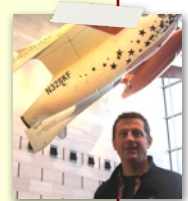


BUSSARD SCOOP

SD Space Has Been Busy!

Meeting Astronauts, Making New Friends, and Growing



A Note from My Space *We've Been Busy*

On March 26th, SD Space became an official chapter of the National Space Society. Our first event was a success, the biggest Yuri's Night San Diego has ever seen.

We've been busy ever since, with officer elections, a SEDS lecture, board member elections, Space Day, and monthly program and board meetings. We're forming an Advisory Board, a local space alliance, and the Junior Explorers (see article inside).

We attended ISDC, the NSS conference, and the Space Frontier Foundation's NewSpace Conference, both in Washington, DC. We've got programs, projects and events planned into next year (check out our website).

We're not a large group, but as you can see, we are growing and we plan to keep busy.

-Jesse Clark, Chapter President.

The last three months have been a busy time for SD Space.

Our **Yuri's Night** party was a huge success! Over 50 people ate, drank, and were entertained by an excellent talk about Yuri Gagarin by Francis French of the San Diego Air and Space Museum, and

space agent Scott Borden's exciting presentation on Virgin Galactic. James Pura of UCSD SEDS served as MC for the evening, and all went off without a hitch.

Yuri's Night is like the St Patrick's Day or Cinco de Mayo
continued on page 4

ABOUT THE SAN DIEGO SPACE SOCIETY

The San Diego Space Society was founded in 2008 with the purpose of raising awareness and educating the general public to the benefits of human exploration of space and San Diego's role in space development, as well as to the idea of creating a spacefaring civilization within our lifetimes.



SD Space members meet monthly at local libraries, with special events held periodically around the county. The general public is welcome to attend any meeting listed here or on our website. See the events calendar:

sandiegospace.org/calendar

ALLIANCE FOCUS

SEDS, the Students for the Exploration and Development of Space, is a group dedicated to expanding the role of human 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.



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.

The local chapter in San Diego is based on the campus of the University of California, San Diego. The founder and president is **James Pura**, a Mechanical Engineering student who holds an endless fascination with space. James can be contacted at jpura@ucsd.edu.

The **San Diego Space Development Alliance** consists of local space, science, and education advocacy groups. Alliance member organizations work together to share events, promotion, project resources in order to benefit the group as a whole.

sandiegospace.org/alliance

BUSSARD SCOOP

is a quarterly newsletter of the **San Diego Space Society** a chapter of the National Space Society

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**SD SPACE PROJECTS:
MARS SCIENCE LABORATORY (MSL) ROVER**

On January 3, 2004, The Mars Exploration Rover *Spirit* landed on the surface of Mars for a 90-day mission. Three weeks later, *Spirit*'s twin *Opportunity* bounced onto the opposite side of the red planet.

On January 17, 2004, a third rover touched down, this time on planet Earth. This one-quarter-scale replica of *Spirit* and *Opportunity* was built by Mars Society member Patrick Purcell, and operated by The Mars Society-San Diego chapter as part of their space exploration outreach program. It sported Remote Control driving and a wireless video camera to send images back to a nearby television monitor.



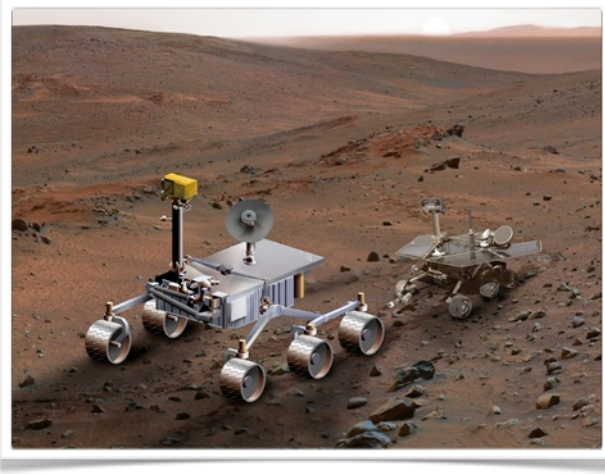
Since then, the San Diego Mars Rover has been the centerpiece of over 250 outreach events at schools, libraries, museums, model rocket launches, astronomy events, science fairs, and conventions. Children of ALL ages love to drive her around.

In 2009, NASA has plans to send another Mars Rover to the red planet: the Mars Science Laboratory (MSL). SD Space believes that by designing, building, and operating another scale model Mars Rover, we can capitalize on renewed excitement about Mars.

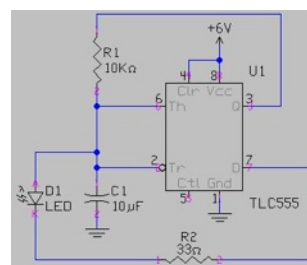
The *Spirit* rover model was built on a toy RC truck chassis and has been plagued by mechanical complications. To build the MSL rover to last, we're planning on using hobby-grade parts and getting help from amateur robotics clubs.

Plans so far include six-wheel "crawler" drive with 4-wheel steering, two onboard wireless video cameras (one visible light and one infrared), and an articulated robotic sample arm. Naturally, this means a hefty construction cost.

The Mars Society-San Diego is teaming up with the San Diego Space Society to build and operate the MSL rover. We'll be looking for grants, donations and outside funding to realize this robot. It will definitely be a space community project. It will keep us visible to the public, and especially to the children who one day may be the first to set foot on Mars.



As a realistic skill building exercise for student remote operators, one possible application of the Mars Science Laboratory Rover model will be to have it used in a geological sample retrieving simulation. This application would involve its use as a platform that would identify target samples emitting an invisible infrared pulse signature observable only by use of the rover's on-board IR sensitive camera. After identification of the correct target, the rover would be positioned by the operator to allow for the operational robotic arm to pickup and retrieve the target. Targets would consist of a model rock sample with an embedded IR pulsing LED driven by a



simple flashing circuit that would be invisible to human vision but be easily visible with the onboard IR sensitive wireless camera. A sample circuit to be used in the flashing target sample is shown.

<http://chapters.marssociety.org/sandiego/rover.html>

Gerry Williams is a founding member of The Mars Society-San Diego and a current board member of the San Diego Space Society. SD Space board member Adrian Clausell also contributed to this article.

SD SPACE HAS BEEN BUSY (CONTINUED FROM PAGE 1)

for space. It's held every year to commemorate the first human in space, Yuri Gagarin on April 12, 1961, and the first Space Shuttle launch on April 12, 1981. It is one day when all the world can come together and celebrate the power and beauty of space and what it means for each of us.

SD Space chose Yuri's Night as a coming-out party for the new chapter, and Killer Pizza From Mars in Oceanside was a great place to party. The restaurant is family-friendly, their pizza is really good, and every surface is covered with space photos, movie posters, and spaceship models.

At the April 14th, 2008 general meeting, we voted unanimously to ratify our chapter bylaws. Officers were also **elected**, with unanimous votes for Jesse Clark (president), Dave Dressler (treasurer), and Chris Radcliff (secretary). Officers will serve a one-year term, with elections held again this time next year.

These mark the last two steps needed to become a certified NSS chapter, so we're official!

At the May 11th general meeting, we elected the rest of our Board of Directors. Maria Catalina, Adrian Clausell, James Pura, and Gerry Williams were all elected to a one-year term.

On Tuesday evening, April 29th, members of the San Diego Space Society, Mars Society San Diego, and UCSD SEDS enjoyed meeting **Anousheh Ansari** and hearing the exciting details of her time on the International Space Station at a lecture sponsored by the UCSD Students for the Exploration and Development of Space.

The SD Space display table made its debut before the event, joining a SEDS table and the always-impressive Mars Society display. The lecture was well-attended by space enthusiasts of all ages, and we made some new friends. (Hello, new friends!)

The San Diego Space Society display table made its second appearance at the San Diego Air & Space Museum's **Space Day Celebration** on May 10th. We set up right next to the always-crowd-pleasing Mars Society booth, and Gerry Williams and John Stone kindly helped by watching things during lunch.

The crowd was great. All ages were present, with kids, parents, and the young-at-heart all showing their excitement for space topics past, present, and future. Visitors also got to see displays by OCSS (our neighbors to the North), Goldstone, Virgin Galactic, NASA/JPL, a local SETI group, and more. Special guest Bill Shepherd signed autographs and gave a talk as well, then stopped by to say hello to the presenting groups.

Thanks again to the SDASM for hosting such a fun event; we'll definitely be back next year.



On May 19th, UCSD SEDS hosted a lecture by Yuri's Night director **Loretta Hidalgo Whitesides**. SD Space and Mars Society members attended, along with UCSD students interested in space exploration and related fields. Whitesides talked about how space-interested science and engineering students in high school and college right now are "one in a million," and she wants them to train to be the next Buzz Aldrin, Sally Ride, Burt Rutan, or Elon Musk.

She should know. As an astrobiologist, Virgin Galactic advisor, Wired blogger, and Zero G flight director, she's seen her share of the Right Stuff. She has followed James Cameron to the bottom of the ocean and led 7,000 people to a party at NASA. Space is personal for her, too: she and her husband, National Space Society director George T. Whitesides, will honeymoon on one of the first Virgin Galactic suborbital flights.

The National Space Society's 27th Annual **International Space Development Conference** (ISDC), held this year in Washington, DC, was attended by SD Space board member James Pura.

On Wednesday May 28, the 4th Space Investment Summit (SIS) brought together investors and established aerospace firms to hear business plans from some of the most exciting new companies in space-related business sectors, while expert panels discussed important issues like exit strategies for aerospace startups, as well as early and mid-stage financing. A few of the most interesting presentations were from Ecliptic (the company behind Rocketcam, from which you have undoubtedly seen the footage on a Space Shuttle launch), Orbital Outfitters (the first commercially made spacesuit), and Odyssey Moon (one of the leading contenders in the Google Lunar X Prize).

The actual conference began Thursday morning on a very high note as Will Whitehorn, president of Virgin Galactic, announced that WhiteKnightTwo, the carrier jet of SpaceShipTwo, will be ready to roll out on July 28th. Not to be outdone, National Space Society's Executive Director George Whitesides then announced the new Space Ambassadors Program, which for one person will lead to a free trip to space on Virgin Galactic's SpaceShipTwo. Space Ambassadors will then be trained to educate and inspire the public about the practical and humanitarian benefits of exploration and research in space.

Friday's programming was just as good if not better, which featured a panel of representatives from all three presidential candidates, moderated by CNN's broadcasting icon Hugh Downs, who spoke about their candidate's views on the future of the American Space Program. The day concluded with the annual NSS Gala dinner, which featured SpaceShipOne designer Burt Rutan, as he received NSS's Robert A. Heinlein Award.

Saturday's programming highlighted the exciting possibilities of Space-Based Solar Power, which had supporters like never before, ranging from the scientific, military, and entrepreneurial communities.

ISDC 2009 will be held May 6-10 in Orlando, Florida.

On June 14th, SD Space and Orange County Space Society members met **Dan Linehan**, author of "SpaceShipOne: An Illustrated History", at a Science Cafe event in Oceanside. They learned about humanity's first non-government-produced voyage to the stars, and the craft which made it happen. Linehan's new book is authorized by SpaceShipOne inventor Burt Rutan, with a foreword by Arthur C. Clarke.



SD Space and Mars Society members were invited to a "friends and family" preview of **Star Trek: The Exhibition** on June 21st at the San Diego Air & Space Museum. It's an exhibit we had intended to see anyway, but seeing it on opening day with a bunch of other fans and space enthusiasts was too good to pass up. We got to chat with Mike and Denise Okuda, Trek designers who have worked with NASA as well.

It's a fun exhibit for fans of TOS or TNG, or fans of the Trek universe in general. It's worth going just for the chance to sit on the Enterprise bridge or stand on the transporter pads, but the attention to detail and frequent connections between real space history and Star Trek are worth a thorough look. The Exhibition is expected to stay in San Diego through the summer.

It's been a busy few months for us, but keep paying attention: we're just getting started!

Chris Radcliff, James Pura, and Dave Dressler contributed to this article.

MEETING MINUTES

The third general meeting of the San Diego Space Society was held at the Serra Mesa Branch Library on **April 13th**, starting at 3:00pm. Nine people attended.

Yuri's Night was a complete success. 50+ people attended. SD Space is still in the black, largely because we collected enough donations at Yuri's Night for the event to break even.

All attending liked the venue, despite it being quite a drive from San Diego. Chris Radcliff recommended scouting for next year's location in October to give us plenty of planning time.

Patrick Crowley offered to finish off our interim **SD Space logo** to use for the display table and literature.

Group outreach was suggested to San Diego Science Alliance, the SDAA, and the AIAA. Dave also suggested alliances with local space and technology companies.

Chris and Adrian Clausell offered to spearhead the **display table** project group. Additional task groups will need to be defined as we move forward.

Six people attended the **May 11th** meeting.

The Anousheh Ansari lecture was a big success. Space Day was big as well; we met with Orange County Space Society (OCSS) members and discussed joint projects and events. The display table worked well and caught attention.

An **alliance** of San Diego space groups was proposed. The consensus was to use SD Space as the umbrella group, with an alliance meeting once every 2 or 3 months. Alliance meetings would discuss joint business and feature a special program.

Jesse Clark offered to compile a list of local space organizations that may want to get involved. The Mars Society's MSL rover was proposed as an initial joint project.

Board elections were held; by a show of hands, the four board candidates were approved unanimously.

Twelve people attended the **June 8th** meeting.

Gerry Williams gave a presentation on the Phoenix Mars Lander.

Chris proposed July 20th for the Junior Explorers water rocket launch picnic. Jesse asked about a Griffith Observatory trip. August 10th was proposed.

Jesse talked about logowear and patches, including clothing, cups, and t-shirts with catchy sayings to sell at events.

Seven people attended the **July 13th** meeting.

Jesse discussed the program format for subsequent meetings: a 20-minute presentation, followed by a short update on SD Space projects and



events, then a 30-minute presentation. (Most chapter business is now handled at board meetings.)

Gerry presented "What's Up At Mars", an overview of current exploration efforts on the red planet.

Jesse presented a recap of the last month in SD Space, including: **ISDC 2008** in Washington, DC; the launch of the Space Ambassadors program; the announcement of ISDC 2009 in Orlando, FL; and the opening of the Star Trek exhibit.

SD Space members Maria Catalina and James Pura will be attending NewSpace 2008 in Washington, DC.

Chris Radcliff gave a short talk on Crowdsourcing, which he will be presenting at the Mars Society Convention in August.

Full meeting notes are available at the SD Space website, **sandiegospace.org**.

ASTRONOMY STUDENTS: PROJECT ASTRO NEEDS YOU!

Be a visiting astronomer in a San Diego County school - Project ASTRO will provide you with free training, materials, and a rewarding way to help our local schoolchildren and teachers. If you are a professional, student, or amateur astronomer or space scientist, we need you!

Project ASTRO is a program of the Astronomical Society of the Pacific (ASP) to create partnerships between 3rd-9th grade teachers and local astronomers and space scientists. If you have ever wondered how you can best share your enthusiasm for space and astronomy, AND help your local schools improve their science education, then Project ASTRO is for you.

This is a great opportunity to help kids learn science "hands-on", as well as work with a dedicated teacher who desperately needs your knowledge of basic astronomy and space science in the classroom. With a minimum commitment of one training workshop (the next is Saturday, August 16, 2008) and only 4 classroom visits during the school year, you can make a BIG difference in the education of our next generation of scientists and explorers. And you'll have FUN - with the most inquisitive and appreciative audience you can find. Project ASTRO provides all the training and educational materials (a 1000-page activity guide) that you'll need.

For more information, and an application form so that we can match you with a nearby school, please contact the local coordinators for Project ASTRO: Dr. Philip Blanco (pblanco@sciences.sdsu.edu), or Dr. Ron Angione (angione@sciences.sdsu.edu) at 594-6183, or visit the San Diego Project ASTRO website (<http://mintaka.sdsu.edu/projectastro>) where you will find further details for volunteers and an FAQ list. Please apply before July 31, 2008 in time for the workshop.



JUNIOR EXPLORERS

The Junior Explorers program is an extension of the San Diego Space Society that involves young people in chapter activities and programs. It's also an outreach to the public to engage young adults and children four years of age and older. And it's meant as a way for both parents and children to share in the experience and excitement of space and learn more about what's going on in space exploration right here in San Diego.

Some young Junior Explorer participants may want to become official members of the San Diego Space Society, in which case one or more of their parents needs to be a member and maintain current contact information. Family memberships are

encouraged, but not required. Everyone just needs to have a willingness to have fun with anything space-related.

Our first event, scheduled for July 20th, was a water rocket launch and picnic preceded by a viewing of the movie "Fly Me to the Moon" - a 3D IMAX animated film about three young houseflies that stow away on Apollo 11.

There will be many more activities to come. Some will include Jr. Explorers in regular SDSpace events and some will be designed just for Jr. Explorers. If you have an interest in the program or know someone who might, please email info@sdspace.org with "Jr. Explorers" in the subject.





Upcoming Events

August 1-3

The inaugural Julian Starfest at Menghini Winery

August 6, after dark

SDAA "Stars In The Park" public telescope viewing outside the Reuben H. Fleet Science Center in Balboa Park (weather permitting)

August 9

Family Day at the San Diego Air & Space Museum

August 10

SD Space and the OCSS visit Griffith Observatory in LA

August 14-17

Eleventh Annual Mars Society Convention at the University of Colorado, Boulder

August 16, 12pm to 3pm

Family Science Days at Reuben H. Fleet Science Center

August 20, 3pm

The Orange County Space Society hosts producer Alan Chan for a special showing of "Postcards From the Future" in Irvine

September 3, after dark

SDAA "Stars In The Park" public telescope viewing outside the Reuben H. Fleet Science Center in Balboa Park (weather permitting)

September 9-11

AIAA SPACE 2008 Conference & Exposition at the San Diego Convention Center

September 13, noon to 3pm

Mars Exploration lecture and outreach at the La Mesa Branch Library

September 13

Family Day at the San Diego Air & Space Museum

September 20

Family Science Days at Reuben H. Fleet Science Center

September 21, 3pm

The Orange County Space Society meets at the Irvine Heritage Park Library

September 26-28

Conjecture 2008 Science Fiction Convention at Crowne Plaza hotel

San Diego Space Society

Monthly general **meetings** of the San Diego Space Society usually include a short presentation, a review of the last month in space, and discussion of SD Space projects.

Anyone with an interest in space exploration is encouraged to attend.

no August meeting
(Griffith Observatory tour)

September 14

October 12

details at sandiegospace.org

Mars Society San Diego

General meetings of The Mars Society San Diego alternate between program meetings and social events.

August 8

September 12

October 10

details at marssandiego.org

For the latest information on SD Space and alliance organization events, please contact events@sdspace.org or visit our online calendar at:

sandiegospace.org/calendar