SEDS

2nd Quarter 2010

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NOVA

Front Page: Spacex's Falcon 9 *leaving the launch pad for its highly successful maiden voyage. Credit: Chris Thompson, SpaceX*

Above: A composite image of the Martian surface as seen from the Mars Exploration Rover, Spirit. Image Credit: NASA

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NOVA

Summer greetings to all space enthusiasts,

On behalf of Joshua Nelson, who is currently located overseas, I would like to wish everyone a warm and wonderful summer, packed with exciting space accomplishments. At the industrial level, the recent launch of the SpaceX Falcon 9 rocket was a success and a milestone in making space cheaper and more accessible to human exploration and growth. At the student level, national SEDS members united at the ISDC 2010, located in Chicago, Illinois, to further expand their perspective on current and future space.

The ISDC conference offered SEDS members the opportunity to interact with space leaders, and at the same time experience the Chicago summer winds. SEDS would once again like to extend its gratitude to the National Space Society and Space Frontier Foundation for their support this ISDC, and would like to thank all members who helped volunteer.

The SEDS SpaceVision 2010 conference, to be held at the University of Illinois is currently being planned, and marks a premier student opportunity to interact at the National level. I would encourage all members to consider attending this event held from Nov 5-7.

Again, reignite a deeper drive for space, along with the current commercial milestones hit. And finally, please indulge in another captivating release of the NOVA!

-Ajoy S. Fernandes

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Why American and Russian Space-Cultures are Different
Talk to International Space Development Conference
Chicago, Illinois, May 30, 2010

Freeman Dyson, Institute for Advanced Study, Princeton, New Jersey
Responding to O'Neill Memorial Award for Space Settlement Advocacy

First, let me say thank you to all the people here who were involved in the decision to give me the O'Neill Award. I am proud to have worked with Gerry O'Neill and shared his dreams. Gerry was one of my closest friends, and my wife and I are happy to have his widow Tasha still with us as a friend and neighbor in Princeton. A couple of weeks ago we were chatting with Tasha while enjoying a marvelous exhibition of her photographs at a gallery in Hopewell. She is an artist who works with water and light as brilliantly as Gerry worked with magnets and electricity.

When I think of Gerry, I grieve over many projects that his early death left unfulfilled. I grieve especially over VSE, Gerry's fast train project, which he started in the last year of his life when he was already mortally ill with leukemia. VSE stands for Velocity, Silence, Efficiency. Gerry based his strategy on the principle that any major new transportation system must beat the existing systems by a factor of ten to have a chance of prevailing. Railroads beat horse-drawn coaches by a factor of ten. Jet planes beat ocean liners by a factor of ten. VSE would beat automobiles by three factors of ten, one factor of ten for velocity, one factor of ten for silence, and one factor of ten for efficiency. VSE would be totally different from the existing fast-train systems, the TGV system in France, the Shinkansen in Japan and the MAGLEV system in Germany, which are only marginal improvements over ordinary train systems. The existing fast trains beat ordinary trains by less than a factor of two.

The VSE system is a network of eight-foot-diameter natural gas pipelines through which the trains move as nimbly as messages through a telephone network. The trains are small and light. Each train carries eight passengers with luggage. Every journey is non-stop. Terminals are small and widely distributed, conveniently placed under shopping malls or parking lots. Inside the pipelines is air at a very low density, almost a vacuum. Low-density air is an excellent conductor of heat, so it can be dense enough to cool the magnetic suspension of the trains, and not dense enough to produce substantial drag. The trains accelerate gently at one tenth gee, but reach speeds of three thousand miles per hour on transcontinental trips. The trip from New York to San Francisco takes less than an hour. The essential novelty of the system is ...

To view the rest of this article, written by Freeman Dyson, visit our website http://seds.org/node/3322

Above: Ryan Kobrick with Freeman Dyson at the National Space Society's International Space Development Conference 2010. Image Credit: Ryan Kobrick

National Space Society

SpaceVision 2010

Envision. Ignite. Achieve.

November 5-7, 2010

The Students for the Exploration and Development of Space (SEDS) invite you to attend our annual national conference, SpaceVision 2010! SpaceVision is the largest fully student-run space conference in the nation, dedicated to facilitating networking between college students, professionals, and the public, furthering the development of SEDS-USA, and allowing the sharing of ideas through interactive lectures and workshops.

From November 5th to 7th, 2010, join hundreds of students and professionals with a passion for space and space technology at the University of Illinois at Urbana-Champaign.

Conference events include: speeches and panel discussions led by experts in the space industry, a student design competition, a 'State of the Industry' exhibition, the yearly SEDS executive board elections, and much more! Speeches and discussions will focus around the theme "Envision. Ignite. Achieve.", which is directed toward the current rekindling of space enterprises. Current speakers include:

Pete Worden, Director of NASA Ames Research Center
Lori Garver, Deputy Administrator of NASA
Steve Brody, Vice President of International Space University
Bob Richards, CEO of Odyssey Moon
Jeff Feige, CEO of Orbital Outfitters
Michael Laine, Founder of Liftport Group

George Nield, Associate Administrator for Commercial Space Transportation, FAA

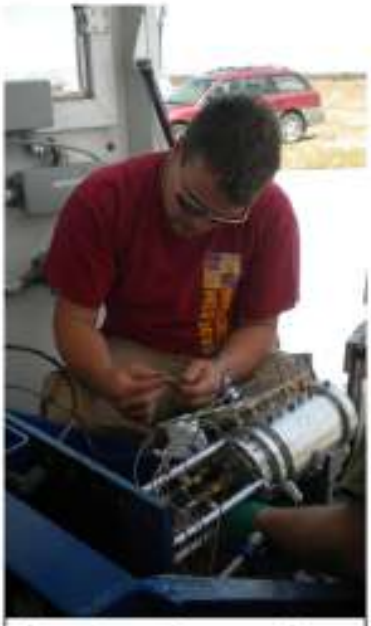
For more information, please email: spacevision2010@gmail.com or visit:

www.spacevision.seds.org

Sponsored by: Lockheed Martin

Inside Masten Space Systems

A great way to spend a spring. By: Matt Cannella



The author works on one of Masten's test-stand rocket engines.

This spring I was extremely honored to intern at Masten Space Systems in Mojave, California. While living in the Mojave Desert might not sound like the best place to live, Mojave, specifically Masten Space Systems, offers one of the best internship opportunities available to students interested in NewSpace. Through my time there, I was able to complete both engineering design projects, as well as lots of hours in the shop with hands on experience on Masten's "Xombie" rocket vehicle. From Liquid Oxygen safety training to constructing cold-flow test rigs, the Masten start-up company atmosphere provided the NewSpace experience for any bright student.

Unreasonable Rocket's "Blue Ball" vehicle (L) sits next to "Xombie" (R) during a day of test flights in Mojave

Masten Space Systems is a Mojave, CA based aerospace company developing fully reusable vertical takeoff, vertical landing (VTVL) launch vehicles, rocket-related products, and engineering services. The company's 6000 square foot production facility and 200,000 square foot testing facility is located on the Mojave Air and Space Port. The company designs and builds aerospace solutions that focus on durability, long operational lifetimes, and minimal per-flight maintenance. For more information on the company, and their internship opportunities, see http://masten-space.com

(Above): The Masten Space Systems table at the Space Access Conference

(Left): The author is filling the "Xombie" rocket vehicle with liquid Oxygen, under the supervision of SEDS Alumnus Ben Brockert

Refocusing the debate: An Evening with Neil deGrasse Tyson

The beginning of the year has seen a time of great change with regards to the plan of action for the United States space program. In early February, we saw a shift from the "plan of record", the Constellation program, to a different set of priorities.

At the University at Buffalo, we were fortunate to have Dr. Neil deGrasse Tyson speak shortly after this change occurred, giving a presentation as part of the Distinguished Speaker Series on March 31st. As part of the visit, UB-SEDS was able to setup a meet and greet with Dr. Tyson, enabling our members to talk with him, as well as have books signed. This meet and greet also included several other groups, including primary & secondary level students from the Buffalo area. Because of Dr. Tyson's role of Pluto's demotion to a dwarf planet, many of the questions unsurprisingly focused on celestial body. When asked by an older student what he thought of the focus by the public with his experiences of Pluto's demotion to the detriment of things like dark matter and galaxy formation, he noted his slight annoyance with the fact. Towards the end of the end of the question and answer session, I decided to ask a question so keen on everyone's mind now-a-days, 'What do you think about the new NASA direction?'. To my surprise, I was informed by Dr. Tyson that he wasn't going to answer the question at the Q & A, but would instead like for me to ask the question at the main event.

Through setting up this special meet and greet with Dr. Tyson with the University, I was contacted a few weeks before the event to expand the roll that UB-SEDS would play in the event, through having myself introduce him to the main audience. At the end of the main question and answer session, I was able to ask Dr. Tyson, "...Would you care to discuss the recent changes to the nations space program?". What followed was one of the most inspirational speeches regarding the reasons for having an effective Space program. He explained the principal motivation for NASA is not simply exploration, but a tool for promoting science education. He noted that without a plan to go beyond Low Earth Orbit, the effect that NASA can have on students is minimized, stating; "...That worries me, because without a plan to go somewhere outside of low earth orbit, we've got no force operating on the educational pipeline of America."

Fortunately, those who were unable to attend this tremendous event are still able to see parts of the program online. The full answer to the question can be found at http://www.youtube.com/watch?v=RQhNZENMG1o

View it Online: http://www.youtube.com/watch?v=RQhNZENMG1o

"Nobody's dreaming about tomorrow anymore. NASA knows how to dream about tomorrow, if the funding can accommodate it, the funding can empower it, the funding can enable it." - Dr. Neil deGrasse Tyson

CHAPTER UPDATES

Purdue SEDS Chapter Update

By: Alexander Roth, Council of Chapters Representative

Last fall we added a Hypergolic Rocket project to our organization. That team has been designing and experimenting throughout the year.

The Hybrid Rocket group successfully launched an avionics and recovery test rocket in April with a solid rocket motor, which flew to about 4100 ft.

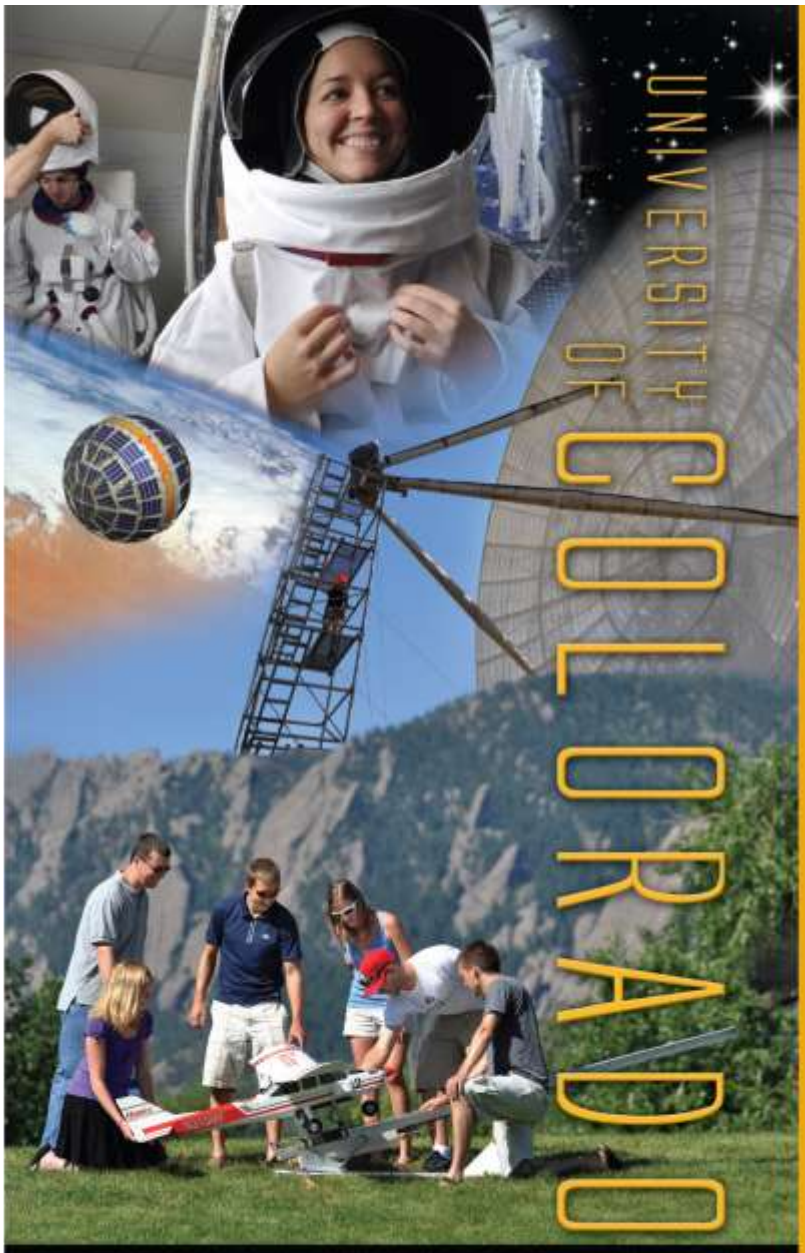
We hosted Dr. Michael Griffin at our Spring Space Forum. The event had a great turnout and we were very fortunate that he was able to come to Purdue to speak. A few weeks after the forum, we ended the school year with a rocket launch BBQ.

Currently, we are looking into obtaining a satellite project from NASA. Along with this project, we are hoping to have another rocket BBQ and more outreach activities.

Description of GWSS-SEDS Events This Quarter:

By: Stephanie Wan, George Washington University SEDS Council of Chapters Representative

The GWSS-SEDS chapter, at the invitation of NASA Administrator Gen. Charles Bolden was provided a VIP tour of Kennedy Space Center and attended the spectacular night launch, and final flight of the Space Shuttle Endeavour on the STS-130 mission to the International Space Station. The chapter was also excited to have the pleasure of hosting several distinguished guest speakers this semester, including Dr. John Logsdon, founder of the Space Policy Institute and author of "The Decision to Go to the Moon: Project Apollo and the National Interest." Other guest speakers included Ms. Esther Dyson, recently appointed as the Chair for the Technology and Innovation Committee of the NASA Advisory Council (NAC). Ms. Dyson spoke about her cosmonaut training experience in Star City Russia as an alternate for ISS space flight participant Charles Simonyi . Dr. Colleen Hartman, the former Deputy Associate Administrator for the Science Mission Directorate at NASA, gave an engaging presentation describing NASA's space science endeavors in the form of a "virtual tour" across the solar system. GWSS wrapped up its guest speaker series with Mr. Leon Fuerth, former National Security Advisor to Vice President Al Gore who spoke about his role in the early negotiations which led to Russian participation in the U.S.-led International Space Station. The GWSS-SEDS chapter also hosted several space-themed social networking events in Washington DC, bringing together young space professionals in the DC area, including: graduate and under-graduate students in the fields of space policy and aerospace engineering, ISU alumni, and young space professionals from NASA Headquarters, as well as the Goddard Space Flight Center. GWSS-SEDS has big plans for the fall semester to include more guest speakers, symposiums and continued outreach to organizations internal and external to the George Washington University.



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- **Aerospace Engineering Systems**
- **Remote Sensing**

Graduate students are admitted into a specific focus area which provides research advising, and financial support. Each focus establishes its own admission and program requirements and recommendations for course work within and outside the department.

SEDS Alumni Spotlight

Name: William Pomerantz
SEDS Branches: Harvard
Degree: 2002, BA in Earth and Planetary Sciences

1. Where are you working now and what is it that you do there?

I'm currently the Senior Director for Space Prizes at the X PRIZE Foundation—essentially, I run the space side of the Foundation. I currently manage the $30 million Google Lunar X PRIZE, and I ran the NASA-funded, $2 million Northrop Grumman Lunar Lander X CHALLENGE until it was awarded in late 2009.

I love my job because it allows me to do something different just about every day. Depending where we are in the course of a prize's lifecycle—developing the prize concept, fundraising the prize purse, writing the formal rules, recruit teams, promoting their hard work, and conduction education and outreach programs—my job might be require engineering, business development, promotion, education, or any of a half dozen other disciplines.

Working at the X PRIZE Foundation also allows me the amazing opportunity to have a real impact on the future of industry. Brainstorming potential future prizes is often the most fun part of the job. It's a chance for us to really highlight areas where the industry isn't progressing the way it could be, and to look for ways to help us clear the hurdles that that have kept the industry from moving forward.

2. Out of all the *annual* space conferences or events you have attended, which one would you suggest the most to current SEDS members? Why?

The obvious answer here would be SpaceVision; not only is it a great chance to meet your fellow SEDS students and alums from other chapters, but it's also becoming the place where the most exciting and the most savvy employers go to recruit new hires. SEDS students from every chapter should find a way to attend, and to use the conference not only to hunt for jobs, PhD advisors, and so on but also to find ways for their

chapter to get more involved in the national organization. The SEDS national officers have pretty cool jobs—I've personally seen the current Executive Director shake hands with President Obama, Adminstrator Bolden, Buzz Aldrin, and Neil Degrasse Tyson all within an hour or so of each other, for example—so students from every SEDS chapter in the country should be finding ways to run for office and to support the current board.

If you mean a conference besides SpaceVision, I'd probably say the annual Space Access Conference, which takes place in Phoenix, Arizona. It's a fun gathering of a lot of the smaller "New Space" companies like Armadillo Aerospace and Masten Space Systems. You'll get all of the CEOs or senior staff from these companies there—and in most of those companies, the CEO is also a 'rank and file' engineer. You can talk shop with these dynamic firms, learn an enormous amount, and often find opportunities to fly experiments or summer internships. Also, like SpaceVision, it also has the advantage of being both a lot fun and quite cheap.

3. In what ways did your involvement with SEDS help you follow your dreams?

I can say without a doubt that I would not have my job without SEDS. In fact, I probably would have never known my job existed without SEDS—and given that I work at an organization founded by SEDS co-founder Peter Diamandis, I guess my job *wouldn't* have existed without SEDS. But in any case, I can certainly draw a very direct line from SEDS to the NASA Academy at Goddard Space Flight Center to the International Space University.

4. What is one fun/crazy/memorable SEDS event or memory which you will always remember?

The Harvard Chapter was quite young when I first joined up, and had only one major activity per year; an annual trip to Washington, DC, to meet with Congressional staffers through ProSpace's "March Storm" event. When I attended for the first time, the then-President of the Harvard Chapter, had just been admitted to the NASA Academy. He arranged for us to meet with Dr. Gerald Soffen, the head of the NASA Academy and (among other things) the chief scientist for the Viking missions, at the Smithsonian's National Air and Space Museum. Getting to stand in front of the Viking probe they have in the main hall there with Dr. Soffen, who provided a detailed recap of the mission and a walkthrough of the various space craft parts, was simply stunning. It was also the first time I'd heard of the NASA Academy (which I'd later attend), the International Space University (which I'd also later attend), and the X PRIZE Foundation (at which I know work). Five years later, I'd be back at that exact same spot, giving a talk about SpaceShipOne, which know hangs directly above where our SEDS group met Dr. Soffen.

Know an outstanding SEDS Alumni from your chapter who is currently involved in the Space Industry? E-mail publications@seds.org to suggest next issue's

SEDS – USA Attends the Presidential Space Summit

President Barack Obama during his Space Summit Address, as seen from the perspective of Joshua Nelson.

Members from the SEDS-USA board were invited to attend President Obama's Space Summit at the Kennedy Space Center on April 15th, 2010. The meeting was organized by the White House to advocate for the policy changes introduced in the FY11 budget proposal and reiterate the presidential commitment to NASA's future. The summit brought together two-hundred guests consisting of leaders from the space industry and a handful of students. The agenda consisted of four parts: a morning meet-and-greet with the invited guests, remarks by the president, remarks by Norm Augustine / John Holdren followed by panel breakout sessions, and a conference wrap up by Administrator Bolden. The policy changes proposed by President Obama for the 2011 budget remain the hot topic of debate. The FY11 budget proposal changes the way that human space flight operates at NASA, giving more responsibility to the private sector with the agency to focus on technology development. Although this does not significantly change NASA's overall budget, it does shift how the funds are distributed among congressional districts, which changes the post-shuttle return-to-flight timeline, and reduces or eliminates existing projects such as Constellation. SEDS continues to maintain a neutral standpoint in the debate, and supports policies which promote the exploration of space and enables student opportunities. Presented below is a collective summary of the day from the perspective of the attending SEDS students.

The invitation to the SEDS arrived just four days prior to the event and put the exec board in a scramble to determine who was available and could secure funding to participate. Plane tickets were purchased and three days after the first notice, SEDS Chair-Josh Nelson, Director of Expansion-Rick Hanton, Director of Outreach-Keri Hancock and Secretary-Bruce Davis were in Florida. The travelers compiled a press release on behalf of the SEDS organization (with the help of the entire exec board and chapter representatives) which restated the goals of SEDS and how existing/new policies proposed by the Obama administration enables this to occur[1].

The SEDS-USA team was among some first to arrive at the KSC Visitor's Center for the summit. Over the next half-hour approximately two-hundred members arrived for a meet & greet reception. There, the SEDS-USA group met up with other students representing universities from Florida including UCF-SEDS. At the reception, the SEDS members mingled with many leaders from industry spotting current SEDS supporters and introduced the organization to scores of others. The crowd contained many remarkable people including: astronauts, policy makers, CEOs, presidents of national organizations, reporters, and educators.

After an hour, we boarded busses which took us from the Visitor Center to the Operations and Checkout building where the president would make his remarks. We were called off the bus one at a time by name to move through the security line and preceded into the O&C high-bay. There we were able to see the stage where the president would make the remarks as well as an impressive bank of cameras and media in the back. Although we were confined to a gated area between the stage and press, we were able to walk around for about an hour and continued to mingle with the attendees. In addition, a new group had joined us who were traveling with the president including such persons as astronaut Buzz Aldrin, Elon Musk, elected officials and presidential staff. Around 2:45pm we took our seats (SEDS Chairman Josh Nelson, has a reserved front row seat) while Senator Nelson and Administra-

tor Bolden made a few remarks before introducing the President. Obama's speech had many details that you can read about or watch online, however the general consensus was that he reiterated much of his already established policy, expanding his plans to include use of the Orion spacecraft launched on existing boosters as an escape vehicle in addition to SpaceX and Orbital Sciences vehicles, he explained why his method was the best step forward, a more definitive destination goal for exploration and ways to ease the transitional period within the workforce as NASA moves towards a new vehicle, particularly in Florida. After the remarks, Obama spent about fifteen minutes walking the through the line and shaking the hands of the attendees including those of the SEDS members in attendance and departed by 3:45pm.

Keri Hancock and Bruce Davis speak with prominent members of the space community.

After a bit of seat shuffling, the summit continued with remarks by Bolden, Augustine and Holdren where they went into further discussion of how the White House made their policy decisions and how those decisions will be implemented at NASA. Next we divided up into four pre-determined groups to participate in panel sessions discussing several key areas of interest: 1) Expanding into the solar system, 2) access and utilization of the ISS, 3) New Technologies, and 4) Expansion of economic opportunity. The panel sessions were full of information, ideas and perspectives from industry, however the discussions remained high-level and involved brief interaction with the audience. Afterwards, the entire attendees regrouped for a conference wrap-up where Bolden, Holdren, O'Brien, Augustine and Garver recapped the points discussed at the panel sessions. The presidential transcript, videos from the panel sessions, and pictures are available on NASA's website[2,3]. Before departing KSC, we were able to organize a tour of the Vehicle Assembly Building, seeing the Space Shuttle Atlantis up close just after its attachment to the external tank.

What this trip means for SEDS

SEDS was specifically invited to attend this event by the NASA administrator's office which reflects on how the reputation of the organization is evolving. We are becoming the group to talk to when looking for passionate, involved and professional students who want to advocate space. This invitation was an unprecedented opportunity for SEDS to gain exposure to leading members within the industry and will help the organization to grow in the coming years. Hopefully, this marks the beginning of a series of opportunities to propel SEDS forward as the cohesive voice of the future generations who want to pursue space. The current executive board members challenge current SEDS members run for the national board next fall to help lead the organization and make a difference!

1. http://seds.org/pr/4-15-2010
2. http://www.nasa.gov/multimedia/nasatv/spaceconf.html
3. http://mediaarchive.ksc.nasa.gov/search.cfm?cat=56

Written by Bruce Davis, Joshua Nelson, Keri Hancock, and Rick Hanton, members of the SEDS-USA 2009-2010 Executive Board.

SEDS-USA Director of National Projects Resigns

Above: Basant Sagar, Former SEDS-USA Director of National Projects

Students for the Exploration and Development of Space announced on June 18, 2010 that Director of Projects Basant Sagar has resigned from the SEDS-USA Executive Board of Directors effective June 14th.

Basant, who joined the SEDS-USA executive board in 2008, is a student at the Massachusetts Institute of Technology who is working towards a Bachelor's Degree in Mathematics. Basant is currently spending the summer as a student researcher in the MIT Senseable Cities Lab.

Basant spent his years with SEDS-USA developing and leading the main national project activity, a competition to develop a high-altitude rocketry system launched from a sounding balloon (also commonly referred to as a rockoon system). Due to his availability this summer as well as other issues that have arisen with event preparations, he has stepped down to allow another student to replace him in organizing this unprecedented SEDS event and future national projects.

The board of SEDS-USA was disappointed to see Basant go, especially when he was already more than half-way through his term in the position, but has high hopes that another motivated and talented student will rise to the occasion to replace him until regular elections in November and possibly beyond. If any SEDS students are interested in working to complete the organization of the rockoon project (currently scheduled to end this September) and want to be involved in developing future national SEDS-USA projects and competitions, they should contact Grant Atkinson, the SEDS-USA Director of Chapter Affairs at chapter-affairs@seds.org. Grant will be conducting an unscheduled election for the position within the next 1-2 weeks as outlined in Section 3 of the SEDS bylaws, so make sure your chapter votes!

While Basant has stepped out of the position, talks are still underway for the SEDS Rockoon Project and the two remaining teams plan to demonstrate their Rockoons at the Black Rock desert in Nevada sometime between Sept 12-19th, 2010 with assistance from Association of Experimental Rocketry of the Pacific (AeroPac) pending AeroPac and FAA approval. Follow @sedsusa on twitter for the latest updates on the election and the rockoon launch.

SpaceX Successful in First Test Flight of Falcon 9

Earlier this month Space Exploration Technologies (SpaceX) made a major breakthrough in the progress of the commercial space industry with the successful first test flight of their Falcon 9 launch vehicle. Marking the third straight successful launch for SpaceX, the Falcon 9 looks to build upon the progress made by the Falcon 1 in recent years. The 180 foot tall two-state-to-orbit rocket, capable of launching in excess of 735,000 lb. to Low Earth Orbit, launched beautifully into space from SLC-40 at Cape Canaveral Air Force Station in Florida on June 4th, 2010.

The maiden flight carried a qualification unit of the Dragon Spacecraft, which will eventually be able to sending cargo and crew to the International Space Station. According to SpaceX Founder and CEO (and friend of SEDS) Elon Musk, he considered it "very much a test flight, checking out ground issues, launching, countdown systems, staging, GN&C, vacuum system performance, and engine performance." For this mission, the qualification capsule was inserted into a 250 km circular orbit. Success was initially valued at even getting full production from the first stage (powered by nine Merlin 1C engines), however the mission went as planned without any major problems.

Above: SpaceX test flies their Falcon 9 rocket for the first time. Its successful launch marks a big milestone for commercial space flight. Image Credit: Chris Thompson, SpaceX

Ken Bowersox, former astronaut and current Vice President of Safety and Mission Assurance for SpaceX, stated before the flight that he "will not consider SpaceX a long-term success unless we can get Falcon 9 to a fully reusable state", a primary goal for the vehicle. As SpaceX continues to get contracts for future missions, from both commercial and government customers, they continue to move forward in providing a low-cost launch alternative. SEDS-USA Chairman, Joshua Nelson, emphasized that flights like this "are able to provide amazing opportunities for students doing space research at their school or university as well as students graduating and looking for employment in the space industry" as well as giving both SpaceX and Elon praise for their accomplishment.

Having the opportunity to watch the maiden Falcon 9 flight from the NASA Causeway, approximately 3.4 miles from pad 40, I can't even describe the feeling of watching history unfold. Congrats to SpaceX and to the entire commercial space industry as you continue to accomplish what was said to be impossible.

Michael P. Green
SEDS-UCF Alumnus

For the press release that SEDS-USA released about the Falcon 9 launch, please visit http://seds.org!

The Logistics of Launching a Rocket

This article is the first of a three-part series that will follow Ben Corbin (MIT graduate student) on his journey toward programming and launching a rocket into the thermosphere to capture atmospheric data for Venus.

By Angela Marie Latona

Ben Corbin is just like every other graduate student working toward his degree: a double masters student at the Massachusetts Institute of Technology, Corbin is nervous about his Ph.D. qualifying exam in January, hardly sleeps and works what he would consider the equivalent of a full-time job on top of his classes. Sounds about right for the graduate student life. Except for the fact that in July, Corbin and his team of scientists will embark on a trip to New Mexico to watch and wait as his rocket takes off for the outer reaches of Earth's atmosphere.

Above: Ben Corbin. Image Credit: Ben Corbin

The Venus Spectral Rocket (VeSpR) is a collaboration project between BU and MIT and is set to launch on July 15, 2010, from the White Sands Missile Range in southern New Mexico. VeSpR is expected to gather data on Venus' atmosphere as it arcs some 200-300 km into Earth's atmosphere -- soaring well into the thermosphere. For reference, the International Space Station orbits comfortably within the thermosphere, but at about 350 km above the ground.

The Graduate Student, An Introduction

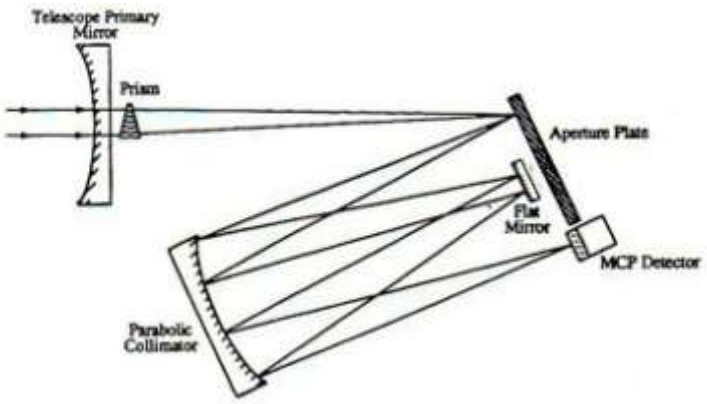
Corbin graduated in 2008 from the University of Central Florida where he concentrated in aerospace engineering. He is currently a a double masters in aeronatics, astronautics and planetary sciences at MIT, and is set to graduate with that degree in December 2010. However, his days of schooling are not quite over -- this month he takes his Ph.D. qualifying exams.

As the engineer among astronomy personnel, Corbin has a unique outlook on the rocket project and what he can gain from it.

"It's a good chance to get real world experience," he said.

The hands-on experience is not just about the designing of the rocket, Corbin said, it is also about the factors and constraints that go into updating or changing even one part of the more than 30-year-old design. Changing even one piece of the equipment could result in a snowball effect of changes for other pieces as each instrument is calibrated or fitted for unique specifications.

For Corbin, planetary sciences have always been a passion, so he is still curious about the atmospheric data that the rocket's cameras will collect -- but less so than the engineering that goes into getting the piece of machinery off the ground and functioning correctly while in flight.



Above: A diagram of the imaging device installed in the rocket. This is what the rocket will be using to record data from the atmosphere of Venus. Image Credit: Ben Corbin

The Rocket, An Introduction

The Venus Spectral Rocket design was first introduced in 1968 at Johns Hopkins University. Since then, graduate students across the country have given the rocket's frame quite a few makeovers by reequipping it with modern instrumentation, cameras and electronics.

Despite a number of attempts, the rocket has only had 11 successful flights, with Carveth and Corbin's launch slotted to be no. 12. The last successful flight of VeSpR was in 1996. The last attempted flight was in 2003.

Current BU faculty who worked on the rocket include supervising professor John Clarke, who worked on the project when it was called JASPR and took pictures of Jupiter and Saturn instead of Venus, when he was at Johns Hopkins University as a graduate student himself.

While NASA grants fund the project, it will be officially launched by NSROC, a private sub-wing of the government organization.

With the U.S. 2011 fiscal year budget fully publicized at the recent State of the Union Address, it seems that Congress has little interest in fueling any NASA-engineered manned missions. While the idea is to give the private sector more incentive to research the technology and engineer crafts (and leave the science and number-crunching to NASA), it also could have implications for the budding scientists with hopes of one day sitting at Mission Command.

According to the U.S. Office of Management and Budget, which has data on what portion of U.S. funding has gone to NASA dating back to 1958, the government-run program has had a startling small percent of overall U.S. spending. To date, there has not been a year where NASA has received more than 4.5 percent of the government's budget, with the majority falling below the 1 percent mark. Out of the 52 years of funding, 1966 ranks as the highest percentage of the budget, and 2009 ranks highest in dollar-amounts at just under $20 billion.

Above: The launcher for the rocket. Image Credit: Ben Corbin

Currently, NASA is sending astronauts and other specialists to the International Space Station and regularly sending crew members on the Space Shuttle (which will end this year). In all, the space agency has launched more than 100 manned missions, sending hundreds of men and women into orbit. The newest spaceflight program, The Constellation Project, would be effectively cancelled with the proposed budget as it stands.

But with manned missions moving more toward privately funded projects -- such as Virgin Galactic, SpaceX and Blue Origins -- NASA would be left with the science and the technology behind the next big move to space exploration, and that might not necessarily be a bad thing in the eyes of those being educated in the top scientist's footprints.

Corbin agreed, pointing out that what was "cutting edge" 50 years ago is no longer even very interesting to science. Allowing the private sector to pump the billions needed to shuttle people or cargo into space would free up NASA to once again move back to the cutting edge and set the space program up for the next big thing.

In the end, it's still too early to tell what effect this new budget will have on the space agency and the future of human spaceflight, but with politics and science so closely intertwined (with the rope being money), it will indeed mark the beginning of a new era of space exploration as well as research and development.

"Obviously, in the short term, a lot of people lose their jobs, a $6 billion investment is killed, and there's no longer a clear path back to the Moon and Mars. Yes, this is the biggest policy shift in NASA's history, but it's a shift back in the right direction, where NASA needs to be, at the cutting edge," Corbin said.

"Let UPS deliver packages to [low-Earth orbit], let NASA build the amazing technologies, then make NASA buy a stamp and have UPS send it to LEO instead of walking all the way there."

The Space Access Conference

By: Matt Cannella

If there is one conference that students should be at, but aren't, it is the Space Access Conference.

Held in Phoenix, Arizona every April, the Space Access Society conference is a relaxed "local hang-out" of all things NewSpace. This year's conference featured a wide spread of representatives including the Armadillo Aerospace 7, the entire Masten Space Systems team, and a large XCOR contingent. But what made this conference even more fascinating was another fact; everyone was extremely approachable.

Space Access Society
"Reach low orbit and you're halfway to anywhere in the Solar System"
Robert A. Heinlein

If there was ever a place for one on one discussion of anything space, this was it.

But the Space Access conference didn't stop with just the NewSpace crowd. Government representatives from NASA and the FAA, presenters from large companies such as ULA were all there to show their stuff. Updates from NASA, never before seen video from Armadillo, and actual rocket hardware from Masten all combined for an excellent conference experience. I personally was able to walk up to almost any presenter, ask blunt questions and get invaluable insight.

The Space Access conference been the industry's "underground" conference for years. Recently, there has been a lull in student attendance. At a conference where chances to network with real NewSpace entrepreneurs is so high, I think this is a serious problem. If a career in NewSpace is your ultimate goal, then this is a conference not to miss. It provides a yearly snapshot of the NewSpace industry, and accessibility not seen from any other conference. Check it out!

Purdue SEDS Spring Space Forum 2010

The Purdue Chapter of Students for the Exploration and Development of Space (SEDS), held the Spring Space Forum 2010 on April 6th, in the Loeb Playhouse.

This year's speaker was Dr. Michael Griffin, the Former Administrator of NASA (2005-2009). Dr. Griffin holds seven degrees in many different subject areas including, Physics, Aerospace science, Aerospace Engineering, Electrical Engineering, Applied Physics, Business Administration, and Civil Engineering.

Dr. Michael Smith from the Department of History, Dr. Kathleen Howell, and Dr. David Filmer from the School of Aeronautics and Astronautics acted as panel members. He spoke to a large audience about the future of space flight and America's lead in the Aerospace industry.

Above: Michael Griffin.

Left: Dr. Michael Smith, Dr. Kathleen Howell, and Dr. David Filmer.

SEDS-UCF Participates in NASA USLI Rocketry Competition

Michael P. Green, *SEDS-UCF Alumnus*

The 2009-2010 school year marked a brand new endeavor for the SEDS chapter at the University of Central Florida (UCF). Continuing upon success of their Project: Daedalus Sub-Orbital Hybrid Rocket Program, Florida Space Grant Hybrid Rocket Competition, and other projects, students from SEDS-UCF competed in the NASA University Student Launch Initiative, or USLI.

USLI is the official annual rocketry competition for collegiate students sponsored by NASA. In order to participate, each school must submit a proposal for the design of a rocket and scientific payload to reach one mile in altitude and be selected by NASA Marshall Space Flight Center officials in order to compete. The competition entails the full design of the rocket within strict guidelines provided by NASA. Once chosen, the teams must go through an extensive engineering design review process with engineers from MSFC as well as officials from the National Association of Rocketry (NAR). Stages in the review process included the Preliminary Design Review, Critical Design Review, Flight Readiness Review, and Post-Launch Assessment Review, as well as presentations via video-conference with MSFC for each. In April, the teams travel to Huntsville, Alabama to launch their rocket and collect data in their scientific payloads during flight.

Above: SEDS-UCF USLI Rocket during launch in Huntsville, AL.

The SEDS-UCF USLI team consisted of a senior design team from the UCF Mechanical, Materials, and Aerospace Department supplemented by a group of underclassmen from the organization. The project was led by Project Lead Brandon Lojewski, Mission Manager Michael P. Green, Chief Engineer Carl Cunnane, Safety Officer Eric Allegree, and Tripoli Mentor Joe Coverston. Unlike most of the 20 universities participating, the UCF students decided to increase the difficulty of their project by flying a hybrid rocket motor – consisting of nitrous oxide as their oxidizer and ABS plastic as their solid fuel grains. Their scientific experiment, the Environmental Sensor Analysis Package, was designed to serve as a sensor system in order to test the true environmental conditions that payloads face within a launch vehicle. The goal of the sensor platform is to develop a payload unit that would be able to be implemented into a wide variety of launch vehicles, specifically sub-orbital sounding rockets. Valuable data on the temperature, pressure, acceleration, spin-rate, acoustic environment, and vibration (random and sine) environments within the payload bay will be able to be measured.


Above: The SEDS-UCF USLI team .

During the year the team performed five test launches of their rocket, culminating in the creation of a 208 page Flight Readiness Review, which was praised by MSFC and NAR officials. While in Huntsville, the UCF team participated in safety checks, went on a tour of the space center, and competed admirably against the other schools, finishing with the best score of any of the Florida schools participating. While the only other school competing with a hybrid motor had major difficulties, UCF stepped in to help them be able to launch, despite the competition, leading to special mention of UCF at the USLI awards ceremony. On NASA TV, the SEDS-UCF team was described as “pretty much geniuses” for their ingenuity used to build an oxidizer fitting out of space parts for the other school.

Upon the success of this year’s competition, SEDS-UCF plans to participate once again next year and hopes other SEDS chapters will as well.

A Road Well Travelled

By: Kevin Hardegree-Ullman

Wooo! Spring Break Cali-for-ni-a… Every hormonal teenager's dream. The beach. The scantily clad ladies. The trying-to-be-macho dudes. If this sounds like almost every teen movie from the 90s, you're probably right (or I just didn't hit up the right parts of California). But seriously, if you want to have a nice space adventure next spring break, you might want to consider a road trip to California. The state has a lot to offer 'space' tourists. And, if you're a SEDS member like me with a few connections, you just might be able to get access to a few things no ordinary tourist can... That is more appealing than wasting an entire week on the beach any day.

This past March, the UA-SEDS chapter embarked on an epic six day quest to explore The Golden State's space related sites. Our journey started off on Saturday, March 13th. We packed up our five cars bright and early in the morning and started the long drive to the Bay Area. After a long 14 hours, we all made it safely to our hotel in Cupertino.

The next morning, we were awoken to the fresh ocean air to start our relaxing Sunday. We headed to the San Jose Tech Museum to go exploring. As an added bonus, a few of us paid a little extra to see the Star Trek Exhibit. Of course, we also couldn't go without seeing the now 8 year old, Tom Cruise narrated, *Space Station* IMAX film in the enormous dome theater at the museum.

After the museum, we set off to explore the San Francisco area. A trip to San Francisco would not be complete without seeing the Golden Gate Bridge, Fisherman's Wharf, the Ghirardelli Chocolate Factory, Lombard Street, or China Town. There was not enough time in the day to hit up everything, but we broke off into groups and had a pleasant time exploring the city.

Monday morning we headed to NASA Ames Research Center where we got a special tour of the facility. The facility was home to this year's Bay Area Yuri's Night celebration, as I heard, this is the place to be for one of the best Yuri's Night celebrations. We were amidst an array of very powerful and large wind tunnels at Ames. The research center is fairly old and a few buildings even had old NACA insignia on them, which was really cool. Inside some of the buildings were vertical motion simulators that astronauts train on before they go up in the Space Shuttle. It is always thrilling to be able to go past doors with "Authorized Personnel Only" and "No Visitors Allowed" signs hanging on them. There was a slight feeling of disarray in the air because at the time the Constellation program had just been cancelled, but spirits were still high to see the future of NASA unfold. Along our trek through the campus we saw a dismantled Titan I missile, precursor to the Titan II missile which is close to home for us Arizonans with the only in-silo Titan II missile remaining in our back yard at the Titan Missile Museum.

UA-SEDS members in front of the 80 by 120 Foot Wind Tunnel

The rest of our Monday was spent driving to Mojave, California, famous for its rich history of aerospace. We could not finish the night without first visiting California City, a mere 15 miles east of Mojave. California City was supposed to rival Los Angeles in size and population, but very few people moved to the city, so it is mostly a barren town with a dirt road infrastructure. We had to cease the opportunity on the pleasant night to go star gazing in the clear and relatively dark skies of this mostly empty town.

Our voyage continued Tuesday morning to Edwards Air Force Base, home of NASA Dryden Flight Research Center. Sitting in one of the hangars was an RQ-4 Global Hawk Unmanned Aerial Vehicle with a wingspan of over 35 meters. It barely fit in the hangar! Flying overhead all day was the Stratospheric Observatory For Infrared Astronomy (SOFIA). This is a modified Boeing 747 with a 2.5 meter infrared telescope as its cargo. Also present on the base was another modified Boeing 747, the Shuttle Carrier Aircraft, used to transport the Space Shuttle from Edwards Air Force Base to Kennedy Space Center if the Shuttle is forced to land in California. It was a surprise to many of us to see Edwards Air Force Base featured in the recent action film Iron Man 2 only a couple of months after visiting.

The day was not over yet as we ventured onward toward Mojave Spaceport. Our first stop was at XCOR Aerospace, home of the prototype X-Racer Rocket Racer. The hangar in which the X-Racer was located was every rocket scientist kid's dream with tools and parts everywhere to construct almost anything. The rocket racer itself was sitting like a supercar in a garage, awaiting the gaze of awe inspired students. We were allowed to get up close and see some of the inner workings of this prototype, which was very cool.

Ben Brockert with Xombie

After XCOR, we walked over to Masten Space Systems, where we met up with our friend, an Iowa State University SEDS alumnus Ben Brockert. Ben showed us the Xombie XA-0.1B Vertical Take-Off and Landing (VTOL) vehicle, winner of the second prize, level one Northrop Grumman Lunar Lander Challenge X-Prize. Late last year, Masten also took first prize in the level two Lunar Lander Challenge with their Xoie XA-01E VTOL. We finished up in Mojave and continued to the last city on our route, Pasadena.

Wednesday morning we headed to the Jet Propulsion Laboratory (JPL). At JPL, we got to see the fabrication clean room of the Mars Science Laboratory, now named *Curiosity*. The rover will be the size of a small car and is set to launch in 2011. After that we went to the In-Situ Instrument Lab where they had recently constructed a scale model of the Mars Exploration Rover *Spirit* in its current state, stuck in the Martian soil. The goal was to find a way to "Free Spirit" to make it return to its fully operational roving state. As of last January, Spirit became a stationary science station. Five days after our visit to JPL, communication from the rover ceased. The effort to reestablish communications with Spirit continues to this day. Our tour wasn't finished until we visited the JPL mission control room. This is the room where SEDS alumnus Chris Lewicki made history as Flight Director by landing both the Spirit and Opportunity rovers on Mars at age 29 and four years later landed the Mars Phoenix Lander near the Martian North Pole.

At this point the trip was nearly complete but we had one more stop at Griffith Observatory. From the observatory you get a wonderful view of Hollywood and Los Angeles. Unfortunately, this is probably one of the worst places in the country for an observatory due to the enormous amount of light pollution from the second largest city in the country, but it is a wonderful center to get people interested in space and science. Of course, a trip to California would not be complete without a trip to the beach, enough said!

If you would like to plan a road trip to various space related sites across the entire United States, please visit http://seds.org/node/458 for a map created by UA-SEDS President, Kyle Stephens. For more pictures from this epic adventure, please visit the SEDS photo gallery at http://gallery.seds.org/v/SEDS-USA/Chapters/uaseds/CaliforniaSpringBreak10/.

UA-SEDS would like to extend our sincerest thanks to Kenneth Ashford (Ames), Winette Vandam (Dryden), Aleta Jackson (XCOR), Ben Brockert (Masten), Jane Houston Jones (JPL), Joshua Nelson (SEDS Chair), and all others involved in making this a very successful trip.

Blast from the Past

A look back at previous versions of the NOVA: Reflection by: Matt Cannella

This Quarter's Blast from the Past comes to us from the September 1996 NOVA:

ALUMNI

A few weeks ago a couple of SEDS alums and I got together to start actively helping SEDS and its chapters any way we can. SEDS has 16 years of Alumni so we have a wealth of information, experience, contacts, and sometimes even money to help you out with your chapters' projects. Although we're starting with a handful of SEDS alums who just can't get enough of SEDS, we're actively tracking down all of our old SEDShead friends from across the country. In fact, one of our main projects for this year is to track down as many people as we can and add them to our mailing list. If you know of anyone who's just graduated, thinking about graduating, or hoping to graduate soon, please make sure we have all their contact info!

Alumni Scholarship The other project for this year is to start an Alumni Scholarship to be named in memory of Todd Hawley who was very active in SEDS in the early 80's and was one of the founders of International Space University (ISU). We're currently in the middle of outlining what the scholarship will be and planning a fundraising drive to get enough money to have a nice scholarship to hand out in about 2 years.

John Wright, Alumni Coordinator

Even 14 years ago, the students of SEDS-USA were extremely interested in keeping a strong network with SEDS alumni. Alumni Coordinator, a former executive board position, revolved solely around the creation and strengthening of the alumni network. Today, the SEDS alumni network is stronger than ever, complete with an Alumni Board of SEDS advisors. While the Alumni Scholarship program never came to fruition back in 1996, today SEDS is currently driving to raise funds for the SEDS Endowment Fund. Again, efforts are being made by active alumni to aid SEDS students, and continue to contribute and support SEDS.

June 3rd, 1965—Gemini 4 launched. Mission includes Ed White, who makes first American spacewalk.
June 3rd, 1966—Gemini 9 launched. Mission attempts to experiment with Astronaut Maneuvering unit (predecessor to today's Manned Maneuvering Unit), but objective not accomplished.
June 6th, 1971—Mankind occupies its first space station, with the soviet Salyut I space station. Unfortunately, when the Cosmonauts undocked, a faulty valve opened, allowing the capsule to vent its atmosphere during reentry, killing all three crew members.
June 8th, 1625—Astronomer Giovanni Cassini born. Goes on to study Saturn's rings.
June 8th, 1975—Soviet Venera 9 successfully lands on Venus. Pressures at the surface disable the Lander within one hour.
June 12th, 1967—Soviet Venera 4 probe sends back data on the Venus atmosphere, with data transmission ceasing 14 miles up from the surface.
June 16th, 1963—Soviet Vostok 6 launches, carrying first woman into orbit, Valentina Tereshkova
June 18th, 1983—Suttle Challenger Launched, carrying first American female astronaut, Sally Ride, into space.
June 24th, 1984—German rocket scientist, Hermann Oberth was born.

July 2nd, 1978— Charon, the moon of Pluto is discovered.
July 3rd, 1935—Harrison Schmidt, Apollo 17 Geology specialist and the only trained civilian scientist to walk on the moon, is born.
July 4th, 1054—A supernova was observed for the first time from an exploding star which would eventually become known as the crab nebula
July 7th, 1979—Voyager 2 passes Jupiter
July 7th, 1988—Soviet Union launches Phobos I to land on the Red planets largest moon
July 11th, 1979—Skylab breaks up in earth's atmosphere, mostly burning up on reentry. However, small parts made it down to the surface. Some pieces landed in the Australian Shire of Esperance, who fined the US government $400 for littering. This was unpaid for over 30 years, until a radio show raised the funds and paid the fine on NASA's behalf in April 2009.
July 12th 1988—Phobos 2 probe launched by the Soviet Union. Mission between the two Phobos spacecraft results in several pictures of the moon, but lacks the planned landing due to loss of contact with the craft.
July 16th, 1969—Apollo 11 launched
July 16th, 1994—Commet Shoemaker-Levy 9 begins its impact with Jupiter
July 17th, 1975—Successful docking of the final Apollo Capsule with the Russian Soyuz capsule in orbit.
July 18th, 1966—Gemini 10 launched, first manned spacecraft to make controlled change of orbital altitude
July 20th, 1969—Niel Armstrong and Buzz Aldrin become first persons to set foot on the moon. The astronauts spend about a total of two hours on the moon outside of the lander.
Jul y 21st, 1961—Astronaut Gus Grissom becomes 2nd American to undertake a suborbital flight
July 26th, 1971—Apollo 15 launched to look at mountainous regions of the moon. First mission to carry the lunar Rover.
July 28th, 1973—Second Skylab crew launched

August 5th, 1930—Neil Armstrong was born. Armstrong would go onto become the first man to step foot on the moon.
August 6th, 1961—Gherman S. Titov is launched from the Soviet Union, becoming the 2nd human being to orbit the earth.
August 7th, 1959—Explorer 6 is launched, a mission which would give us the first views of earth from space.
August 8th, 1978—Pioneer Venus 2 is launched, which would go on to probe the atmosphere of Venus.
August 11th, 1962—Vostok 3 is launched, carrying the Soviets third cosmonaut. This mission would go on to perform a close pass with the later launched Vostok 4.
August 12th, 1977—Space Shuttle Enterprise breaks free of its mother ship for the first time.
August 17th, 1958—Pioneer Zero blows up on the luanchpad, destroying mans first moon shot.
August 17th, 1970—the Soviets Venera 7 probe becomes the first man-made object to land on the surface of Venus, but is unable to transmit anything back due to the environment of Venus.
August 19th, 1787—Astronomer William Herschel discovers the Saturn moons of Enceladus and Mimas.
August 20th, 1975—Viking 1 is launched, becoming the first probe to land on Mars.
August 20th, 1977—Voyager 2 was launched, touring the four largest outer planets over the next 12 years.
August 21st, 1993—America's Mars Observer is lost due to a failure in the spacecrafts propulsion system.
August 25th, 1981—Voyager 2 swings by Saturn, discovering six moons while in the vicinity of the gas giant.
August 27th, 1962—Mariner 2 is launched, becoming the first probe to make a successful flyby of Venus.

SEDS LEGISLATIVE UPDATE

CoC Summary:

March 31, 2010

Discussion and updates among the chapters: OU, Purdue, UCLA and GWSS had brief summaries of their activities

Recap on the exec board political affairs position, general discussion points to not implementation position. Notion to get advice from the board of advisers.

Motion carries 11-0-2 propose removing the position of political affairs and only offering the position of public outreach, due to the highly controversial nature of the position

Reminder that SEDS chapters should post quarterly updates on the SEDS website.

Reminder that ISDC is in Chicago this year from May27-31. Discussion on SEDS activities at the conference, volunteer opportunities and project number of SEDS students who will be attending.

April 28, 2010

Discussion and updates among the chapters: GWSS, Olin, CU, UB, Fl Tech, UCLA and GWSS had brief summaries of their activities

Kyle Stephens of UA-SEDS created a "Space Sites" Google maps, a lot of neat attractions posted throughout the country to check out.

Discussions / updates regarding ISDC (SEDS attendance, hotel rates, activities, etc)

May 29, 2010 -Note: Live meeting at ISDC

Discussion and updates among the chapters: UCF, UB, Purdue, Iowa St, UIUC, ASU, Dakota SS had brief summaries of their activities

SpaceVision update, speakers announced, general information regarding hotels, travel, etc. Information available at: http://spacevision.seds.org

Discussion regarding SEDS-USA financial reporting and expenditures.

Motion carries: 10-0-0 to modify the bylaws such that the Director of Finance is required both to report finances monthly to the Executive board AND to report the SEDS financial statements to both the CoC when they are drawn up for the IRS.

Motion carries: 9-0-1 MIT motions that Roberts Rules be used as a reference as needed (unofficially) when issues arise within the organization during Council of Chapters meetings.

Motion carries: 9-0-1 Form a committee to investigate SEDS' policy on how chapters are informed about current U.S. space policy.

Motion passes 9-0-1 Dan Pastuf to be the chair of the committee to research policy advising.

Exec Board Summary:

- Four Exec members flew to Kennedy Space Center to view President Obama's speech on the future of NASA. This was a big opportunity to grow the SEDS name. More to come about this event in the next NOVA publication.
- Exec board is working to establish a partnership with SSPI
- Masten Competition is moving forward, SEDS chapter selected to fly.
- New non-voting member of the board, David DeBoth to manage social media
- Exec board spent $580 on the NOVA publications, merchandise and the hospitality sweet for ISDC
- To allow companies to have access to the SEDS linkedin group so that they can keep members updated of current job opportunities.
- To support travelers to KSC for Presidential space summit, networking opportunity for SEDS, not to exceed $500 of SEDS-USA budget.

Adding a line to the Finance Director position in the SEDS USA Bylaws a firm deadline of February 15th for tax filings by SEDS USA.

A complete summary of the activities this quarter activity is available at:
http://wiki.seds.org/index.php/SEDS-USA_Meetings, send questions/comments to secretary@seds.org

SEDS GALLERY

Above left: Chris, from Iowa State Space Society SEDS, preparing for the launch. Credit: ISSS SEDS

Above right: Some members of SEDS-UCF pause for a picture during their tour of Kennedy Space Center. Credit: Joe, SEDS-UCF

Left: A University of Arizona SEDS member peers through a large Dobsonian mounted Newtonian Reflector. Credit: UA-SEDS

Right: Lunch during the North East Conference of Space (NECOS) hosted at UB-SEDS. NECOS is the SEDS North East Regional Conference. Credit: UB-SEDS

Want to see your chapter's pictures featured here? Take pictures of your events and upload them to the SEDS Gallery!

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SEDS Mission Statement:

SEDS, or Students for the Exploration and Development of Space, is an independent, student-based organization which promotes the exploration and development of space. SEDS pursues this mission by educating people about the benefits of space, by supporting a network of interested students, by providing an opportunity for members to develop their leadership skills, and inspiring people through our involvement in space-related projects. SEDS believes in a space-faring civilization and that focusing the enthusiasm of young people is the key to our future in space.

History of SEDS:

Students for the Exploration and Development of Space was founded in 1980 at MIT and Princeton and consists of an international group of high school, undergraduate, and graduate students from a diverse range of educational backgrounds who are working to promote space as a whole. SEDS is a chapter based organization with chapters throughout the United States, Canada, United Kingdom, Asia, Latin America, and the Middle East. The permanent National Headquarters for SEDS-USA resides at MIT. Each chapter is fairly independent and coordinates activities and projects in its own area.

What do SEDS members do?

SEDS members are people interested in doing as much as they can to promote space exploration and development. The first step in this continual process is learning. SEDS provides an excellent environment in which to obtain access to many sources of information including speakers, tours, films, discussion groups & daily NASA updates. Astronomical observing trips and tours of local space facilities also play a significant role in the life of many SEDS members.

SEDS members often take the knowledge they have gained and use it to influence the future of the space program. Students at several chapters have played major roles in organizing large conferences and have established important contacts with members of the space community. Others have helped increase public awareness of the benefits of space exploration by offering presentations to local primary and secondary schools as well as universities. All chapters keep in contact with each other through on-line computer networks.

Finally, SEDS provides an environment in which people of common interests can relax and freely discuss issues important to them.

What can SEDS do for you?

SEDS can provide an organized pathway for you to begin space related projects and give you a chance to break away from the usual class work. You can also use SEDS as a stepping stone to a space-related career. Being actively involved in SEDS can put you in touch with many members of the space, technology, and education community and will allow you to develop the experience necessary to take leadership roles in your future career, whatever that may be.

For more information on SEDS, or to join/start a new chapter, go to www.seds.org.

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