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From the Chair

Hi everyone! As the school year winds down, the National Board of SEDS wishes all of you the best of luck. Although activities in your chapters might be coming to a close, it is important to keep SEDS in your thoughts and not to completely disassociate from the organization. A lot of chapters disband for the summer and expect to start up where they left off when the fall semester begins. However, this is not as easy as it seems. Staying in contact with your own executive board and members over the summer keeps everyone on the same page and makes the initial planning for fall recruitment and start up activities less of a daunting task come August.

Email your friends in SEDS every so often and let them know all of the cool space-related things you are doing! From personal experience, I have found that a monthly or bi-weekly meeting online with the executive

board is an effective way to stay in touch over the summer. You can plan activities and keep up to date on current space news but still have some time to relax. Another suggestion would be to email your membership list once or twice and remind them of all of the fun activities, projects and trips you have planned for the upcoming semester.

The summer can also be a good opportunity to slowly introduce new members transitioning into the executive board to the more experienced ones. More members will also be able to attend conferences or work on technical projects over the summer when they don't have to worry about homework. Nationals will continue to send out our monthly issue of NOVA over the summer to keep you all informed. Good luck with finals and see you in June!

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Space News

HAWKING GOES ZERO-G: 'SPACE, HERE I COME'

World-famous physicist takes eight turns on weightless roller-coaster jet

By Alan Boyle

Science editor, MSNBC

KENNEDY SPACE CENTER, Fla. — World-famous physicist Stephen Hawking experienced eight rounds of weightlessness on Thursday during a better-than-expected airplane flight that he saw as the first step toward a trip in space.

"It was amazing," Hawking told reporters afterward, using his well-known computerized voice. "The zero-G part was wonderful, and the high-G part was no problem. I could have gone on and on.

"Space, here I come," he said.

Hawking's host, Zero Gravity Corp. co-founder and chief executive officer Peter Diamandis, said before the flight that he'd claim success if Hawking had just a single half-minute float in weightlessness aboard the company's specially modified Boeing 727 jet. It turned out that Hawking took eight turns with ease.

"He would have flown more if we let him," said Noah McMahon, one of Hawking's coaches as well as Zero Gravity's chief marketing officer. "He was all smiles all the time."

Zero Gravity had originally planned to bring Hawking back to NASA's Shuttle Landing Facility here after six ups-and-downs. "We negotiated and agreed to do two more," Diamandis told reporters jokingly. After the landing, Hawking's fellow fliers gave him a round of applause.

Hawking is one of the globe's best-known scientists — not only because of his best-selling works on the mysteries of black holes and the origins of the universe, but also because of his increasing disability due to a degenerative nerve disease known as amyotrophic lateral sclerosis. He is almost completely paralyzed and can

communicate only via facial gestures and a gesture-controlled computer system.



Physicist Stephen Hawking flashes a grin as he floats in weightlessness on Thursday, with Zero Gravity Corp.'s Peter Diamandis looking on from right. The apple is a tribute to Isaac Newton and his theories of gravity.

Thursday's flight served an initial test run to see if Hawking had the "Right Stuff" for an even more ambitious journey: a rocket-powered rise to the edge of outer space, perhaps aboard the spaceship now being developed for Virgin Galactic. That craft is due to enter service in 2009 or so, and taking such a flight would check off what Hawking has said is his "next goal."

"I have long wanted to go into space, and the zero-gravity flight is the first step toward space travel," he said before the flight.

Hawking's performance boded well for more ambitious tests, and that's not just according to the professor. Diamandis said Hawking weathered the flight better than his physicians had expected. He noted that the four minutes Hawking spent in weightlessness was about as much time as he would spend in zero-G during a suborbital spaceflight.

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Hawking did gymnastic flips that would have been a "gold-medalist" performance on Earth, Diamandis said.

In preflight interviews, Hawking said Thursday's trip was also meant to show "that everyone can participate in this type of weightless experience" — even people with disabilities as serious as his.

Diamandis said that Hawking was the first person with his kind of disability to take a weightless flight, and the successful outcome demonstrated that "others can follow in Dr. Hawking's footsteps."

The zero-G airplane flights conducted by Zero Gravity, as well as government space programs, duplicate the sense of weightlessness that astronauts feel in orbit for about a half-minute at a time. The plane follows a parabolic, roller-coaster course through the sky. During the top half of each parabola, airplane passengers feel as if they're in free-fall — but when the plane pulls out of its descent, they feel more than the normal pull of gravity.

Thursday's flight was tweaked to make it easier on the frail physicist:

- The doses of weightlessness didn't last quite as long as usual, and the pullout was slightly gentler.
- Four physicians and two nurses monitored Hawking's blood pressure, cardiac readings and blood oxygen levels throughout the flight to make sure that the up-and-down effect wasn't too taxing.
- Hawking could stop the roller coaster and return to the base at any time, merely by gesturing with a grimace.
- Hawking's personal physician, Edwin Chilvers, said there was enough equipment aboard the plane to set up a "mini-intensive care unit" if needed.

Hawking and the members of his support team weren't the only ones on the plane: Investors in Zero Gravity were invited to go along on the ride, and some of the seats were given to charity in a fund-raising move.

Astrophysicist's chance to 'float' on air

Stephen Hawking will experience weightlessness in a modified jet that simulates zero gravity during 25-second intervals.

Zero gravity flight maneuver

An aircraft will fly a parabola, climbing for approximately 20 seconds at a 45-degree angle, subjecting the crew to almost twice the force of gravity.

Near the top, a feeling of zero gravity is achieved for approximately 25 seconds.

The plane then descends at a 45-degree angle. It'll fly 10 to 15 additional plunges for passengers.

Drawing is schematic.

SOURCE: NASA

AP

Diamandis said about \$150,000 was raised for the X Prize Foundation, which promotes private spaceflight, as well as for three charities serving people with disabilities. Diamandis serves as chairman of the X Prize Foundation as well as chairman and chief executive officer of Zero Gravity Corp.

Additional support for the event was provided by Space Florida, a state agency that promotes Florida's commercial space industry and space-related educational activities; and by the retailer Sharper Image, which recently started marketing Zero

Gravity's regular \$3,500-a-seat weightless flights.

BOOST FOR COMMERCIAL SPACEFLIGHT

Hawking said he hoped his flight would provide a boost for commercial spaceflight, in line with his oft-expressed belief that humanity's future depended on moving beyond Earth. He said he believed "life on earth is at an ever-increasing risk of being wiped out by a disaster such as

sudden global warming, nuclear war, a genetically engineered virus or other danger."

As long as humanity is confined to one planet, the existence of our species will be in question, he told NBC News during a preflight interview.

"I think that getting a portion of the human race permanently off the planet is imperative for our future as a species. It will be difficult to do this with the slow, expensive and risk-averse nature of government space programs," Hawking said, working in a veiled reference to NASA. "We need to engage the entrepreneurial engine that has reduced the cost of everything from airline tickets to personal computers."

He said tourism could represent a future mass market for space-oriented services, "and zero-gravity flights are the first, most affordable step in that direction."

"I am hopeful that if we can engage this mass market, the cost of spaceflight will drop," Hawking said, "and we will be able to gain access to the resources of space, and also spread humanity beyond just the earth."

Conference Opportunities

1. NSS INTERNATIONAL SPACE DEVELOPMENT CONFERENCE

Date: May 24-28, 2007

Location: Dallas, Texas

Website: <http://isdc.nss.org/2006/>

For Info: (202) 429-1600

2. SPACE FRONTIER FOUNDATION'S NEWSpace CONFERENCE

(Former *Return to the Moon Conference*)

Date: July 18-21, 2007

Location: Washington DC

Website: [http://www.space-frontier.org/](http://www.space-frontier.org/Projects/)

Projects/

Moon

For Info: krukin@spacefrontierfoundation.org

3. MARS SOCIETY CONFERENCE

Date: August 30-September 2, 2007

Location: Los Angeles, CA (University of California)

Website: <http://www.marssociety.org/convention/2006/>

For Info: MarsSocInfo@aol.com

4. X-PRIZE CUP

Date: mid-October, 2007

Location: Las Cruces, New Mexico

Website: <http://www.xpcup.com/index.cfm>

For Info: (323) 957-0729

Discounts: Volunteer Opportunities Available

Volunteers get free admission

5. SEDS NATIONAL CONFERENCE SPACEVISION 2007

Date: November 9-12, 2007

Location: Cambridge, Massachusetts

Website: <http://spacevision.seds.org>

For Info: (704) 609-7416

6. SAIG: AIAA SPACE EXPLORATION CONFERENCE

Date: December 4-6, 2007

Location: Houston, TX

Website: <http://www.aiaa.org/content.cfm?pageid=230&lumeetingid=1487>

For Info: exploration@aiaa.org

E-MAIL RYAN MCLINKO AT MCLINKOR@MIT.EDU IF YOU HAVE ANY QUESTIONS.

Please send comments on the newsletter to publications@seds.org.

Students For the Exploration and Development of Space

