



THE GEORGE WASHINGTON UNIVERSITY

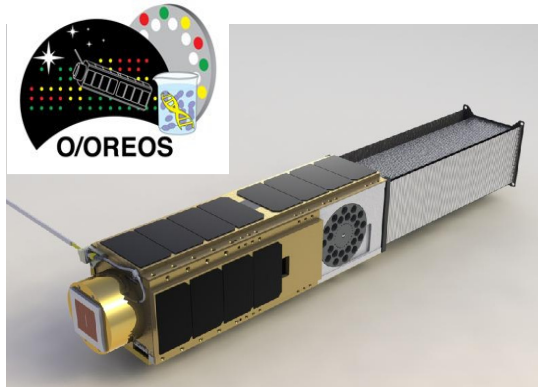
THE ELLIOTT SCHOOL  
OF INTERNATIONAL AFFAIRS

## SPACE POLICY INSTITUTE

### FALL 2010 & WINTER 2011 NEWSLETTER

#### Dr. Pascale Ehrenfreund Serves as Project Scientist on O/OREOS Mission

Pascale Ehrenfreund saw the O/OREOS (Organism/Organic Exposure to Orbital Stresses) nanosatellite launch successfully from Alaska Aerospace Corporation's Kodiak Launch Complex on Kodiak Island, Alaska on November 19, and has been observing its successful flight ever since. O/OREOS achieved orbit approximately 400 miles above Earth, and communications have been established with the satellite.



A computer generated image of the O/OREOS satellite in its deployed form is pictured below the mission logo.  
*Images courtesy of NASA*

O/OREOS is a CubeSat weighing approximately twelve pounds. It contains two experiments; one is growing and monitoring two microorganisms, and the other is studying the effects of radiation on four organic molecules. These experiments will run for six months and transmit data for up to a year. O/OREOS will eventually end its life using NASA's first de-orbit mechanism that requires no propellant.

In addition to advances in astrobiology, Dr. Ehrenfreund sees O/OREOS as a demonstration of the advantages offered by CubeSats, including cost effectiveness, potential access by users around the globe, and relatively quick access to space, allowing the same people who develop a mission to watch it fly and analyze the data.

In September, Dr. Ehrenfreund presented on O/OREOS at the International Astronautical Congress in Prague, as well as on the role of CubeSats within the work of the Committee on Space Research at the UN/Austria/ESA Symposium on Small Satellite Programmes for Sustainable Development in Graz, Austria. ♦

#### The Space Policy Institute Co-hosts Symposium on National Space Policy Implementation

On October 29, SPI and the Trachtenberg School of Public Policy and Public Administration (TSPPPA) held a symposium entitled "From Vision to Execution: Implementing U.S. Space Policy." Four panels offered perspectives on the challenges and potential of implementing the National Space Policy.

Panel topics included Implementation Issues and U.S. Industry, National Security and International Relations, Commercial Space Activities, and Civil Space Programs. Panel discussions were moderated by SPI Director Scott Pace, who also opened the event with TSPPPA Director Kathryn Newcomer.

Panel participants were national level experts and policy leaders, including Elliot Pulham, CEO of the Space Foundation; Marion Blakey, CEO of the Aerospace Industries Association; Robert Dickman, Executive Director of the American Institute of Aeronautics and Astronautics; Gregory Schulte, Deputy Assistant Secretary of Defense for Space Policy; Frank Rose, Deputy Assistant Secretary for Defense Policy and Verification Operations; Victoria Samson, Secure World Foundation; Charles Baker, Office of Space Commerce, U.S. Department of Commerce; George Nield, Office of Commercial Space Transportation, Federal Aviation Administration; Eric Sterner, The Marshall Institute; Mary Kicza, NOAA Assistant Administrator for Satellite and Information Services; Phil McAlister, Special Assistant for Program Analysis, NASA Headquarters; and Dr. John Logsdon, Professor Emeritus, George Washington University.

Symposium notes and videos of the *National Security and International Relations* and *Commercial Space Activities* panels can be found by clicking on the 'Events' tab at the SPI website: <http://www.gwu.edu/~spi/> ♦

## **SPI Students Produce Work Beyond the Classroom**

This semester has been a productive one for SPI students as well as faculty. Second year graduate student Laura Delgado presented at the AIAA Space 2010 Conference in August, and published the accompanying paper, "The Commercialization of Space in Science Fiction Movies: The Key to Sustainability of the Road to a Capitalist Dystopia?" in the conference proceedings. A shorter version of the paper appeared in the Space News guest blog, entitled "A Popcorn-bred Perspective of Space Commercialization," and Dr. David Livingston interviewed Delgado on *The Space Show*, a noted space podcast, regarding the paper.

Second year graduate student Kirk Woellert presented at the UN/Austria/ESA Symposium on Small Satellite Programmes for Sustainable Development in Graz, Austria in September. His presentation focused on the paper he published this semester with Antonio Ricco and SPI Professors Pascale Ehrenfreund and Henry Hertzfeld, entitled "Cost-effective science and technology platforms for emerging and developing nations."

Second year graduate student Megan Ansdell presented at the International Astronautical Congress on the topic "Stepping Stones Toward Global Space Exploration." Her presentation was based on a paper recently published under the same title co-authored with Christopher McKay and Pascale Ehrenfreund. Ms. Ansdell also published "Active Space Debris Removal: Needs, Implications and Recommendations for Today's Geopolitical Environment." ♦

## **SPI Visiting Scholars Featured at GW Space Society Event**

SPI Visiting Scholars presented their research and current perspectives at an event held by the George Washington Space Society on October 20.

Dr. Hong-Yul Paik, former president of the Korean Aerospace Research Institute, spoke about Korea's current satellite and rocket programs, as well as future goals that Korea has for its space program, which include becoming a top-ten space power in coming years, and contributing to international space efforts. Dr. Paik concluded his time as a visiting scholar at SPI at the end of October.



**Dr. Hong-Yul Paik presents on current Korean activities in the space sector at an October GWSS event featuring SPI Visiting Scholars. Dr. Paik was one of three Visiting Scholars to present.**

Koji Umehara, Japanese Ministry of Education, Culture, Sports, Science and Technology, spoke about Japan's current work on the International Space Station, development plan of an HTV return vehicle, the current satellite applications program, and the return of the asteroid probe "Hayabusa". He also highlighted changing policies in Japan, and their potential effects on the government system as well as on Japan's space industry. Mr. Umehara will continue at the Space Policy Institute through March.

Alanna Krolkowski, Fulbright Scholar from the University of Toronto, spoke about the factors influencing U.S.-China cooperation in the space sector, within the broader question of what factors influence transnational integration in high-technology sectors. She highlighted findings of her research at SPI and at the Chinese Academy of Social Sciences in Beijing. Ms. Krolkowski's time at SPI is focused on research for her dissertation, which is examining these questions with a specific focus on the differences between U.S.-China cooperation in the air and space sectors. Ms. Krolkowski began as a visiting scholar in September and will continue through June.

The presentations from this event are available by clicking on the 'Past Events' tab the GWSS website: <http://gwspacesociety.org/wordpress/> ♦

## **Dr. Colleen Hartman, SPI students travel to Space Telescope Science Institute, NASA Headquarters**

During a November 15 trip, SPI students in Dr. Colleen Hartman's NASA Program Management course were able to receive a behind-the-scenes tour of the Space Telescope Science Institute, including briefings from STScI Director Matt Mountain and Deputy Director John Grunsfeld.



**Space Telescope Science Institute Deputy Director John Grunsfeld briefs members of Dr. Hartman's NASA Program Management class during their November trip to STScI. Clockwise from Grunsfeld are STScI Director Matt Mountain and STScI Astronomer Max Mutchler. Mutchler led the class during their tour.**

Students also learned about the 3D modeling involved in the making of the IMAX film *Hubble3D*, the intricacies of creating images out of the data Hubble returns, and some preliminary findings regarding the nature of galactic halos based on Hubble data.



**The NASA Program Management class with NASA Administrator Charles Bolden**

Students in Dr. Hartman's course also had the unique opportunity to visit with top NASA personnel. On October 12 the class met with

NASA Administrator Charles Bolden at NASA Headquarters. General Bolden answered students' questions and discussed current issues facing NASA.

NASA Associate Administrator Chris Scolese visited the Space Policy Institute to speak with the class and answer questions at their final meeting on October 18.

In addition to teaching this course, Dr. Hartman edited the conference proceedings for "Women in Astronomy and Space Science 2009: Meeting the Challenges of an Increasingly Diverse Workforce," published in December. Dr. Hartman also served as keynote speaker at several events, and co-chaired the domestic NASA Mars Group and the International NASA Mars Group, where she provided input to NASA on plans for the next decade of Mars exploration. ♦

## **GW Space Society Hosts Events Throughout Semester**

To kick off the semester, on September 8 SPI students shared with faculty and the GWSS community about their summer work. Student experiences ranged from international travel to work in space science education to internships in Washington DC.

Nicole Herrmann received a NASA research fellowship to study participatory exploration, while Andreas Frick was the Lloyd V. Berkner Space Policy Intern with the Space Studies Board. Kirk Woellert completed an internship with Interorbital Systems in Mohave, CA, where he served as Compliance and Technical Analyst. Dan Hendrickson was a visiting researcher with the European Space Policy Institute in Vienna, Austria and had the chance to observe proceedings of the 53<sup>rd</sup> session of the UN Committee on the Peaceful Uses of Outer Space. Laura Delgado worked for the Center for Strategic and International Studies in their Space Initiatives Division.

On November 18, The GW Space Society co-hosted a Joint Public Policy Roundtable with the AIAA National Capital Section featuring Dr. Frank Fendell of Northrop Grumman Aerospace Systems. Dr. Fendell spoke on the topic "Connecting Phenomenology to Policy: The Intensity of Tropical Cyclones."



In his talk, Dr. Fendell spoke of the need for alternative methods of analyzing cyclones and tropical storms. Such alternative methods would rely on more accurate models developed using different starting assumptions and data gathering techniques, rather than simply increasing computing power using current models. Dr. Fendell's presentation can be found by clicking on the 'Past Events' tab at the GWSS website (<http://gwspacesociety.org/wordpress/>).

On December 3, students from SPI and the GW School of Engineering and Applied Sciences traveled to the Naval Research Lab. Students observed the high bay and the robotics lab, and were briefed on current projects in robotics, solar programs, Earth upper atmospheric studies, and x-ray and gamma ray sensor development. ♦

## SPI Leads International Space University Module

For two weeks in June, the Space Policy Institute, in a partnership with the International Space University, conducted an intensive course in space policy and law. This was one of five Modules that comprised the new ISU Executive MBA program.

The course covered many topics ranging from a comparison of space policies worldwide to seminars and hands-on workshops focusing on the policy and legal implications of using space applications.



**Dr. Henry Hertzfeld (third from right) with the 2010 graduating class of the ISU Executive MBA Program**

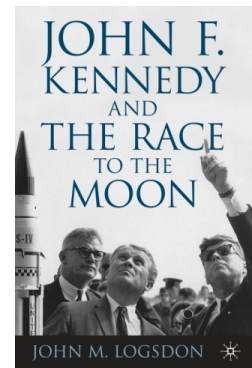
SPI Professor Henry Hertzfeld organized the Module and lectured on space law; Professors Scott Pace, John Logsdon, Leon Fuerth and Nicholas Vonortas also lectured and conducted

workshops. The module benefitted from guest speakers from the Washington legal and policy community who participated as well. SPI plans to offer a similar two-week course in June 2011.

In addition to organizing this Module, Dr. Hertzfeld served as adjunct professor for ISU's Space Studies Program. In September he presented a paper titled "Fault Liability for Third Party Damage in Space: Is Article IV(1)(b) of the Liability Convention Useful Today?" at the IAC/IISL meetings in Prague, Czech Republic. Dr. Hertzfeld also served as visiting professor at Faculty of Law Jean-Monnet, The University of Paris-Sud XI for two weeks in November. ♦

## Dr. John Logsdon Publishes New Book on Kennedy and the Moon Race

*John F. Kennedy and the Race to the Moon* is the title of John Logsdon's new book, published by Palgrave Macmillan on January 4. The book is the definitive study both of the reasons why President Kennedy fifty years ago announced his decision to send Americans to the Moon



"before this decade is out," and of the steps taken by Kennedy in his remaining months in office to implement that decision.

The book also details Kennedy's preference to cooperate rather than compete in space and his September 1963 invitation to the Soviet Union to join the United States in a cooperative lunar landing effort. Logsdon will be appearing in various locations around the United States in the first months of 2011 to speak on his book and sign copies.

Dr. Logsdon also joined others from the Space Policy Institute at the International Astronautical Congress in Prague, where he presented a paper titled "Understanding the New U.S. Approach to Human Spaceflight."

Dr. Logsdon was chosen as a member of the Space Security Council, one of the 72 Global Agenda Councils that are part of the World

Economic Forum network. The Council is intended to bring important space security issues into discussions within the high-level World Economic Forum of more general global risks.

Dr. Logsdon continued his service as a member of the Exploration Committee of the NASA Advisory Council. Logsdon was also named a member of the external advisory committee of South Korea's space agency, the Korean Aerospace Research Institute, and attended the committee's first meeting on November 19 in Daejeon, South Korea. ♦

## **George Washington Moot Court Team Wins International Championship of Manfred Lachs Space Law Competition**

The Spring 2010 SPI Newsletter reported that the GW team of Liana Yung, Christa Laser, and Michael Saretsky (alternate), coached by Prof. Henry Hertzfeld, won the North American round of the Manfred Lachs Space Law Moot Court Competition. This victory qualified them for the international round of the competition, held in Prague, Czech Republic, in September.



**The GW international champion space law moot court team after their victory (back row): Liana Yung, coach Henry Hertzfeld and Christa Laser with Judges from the International Court of Justice.**

Yung and Laser once again proved their talents by defeating the National University of Singapore team in the final on September 30, thus becoming International Champions. This is the fourth year in the competition's 19-year existence that a GW team has earned the title of International Champion. ♦

## **Director's Activities**

SPI Director Scott Pace kept busy this summer and fall with travel and writing in addition to his other duties as SPI Director and GW Professor.



Dr. Pace served on a National Research Council committee that released its final report this fall on "Impediments to Interagency Cooperation on Space and Earth Science Missions." It cautioned that interagency space projects are more difficult than those carried out by a single agency and made recommendations on how to avoid cost growth and schedule delays.

For the past year, Dr. Pace co-chaired a human space flight working group for the International Academy of Astronautics. The final report of the study group "Future Human Spaceflight: The Need for International Cooperation" was released November 17 in Washington DC at a summit meeting of thirty-five space agency heads. The recommendations of the study, along with other reports on planetary exploration, disaster management, and climate change, were endorsed in a joint summit statement.

Dr. Pace also authored an article on the status of and changes to U.S. space policy for the European Space Policy Institute's Yearbook and wrote on "The Strategic Signification of Compass" – the Chinese satellite navigation system, for the December 2010 issue of *GPS World*.

Dr. Pace was busy with travel this summer and fall as well, giving presentations on space policy and international relations at meetings in London, Vienna, Montreal, and Prague. At home, he gave talks at the 2010 International Space Development Conference in Chicago, the U.S. Institute of Peace, the Eisenhower Center for Defense and Space Studies, the Industrial College of the Armed Forces, and led a policy workshop at a NASA workshop on human missions to Near Earth Objects.

On the administrative side, the Space Policy Institute secured a five-year renewal of its charter from The George Washington University, which is the maximum length possible. ♦

## **Extra! Extra! Space Policy Institute in the News**

In the past few months you may have heard a member of the Space Policy Institute on radio shows such as NPR's Morning Edition and Marketplace Tech Report, radio stations WMFE-FM (Orlando) and China Radio International, or local Washington DC television station Channel 7. You may also have read our work on Space.com, in *Discover*, *Chemical & Engineering News*, *New Scientist*, *Scientific American*, or *National Journal*. Additionally, reports involving SPI have appeared in *Space News*, the *Houston Chronicle*, *New York Times*, *Huntsville Times*, *Wall Street Journal*, *USA Today*, and in international outlets *London Times*, *Guardian*, and *Xinhua*. ♦

### **Please visit us on the web at:**

[www.gwu.edu/~spi](http://www.gwu.edu/~spi)

**Alumni:** We are looking to update our records. Please contact the Space Policy Institute at:

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Donations to the institute can be made through the website.

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