

Odyssey

Pushing the Edges

June
2006

Official Newsletter of OASIS: the Los Angeles Chapter of the National Space Society

"The Return to the Moon": Flags and Footprints, or New Frontier? Rick Tumlinson, AIAA Dinner Meeting, May 30, 2006

By Lisa Kaspin

Rick Tumlinson, co-founder of the Space Frontier Foundation and one of the most prominent advocates for space settlement, presented his perspective about the current plans for the "Return to the Moon" to an enthusiastic audience at the American Institute for Astronautics and Aeronautics May 30 dinner meeting.



AIAA featured speaker Rick Tumlinson.

Tumlinson's presentation covered the following premises: NASA wants to put people back on the Moon and move on to Mars, but cannot afford to do so if it doesn't adopt new ways of working. At the same time a "New Space" industry is rising in the US and around the world. Funded by entrepreneurs and investors inspired by Apollo, and based on the ideals of free enterprise, they are building rockships and space hotels right

now! However, the two thrusts into space--NASA's and the private sector's--are very different, and at times at odds with one another. How can these two parts of our culture work together to not only open the space frontier, but to establish humanity as a multi-planet species?

Tumlinson talked frankly and directly about what is going on, and offered his own somewhat controversial and yet "common

sense" solutions to show a path to the frontier that can be opened for all. He discussed the need not only for space travel but for settlement, declaring "We want to create a future for our young people!" This opening was more than appropriate for the evening, given the presence of the winners of the Palos Verdes Peninsula Unified School District Science and Engineering Fair (see article on page 3.)

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Mark your calendars: OASIS Summer Picnic, July 15!

PRESIDENT'S MESSAGE

What's Next?

By Craig Ward

The International Space Development Conference last month was a great success! It was perhaps the largest ISDC ever, certainly with the most cooperating activist groups ever. This success illuminates the resurgence in the drive to create a spacefaring civilization. Of course, we cannot rest too long. We must continue and build on that success.

OASIS has plans already in progress for the next major event and is also working on the continuing Lecture Series of speakers for the general public.

In August, OASIS will participate in the World Science Fiction Convention (Worldcon). We will

provide a range of speakers and panels on space science topics for the convention. People may attend for the fun and fantasy of science fiction; we hope to give attendees a sense of what is real today and what could be real within their lifetimes.

In addition to providing the speakers, OASIS will staff an information table to let attendees who show some extra interest find out more about OASIS and how to get involved with making it happen. For that, we will need as many volunteers from our current members as we can get. The call for volunteers is going out now, by email and in the pages of the *Odyssey*.

While Worldcon only comes to Los Angeles every few years, we

also do a similar job for the annual Los Angeles Science Fantasy Society convention. Loscon is held each year over the Thanksgiving Day weekend. If you can't manage to help OASIS at Worldcon this year, a new opportunity will be here in November at Loscon.

Being involved with OASIS isn't all work. On July 13, we will have a picnic at Polliwog Park in Manhattan Beach. It's a great opportunity to meet your fellow members and have some fun.

Creating a new civilization isn't something that happens overnight. It takes on-going commitment and work. But with that commitment will come great rewards.

Let's keep making it happen!

SPACE ON THE STREET

Photo by Steve Bartlett



Inspired by the need to keep up with the recent developments in the space tourism business, the Culver City Department of Motor Vehicles (the DMV -- soon to be the DCEV?) is wisely looking ahead. They painted this mural on their wall to advertise their testing for astronaut licenses.

OASIS' calls to NASA headquarters requesting comments have not yet been returned.

AIAA Dinner Meeting Presents The Next Generation of Scientists: Winners of the Palos Verdes Peninsula Unified School District Science and Engineering Regional Fair

By Lisa Kaspin

Rick Tumlinson's talk at the AIAA dinner meeting May 30 had a fitting introduction. The first part of the meeting saluted several future scientists- who knows, they may be the first generation to settle space! The young scientists were the winners of the 2nd annual Palos Verdes Peninsula Unified School District Science and Engineering Regional Fair (PVP-SEF).

The two high school winners will compete in this year's Intel International Science and Engineering Fair, which will host contestants from 60+ countries and take place in Indianapolis, IN. The two prize winners from the intermediate school level will compete in the national Discovery Challenge portion of the Fair. The PVP-SEF judges represented companies and institutions such as Boeing, Northrop-Grumman, The Aerospace Corporation,

Raytheon, Honeywell, and the UCLA and USC Schools of Medicine as well as several regional medical centers. Dr. Robert Brodsky, a member of OASIS, retired Professor of Aerospace Engineering at USC and a veteran of the aerospace industry, was one of the judges.

The competition covered the physical, life, and social sciences; the winners were from the Engineering, Computer Science, and Physics categories.

High School Award Winners:

1st: **Geoffrey Woo** (Engineering): *Detection of Metal Fatigue and Defects by Electron-Work Function Topography and Gradient*. Woo also participated in the Intel competition last year; he won 3rd place in the Engineering category.

2nd: **Joseph Tsai** (Computer Science) : Computer Simulation of Fuel Cells as a Power Source in Portable Electronics.

Intermediate Award Winners:

1st: **Albert Hong** (Engineering): *Hydrogen Fuel Cell: The Future Power Source*.

2nd: **Rebecca Zisser** (Physics): *The Effect of Light-Bulb Colors and Types on the Power Output of Solar Cells*.

3rd: **Spencer Winter** (Physics): *Do Magnets Work Better in Warmer or Colder Temperatures?*

Comments from some of the winners:

Tsai commented on whether fuel cells would be feasible for portable devices "as hydrogen takes up so much space"; Winter had predicted that magnets would work best at room temperature, but that turned out not to

be true; they worked better at cooler temperatures.

Woo won the top prize, \$200; Tsai and Hong each received \$100 and Zisser and Winter \$50. In addition, the dinner speaker, Rick Tumlinson (please see the cover story), gave each winner a signed copy of his book "Return

to the Moon," commenting that "If I influence your careers at least 1/10 of a degree, I did what I came to do."

Congratulations to the winners and best of luck to them in the Intel Competition!

ISDC 2006: More Highlights

ISDC 2006 covered so many topics that there wasn't room to cover everything in the last issue of the *Odyssey*! Here are a few more highlights from ISDC...

Friday morning featured the Back to the Moon panel; they described a 3-pillar vision for space exploration: 1) lunar science; 2) resources; and 3) getting to Mars. The Crew Exploration Vehicle (or similar technology) is designed to get us back to the Moon and then on to Mars. Methane is preferred as fuel, because it can be made on Mars.

Dietrich Venneman of the European Space Agency (ESA) described their program "Aurora" for human and robotic exploration. Human exploration was the long-term goal; Venneman described a timeline that culminated in a human expedition to Mars by the year 2030. Christopher McKay from NASA Ames proposed that we use the Moon to prepare for human exploration of Mars.

So what about the rest of us who would like to explore space? Space tourism was a big topic at ISDC 2006.

Space entrepreneur Burt Rutan (Scaled Composites) stated that technology "breakthroughs will

be needed to bring spaceflight to the public," noting that the technology of the Crew Exploration Vehicles was too conservative. Rutan also discussed FAA certification; he had fought unsuccessfully to get SpaceShip One regulated by the groups that regulate airplanes (to protect crew and passengers). Experimental rocket regulation, designed to protect the population near the test site, is too much protection for those at a tiny risk, at the expense of crew and passengers.

Derek Webber, director of Spaceport Associates, proposed targets of no more than a week for medical screening, and a training regime of less than 3 months, ideally aiming ultimately for 1 month, for sub-orbital passengers. Contrast this with astronaut preparation, taking 2 years of training in everything from various sports, flight simulation, high-G training, survival training, rescue drills, etc. etc. But those relatively relaxed requirements do not make up for the \$200K price tag on suborbital missions, or the \$20 million tag for orbital! Sorry...

Space tourism may go even farther; Eric Anderson (Space Adventures) thought there would be a private mission orbiting the Moon by the end of the decade!

What about the next step: settlement in space? Lee Valentine (Space Studies Institute) presented an "Evolutionary Roadmap to Space Settlement," stating how Gerard O'Neill had predicted that eventually more people would live in free space habitats than on planetary surfaces. Valentine stated the need for cheap, safe, reliable space transport, whose development will be driven by suborbital space tourism.

Other drivers for space settlement were the availability of resources such as platinum group metals on the Moon and on asteroids, and developments in space solar power. In addition, Valentine pointed out the need for assembly of technology, such as satellites, in space. Space testing would require much less testing and redundancy, and therefore lower the costs. Incremental development with commercial projects will allow for much lower cost for the large habitats than when first proposed back in the 1970s.

So what does it take to put together the types of businesses that will get us traveling to and settling space? Guillermo Sohnlein (International Association of Space Entrepreneurs) led a panel discussion on space entrepreneurship addressing such questions.

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Industrialization and Settlement
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odyssey_editor@oasis-nss.org

Contributions may also be mailed as .doc or .txt files on PC-formatted CDs, or as hard copy to:

OASIS, PO Box 1231
Redondo Beach, CA 90278

Rick Tumlinson AIAA Meeting

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So how did we start? He described how we had concentrated our effort into one space program--Apollo--with the wry comment "We actually did go, by the way." We went to compete with the Soviets, and made it to the Moon...but one thing was missing: "the decision to stay." We next had the promise of the space shuttle as a mode of quick and affordable space access; we were told to expect 50 flights per year. NASA ended up flying an average of 5 per year- and this was before the Columbia accident. In addition, there have been the mounting costs of maintenance and repair.

Today we have the "back to the Moon and on to Mars" program. Tumlinson, one of only 20 outsiders invited by the White House to witness President Bush's announcement of his space exploration initiative, noted that the President did not announce any "decision to stay." to expand our civilization into space.

But the Apollo mission inspired a generation of kids such as Elon Musk and Robert Bigelow, who formed companies and became millionaires...and then began spending those millions to build rockets, and even space hotels! This "New Space" generation founded companies such as

Space X, XCOR Aerospace, and Bigelow Aerospace...designing experimental rockets. Spurred on by incentives such as the \$10 million X Prize, could such companies make private space travel be as little as 5-6 years away? Can the private sector do it on its own?

Tumlinson described the need not only to travel to space, but to operate in space. The government should offer more than one contract, so that companies will develop technology faster and at a cheaper cost because of competition. We need to learn to survey, mine, and extract resources on the Moon, the asteroids, and other planets; technology can be developed in extreme Earth environments such as the Mars Desert Station or the polar stations.

Tumlinson closed by describing the Space Frontier Foundation's program "Teachers in Space" in which space flights would be awarded to 100 teachers every year. Armadillo Aerospace, Rocketplane and XCOR Aerospace are each developing their own vehicles to carry customers to the edge of space, much like Burt Rutan's famed SpaceShip One. Each company has committed to providing a ride for a teacher, valued at between \$100,000 and \$200,000.

More ISDC 2006 Highlights

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Bill Collins (Starboard Ventures), Jeff Greason (XCOR), Lon Levin (SkySeven Ventures), and Ed Tuck (Falcon Fund) described always believing their projects would work, though expecting a failure or two along the way.

Jeff Greason of XCOR noted that finding first-rate people was a big challenge. People

who had worked only in aerospace from the start were at a disadvantage in that aerospace has primarily been serving a government customer. There is a need for people with broad experience, who will not give up easily and think certain things have been tried and found not to work. Just because the government did not accomplish something does

not mean that it will be impossible!

Accomplishing the heretofore-thought "impossible" -- going on to Mars and ultimately other planets, people traveling into space as tourists and ultimately as settlers--in general lived up to the "Exploring New Worlds" theme of a very exciting and visionary ISDC 2006!

Odyssey Children's Issue Deferred

Due to the relocation of one of our members, OASIS suspended plans to publish a quarterly children's edition of the Odyssey as premium for joining as a Family Member. Until OASIS can provide an appropriate benefit, we will no longer offer that membership level.



If you're interested in editing an Odyssey children's edition, please contact us at oasis@oasis-nss.org.

N-OASIS to Invade Worldcon 2006... Be a Part of the Action!

Like meeting people from all over the world?
Like talking about space to space and science fiction enthusiasts?


Here's your opportunity!

The 64th World Science Fiction Convention (Worldcon) will be at the Anaheim Convention Center from August 23rd-27th, 2006. This is the main gathering for general-interest science fiction fans from around the world.

 **N-OASIS** will be providing space programming, hosting a room party on the Friday and manning a fan table. We need volunteers to help us with all of these activities. Spend an hour or so at the fan table chatting up con-goers. Help decorate for our party. Talk to party guests about  **N-OASIS** activities.

And the best part is that you'll have fun in the meantime!

PLEASE NOTE that if you are interested in volunteering, you **MUST** purchase a membership. You will not be allowed inside the door without a valid membership.

 **N-OASIS** will not be providing memberships to volunteers. For membership information, please visit: <http://www.laconiv.org/2006/reg/reg.htm>

If you are interested, please send an e-mail to: convention_liaison@oasis-nss.org

Thursday to Saturday, August 10 - 12 -- Satellite Educators Association Satellites & Education Conference XIX
California State University, Los Angeles 5151 State University Drive, Los Angeles, CA 90032.
See <http://www.sated.org>

Thursday and Friday, August 17 and 18, 7:00 p.m. "How Satellites Have Revolutionized Oceanography: a Historical Perspective," by Dr. Jorge Vazquez, JPL, Physical Oceanographer. Admission is free. Seating is limited.
Phone (818) 354-0112 or visit <http://www.jpl.nasa.gov/events/lectures/aug06.cfm>.
August 17, von Kármán Auditorium, Jet Propulsion Laboratory, 4800 Oak Grove Drive, Pasadena
August 18, Vosloh Forum, Pasadena City College, 1570 East Colorado Blvd., Pasadena

Saturday, August 19, 3:00 p.m. OASIS Board Meeting. Home of Steve Bartlett and Tina Beychok.
7108 East Peabody Street, Long Beach, CA 90808
Visit www.oasis-nss.org/ or phone the OASIS HOTLINE AT (310) 364-2290

Wednesday to Sunday, August 23-27. World Science Fiction Society (LA Con IV)
64th World Science Fiction Convention "Worldcon."
Anaheim Convention Center, 800 West Katella Avenue, Anaheim, CA
More information about LA Con IV, including current membership rates, is available from its web site (<http://www.laconiv.org/>)
Come visit us at the OASIS booth.
Or volunteer! See advertisement on page 6 to find out how.
See program at www.laconiv.org/2006/



Organization for the Advancement of Space Industrialization and Settlement
A chapter of the National Space Society

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I wish to join as an:

___ \$15 Individual

___ \$25 Supporter

___ \$50 Adventurer

___ \$75 Pioneer

MMM yes/no*

MMM yes/no*

MMM yes/no*

OASIS Memberships

PO Box 1231

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Friday, June 30, 8:00 p.m. -- "The Universe in Infrared: The Spitzer Space Telescope," by Dr. Michelle Thaller, California Institute of Technology. Science Lecture Hall 140, Santa Monica College, 1900 Pico Blvd.
Phone (310) 434-4003 or visit <http://www.smc.edu/planetarium/>

Saturday, July 1 -- STS-121 launch, Space Shuttle Discovery (International Space Station ULF-1.1).
<http://www.nasa.gov/centers/kennedy/shuttleoperations/status/2006/status-20060609.html>
http://www.nasa.gov/mission_pages/station/structure/iss_assembly_ulf1_1.html

Saturday, July 1, sunset to 10:00 p.m. -- Public Star Party. Sponsored by Los Angeles Astronomical Society. Griffith Observatory Satellite, 4800 Western Heritage Way (park in the Los Angeles Zoo parking lot).
Email outreach@laas.org or visit http://www.laas.org/Events_StarParties-Public.htm

Saturday, July 15, 11:00 a.m. -- OASIS Monthly Business Meeting and Annual Picnic (potluck).
Polliwog Park, 1400 Highland Ave, Manhattan Beach.
Phone (310) 364-2290 or visit <http://www.oasis-nss.org/>

Thursday and Friday, July 20 and 21, 7:00 p.m. -- "Cassini Realtime Operations," by David Doody, Flight Operations Lead, Cassini Mission Support & Services Office.

Sponsored by Theodore von Kármán Lecture Series. Admission is free. Also broadcast and webcast on NASA TV.

Phone (818) 354-0112 or visit <http://www.jpl.nasa.gov/events/lectures/jul06.cfm>

Jul 20 -- Von Kármán Auditorium at JPL, 4800 Oak Grove Dr, Pasadena.

Jul 21 -- Vosloh Forum at Pasadena City College, 1570 E Colorado Blvd.

Thursday, July 29, sunset to 10 p.m. -- Los Angeles Astronomical Society Public Star Party. Sponsored by Los Angeles Astronomical Society. Griffith Observatory Satellite, 4800 Western Heritage Way (park in the Los Angeles Zoo parking lot).
Email outreach@laas.org or visit http://www.laas.org/Events_StarParties-Public.htm

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