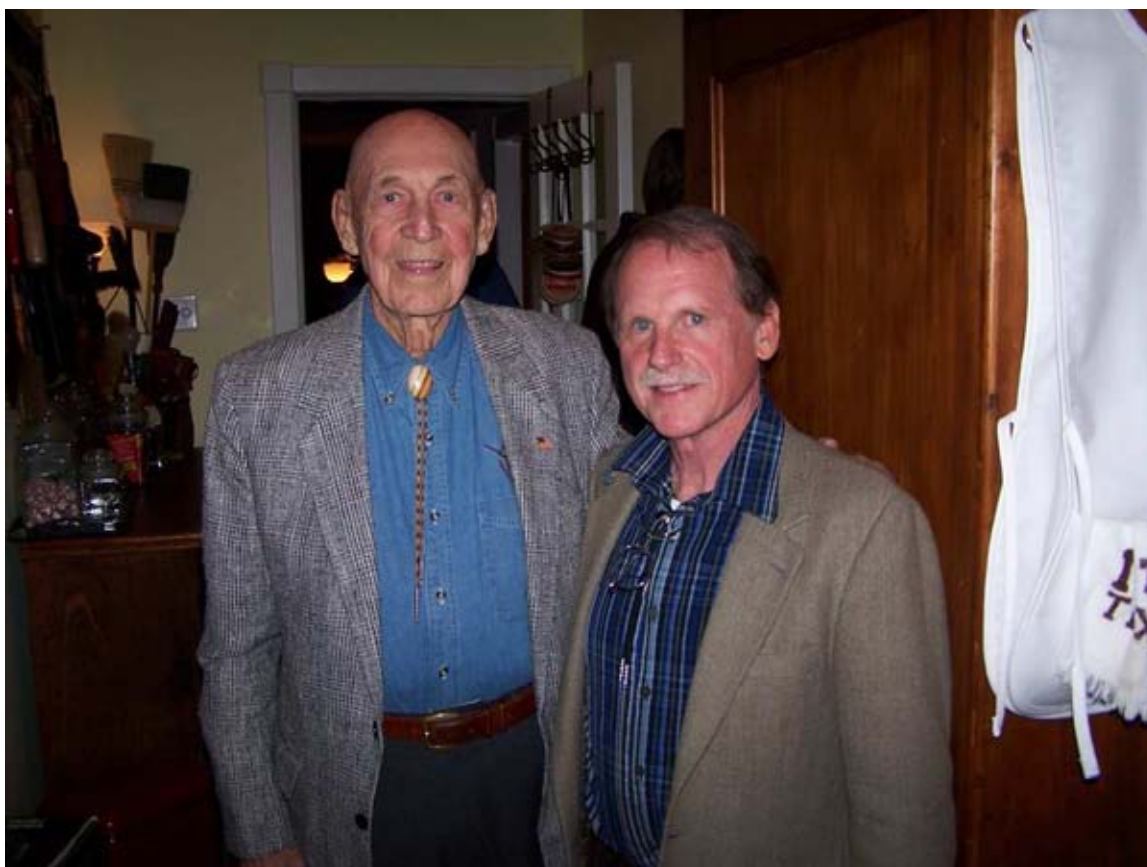
1942. This was our country's first military response to the Pearl Harbor attack of December 7, 1941. It boosted immeasurably the morale of our citizens. It required a bailout plan over China, targeting parts of China not already occupied by the Japanese military. A Wikipedia article (Doolittle Raid) led to http://www.pbs.org/perilousfight/battlefield/doolittle_raid_midway/, which asserts, "The Japanese would eventually execute 250,000 Chinese for helping the American fliers escape.", and "...71 men eventually came home." Another web site (<http://beijing.usembassy-china.org.cn/ww2operationaloutline.html>) reports tens of thousands of Chinese killed in these reprisals. Doolittle was later the NACA Chairman (<http://history.nasa.gov/SP-4201/ch4-3.htm>, a reference which mentions Dryden as the NACA Director at the same time) when President Eisenhower called on him and others to transform NACA into NASA. Jim's father James McLane, Jr. founded our Chinese sister section in 1986. The older Jim McLane went to college using the GI Bill championed by Doolittle.

International Space Activities Committee (ISAC)

Section News

The current membership list for AIAA Houston Section ISAC (please look us up and join us: www.aiaa-houston.org/tc/isac):

1. Ludmila Dmitriev-Odier, United Space Alliance, Chair
2. George Abbey, Jr., United Space Alliance
3. Linda Andruske, NASA/KSC
4. Dr. Albert Jackson, Jacobs, FBIS (Fellow, British Interplanetary Society), Visiting Scientist, Lunar Planetary Institute - <http://www.lpi.usra.edu/lpi/jackson>
5. David Jih, NASA/JSC
6. Michael Kezirian, Engineer - The Boeing Company, Adjunct Professor - University of Southern California
7. James McLane III
8. Padraig Moloney, NASA/JSC
9. Dr. Zafar Taqvi, Barrios
10. Chris Taylor
11. Dr. Gary Turner, Odyssey Space Research
12. Douglas Yazell, Honeywell



Above: After enjoying our section's lunch-and-learn by Dr. Albert A. Jackson a few months ago (attendance 130 in a NASA auditorium), James McLane III looked for and found some of his photos which he took more than 40 years ago when von Braun visited Texas A&M University at College Station. The year was probably 1966. This was taken at a reception following a speech about Apollo plans. The teenage girl in the background is von Braun's daughter Iris. Jim took this with available light using 35 mm Kodak tri-X pan and printed it himself on high-contrast enlarging paper.

Left to right: Retired Colonel Richard (Dick) Cole of the Doolittle Raiders with ISAC and Chinese sister section member James McLane III

U.S. & Russian Cooperation in Extra-Vehicular Activity

Linda Phonharath
College and Co-op
Chair

AIAA Houston Section EVA technical committee Chair Bill West addressed the student section of Texas A&M University at College Station in November of 2007. We thank the Student Section Speaker Chair, Brad Tribley, for arranging this successful presentation.

Below are some notes from the speaker:

Over the last 40 years the United States and Russia/USSR have independently developed not only the capability for launching humans into space, but also for performing tasks outside the spacecraft in spacesuits. The development of this capability, commonly known as spacewalking or Extra-Vehicular Activity (EVA), in

the space programs of both countries was approached very differently given the varied goals of each country's program. In the middle 1990's, the EVA communities of both the United States and Russia were brought together as part of the International Space Station (ISS) Program. Since that time the members of both countries EVA communities have worked together to create an integrated approach to performing EVAs onboard the ISS.

Mr. West's talk incorporated the chronicle this history, starting with the early years of EVA up to the present, and a little beyond. He compared and contrasted the different approach to performing EVAs taken by both countries, such as the varied paths taken in the

design of spacesuits and tools, and the challenge of integrating these two different approaches into one program. He looked at the lessons learned from the ISS, in the context of international cooperation, and how they can be applied to future programs.

Brief Biography: Mr. West has worked at JSC for 19 years as a contractor in the areas of Space Shuttle trajectory design, training of Space Shuttle crews in flight control and propulsion systems, Space Shuttle propulsion systems safety engineer, and for the last 7 years for Hamilton Sundstrand Corp as an ISS EVA Manager in the NASA EVA Office. During that time he worked very closely with Russian EVA specialists as

(Continued on page 21)



AIAA Houston Section Extra-Vehicular Activity (EVA) Technical Committee Chair Mr. Bill West (at right) and Texas A&M University student section members with the Russian Orlan spacesuit

(Continued from page 20)

part of the ISS Joint EVA Working Group. He obtained his BS in Aerospace Engineering from Parks College of St. Louis University and an M.S. in Space Science from the University of Houston - Clear Lake. He has been a member of AIAA since 1982.

On Monday, February 11, 2008, Mr. West repeated this talk at Rice University for their student section. Attendance was 8 students and two other AIAA Houston Section officers, Linda Phonharath and Douglas Yazell.



Another successful Aggie graduate wearing the class ring

U.S. & Russian Cooperation in Extra-Vehicular Activity

Linda Phonharath
College and Co-op
Chair



Orlan spacesuit entrance



Bill West (at right) and in no particular order, the eight attendees rounded up by the Rice University student section: Lindsey Edwards, Tony Castilleja, Jon Allison, Beth Rowan, Annie Jones, Ozkan Celik, and Josh Langsfeld, and Alex Stoll (next to Bill)



Annie Jones at Rice University

CALENDAR

Calendar subject to change. See www.aiaa-houston.org for updates
Contact chair@aiaa-houston.org or events@aiaa-houston.org for further details.

February (National Engineers Week 17-23 February, 2008)

- 13 Lunch-and-learn: Lunar Communications Updated, Space Ops Technical Committee
- 20 National Engineers Week Workshop at NASA/JSC Gilruth Center, Wed., 08:00-13:00: AGI workshop, luncheon speech by Robert Curbeam/VP Ares Corporation and former NASA astronaut, membership drive, & 8 Segway Personal Transporters from 08:00 to 13:00, a free event courtesy of our sponsors
- 21 National Engineers Week Lunch-and-learn: tour of Ad Astra Rocket Company, 141 W. Bay Area Blvd., Webster: limit 60 US citizens. Followed by an informal lunch with our tour guides. Note Ad Astra is just behind Samurai Japanese Restaurant. Since 120 attendees signed up, we repeated the event a week later.
- 25 Horizons online at www.aiaa-houston.org/horizons
- 28 Lunch-and-learn: tour of Ad Astra Rocket Company, 141 W. Bay Area Blvd., Webster

March

- 3 Council meeting at Honeywell instead of Northrup Grumman
- 10 Lunch-and-learn by Dr. Mark Adler/JPL, Mars rovers Spirit & Opportunity, Gilruth Center Alamo Ballroom, free appetizers & tea 11:30 AM, talk at noon
- 11 Dinner meeting: John Frassanito & Associates: NASA/JSC Gilruth Center
- 12 Lunch-and-learn by Nazareth Bedrossian/Draper, "Sailing the Space Station with Zero-Propellant Maneuver (ZPM) Guidance", Guidance, Navigation & Control Technical Committee
- 13 Co-sponsoring Space Center Lecture Series (www.spaceCenterLectureSeries.com) at Space Center Houston IMAX theater: Harrison Schmitt, the last person to step onto the Moon

April

- 7 Council meeting: see our org chart for contact information at www.aiaa-houston.org
- 12 Yuri's Night indoor & outdoor at Space Center Houston: www.yurisnighthouston.net
- 15 11th Congressional Visits Day in DC (2 days): see our public policy chair for information
- 18 Our regional (4-state) Student Paper Conference, 2 days, Friday and Saturday, 18th & 19th
- 25 New issue of Horizons online if we stick to this schedule
- 30 Dinner meeting, NASA/JSC Gilruth Center, speaker TBD

May

- 5 Council meeting: see our org chart for contact information at www.aiaa-houston.org
- 9 Our section's Annual Technical Symposium (Fri., 8 to 5): NASA/JSC Gilruth Center

June

- 2 Council meeting: see our org chart for contact information at www.aiaa-houston.org
- 10 Dinner meeting for our section's honors & awards: speaker TBD
- 25 New issue of Horizons online if we stick to this schedule: quarterly again after this
- 30 End of this AIAA year

July (no council meeting this month: a leadership retreat might take place)

- 24 Regional Leadership Conference, 2 days, Thursday & Friday, 24-25th (Hartford, CT)

Cranium Cruncher

BILL MILLER, SENIOR MEMBER

A manager was upset by the low attendance at his weekly department meeting. This resulted in the following email to the department members:

"At the last department meeting there were only three people present besides me, even though it was "Bring Your Child To Work Day". Therefore, I would like the non-attendees to solve the following problem: The product of the ages of the attendees is 2450. The sum of their ages is twice my own age. Please figure out the ages of the three attendees."

One of the department members replied:

"You haven't given us enough information to solve the problem! I don't know how old you are!"

Which resulted in the following email from the manager:

"It is enough for you to know that I was the oldest person there."

How old is the manager? Assume all ages are integers.

(Send answers to editor@aiaa-houston.org.)



Richard Sessions, President of the Houston Chapter of the Experimental Aircraft Association (EAA), flies over the Clear Lake area in January of 2008. Richard is building his own plane of this kind, a VariEze.

EAA Chapter 12 Home Page: <http://www.eaa12.org/>

EAA National Home Page: <http://www.eaa.org/>

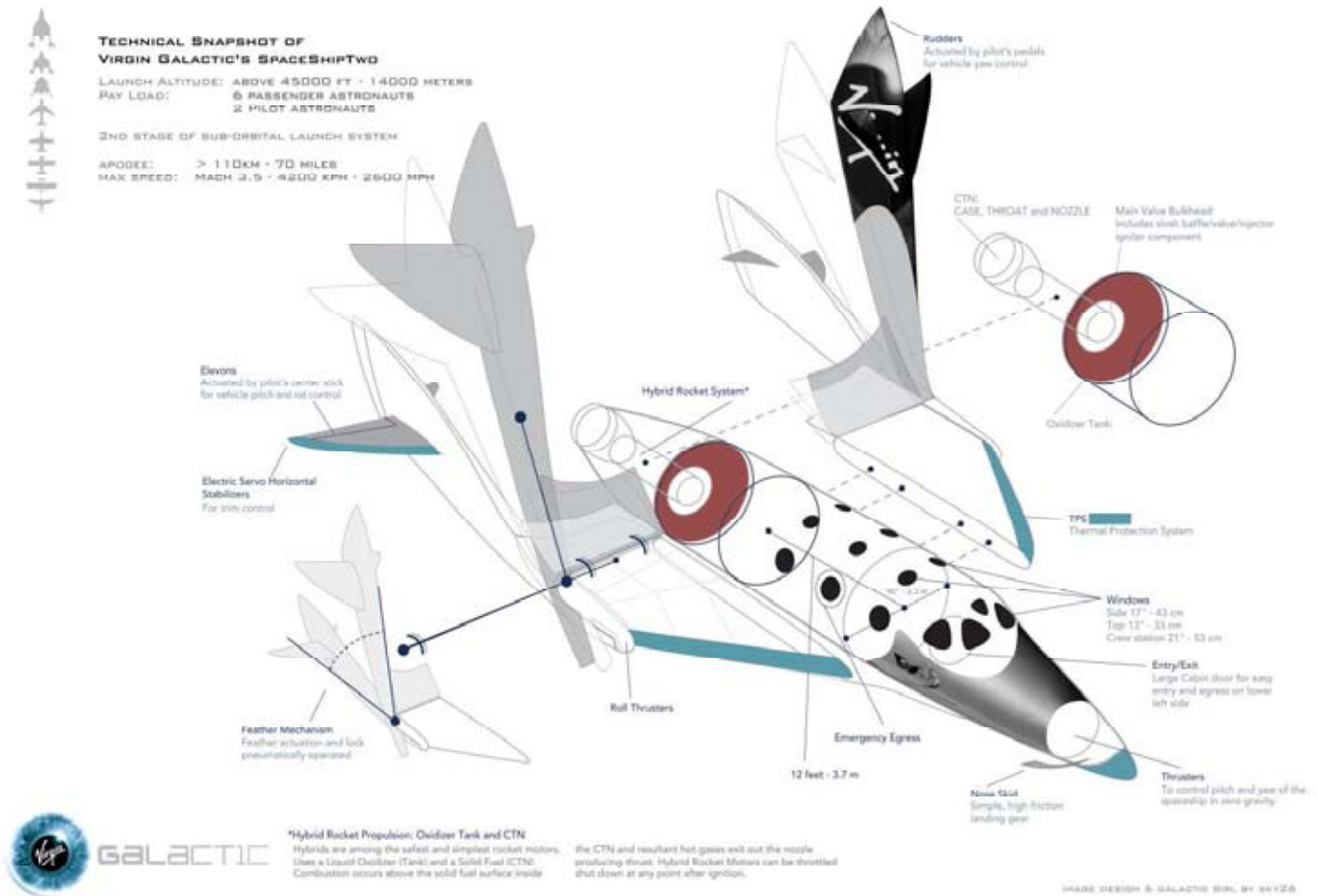
Upcoming EAA events in the Houston Clear Lake area:

4 March 2008 – Directed Discussion – Aluminum Construction Considerations and Techniques Series: Part 2. Riveting, Phil Perry, RV-10, Location: Southwest Services/Hanger AP, Ellington Field

2 April 2008 – Directed Discussion – Aluminum Construction Considerations and Techniques Series: Part 3. Corrosion Protection, Phil Perry, RV-10, Location: Southwest Services/Hanger AP, Ellington Field



Odds and Ends



Images courtesy of Virgin Galactic, thanks to Accredited Space Agent Tara Hyland, our neighbor in the Houston Clear Lake area.

In 1993, Branson was awarded an honorary degree of Doctor of Technology from Loughborough University. He was knighted in 1999[29] for "services to entrepreneurship". Branson is the patron of several charities, including the International Rescue Corps and Prisoners Abroad, a registered charity which supports Britons who are detained outside of the UK. Sir Richard appears at No. 85 on the 2002 list of "100 Greatest Britons" (sponsored by the BBC and voted for by the public). Sir Richard also ranks No. 86 on Channel 4's 2003 list of "100 Worst Britons". Sir Richard was also ranked in 2007's Time Magazine Top 100 Most Influential People in the World. On 7 December 2007, United Nations Secretary General Ban Ki Moon presented Branson with the United Nations Correspondents Association Citizen of the World Award for his support for environmental and humanitarian causes. (<http://en.wikipedia.org>)



Odds & Ends: An early version of the call for abstracts for ATS 2008



Image Courtesy of NASA Johnson Space Center and <http://spaceflight.nasa.gov>



American Institute of Aeronautics and Astronautics

HOUSTON SECTION • P.O. Box 57524 • Webster, Texas 77598

Web site: www.aiaa-houston.org

Houston Section

Annual Technical Symposium

May 9, 2008 (Friday)

NASA/JSC Gilruth Center

Abstracts Due: April 18, 2007 (Monday)

Abstract Submission

Submit abstracts with short author biographies electronically at the AIAA web site:

www.aiaa-houston.org/ats2008

Abstract Guidelines:

- Abstracts should be 250 words or less.
- Abstracts should use the [#] notation to cite references in the abstract text.
- Note the tracking number and password supplied when an abstract has been submitted.
- Submitted abstracts may be updated using the tracking number and password.
- Abstracts will be published. No paper is required.
- Abstracts and Presentations must be cleared for Export Compliance.
- ATS registration is a separate process from the abstract submittal process.
- Authors will be notified on 4-25-08 of abstract acceptance.

Contact the ATS Chair for more information: Sean Carter, 832.651.1000, vicechair-tech@aiaa-houston.org

Cover Story **Virgin Galactic Unveils Final Spaceship Designs**

TARA HYLAND, ACCREDITED SPACE AGENT

I recently returned from the 1st Virgin Galactic Global Forum for Accredited Space Agents in Philadelphia held at the NASTAR Center held January 20-22, 2008.

I experienced the thrill of a lifetime when I participated in NASTAR Center's space training S-400 simulator flight and experienced 3 g forces on the ascent and reentry. The simulator takes one passenger at a time in a small capsule which is attached to the arm of a 27 foot centrifuge. It was a breath taking experience complete with views of the starry sky and the curvature of the earth as we reached altitude and zero g.

It was definitely an experience to remember and one which will allow me to discuss the dynamics and the thrill of the flight with my prospects for Virgin Galactic sub-orbital space flights. The flight I did was a 50% profile of the real flight and gave me a much better understanding of what the first civilian astronauts will experience.

My meeting with other Accredited Space Agents from around the world was truly an international experience. During 2 days of training by the Virgin Galactic staff, I also participated in breakout sessions where the group brainstormed marketing ideas and learned about each other's

unique opportunities to sell Virgin Galactic sub-orbital space flights. Another interesting part of the experience was to hear from some of those founders who have already purchased seats what motivated them to do so.

The highlight of the trip was January 23, 2008. The Accredited Space Agents were invited to be special guests at a major press conference at the Museum of Natural History in New York where the Sir Richard Branson and Burt Rutan unveiled the final designs of the launch vehicle, White Knight 2 and Spaceship 2. It was truly remarkable to be present at this history making

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Below: the full version of our cover photograph, courtesy of Virgin Galactic



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event.

It is anticipated that the vehicles will begin testing later this summer and be tested for approximately 12-18 months. Once the testing is complete, the space flights will begin flights.

It is hoped that Spaceport America being built in New Mexico will be completed about the same time. This will be the permanent home for the Virgin Galactic space flights which will originally launch from Mojave, California until the New Mexico spaceport is completed.

My trip ended with a Virgin Galactic party at the Museum

of Natural History in the Space Exhibit section. Along with Sir Richard Branson, his family and the Virgin Galactic Staff also attending were many of the founders who bought the first 100 seats.

The NASTAR Center in Philadelphia is now offering various air and space virtual experiences which the Accredited Space Agents are now registered to sell. You can view NASTARS space or flight adventure simulation options at

www.nastarcenter.com.

For more information about Virgin Galactic or NASTAR, contact Tara Hyland at 832-439-7363 or space-ship2travel@yahoo.com or tara.hyland@navigant.com.

Editor's note: In Space News of February 25, 2008, page 32 is a full-page article about the NASTAR Center. Page 2 has 4 short paragraphs under the headline, "Burt Rutan Undergoes Open-Heart Surgery", and the news about his recovery is good so far.



Our cover photograph of Sir Richard Branson, Houston's own Tara Hyland, and Burt Rutan at the unveiling of the final design on January 23, 2008, at the Museum of Natural History in New York City.

Below: Spaceship 2, courtesy of Virgin Galactic





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

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