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Photo by Norman Seeff

Tech Head

By Mark Whalen

After leading Opportunity and Spirit to Mars, Theisinger has a vision for the Engineering and Science Directorate

Pete Theisinger easily recalls the defining moment, the one event signifying that, as a young engineer, he knew JPL was the ultimate career choice.

It was 1979, when Voyager first arrived at Jupiter, and he attended a JPL press conference a day or two before the flyby. The moon Io had just become resolvable and JPL released a 2" x 2", full-color image, to which the whole audience gasped. Theisinger then told himself, "I know why I do this work."

The California native has worked his way up through the ranks, honing his skills in both flight project work and in line management, eventually to lead one of the most hailed and admired missions JPL has ever done, the Mars Exploration Rover (MER) Project. After brief stints leading the development of the Mars Science Laboratory (MSL), which will launch in 2009, and as deputy director of the Mars Exploration Directorate, he's now been tapped to lead the approximately 3,000-strong Engineering and Science Directorate.

Theisinger discusses his career experiences and his outlook for JPL's future.

How's your new job going?

It's going pretty well. It's a large job, larger than I really knew when I came into it. There's lots of diversity in its content, from the routine to the very strategic.

I've been in the job about two months; it's a bit early to decide how I will leave my imprint on it. But I've enjoyed the job and I enjoy the people with whom I work.

What was behind your decision to take on the job of leading the 3X organization?

After MER and the period with MSL, I felt that it was time to allow the next generation of project manager leadership to take the reins, to get the experiences, deal with the problems, etc. I was looking forward to a role beyond project management, whatever role the institution wanted me to play.

Over the past year or so the 3X directorate has undergone a major reorganization. Is that still underway? What is your vision as you move forward?

Regarding the reorganization, there are still a few actions to close out, some still to clean up.

My vision is for us to be a technically strong engineering and science organization. For the things we choose to do, we should be world class at doing them. We need to utilize all the tools available to us to make that happen.

The line side of the matrix needs to have an excellent working relationship with the projects and with the programmatic side, and have in place the right structures, rules, processes and tools to make that come true.

We need to be strong in our acquisition of work, and in our research and technology development capabilities. We need to execute on our commitments, acquire the appropriate new business and do the technology research to support both our mission concepts and the execution of the mission designs.

We are a professional organization and I expect us to behave like professionals. Sometimes we look at ourselves as the victims of other events and forces. Sometimes people act like they're not empowered, but they are more empowered than they think they are.

We've got 5,000 of the best people in the world. We're unique in the work we do and in the reputation we have throughout the world. We have a lot of control over our fate and we've got to control our fate. We're doing technically excellent, highly visible work, and that's the best thing we can do for ourselves.

And it's not ESD's job to assign a higher or lower priority to work, to pick "winners and losers," as it were.

What are some examples of that?

We have had in-house jobs like MSL or MER, which were well supported and produced a great product, but those missions shouldn't get more or better support or turn out better than a system contract job or a smaller mission.

They're all our children and we should treat them all the same. Our job is to develop a set of resources so we don't have to ration to our customers.

What are your major challenges in the transition to directorate management from project management?

Both have pressure, and both have parts that are more enjoyable than others. I have said sometimes you get to ride the horse, sometimes you have to clean the stable. Most jobs are like that.

Projects tend to have a crisper mark of success, a crisper completion statement. My challenge is to create crisp completion objectives on the line side of the matrix.

As a line organization, we should look at an assignment as a set of discrete, project-like

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things to do where you can make a difference. And we have to stay away from "boil the ocean" solutions. No matter how complete an answer you provide for a problem, there will be always be people who say it's not enough.

But we should focus on improvement we can reasonably achieve in a reasonable period of time.

Do you miss working on the project level?

I always miss the people. It's always the team. Project management and line management are not the same, but the distinction is less than you might think. You're always managing the job through the work of others. You do very little directly yourself. From that extent, it's always a people-management job—it's always getting the right people; giving them the right scope; setting a vision; giving them freedom of action; delegating, not micro-managing; providing good, constructive feedback—it's all these things.

So a lot of it is the same, whether you're doing that with a flight-system manager who is building a rover to go to Mars or with a division manager with 700 people in support of 45 projects.

Compare project management work to line management work in terms of fulfillment.

The largest distinction—and I'd like to make it not for me but for the people who work for me—is in the recognition by others of what you've done and what you've accomplished.

Not all projects are created equally. MER was very successful; the people who worked hard on it deserved every bit of praise they got, but certainly for some of us, the project as a whole got a lot more recognition than other projects that were just as complicated and just as valuable. That's just a fact of life, but it's not necessarily fair.

In the line organization, division managers, section managers and group supervisors often have a difficult assignment, they're asked by the institution to do a wide variety of things and they work very hard doing it. And yet whatever visibility and recognition that the project world gets—even the least-recognized project—the line organization gets even less recognition than that.

We've got to fix that. You will never acquire good people, never get strong project people back into the line, unless we make their jobs valued, recognized and rewarded.

Photo by Carol Lachata/JPL Photolab

"When it comes to crises I have at work, the pressures and decisions, I'm able to focus on the task at hand, the situation I'm in, what needs to be done. I don't remove myself from it and take time for a break because I don't find that that helps me. It's just the way I'm wired."

Any thoughts on how to do that?

Well, it starts with management: an appropriate recognition and the reward structure, taking people's issues seriously and providing solutions to them.

Charles Elachi has spoken in the past about cross-pollination between the line organizations, the flight projects and management. It's up to everybody to see that happens. It strengthens the entire organization if the leadership has a variety of experience.

Do you see a "brain drain" among JPL engineers? Does the influx of younger talent match up with the retirements of the veterans?

Well, last year was a non-normal year due to the layoffs we had, so it doesn't represent the typical year. But I don't think we're significantly unbalanced between younger and veteran engineers. We do look at things like middle-career departures and the reasons for them; we don't like those.

And of course, we'll continue to work to retain people, and recruit the best and brightest.

What would you tell a college student considering working at JPL?

This place allows you to do one-of-a-kind work in planetary exploration. There are other places where you can do one-of-a-kind work—biotechnology, for example—so this is not the only place for a technical person.

However, we're at the cutting edge in many respects—in the kinds of missions we do, the kinds of challenges we accept and the high expectations that come with that, our ability to overcome difficulties and the degree of responsibility people can have at an early age.

Some of the people working in MER operations have risen up through the ranks during the life of the project. We have the work content that allows that to happen. You can come here and have a significant role and make significant contributions very early in your career.

That said, sometimes the best and brightest decide they don't like the high price of California real estate, or prefer green hills over brown hills. People will make the quality-of-life decisions that are important to them, but people never decide not to come to JPL because they don't find the work exciting.

And we need to take good care of them. We've got to provide the people with the way they can get the most out of themselves for their career and for the future of the Lab. There will be future Pete Theisingers to run an MER, and Richard Cooks to run an MSL, and Tom Gavins in leadership roles.

That's on my mind too. Sometimes I think, who's going to do the job when I quit? Who will the future division managers be? How do we make sure they have the right life experiences?

How did your early days at JPL prepare you for who you are now?

Well, I think people have the view from MER that I was a flight project person, not a line person. But I have gone up both ladders—not every rung has been stepped on during the way up, but I've touched a fair number of rungs on both ladders.

I came here as a summer student in 1967, after I graduated from Caltech. I was on Mariner 1967, working the graveyard shift in operations. I had just gotten married, and was on my way to grad school at the University of Michigan. My experience during that summer convinced me to stay here.

Then I worked here in payload integration on Voyager, and then Galileo in the Systems Section until 1980, when I left JPL for three years to work for Xerox Electro-Optical Systems in Pasadena. It later became Loral. I worked on the Galileo power and pyro system there. That experience was very helpful to me as my career progressed.

When I returned to JPL I worked in the Power Section, where I was group supervisor and deputy section manager. On the project side I was a subsystems engineer for the power system for Galileo, then project systems engineer for Mars Global Surveyor, and delivery manager for the Mars Surveyor Operations Project.

I think it's very important for people to have diversity to their portfolio from both the project side and the line side. And within your domain, always develop a robust set of experiences.

What do you do to relax, to get away from JPL both mentally and physically?

My wife and I will go to some place on the coast—probably Ventura, Santa Barbara or Carpinteria—have a nice meal, then walk along the sand and watch the sun go down. I find that very relaxing.

Vacations are important to me, and I don't let anything interfere with that. My wife and I have done cruises for the last several years. We cruised from Australia to New Zealand in February 2005, and as nice as that was, we followed that up with an 11-day New Zealand land tour. That was just stupendous.

We haven't done as much travel in the United States as we would have liked, so I think in the future we'll spend more time domestically and a bit less time overseas.

How have you dealt with the tough times?

When it comes to crises I have at work, the pressures and decisions, I'm able to focus on the task at hand, the situation I'm in, what needs to be done. I don't remove myself from it and take time for a break because I don't find that that helps me. It's just the way I'm wired.

I tend not to get too nervous. The proof in the pudding, of course, is if the people I'm with see me as a steady hand, what their perceptions are. I'm not a good judge of that.

I have a rule I sometimes quote: "Nothing is as good or as bad as it looks." I think part of the reason I react the way I do is because I believe that there will be a positive resolution—an answer will be found, a crisis will be averted, a problem will be overcome.

People will do whatever is necessary and will handle it. ■

Photos by Bill Ingalls/NASA

Rover memories

TOP: PETE THEISINGER, RIGHT, CELEBRATES THE SUCCESSFUL LANDING OF THE MARS ROVER OPPORTUNITY ON JAN. 24, 2004, THREE WEEKS AFTER ITS TWIN SPIRIT TOUCHED DOWN. WITH HIM ARE CHARLES ELACHI, SEAN O'KEEFE, ED WEILER, ORLANDO FIGUEROA AND FIROUZ NADERI. BOTTOM: CHECKING OUT THE FIRST IMAGES RETURNED BY OPPORTUNITY.

LAB TO LEAD
EARTH SCIENCE STUDIES

Three of 28 new investigations for information systems technology development under the Advanced Information Systems Technology Program will have principal investigators from JPL. Five other investigations will have JPL co-investigators.

The proposals, selected from a field of 99 submitted proposals, cover a variety of topics pertaining to smart sensing, sensor web communications and enabling model interactions in sensor webs. The total funding for these investigations, over a period of three years, is approximately $31 million. The studies with JPL participation were funded at about $6.8 million over three years.

The main purpose of the Advanced Information Systems Technology Program is to invest in research and development of new and innovative information technologies to support and enhance the NASA Science Mission Directorate's Earth science and applications objectives in the 21st century. The program focuses on creating mature technologies leading to smaller, less resource-intensive and less expensive flight systems that can be built quickly and efficiently, and on more-efficient ground-based processing and modeling systems that improve the use of Earth science data.

The investigations with JPL principal investigators are:

QuakeSim: Enabling Model Interactions in Solid Earth Science Sensor Webs — Andrea Donnellan

The study proposes to expand the development of JPL's QuakeSim Web Services environment to integrate both real-time and archival sensor data with high-performance computing applications for data mining and assimilation. The work will substantially improve earthquake forecasts, which will ultimately lead to mitigation of damage from quakes.

Sensor-Web Operations Explorer — Meemong Lee

This technology will perform rapid exploration of dynamically configured air-quality measurement scenarios that will be executed on a high fidelity, sensor-web simulation system that integrates phenomena models, platform models and instrument models. The goal is to enable users to plan measurement strategies that maximize science data return by identifying where and when specific measurements have the greatest impact. It will demonstrate both regional and global scale operations, helping to optimize satellite and sub-orbital resource usage.

Autonomous Disturbance Detection and Monitoring System for Uninhabited Aerial Vehicle Synthetic Aperture Radar — Yunling Lou

This autonomous disturbance detection and monitoring system with imaging radar will provide key information for the rapid response of natural disasters, such as hurricane landfall and forest fire, and can be readily extended to other hazards such as earthquakes, volcanic eruptions, landslides and floods. The system has the potential to benefit the commercial sector by effectively monitoring forest disturbance due to fires, hurricanes, or disease infestations.

The investigations with JPL co-investigators are:

A Smart Sensor Web for Ocean Observation: System Design, Modeling and Optimization — Andrew Gray and Yi Chao (principal investigator is Payman Arabshahi, University of Washington Applied Physics Laboratory).

An Interoperable Sensor Architecture to Facilitate Sensor Webs in Pursuit of Global Earth Observation System of Systems — Steve Chien (principal investigator is Daniel Mandl, NASA's Goddard Space Flight Center).

Efficient Sensor Web Communication Strategies Based on Jointly Optimized Distributed Wavelet Transform and Routing — Sam Dolinar and Aaron Kiely (principal investigator is Antonio Ortega, USC).

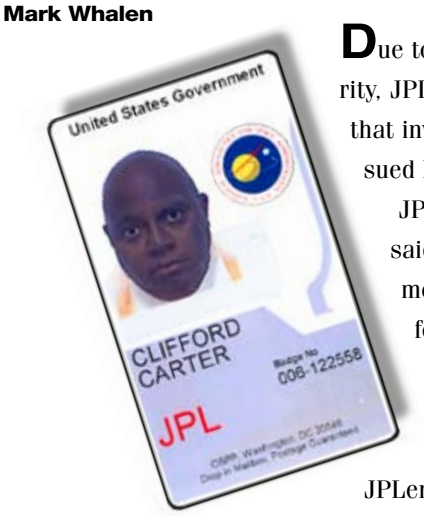
Optimized Autonomous Space—In-Situ Sensorweb — Sharon Kedar, Steve Chien and Frank Webb (principal investigator is WenZhan Song, Washington State University).

Telesupervised Adaptive Ocean Sensor Fleet — Alberto Elfes (principal investigator is John Dolan, Carnegie Mellon University).

For complete descriptions of the 28 proposals selected by NASA's Earth Science Division, log on to *http://esto.nasa.gov/files/solicitations/AIST_05/ROSES2005_AIST_Selections.html.* ■

New NASA badge part of federal mandate

By Mark Whalen



All JPL employees will soon have the new NASA identification card, as shown in this sample, which is colored silver for JPL employees. Other colors designate different groups of personnel.

Due to a directive from the Department of Homeland Security, JPL staff are now undergoing a new identification process that involves fingerprints, background checks and newly issued NASA badges.

JPL Office of Protective Services Manager Randy Aden said the process is part of a mandatory, federal government–wide standard to provide secure and reliable forms of identification for federal employees and contractors. Through its contract with NASA, JPL is a federal contractor.

"There's been some anxiety because this is new for JPLers," said Clifford Carter, security systems administrator in the Office of Protective Services. "This is a compliance issue for JPL. Our office is working hard to accommodate all employees' needs."

Carter noted that privacy has been a concern for some, but said that steps are in place to ensure the protection of personal identification information. "Security personnel have limited access to personal information and will only see what they need to know," he said. He added that paperwork and records associated with the rebadging are kept in a secure area in a JPL Security office. None of the paperwork will be retained by JPL and when the badging process is complete, documentation will be destroyed by NASA.

The identification requirements apply not only to access to JPL and to specific buildings and facilities, but also to issues of potential export compliance or those involving International Traffic in Arms Regulations (ITAR), Aden said. To that end, the

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News Briefs

May honored by minority group

Thomas May, manager of the Business Opportunities Office and Supplier Diversity Program at JPL, has been selected as one of this year's 50 influential minorities in business by the Minority Business and Professional Network Inc.

May received the 2006 Award for Excellence and Leadership during an awards gala in Washington, D.C. on July 21. May is one of 50 men and women from the federal, corporate and small business sector honored for their professional excellence and strong leadership.

JPL's Supplier Diversity Program assists small-, minority-, women- and veteran-owned businesses. The program's major goal is to increase the maximum number of procurement actions and dollars awarded to small businesses each year.

Previously, the United States Small Business Administration recognized May as a Procurement Advocate, Prime Contract Advocate and a Lifetime Achievement Award recipient. May's motto for the Business Opportunities Office is "We mean business for small business."

The Minority Business and Professional Network is an organization that assists the development and growth of small and minority owned businesses.

For more information on the Business Opportunities Office, visit *http://acquisition.jpl.nasa.gov/boo.*

Kalashnikova earns international honor

Olga Kalashnikova, a scientist working with the Multi-angle Imaging SpectroRadiometer group, has received a major honor from the Committee on Space Research, an international space advocacy organization.

Kalashnikova last month received the Zeldovich Medal, which is conferred by the Russian Academy of Sciences to young scientists for excellence and achievements. The award honors the memory of Soviet Union native Yakov Zeldovich, a distinguished astrophysicist and academician.

The medal was awarded to Kalashnikova for her contributions to modeling optical properties of non-spherical particles and remote sensing applications to dust sources, transport and deposition studies.

Kalashnikova, who specializes in aerosol models, aerosol validation and climate application of aerosol products from the JPL satellite instrument, joined the Lab in 2002 as a National Research Council research associate and became a JPL scientist in 2004. She earned bachelor's and master's degrees in physics from the Kazakh State National University in Kazakhstan and a doctorate in astrophysical, planetary and atmospheric science from the University of Colorado, Boulder.

Besides her work analyzing aerosol model effects on the instrument's operations, her current JPL projects include scientific research for a NASA-funded proposal on the spectroradiometer's observations of dust sources; and research and analysis for a project to improve climate prediction by combining satellite observations and global models.

200 students attend career fair

More than 200 summer students, co-ops and student interns participated in the Student Career Fair, part of Student Career Week, held during the last week in July.

The fair allowed students to network and establish contacts with fellow peers and hiring managers. All of JPL's technical and business organizations staffed booths with hiring managers who met with prospective early career hires. Résumés were collected by the division representatives and have been distributed to hiring managers.

Career Week also included a résumé-writing workshop presented by JPL Human Resources university relations recruiters Teresa Beaudine and Susan Androvich, as well as briefings presented by division managers who outlined the technical expertise and career opportunities available in their division.

"The success of Student Career Week would not have been possible without the hard work of JPL's University Relations staffing team, the support of the Student Programs Committee, all of the participating organizations and most of all, the enthusiastic student employees of JPL," noted Paula Caterina of JPL's Staffing and Employment Programs Office.

Small business Science Forum Aug. 22

Six high tech–related small businesses will showcase their capabilities to key JPL, NASA and prime contractor personnel at the 10th annual Science Forum for Small Business on Tuesday, Aug. 22.

The event will be held from 8:30 to 11:30 a.m. in von Kármán Auditorium. JPL's Business Opportunities Office and NASA's Office of Small and Disadvantaged Business are sponsoring the forum.

Companies selected to participate in the event are:

Advanced Cooling Technologies of Lancaster, Pa., specializing in thermal technology development and custom thermal product design; Base One Technologies of New Rochelle, NY, offering network engineering, information security, software engineering, systems integration, capacity planning and disaster recovery; Computational Physics, Inc. of Springfield, Va., specializing in atmospheric remote sensing, global ionospheric modeling and data analysis; Hunter Technology Corp. of Santa Clara, offering electronic manufacturing solutions including printed circuit board design and layout, fabrication, test and systems integration; Sierra Lobo Inc. of Milan, Ohio, specializing in advanced cryogenic systems and cryogenic technologies; and Advanced Integrated Systems of Santa Barbara, offering mechanical design and analysis, electronics design, modeling and simulation, materials and process engineering and control system design.

Participants will make presentations on their key areas of technical expertise, research and development and/or service capabilities, past performance and other relevant information. The companies will have the opportunity to seek new mentor and subcontract relationships.

JPLers are welcome to attend the session. For more information, call JASMINE COLBERT at ext. 4-8689 or visit *http://acquisition.jpl.nasa.gov/boo.*

Retiree Duxbury earns alma mater honors

JPL retiree John Duxbury received the 2006 Alumni Achievement Award from Valparaiso University for his outstanding performance as the Mars Reconnaissance Orbiter science payload manager.

Duxbury earned a bachelor's of science in electrical engineering from Valparaiso in 1961. The college is located in Indiana.

Duxbury, who joined JPL in 1965, had more than 40 years experience in planetary exploration and military projects at JPL and served in system engineering and management assignments on both the line and project sides of the Lab's matrix organization.

In his earlier years he led interdisciplinary mission and spacecraft design studies for travel to inner and outer planets and to comets/asteroids. He was active in the system design and operation of the Mariner spacecraft flown to Mars and Venus in the 1960s and '70s. He later managed ground system infrastructure development and the science operation teams for Cassini; co-chaired an international working group for the Infrared Astronomical Satellite project; and managed several highly successful command and control projects for the U.S. Air Force and Army.

Duxbury received two NASA Exceptional Service Medals and many NASA group awards. He also received an Italian Space Agency award for his contributions to the development of the Shallow Radar antenna on Mars Reconnaissance Orbiter.

Service awards bestowed

For the period of May through July 2006, the following JPL recipients celebrated 25 or more years of service and were invited to attend a luncheon and ceremony in their honor on July 6.

50 years: Robert Mueller, Robert Ryan, Joseph Savino.
45 years: Edward Smith, Larry Whitcanack.
40 years: Willis Goss, Joy Hodges, Donald Kurtz, John Mahoney.
35 years: Ara Chutjian, William Edmiston, John Ekelund, Margery Fea, Susan Foster, Adrian Hooke, Eunice Lau, Albert Nakata, Anthon Rasmussen, Ronald Steinkraus, Donald Sweetnam.
30 years: Kristine Blom, James Breckinridge, Sharon Chapman, Taher Daud, Allen Hubbard, Thomas Lockhart, Gary Parks, Edward Wong.
25 years: Edmund Baroth, Juan Bautista, Martin Buehler, Valerie Duval, Charles Garner, Leslie Lowes, Edward Miller, Charles Simon, Laif Swanson.

For information about the programs and services offered by Compensation, Rewards and Recognition, visit *http://hr/esr.*

STEPHANIE WILSON RETURNS TO EARTH, VISITS OLD HOME AT JPL

Photo by Dutch Slager/JPL Photolab

Stephanie Wilson greets the audience in von Kármán Auditorium. A former engineer on the Galileo mission to Jupiter, Wilson recently flew her first space shuttle mission. She marveled about how her views of Earth gave her "an appreciation for the land and water" that can be seen nowhere else. She also was in awe of how the shuttle and all of its technology and systems come together as a single unit.

By Mark Whalen

Astronaut and former JPL employee Stephanie Wilson returned to the Lab Aug. 3 along with fellow STS-121 astronaut Piers Sellers to share with employees their recently completed mission to the International Space Station.

Wilson, a former attitude control engineer on the Galileo mission, worked at JPL from 1992–96. In May 1996 she was named to the astronaut corps, and her July flight aboard Space Shuttle Discovery was her first shuttle flight. Sellers' flight on Discovery was his second shuttle mission.

The pair delighted a packed von Kármán Auditorium audience with stories of their mission during a 20-minute video that chronicled the entire shuttle flight, from launch through landing.

Wilson marveled about how her views of Earth gave her "an appreciation for the land and water" that can be seen nowhere else. She also was in awe of how the shuttle and all of its technology and systems come together as a single unit.

Sellers described the view of the European continent seen by the seven-member crew about 20 minutes after their launch from Florida's Kennedy Space Center. Later there was a detailed look at the Nile River in northern Africa along with other areas of the Middle East. The video also showed many spectacular shots of the space station from the shuttle and vice versa.

Other views included the perfect docking of the shuttle with the space station on July 6, the mission's third day, followed by the shuttle crew floating into the station to greet crewmembers Pavel Vinogradov of Russia and American Jeff Williams.

Discovery crewmember and European Space Agency astronaut Thomas Reiter, from Germany, will now remain at the station. This will be the first three-person crew since the Expedition 6 crew returned to Earth May 4, 2003.

In response to an audience question about how the astronauts have fun while in orbit, Wilson noted that "there's almost no time; it's all work," although the video's lighter moments included Wilson's zero-gravity air tumbles as she

Stephanie Wilson (middle right) poses with other STS-121 crewmembers in the Destiny laboratory of the International Space Station while Space Shuttle Discovery was docked with the station. Clockwise, around the circle from Wilson, are Piers Sellers, Thomas Reiter, Michael Fossum, Lisa Nowak, Steven Lindsey and Mark Kelly.

NASA Photo

Astronauts Piers Sellers, left, and Stephanie Wilson visit with rover autonomous navigation systems engineer Eddie Tunstel, second from left, and Mars Exploration Rover Project Manager John Callas.

Photo by Joey Williams

floated along, as well as a comical shot of the astronauts frantically trying to eat pieces of candy in midair before they got away.

Wilson also showed a handmade sign made by her and fellow mission specialist Lisa Nowak dubbing them the "Robo Chicks" for their work in controlling the shuttle's 50-foot robotic arm. Part of their duty was to test the robotic arm boom extension as a work platform.

Sellers showed the intense aerobic exercise he and fellow mission specialist Michael Fossum undertook just prior to their spacewalks. As the hatch opened for them to begin their outside repair work, Sellers joked, "It's just a 220-mile drop to Earth."

Indeed, the video highlighted footage of the precarious Sellers and Fossum at the end of the robotic arm, performing their meticulous repair work against stark darkness. The pair performed three spacewalks during the mission.

Following a nine-day stay, Discovery's crew undocked from the International Space Station and headed home.

The 13-day Discovery flight, the first shuttle launch on Independence Day, was NASA's second "Return to Flight" mission. The Discovery crew tested new equipment and procedures that increase the safety of space shuttles, performed maintenance on the space station and delivered more than 28,000 pounds of equipment and supplies to the station.

Following their von Kármán presentation, Wilson and Sellers conducted news media interviews and took a brief JPL tour that included the Space Flight Operations Facility as well as Cassini and Mars Exploration Rover operations areas. ■

new badges

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new NASA photo identification badges are color-coded to designate various categories of personnel.

For example, a red badge is given to foreign-national personnel who are from a country on NASA's designated country list. The list includes countries with which the United States has no diplomatic relations, are determined by the Department of State to support terrorism, are under sanction or embargo by the United States and are of missile technology concern. Those from non-designated countries receive an orange badge.

JPL's Office of Export Compliance (*http://exportcompliance)*, the principal interface with federal government agencies regarding export control matters for JPL, processes and monitors foreign-born employees and visitors.

Other badge colors and designations identify different groups. Gold represents NASA civil service personnel; silver represents direct employees of JPL; blue represents contractors; violet represents interns; green represents detailees; and brown represents news media visitors.

Expiration dates on certain badges correspond to legal or contractual expiration dates. The date is determined by a person's passport, the expiration of a U.S. visa or the date their employer's contract expires with JPL.

Aden said the process to rebadge all employees has taken longer than anticipated, but an additional badging facility being readied in Building 310 for mid to late September will help. Currently, he said, Security staff produce an average of about 17 to 20 new badges a day, and the additional badging machines will allow them to produce twice as many.

Joe Aguirre, the acting supervisor for administrative security, said all JPL buildings are being reconfigured to update security and alarm systems. When the process is completed, only the new NASA-issued badges will work with badge readers. Those with badge reader access in the first group are buildings 103, 107, 231, 277 and 310.

It's a massive task. For example, Building 230 has about 400 permanent occupants but about 3,000 people have access to the building.

Aguirre added that it's important for employees who have not yet received the new NASA badge to fill out the paperwork and to make and keep their appointments so JPL can fulfill its requirements.

To acquire the identification and badge form and for more information, log on to *http://protective-services/Adminsecurity/NASA_Credential.html.* All paperwork must be faxed to ext. 3-6969 or hand carried to Building 310-129. E-mail and interoffice mail represent security risks. ■

Space pioneer Van Allen dies

Astrophysics pioneer James Van Allen, who helped usher in the space age as the scientist in charge of the instrument on JPL's Explorer 1 satellite in 1958, died Aug. 9 at the age of 91.

JPL operated as a research laboratory for the U.S. Army when it was selected in 1957 to develop the first U.S. satellite, its science package, the communications system and the high-speed upper stages for the rocket that would guide the tiny, 20-pound Explorer 1 into space. JPL and the Army launched the satellite in less than three months, on Jan. 31, 1958.

The cosmic ray detector onboard, built by Van Allen of the University of Iowa, soon returned one of the most important findings of the space program: the discovery of what are now known as the Van Allen Radiation Belts encircling the Earth.

"His discovery of the Van Allen belts was the first major scientific discovery of the Space Age," said former JPL director Ed Stone. "The discovery was unexpected, and that's what made it so exciting. It set the tone for the further exploration of space by revealing how much there was to be discovered."

Among Van Allen's other accomplishments are his 1973 first-ever survey of the radiation belts of Jupiter using the Pioneer 10 spacecraft and his 1979 discovery and survey of Saturn's radiation belts using data from the Pioneer 11 spacecraft. Van Allen is also credited with discovery of a new moon of Saturn in 1979.

He was the principal investigator for scientific investigations on 24 Earth satellites and planetary missions and also helped develop the first plans for an International Geophysical Year.

In recognition of his contribution to U.S. space research, Van Allen received 13 honorary doctorates, NASA's Medal of Exceptional Achievement, the Commander of the Order du Merite pour la Recherche et L'Invention and the Gold Medal of the Royal Astronomical Society.

Passings

Clifford Cummings, 83, former lunar program director and JPL East Coast Technologies and Applications Programs Office manager, died July 8 in Leesburg, Va.

Cummings joined JPL in 1946. He was responsible for Corporal guided missile telemetry and radio guidance development, and served as Corporal technical coordinator, Jupiter Project director and chief of the Systems Engineering Division between 1954 and 1957. He also assisted in the development of Explorer I, which in 1958 became the first Earth-orbiting satellite from the United States. In 1958, Cummings was on assignment to the Weapons System Evaluation Group under the Office of the Secretary of Defense and then served as JPL's first representative to the newly created NASA in Washington, D.C.

Cummings returned to Pasadena as the lunar program director and was responsible for the Ranger unmanned lunar exploration program from 1959–62. He then served as a special assistant to then–JPL Director William Pickering.

Leaving JPL in 1963, Cummings served as manager of program management and systems engineering at Electro-Optical Systems (Xerox). From 1969–83, he was manager of intelligence and reconnaissance for Electro-Optical Systems in Washington, D.C.

Cummings returned to JPL as the manager of the East Coast Technologies and Applications Programs Office in 1983. He retired in 1991.

Cummings is survived by three of his four children: Carol Younce, Janet Cummings and Clifford Cummings Jr.; 19 of his 20 grandchildren; and 12 great grandchildren.

Anni Castain, 86, a retired senior library assistant, died June 3.

Castain retired in 1990 after 27 years of service. In 1989, she was one of 10 JPL honorees in NASA's Spaceflight Awareness Program.

An active athlete into her senior years, Castain at age 63 entered the annual NASA 10K and two-mile inter-center competition and won first place in her division. She also won medals in 1984 and 1985.

She was also very active in the JPL Hiking Club, and from 1976 and into early retirement was an avid camper, backpacker and cross-country skier.

Castain is survived by sons Eric and Ralph and grandsons Alaric and Kelson.

A remembrance gathering is planned for Sept. 9 at the Sierra Madre Lodge. Call Nancy Feagans at 310-483-8192 for details.

Darrell Ross, 76, a retired member of the technical staff, died June 20.

Ross joined JPL in 1962 as a member of the Power Division 34, where he worked for 12 years and served as a group leader. From 1984 until his initial retirement 10 years later, he worked in the former divisions 43 and 93. He was rehired as an on-call retiree and worked in divisions 93 and 94 until his 1997 retirement.

Ross is survived by his daughter Elizabeth and two grandchildren.

C. Robert Wendlandt, 83, a retired engineer, died July 3.

Wendlandt joined the Lab in 1949 in Section 344 and worked on Corporal, Sargent, Ranger, Mariner, Viking, the Voyagers and Galileo before retiring in 1985.

He is survived by his wife, Pearl, daughter Ilene, son Robert, three grandchildren and two great grandsons. Services were held July 14 in Reseda.

Letters

We would like to thank our friends and co-workers at JPL for the heartfelt support during the recent illness and passing of Elaine's father. We appreciate the generosity and caring extended by Division 38 and Section 386 that allowed us to share precious time with Elaine's father and provide her mom the support she needed. Thank you, again, for your thoughtfulness and expressions of sympathy.

Payam and Elaine Zamani

My husband and I would like to extend our heartfelt thanks to JPL and my friends at Section 387 for the lovely plant sent to us at the passing of his mother. Your kind thoughts and supports have been truly appreciated. Sincerely,

Julie Wang and Dennis Sung

Retirees

The following JPL employees retired in August:

John Anderson, 46 years, Section 332K; Jerry Harter, 43 years, Section 2723; Joseph Donhauser, 35 years, Section 3864; Donna Hofmann, 35 years, Section 8031; Sherrill Eastman, 24 years, Section 3713; Shirley Wolff, 20 years, Section 1862; Ronald Roberts, 10 years, Section 2150.

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