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Cassini images show moon on a roll

By Mark Whalen



Photo by Bartholomew Cooke

BOB PAPPALARDO GETS BY WITH A LITTLE HELP FROM HIS FRIENDS. Pappalardo is a newly hired JPL planetary scientist who credits a collaborative effort with colleagues for a recent unusual discovery based on images from Cassini.

New research shows that Saturn's moon Enceladus—an active, icy world with an unusually warm south pole—may have performed an unusual trick for a planetary body. Enceladus literally rolled over, explaining why the moon's hottest spot is at the south pole.



This graphic illustrates the interior of Saturn's moon Enceladus. It shows warm, low-density material rising to the surface from within, in its icy shell (outer circle) and/or its rocky core (inner circle).

"It's astounding that Cassini found a region of current geological activity on an icy moon that we would expect to be frigidly cold, especially down at this moon's equivalent of Antarctica," said Pappalardo, co-author of a paper published in late May in *Nature*. "We think the moon rolled over to put a deeply seated warm, active area there."

Pappalardo co-authored the study with Francis Nimmo, a geophysicist and assistant professor of Earth sciences at UC Santa Cruz, whose Mars research familiarizes him with a similar issue, where a big lump on the side of that planet caused Mars to "reorient" and put that lump at the equator.

Nimmo and Pappalardo calculated the effects of a low-density blob beneath the surface of Enceladus and showed it could cause the moon to roll over by up to 30 degrees and put the blob at the pole.

Pappalardo also credits "unspoken collaborator" Jeff Moore, his former officemate at Arizona State University and currently a planetary geologist at Ames Research Center. "Jeff and I were discussing how much Enceladus appears to be like the Uranus moon Miranda," said Pappalardo, who wrote his dissertation on Miranda.

"We were just blown over when we saw the geologic activity at Enceladus' south pole and saw how the hot spot area was somewhat like one of the coronae on Miranda," he said. Coronae are circular to elliptical features marked by a ring of concentric ridges and grooves, and are thought to result from the rise of material in the planet's interior.

Also, Pappalardo said, images from Cassini's Enceladus flyby in July 2005 that show the "tiger-stripe" region suggesting fault lines caused by tectonic stress are somewhat reminiscent of the coronae on Miranda.

"This is an example of how you see new data and say, 'Aha, this makes sense.' A lot of this builds on the experience that comes from previous work—from knowing the literature, from understanding how it might be similar to or different from other planetary bodies.

"We don't have a global map of Enceladus yet," he said, "but another interesting possibility is that maybe we'll see the evidence of other places on the surface that used to be like the hot spot is today.

"I'm happy we've been able to put together this team of researchers who might not have otherwise talked about this topic," Pappalardo added. "It's satisfying and exciting for me to come back to the first real research I ever did as a graduate student, because I believe Miranda holds a lot of keys to early planetary evolution. I never would have thought we'd effectively have more information—more data—about Miranda by studying another satellite.

"I think by studying Enceladus we're seeing that geology in action, which is great in science."

While Pappalardo has found his Enceladus studies "thrilling," he would like to take his efforts in comparative science to another level.

"My goal is to try my best to bring a Europa mission to JPL," he said. "Europa almost certainly has a global subsurface ocean. Enceladus may have liquid water in pockets and spots—it's not clear if that liquid water is global or how deep it might be—but Europa has had time to 'cook' for 4 billion years. Enceladus might get to the point where any liquid water might freeze up, but I don't know. The bottom line is that Europa has the astrobiological potential that is calling for us to get there, explore it and understand it."

Pappalardo and four other JPL employees are highlighted in a film titled "Europa: Mystery of the Ice Moon," which is scheduled for broadcast in August on Discovery's Science Channel.

Caltech names new president



Dr. Jean-Lou Chameau

Jean-Lou Chameau, the provost and vice president for academic affairs at the Georgia Institute of Technology, has been named the new president of Caltech. He will take office on or before Sept. 1. He succeeds David Baltimore, who is stepping down from the presidency after nearly nine years in the post. Baltimore will remain at Caltech, where he intends to focus on his scientific work and teaching.

Chameau, 53, was formerly dean of the Georgia Tech College of Engineering, the largest in the country. He led educational and research programs in nine engineering disciplines, all of which have received national recognition and collectively confer the nation's largest number of engineering degrees on undergraduate and graduate students. As provost, he had programmatic, strategic and financial responsibilities for the academic and research programs of the university, including the Georgia Tech Research Institute. In addition, his office oversaw the continuing and executive education, economic development, and commercialization programs of Georgia Tech.

Chameau was selected by the Caltech Board of Trustees after a nationwide search conducted by the faculty search committee.

"We believe that he is well suited to the challenges and opportunities of the Caltech presidency in a time of change in the global environment of science, technology, and education," said David Stevenson, professor of planetary science and head of the faculty search committee. "We expect him to be an engaging and energizing presence in our community of faculty, students, and staff, including JPL."

"Dr. Chameau brings a wealth of managerial experience and a strong commitment to students, faculty and research," said Kent Kresa, chairman of the Caltech Board of Trustees. "He has done a

terrific job at Georgia Tech, and I'm positive he will lead Caltech with the same energy, excitement and wisdom he displayed there."

"As a person who loves science and technology, I cannot imagine a better and more exciting opportunity than to serve Caltech at this point of my career," said Chameau. "Caltech's commitment to and history of excellence are unequaled. It is a privilege to be asked to lead this institution. It is also very humbling. I look forward to working with such an exceptional group of faculty, staff, students and trustees."

Chameau places a strong emphasis on improving the educational experience of students, increasing diversity, and fostering research, entrepreneurial and international opportunities for faculty and students. He was a champion for programs that contributed to Georgia Tech's leadership role in the education of minority students in engineering, and in the recruitment, retention and promotion of women on the faculty. He was instrumental in positioning Georgia Tech as an internationally recognized university through the creation of innovative educational and research programs and partnerships around the world, including campuses and platforms in Asia and Europe.

Chameau played a key role in Georgia Tech's initiative to educate students to understand their role in creating a more prosperous and sustainable society. He led the efforts that resulted in the creation of the Center for Sustainable Technology, which later became the Institute for Sustainable Technology and Development, promoting educational and research activities that address the global, complex nature of environmental issues and emphasize the linkages between science, technology, society and the environment.

For more information, log on to <http://www.caltech.edu>.

News Briefs



Dr. William Langer

Langer new deputy for research

DR. WILLIAM LANGER has been named to the new deputy director for research position in the Engineering and Science Directorate.

In January, JPL Director DR. CHARLES ELACHI outlined 10 actions to enhance the science, technology and engineering research environment on Lab. Among them was the establishment of the deputy director for research position with broad responsibility for the directorate's research activities and associated processes, personnel issues, facilities, etc.

The deputy director for research will provide leadership in promoting and coordinating research in the Engineering and Science Directorate and other parts of the Lab, including science, technology and engineering. In addition, the deputy director for research will support the external relationships handled by JPL's chief scientist, chief technologist and the program directorates.

Langer has more than 30 years of experience in science research and management, as well as considerable experience in strategic planning and personnel development.

Langer joined JPL in 1991. His contributions in astrophysical research and in leadership positions include project scientist for the Herschel Space Observatory, director of the Center for Long Wavelength Astrophysics, and most recently, manager of the Science Division.

McNamee named Mars deputy

DR. JOHN MCNAMEE has been appointed deputy director for the Mars Exploration Directorate and deputy manager for the Mars Exploration Program Office, effective June 19.

On the Magellan mission to Venus, McNamee served as navigation team chief during orbit insertion and in-orbit checkout activities. He was then involved in the planning of the Mars Environmental Survey mission, which led to his selection as mission engineer/mission design manager for the Mars Pathfinder project, where he served from 1992 to 1994.

McNamee served as manager of the 1998 Mars Surveyor orbiter and lander project from its inception in 1995 through development, test and launch activities, ending in 1999. He has also served as project manager for the Europa Orbiter and X2000, Deep Impact project manager, Dawn interim project manager and deputy director for the Solar System Exploration Directorate.

Information technology officer named

TOM SODERSTROM has been named JPL's information technology chief technology officer, within the Office of the Chief Information Officer.

Soderstrom will be responsible for establishing information technology architectures and standards, assisting with the adoption of new technology, infusing new information technologies into JPL's spending plan, as well as mentoring and providing leadership

for JPL's information technology community.

Most recently, Soderstrom served as director of western operations for Raytheon Information Solutions, where he was responsible for full line management and growth responsibility.

Soderstrom has worked closely with JPL both in his Raytheon position and as the director of Telos Western Operations, where he was responsible for all Telos contracts at JPL.

Soderstrom earned NASA's Public Service Medal (1985) for process improvement by creating and introducing new automated testing and software reuse technology into the Deep Space Network.

Goldstone reunion planned

A reunion is planned for next fall for those who worked at the Goldstone Deep Space Communications Complex during its early history.

Employees of JPL, Bendix Field Engineering Corp. and NASA who worked at the complex in the 1960s and 1970s will meet on Sept. 27 in Mesa, Ariz. Special room rates will be offered by the Arizona Golf Resort and Conference Center, which will host a reception and buffet dinner. Special golf rates are also available.

For more information, contact DON MCCLURE at GoldstoneReunion@yahoo.com.

Sky survey team honored

The Astronomical Society of the Pacific has named the Two-Micron All Sky Survey team as winners of one of its 2006 awards for excellence in astronomy research and education.

The survey, a project based at the University of Massachusetts, Amherst, involved team members from the Infrared Processing and Analysis Center at Caltech and JPL.

The team will receive the Maria and Eric Muhlmann Award for the development of innovative research instruments and techniques. The award is given for recent significant observational results made possible by innovative advances in astronomical instrumentation, software or observational infrastructure.

The award, which includes a \$500 cash prize and a plaque, will be presented at the society's annual meeting in Baltimore in September. For more information, visit www.ipac.caltech.edu/2mass.

Wine tasting benefit June 17

The Child Educational Center's annual wine tasting benefit will be held Saturday, June 17, from 6 to 10:30 p.m. at Caltech's Avery House. All proceeds will directly benefit the non-profit childcare center.

Tickets are available at the JPL Store, Caltech Book Store, the CEC office or online at www.ceconline.org. General admission tickets are \$75 in advance (or \$85 at the door) and include a complimentary Riedel burgundy wine glass.

For information, call ext. 4-3418.



Former astronauts Neil Armstrong (left) and Harrison Schmitt are shown during a meeting of the NASA Advisory Council, held on Lab May 18. The council heard reports from its five committees on aeronautics, audit and finance, exploration, human capital and science. Each committee conducts fact-finding sessions throughout the year in an effort to gain a broad understanding of current NASA issues and future mission implementation plans, and to prepare specific recommendations for council consideration. For information on the council, visit www.bq.nasa.gov/office/oer/mac.

Moonwalkers attend NASA council on Lab

Special Events Calendar

Ongoing Support Groups

Alcoholics Anonymous—Meets Wednesdays at 11:30 a.m.

Caregivers Support Group—Meets the first Thursday of the month at noon in Building 167-111 (the Wellness Place).

Codependents Anonymous—Meets at noon every Wednesday.

Lambda (Gay, Lesbian, Bisexual and Transgender Networking Group)—Meets the first Friday and third Thursday of the month at noon in Building 111-117. For more information, call Randy Herrera, ext. 3-0664.

Parents Group for Children With Special Needs—Meets the second Thursday of the month at noon in Building 167-111 (the Wellness Place).

For more information on any of the support groups, call the Employee Assistance Program at ext. 4-3680.

Friday, June 2

"The Challenge of Landing Humans on Mars"—Mars Exploration Directorate chief engineer Rob Manning will speak at noon in von Kármán Auditorium.

Tuesday, June 6

JPL Gamers Club—Meeting at noon in Building 301-227.

JPL Genealogy Club—Meeting at noon in Building 301-271.

Wednesday, June 7

Associated Retirees of JPL/Caltech—Meeting at 10 a.m. at La Cañada United Methodist Church, 104 Berkshire Place, La Cañada. Visit www.jplreccclubs.caltech.edu/arc or call (626) 794-1698 to leave a message for an ARC board member.

JPL Chorus—Meets at noon in Building 233-303. For more information, call Shary DeVore at ext. 4-1024.

JPL Library Orientation—Stop by Building 111-104 at 11:30 a.m. for an overview of the Library's products and services, and learn how to access numerous electronic resources from your desktop. For more information, call the reference desk, ext. 4-4200.

Thursday, June 8

Clogging Class—Meets at noon in Building 300-217. For more information, call Shary DeVore at ext. 4-1024.

Monday, June 12

"Finding the Right Investment Strategy"—If you are currently enrolled in a tax-deferred account and want to learn more about diversifying, minimizing risk, appropriate allocation of funds and asset classes, this Fidelity workshop, held at noon in T1720-137, is designed for you. The focus will be on asset allocation and diversification, historical asset class performance and portfolio rebalancing. You will build an asset allocation model, create a diversified asset mix, and learn how to make changes and modifications, all aimed at understanding where you stand in the achievement of your retirement goals.

Investment Advice—Fidelity will offer one-on-one counseling in T1720. For an appointment, call (800) 642-7131.

Tuesday, June 13

JPL Stamp Club—Meeting at noon in Building 183-328.

Wednesday, June 14

JPL Amateur Radio Club—Meeting at noon in Building 238-543.

JPL Chorus—Meets at noon in Building 233-303. For more information, call Shary DeVore at ext. 4-1024.

JPL Library Orientation—Stop by Building 111-104 at 11:30 a.m. for an overview of the Library's products and services, and learn how to access numerous electronic resources from your desktop. For more information, call the reference desk, ext. 4-4200.

JPL Toastmasters Club—Meeting at 5 p.m. in conference room 167. Call Dirk Runge, ext. 3-0465, or visit www.jplcaltechtostmasters.com.

TIAA/CREF Enrollment Meeting—This workshop, held at noon in T1720-137, is designed to assist employees newly eligible for the Caltech/JPL retirement plan with selection of investment options and the completion of their enrollment forms.

Open House draws 29,000



Visitors to JPL's May 20–21 open house check out, clockwise, from lower left, the Microdevices Lab; a rolling rover; the Night Sky Network telescope station; and the All-Terrain Hex-Legged Extra-Terrestrial Explorer, or "Ablette," robotic vehicle.

When he was appointed JPL's chief technologist last January 30, Caltech professor Paul Dimotakis began a three-year assignment guiding the planning of what technologies the Laboratory needs to achieve success in its missions. Here he discusses his plans in this new job.

Keeping the edge

By Frank O'Donnell

You've now been JPL's chief technologist for nearly four months. How are you getting situated?

JPL is a unique institution of remarkable people who do remarkable things. This is also a unique period in history where our generation has the privilege of carrying out the exploration of our solar system and beyond. Our office—the Office of the Chief Scientist and Chief Technologist—has the responsibility of looking ahead, looking at a crystal ball. That's a fun and challenging thing to be charged with. It's exciting to be here, to be able to help and contribute, and to have a good time. That's important—when you have a good time, you can contribute better.

Last year JPL released a strategic technology plan that lists a dozen technologies—from detectors and sensors to engineering systems—that are important to the Laboratory's future. Are you satisfied with this plan, or do you want to tinker with it?

It is an excellent summary of the list of technologies that are important to JPL. That compilation was led by my predecessor, Erik Antonsson, who, along with the Technology Working Group, did a superb job integrating across the technology spectrum of the Laboratory. At the same time, a plan is something one should be willing continuously to revise, as the environment and priorities evolve. In part, this is because opportunities to support the plan's elements are changing as NASA's priorities also evolve.

Are there any new initiatives that you would like to add to the mix?

In my opinion, integrated modeling and simulation using the large-scale computation resources that the country has developed is something that can yield significant fruits for the Lab. The keyword here is *integrated* modeling and simulation. Testing is both very expensive and often very limited. As we push the boundaries in space exploration, we need to modify what we mean by the old NASA adage "Test what you fly and fly what you test."

By way of example, the Earth's atmosphere is air, while the Martian atmosphere is mostly carbon dioxide. These two atmospheres have different characteristics—if you do testing on Earth, shock wave angles will be different from shock wave angles you will encounter on Mars, at the same Mach number, and this is important for entry, descent and landing. As the capabilities of spacecraft increase, we are slowly crossing the boundaries of what can be tested on Earth. Testing of some of the new integrated systems will become extremely difficult, if not impossible, soon.

To address this, we'll need to develop the capability to test on the computer, if you will, representing the physics and interactions of *all* parts and phenomena that influence the result, at an accuracy and fidelity commensurate with specifications. Developing this capability will be a challenge for the future.

Rapid increases in computing capability, in both hardware and software, in the past five years or so, 10 at most, have placed considerable computational resources within reach. Having a lot of computing power invites you to ask different kinds of questions, questions you could not ask before. It also requires imagination as to how best to use this new resource. So that's one thing that's new—different ways of thinking, in this integrated way, tracking all the phenomena and physics that must be integrated in a single simulation framework.

This also calls for new discipline in writing software. The software investment to perform what are now called multi-physics simulations is so high and the codes so complicated, that one cannot afford to be tossing them out every time computing platforms change. If a new computer comes along in five years that is 10 times faster, it cannot take three years to migrate the software—by the time you've done that, that computer is likely also obsolete.

One must be able to migrate software to new platforms within a few months, at most.

You recently gave a report to JPL's Executive Council on the status of the Microdevices Laboratory. How is it doing?

The Microdevices Laboratory has developed many capabilities, some of which are unique not only to JPL but internationally. These developments enable new measurements in space that were beyond reach only a little while ago. Based on this preliminary review, there is no reason to believe that the rate of progress in these activities is slowing down. A lot of exciting possibilities are in the works.

Are there any standouts in your mind among technologies developed there?

Quantum well infrared photodetectors, or QWIPs, and quantum dot infrared photodetectors, or QDIPs, are examples. Continuous improvements and developments have increased both their quantum efficiency and the resolution of focal-plane arrays that use them. They are becoming the detectors of choice in regions of the spectrum that people have traditionally used other detectors for. Microwave kinetic induction detectors, or MKIDs, which are in an earlier stage in their development, offer another example. There are others.

You referred to the Office of Chief Scientist and Chief Technologist. I gather you are interested in close collaboration between those functions?

Tom Prince, who is the chief scientist, and I have worked very closely. We both feel strongly that boundaries between science and technology are best removed. Scientists will express a need for a measurement, for something that needs to be understood, and that will translate into a technical requirement for a tool that must be developed. That's driving technology from science. Conversely, talented technologists develop a capability that no one dreamed of before, that all of a sudden enables science that could not be contemplated before: an example where the flow is in the other direction.

I also think that space exploration, in general, is at a junction. I mentioned the limitations imposed by ground testing and what that implies. If one can't test, should that set the limits of what one does in space? I think the answer is no. So then the question is, in order to proceed, how do you certify spacecraft and missions if one can't test their essential components? That is going to require two things. The first is the integrated modeling and simulation that I mentioned. But more importantly, it's going to require understanding physics of materials and engineering structures, for example, in a way that we have not before, and ways to use them that can only be realized in space. It's going to require a new investment and revisiting of fundamentals. That's one of the things we're trying to do at Caltech in collaboration with JPL in the Graduate Aeronautical Laboratories' new aerospace program. This will initially go through the master's degree and eventually proceed beyond that.

If you believe the best is yet to come—and I believe the best is yet to come in space exploration—it's going

to require significant extensions in physics, engineering mechanics, solids, structures, fluids, optics, detectors to push the frontiers farther, and many other things. We're nowhere near the limits.

Over the years I gather you have had some interesting involvement with the space shuttle program?

My first involvement was many years ago, before the shuttle flew. I happened to be at JPL for lunch, and was wondering about shock waves intersecting its wings and what that might do to the tiles. I must have convinced somebody that was worth worrying about and was asked to write a little report. A few months after the shuttle flew, somebody was visiting Caltech from Rockwell, asked to meet me, and told me I had delayed the first shuttle launch by six months. They had gone back to the wind tunnel and confirmed what I had described. The first shuttle did lose tiles on reentry, but not from the wing. It was from the engine cowling that provided a shock-impingement point. It's my understanding that tile mounting was improved in that area correcting this for later flights.

When the shuttle Columbia met its very unfortunate end, a small team of us at Caltech realized there was enough information to calculate where one of the first major fragments had landed. We weren't tasked to do this. It was something we felt obliged to do to help. After we decided we had the answer, I got in touch with Charles Elachi, who brought us in contact with Mike Watkins, Aron Wolf and Lisa Ling at JPL, to help provide a reality check. We communicated our results to the Columbia Accident Investigation Board.

Subsequent analysis and other data confirmed that the piece we were concerned with that came off the orbiter on reentry shortly after crossing the California-Nevada border had landed near the Nevada-Utah border. It has never been found. My sons were egging me on to get in cars with their friends, and go there to find it. However, a look at satellite imagery of the area discouraged me—very rugged terrain. They have probably never forgiven me.

I see that you are a sailor and helped the team that successfully defended the America's Cup in 1992 with sail design. Are you still active?

I love to sail and do it as often as I can. One of the few things I regret in shaking hands with Charles [Elachi] and coming to the Lab is that I'm now so busy. In collaboration with a very talented yacht designer, I was in the middle of designing a sailboat. I'm afraid this has now been put off. I still think about it and do a little work, now and then, but the project is not getting serious attention right now.

My father retired as an admiral in the Greek navy. He told me he released me in the sea when I was a baby and that I could swim before I could walk. I have a great affection for the sea and sailing. In sailing, you are with a beautiful element that you sometimes can't control and that is very humbling at times, but you must do your best to do well. It's a good lesson for life. Life has many dimensions and factors one can't control, and yet one is invited to do well.

Tom Wynne / JPL Photolab



Bikers pedal their way to work



Photo courtesy of John Miranda

JPL staff "pedaled past the pump" for the Lab's annual Bike Fest May 18. The event, sponsored by the Rideshare Office and the Bike Club, sought to increase employee awareness about biking as a commute option and to support JPL's commitment to promote the reduction in vehicle trips in the area. More than 3,000 bikers countywide participated in Bike to Work Day on May 18, according to the Los Angeles County Metropolitan Transportation Authority.

Passings

JODIE GILSTRAP, 72, retired from Section 334, died May 6.

Gilstrap worked at JPL from 1972 to 1993. He is survived by sons Jodie Jr., Troy and Ricky; brothers James, Lowell and Raymond; and sisters Mattie, Ola and Mable.

Services were held May 15 at Woods-Valentine Mortuary in Pasadena.

JOSEPH NOVELLI, 72, a retired senior member of the site services support staff in Section 662, died May 8.

Novelli joined JPL in 1986 and retired in 1998. He is survived by his wife, Sharon, and sons Michael and Joseph. Services were private.

Letters

The outpouring of understanding, love and support from my friends and co-workers at JPL was a wonderful and unexpected blessing for my family and me during the very difficult time of my mother's illness and passing, and my father's surgery. The plant and flowers were inspiring, and I found the card to be heartfelt and moving. The JPL community's commitment to the well-being of its employees has truly been revealed to me throughout this experience. I can't thank you enough.

Kari Risher

I would like to thank my colleagues and friends at JPL for their kindness during my father's recent illness and passing. Their understanding and support enabled me to be with him in the final days of his illness, and to support my mother during the immediate aftermath of his death. Thanks for your kind words, cards, flowers and gifts.

Shaun and Paula Standley

Retirees

The following JPL employees retired in June:

James Campbell, 40 years, Section 6100; Andrew Zoltan, 40 years, Section 3464; John Beckman, 35 years, Section 3000; William Edmiston, 35 years, Section 312G; James Lesh, 33 years, Section 9700; Julie Selders, 33 years, Section 252A; Judith Cohen, 32 years, Section 315G; Lee Elson, 28 years, Section 343N; Ilene Steen, 26 years, Section 3312.

Classifieds

For Sale

CHILD'S ACTIVITY TABLE, from Nilo, 50" x 34" x 20," like new, good for Thomas and Brio trains or Rokenbok or ???, list price \$220, sell for \$100/obo. 248-9708.

COMPUTER DESK w/hutch, all wood, med. brown, keyboard drawer, shelves, Ikea quality, excellent cond., \$99. 970-8456. Steve.

CRIB (baby's) with mattress + side bumpers, like new, \$100. 714/255-8612.

DODGER TICKETS: selected games from season ticket package, Loge level, Section 134 (at first base), 2 tickets per game at face value of \$35/ticket, see www.delunac.net/tickets. 626/296-1253.

DODGER TICKETS (2), select games from season ticket package, preferred Loge Box,

1st base side, Aisle 150 Row C, \$22/ticket (face value). thinkblue06@hotmail.com.

MISC.: full bed (53" x 75"), \$50; bedroom furniture set (2 chests of drawers, 2 night tables, desk, chair), \$160; love seat, blue, \$75; microwave cart, \$20; wooden swivel chair, \$15; parquet end table, \$20; spice jar lamp, \$15; computer stand, \$15; small dresser, \$20; cable spool table, \$12; blender, \$5. 323/344-7209, eves, weekends.

MISC: electric coffee pot, \$5; ironing boards (2), \$5/ea.; electric broom, \$10; carpet sweeper, \$5; lawn spreader, \$5; flatware set for 8 (missing a few pieces), \$6; 10-spd. bicycles (2) in various stages of disrepair, \$20/ea.; bricks & boards for bookcases, make an offer. 323/344-7209, eves, weekends.

MISC: gray fabric high-back swivel desk chair, \$59; toddler bedframe (wood), looks like a red car, \$39; antique round marble-top end table, \$39; electric water cooler dispenser, \$39; Apple laser toner cartridges, m1960g/a & m2045g/a, sealed, \$39/ea.; donut spare tire/wheel, t105 80d-13, used once, \$29; wireless intercom set, \$29; tray tables set, blonde wood, \$17; Cardin tweed 3-pc. luggage set, \$15; lg. framed prints. 626/798-4510.

MISC.: home gym, \$50; crimp hair iron, \$5; women's "cowboy" boots, gray, sz. 7 1/2, gd. cond., \$50; fishing reels (freshwater), \$10/ea.; electrolysis machine, \$20; camping chairs (4), camouflage, \$10 ea.; twin mattress, fair cond., \$10. 626/357-8210.

MOVING SALE: queen size Relax-a-Back bed, Shop Smith Mark 5, power saws, 50" TV, entertainment wall unit, computer table, file tables, L-shaped rust colored leather sofa, 2 love seats, authentic heavy butcher block table and much more, call asap. 626/836-8561, Jack or Sam Dawson.

MOVING SALE: king size bed, \$75; misc. furniture pieces. 909/946-3443.

OPERA TICKETS (2), Los Angeles Opera, La Traviata, Saturday, June 24, 2 p.m. matinee, balcony B, front row, center section, aisle, \$45/each. 957-8813.

OPERA TICKETS (2), Los Angeles Opera, Grendel, June 17, 7:30 p.m., Dorothy Chandler Pavilion, seats U9 & U10, orchestra ring section bordering main orchestra, great view and good acoustics, these are my own season tickets but am unable to attend, face value \$190 for the pair, will sell for \$150. 626/791-7219, Khee, evenings, or 626/616-5034 (cell), KheeChan@earthlink.net.

STROLLER, double jog 2001 Dreamer Design Ditto model, great cond., very clean, loaded w/great features including 2 storage compartments, lg. under-seat basket, very effective sun canopies & rain shield, original owner's manual included, located very close to JPL for viewing, purchased new for \$285, yours for \$120/obo. 626/975-3415, Melinda.

TOY, Rokenbok beginner set, + misc. pieces, \$50/obo. 248-9708.

Vehicles / Accessories

'00 BMW X5, V8 (4.4), loaded, auto, 6 CD changer, everything power, moonroof, over-size wheels, leather power seats, 42K miles, excellent condition, \$25,999. 909/599-3230.

'01 FORD Mustang convertible, 60K miles, automatic, a/c, black ext., black top, gray leather int., pwr. win/doors, cruise control, keyless entry, alloy wheels, CD, loaded, never been in an accident, well taken care of, \$9,500/obo. 626/357-0534.

'98 FORD Explorer, 108K miles, V6, automatic, am/fm/cd, reliable, clean inside/out, no damage, orig. owner, \$6,000/obo. 626/286-2752 or 626/319-1817 (cell).

'95 HONDA Civic EX, 1.6 L VTEC, fully built motor, red with gray interior, 160,000 miles, \$3,500/obo. 909/590-1276.

'01 KOMFORT 28' 5th wheel trailer, fiber-glass, 1 slide out, loaded, \$15,000. 352-3588.

'04 LINCOLN Signature Towncar, very smooth ride, loaded, 29K miles, \$24,000. JLesh@keyway.net, 626/355-4475.

'99 SLT 1500 Ram quad cab, exc. cond., 114,000 miles, Line-X sprayed on bed, emerald green, \$9,995/obo. 909/590-1276.

'74 STARCRAFT Galaxy 8 tent trailer, sleeps up to 8 people, ice box, sink, 3-burner propane stove, pulls very easily, \$600. 626/355-4475 or jlsh@keyway.net.

'91 TOYOTA Odyssey, rare, 22' motorhome, V6, only 23K miles, great gas mileage, engine completely serviced recently by Toyota, everything is tip-top cond., 1 owner, always garaged, looks like new inside & out; potty,

shower & fridge never been used; newly installed roof a/c, lots of comfort extras; photos at <http://tinyurl.com/pb98y>; you won't find any nicer, \$18,750. 626/798-4510, leave msg.

'71 VW Superbeetle, yellow w/sunroof, needs TLC body & interior, eng. 2 yrs. new, \$1,250/obo. 626/755-4922, Teresa.

'03 XR250 off-road motorcycle, \$3,000; '03 XR50 kid's motorcycle, \$800; '00 XR100 off-rd. motorcycle, \$1,000; all 3 in great shape, fun for the whole family. 661/702-0172.

'04 YAMAHA WR250FR man's dirt bike, like brand new, only used twice, 42 miles on it, \$4,000. 626/332-6572, after 6 p.m.

Free

ANIMAL CAGE, small, 1" x 2" wire mesh, 2' D x 3' H x 4' W, food and water dishes, litter pans, ideal for ferret or guinea pig. 957-3675.

CASSETTE TAPES (12), Maxell, new, still wrap-sealed: 3-60s, 6-90s, 1-120; approx. 10 yrs. old; in La Verne. 909/593-4046, vividavies@earthlink.net.

Wanted

CONVERSATION PARTNERS; seeing others, knowing myself: looking for Americans, Germans and Chinese who have lived or are currently living outside their home country; would you enjoy chatting with me about what living overseas has taught you, mostly about your own country? find out more at <http://tinyurl.com/kbzm>.

RECORDER PLAYERS, for informal music-making; beginner/intermediate level players OK; we gather every few weeks, playing various genres. pghalverson@gmail.com, Peter.

ROOM TO RENT in Pasadena or nearby, prefer w/private bath; need for weekdays, commute home on weekends; gd. tenant, quiet, mature, non-smoker, no pets, no hassles. 281-5235, Jim, or jim_hauge@yahoo.com.

SPACE INFORMATION/memorabilia from U.S. & other countries, past & present, for personal use. mrayman@alumni.princeton.edu, 790-8523, Marc Rayman.

Real Estate

DEL MAR timeshare condo, 2 bd., 2 ba., living room, fully equipped kitchen, pool, Jacuzzi, BBQ area, game room, walk to beach; high season, 1 week; \$4,000. 626/507-8083, David or 626/215-3323, Kitty.

PASADENA home, 10 min. to JPL, 5 min. to Caltech; quiet neighborhood, move-in condition; inside the home is beautiful, totally remodeled in 2004 w/over \$80K in improvements; 2 bd., 1.5 ba., 966 sq. ft., hardwood floors, granite countertops, double panel window, basement for ample storage; more info: <http://tinyurl.com/gsqkx>; \$490K. 818/468-6868, 626/204-1354.

UPLAND, 4 bd., 2.5 ba., living rm. with fireplace, formal dining rm., lg. kitchen w/table nook, laundry rm., central air/heat, center courtyard, view of the mountains, attached 2-car garage; new front door, new windows and sliding doors, large lot with RV parking, firepit in back patio and much more. 909/946-3443, Paul or 909/946-3859, Carol.

For Rent

ALTADENA: "Dillinger House" is comprehensively furnished for extended stays: 3 bd., study, boundary Angeles Nat'l Forest, 3 mi./JPL, trail access, view, fireplace, oak floors, antiques, furniture, beds, dinnerware, utensils, pots/pans, all linens & towels, fine soaps, necessities incl.; just bring toothbrush & clothes; TV/DVD/VHS, Dish satellite, wireless DSL; garden, fruit trees, garage; private, secluded neighborhood. 626/798-3235.

ALTADENA, rm. in large, beautiful house, 2.5 mi. from JPL, non-smoker, clean, must love dogs; \$550 + 1/2 utilities furnished, \$500 + 1/2 utilities unfurn. 626/712-3451.

CLAREMONT, 1,400 sq. ft. house, excellent schools, 3 bd. & 2 ba., freshly painted inside and out, central a/c, large backyard, lime & grapefruit trees, faculty, administration, or professional family, \$1,800 + \$1,800 security deposit, lease preferred. 310/869-0469.

GLENDALE studio apt., separate entrance, comb. LR/BR, bath & full-sized kitchen; gas, water & gardener paid; avail. after June 15; \$500 + \$500 security deposit. 249-3602.

PASADENA condo, in the heart of town,

steps from San Marino; spacious and airy 1 bd., 1 ba., hardwood floors, abundant cabinetry, tile in kitchen and bathroom, high ceiling and large picture windows that let the light pour in; building has fabulous amenities: pool, spa, gym and garage parking; walking distance to stores and restaurants. 626/676-0382, after 5 p.m.

PASADENA, 1 lg. master bedrm. w/private bath and walk-in closet in a 3-bd. charming house w/ JPL/Caltech employees; beautiful and safe neighborhood (near Orange Grove and Hill), easy 10-min. drive to JPL; gated parking, in-ground pool, patio, deck, built-in BBQ, lg. backyard w/gardens, cable modem, fireplace, washer/dryer, HW floors, etc.; avail. July 1; \$850, includes all utilities (power, water, gas, etc). 626/590-8844.

PASADENA, room with private entrance in beautiful home, above golf course, beautiful garden setting, private bedroom, private remodeled bathroom, kitchen, ideal for a very quiet and neat person, no pets, month-to-month lease, \$750. 626/798-4056.

PASADENA house, 2 bd., 1 ba., living rm. has fireplace & built-ins, dining rm., garage, cv. patio, lrg. yd w/fruit trees, stove, hookups for wash/dryer avail., gardener & water incl., 15 min./JPL, walk to Goldline & shopping ctr., avail. July 1, \$1,250. 626/794-3250, Bill.

PASADENA, beautiful end unit, 3 bd., 2 ba. townhouse located in historical area of Garfield Heights, living rm., dining area, pastry, granite countertops, hardwood flrs., wash/dryer hookup, new stove, monitored alarm system, remote ceiling fans, cent. air/heat, 2 walk-in closets, Berber carpet, freshly painted, 2-car gar., patio area, pets allowed, 10 min. to JPL., \$2,300, includes gardener, trash and water. 626/523-3449, Cheri.

PASADENA, 3 bd. 2 ba. house in Upper Harts Ranch, 1,850 sq. ft., 7,500 sq. ft. lot; spacious living room with fireplace, family room with dining area, central energy-efficient a/c and low-E windows, fresh paint in/out; 15 min. to JPL, 10 min. to Caltech; \$2,600 + sec. deposit includes water/trash pickup/gardening service 626/351-8608.

Vacation Rentals

BALBOA ISLAND duplex, weekly thru Sept.; fully furn. 2 bd., 1 ba. upstairs w/private covered patio, and 3 bd., 2 ba. downstairs w/patio & BBQ; newly renovated downstairs; washer/dryer, parking; steps from bay and canal, short walk to main street shops and restaurants; rent one or both; upstairs \$1,200/wk; downstairs \$1,700-\$1,900/wk. bettyrs@earthlink.net or 626/351-9641.

COSTA RICA, lg., 2 bd., 2 ba. condo, pool, near Manuel Antonio Park, tropical setting, a/c, cable, quiet location, access to all tours, JPL 50% discount off high-season rate, 3-nt. minimum, CostaRicacondo.com for pictures and more info. 760/723-8522, LuisAlfaro@earthlink.net.

FLORIDA condo, beautifully furn. 2 bd., 2 ba., 2nd floor, on the surf of New Smyrna Beach, half-hour to Cape Canaveral, 90 min. to Disney World; enjoy all the comforts of home, quiet, relaxing, overlooks beach, BBQ/pool/game room, easy walk to stores and restaurants. 760/439-7821, Darlene, dfhaug@yaho.com.

GRAND TETON / YELLOWSTONE Nat'l Parks, visit in style, 2 bd. + loft townhome, totally outfitted, stunning Teton view, sleeps 6, cable, microwave, etc., borders Grand Teton, conniematt@sbcglobal.net.

HAWAII, Maui condo, NW coast, ocean front view, 25 ft. fr. surf, 1 bd. w/loft, compl. furn. phone, color TV, VCR, microwave, d/w, pool, priv. lanai, slps. 4, laundry fac., \$145/nite/2, \$20/nite/add'l person. 949/348-8047, jackandrandy@cox.net.

MAMMOTH, Meadow Ridge, 2 bd., 2 ba., + loft; sleeps 8, great family unit & location, walking dist. to Eagle Lodge; fully equipped kitchen; microwave, new dishwasher, new oven; cable TVs, VCR, DVD, CD/cass. stereo, free wireless internet access; close to pool, Jacz., spa; JPL discount. 240-8763 or anahid@KazEng.com.

MAMMOTH, Snowcreek, 2 bd., 2 ba., + loft, slps. 6-8, fully equip'd kitchen incl. microw., DW, cable TV, VCR, phone, balcony w/mtn. vw., Jacz., sauna, streams, fishponds, close to Mammoth Creek, JPL disc'nt., no pets. 626/798-9222, 626/794-0455 or valeriee@caltech.edu.

ROSARITO BEACH condo, 2 bd. 2 ba., ocean view, pool, tennis, short walk to beach on priv. rd., 18-hole golf course 6 mi. away, priv. secure parking. 626/794-3906.

JPL'S ONLINE NEWS SOURCE

<http://dailyplanet>

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Advertising is available for JPL and Caltech employees, contractors and retirees and their families. No more than two ads of up to 60 words each will be published for each advertiser. Items may be combined within one submission. Ads must be submitted via e-mail to universe@jpl.nasa.gov and are due at 2 p.m. on the Monday after publication for the following issue.

All housing and vehicle advertisements require that the qualifying person(s) placing the ad be listed as an owner on the ownership documents.

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Former JPLer ready for shuttle

By Mark Whalen

Good things do come to those who wait.

Ten years after NASA named her to join its astronaut corps, former JPL employee Stephanie Wilson will soon make her first space shuttle flight, onboard Space Shuttle Discovery. The launch window runs from July 1–19.

The 12-day STS-121 mission will continue evaluating new shuttle safety improvements and includes maintenance work on the International Space Station. It also will deliver more supplies and cargo for future station expansion.

Wilson, a mission specialist, worked on JPL's Galileo mission to Jupiter from 1992–96 as a member of the Attitude and Articulation Control Group. Her selection as an astronaut candidate in 1996 followed two unsuccessful applications for the program, but her perseverance has always served her well.

As a child, she looked up at the stars and dreamed of spaceflight. Her interest was further sparked, she said, when in junior high school she had an assignment to interview someone who worked in a career field she was interested in. She decided to interview a local astronomy professor, and her quest was well on its way.

As all astronauts do, Wilson will wear many hats during the shuttle mission. At least two spacewalks are planned, and one of her duties will be operating the robotic arm during vehicle inspection, and installing and de-mating the logistics module that will carry supplies to the space station crew.

Wilson feels "prepared, ready and confident," crediting her extensive training as well the crew members who prepared Discovery for the upcoming mission.

While focused on the work of the mission, she hopes "to have a moment to look out the window at Earth and reflect on its beauty and its vastness."

Wilson recalled her JPL days with fondness. "There is a great bunch of people there," she said. "Working on Galileo at JPL helped me on my way to my ultimate goal of becoming an astronaut."



Top: Stephanie Wilson participates in a simulation exercise using the space station remote manipulator system simulator. Above, she inspects still camera equipment as astronaut Michael Fossum looks on.

Elachi receives homeland honors

By Mark Whalen



The government and citizens of Lebanon last month presented native son Dr. Charles Elachi with the country's highest honor.

Elachi, JPL's director since 2001, received the Lebanon Order of the Cedar medal, the highest honor given by the president of Lebanon. The medal was presented at a ceremony in the Unesco Palace in Beirut on May 22 and was attended by members of the Lebanese government and civic leaders. Elachi also met privately with Lebanese President Emile Lahoud and Prime Minister Fouad Seniora.

It was Elachi's first visit to his home country in seven years. Many people from his hometown of Riyaq attended the ceremony, including most of the 25 members of his high school class of 1964. Later on, the group met for a reunion. Elachi also visited his middle school campus, and even got to sit at his old desk.

"It was fun," Elachi said. "I met with the students, and found that their interests are very similar to that of young people here in the United States. The Lebanese kids of high school age are very excited about science and space. It's inspirational to them."

"What I found encouraging was that despite the situation in the Middle East, a lot of the young people are very positive about the

United States," he said. "The vast majority in Lebanon like the United States and the principles we have. They look at the United States as a model for democracy and freedom. There is a lot of goodwill and positive perception of Americans, despite all the problems they have there."

"The award is something the Lebanese people are very proud of," Elachi said. "It's a small country. Similarly, if someone from a small town makes it big in the U.S., it would be a big event."

"They are honoring the achievements of someone of Lebanese descent, and hope it will reflect positively in the minds of Americans about Lebanon and the Middle East."

During his visit Elachi also delivered lectures to four campuses in Beirut—American University, Lebanese American University, Université Saint-Joseph (French) and Notre Dame University. "The students I talked to were really excited about the future and about space exploration," he said. "It reminded me of when I was that age, when I had big dreams. I told them, 'You have to dream big, and work for it. You might not realize all of your dreams, but if you don't try you don't get anything.'"

Elachi grew up in Lebanon, then moved to France and later the United States for his university education. He said that a significant number of Lebanese "look to the United States for higher education." While some aspire to attend college in the United States, many others stay at home and attend one of several schools chartered by either France or the United States.

The director also participated in numerous television interviews, some of which were science oriented. Others were talk-show format, where he discussed the future of science and exploration.

The visit also afforded Elachi visits with his sister and brother, who is a physics professor at the Louis Wegmann College in Lebanon.

JPL to play support role in Constellation

By Mark Whalen

JPL's expertise in such areas as systems engineering, avionics and mission operations will play a support role in NASA's vision to eventually fly humans to the moon and later to Mars.

In announcing June 5 the agency centers' responsibilities associated with the Constellation Program for robotic and human moon and Mars exploration, NASA said JPL will lead a multi-center activity in support of the Mission Operations Project to plan systems engineering processes related to operations development and preparation. JPL will provide co-leadership for the Constellation Program Office Systems Engineering and Integration Software and Avionics team.

Mike Sander, manager of JPL's Exploration and Systems Technology Office, noted that JPL's contributions are already underway, with the equivalent of about 40 full-time employees working with Johnson Space Center on the Constellation Program's development phase. Combined with JPL's technology tasks, space station instruments and crew

exploration vehicle support, "well over 150 JPLers are at work on the exploration tasks," he said.

"This is just the beginning of the rollout of the NASA strategy," Sander said. "We need to be part of the program now; it's just perfect for our talent. JPL's role will be gradually defined and will grow in the coming years." He said JPL's experience could contribute to areas including ground and flight software, developing mission operations processes, and "modest but significant" support for Kennedy Space Center in rebuilding its software infrastructure.

"Our classic project development experience will be down the line, during the development for the lunar surface operations phase," Sander added. "During lunar operations, we hope JPL hardware assets—rovers, robots, mobility systems—will be the project-like contributions we make to the program."

News Briefs



Gentry Lee

Lee honored for contributions

The American Astronomical Society's Division for Planetary Sciences has given GENTRY LEE, chief engineer for the Solar Systems Exploration Directorate, its Harold Masursky Award.

The honor cites Lee for his "fundamental contributions to systems engineering in the complex world of robotic planetary missions, including the Mars rovers, Deep Impact, Cassini, Stardust and Genesis, and for imparting this knowledge to a generation of young engineers at the early stages of their careers."

Lee's prize and others will be formally presented at the organization's annual meeting in October in Pasadena.

For more information, visit www.aas.org/dps/dps.html.

Peer Awards presented

Two One NASA Peer Awards were presented at JPL in May. LES COMPTON of Section 513 and the JPL Procurement Quality Assurance Supplier Interface Team of Section 5127 were recognized, by their peers, for efforts to foster NASA-wide collaboration in support of NASA's strategic goals.

Compton was honored for exceptional collaboration on the Bumper II micro-meteoroid orbital debris risk assessment independent technical assessment/inspection. The Procurement Quality Assurance Supplier Interface Team, led by OLGA CERITELLI, was honored for the standardization of common procurement quality business practices and developing a wide contact network within various NASA centers and its contractors and suppliers.

The One NASA Peer Award rewards individuals and teams who foster NASA-wide collaboration by demonstrating One NASA behaviors—making decisions for the common good, collaborating to leverage existing capabilities, and standardizing to achieve efficiencies agency-wide. Candidates must be nominated by their peers, rather than their supervisors. Employees may not nominate their supervisor.

JPL employees are encouraged to nominate an individual or team that they think demonstrates One NASA behaviors for a Peer Award. To nominate someone or for more information about this award, see the Employee Services and Recognition section of the JPL Human Resources website at <http://hr.jpl.nasa.gov/esr/OneNASA>.

Funds raised for cancer research

Almost \$11,000 was raised by a JPL team that participated in the Revlon 5-kilometer Run/Walk for Women, held May 13 in Los Angeles.



Photo courtesy of Nancy Neilan

The 57-member team, comprising JPL staff and family members, made their way around the Los Angeles Coliseum during the event, which seeks funds for research and treatment of women's cancers, as well as to benefit cancer survivors, said team leader NANCY NEILAN of Section 2621.

The JPL team, sponsored by the Advisory Council for Women, took part

in the fundraiser for the sixth straight year. It raised \$10,856 through pledges and donations.

Ferrari outreach recognized

JPL outreach coordinator KAY FERRARI has been named winner of the 2006 Astronomy Outreach Award by the Astronomical League, a nationwide federation of amateur astronomers.

Ferrari coordinates JPL's Solar System Ambassador program. The ambassadors run events such as star parties, lectures, community displays, musical presentations and library appearances. JPL provides them with special training opportunities, including question-and-answer sessions with leaders of interplanetary missions.

The annual award was presented at the Riverside Telescope Makers Conference on May 26.

Thompson honored by high school

CHARLES THOMPSON, a member of the technical staff in the Visualization and Earth Science Applications Group, Section 382, last month was inducted into the Watsonville High School Foundation Alumni Hall of Fame.

Thompson is a 16-year JPL employee and a 1980 graduate of the Santa Cruz County school. The hall of fame committee said he represents a role model for the community based on his work on the Mars Exploration Rover, Atmospheric Infrared Sounder and Multi-angle Imaging SpectroRadiometer missions, among others.

Thompson's work involves the development of software applications and tools that are utilized by scientists for analyzing and visualizing data acquired by satellites and other probes.

Viking anniversary coming up

In commemoration of the 30th anniversary of the Viking mission to Mars, JPL Director DR. CHARLES ELACHI and Langley Research Center Director LESA ROE will co-chair a technical conference called "Mars: Past, Present and Future" on June 22 at Langley.

The two Viking landers conducted experiments studying atmospheric and soil composition, meteorology and seismology. JPL built the orbiters and later managed the science mission.

Conference participants will also include JPL employees GENTRY LEE and ROB MANNING.

The conference will be webcast live beginning at 6 a.m. June 22 at <http://nasa.gov/centers/langley>.

Radio clubs offer Field Day event

The JPL and Caltech amateur radio clubs will hold their annual Field Day test of emergency communications skills over the weekend of June 24-25.

From Mount Gleason in the Angeles National Forest, they will use voice and digital modes as well as Morse code to contact as many stations as possible across the United States and Canada. The event tests amateur (ham) radio operators' readiness to provide emergency support when normal communications are unavailable.

Visitors are welcome at the site, which is less than an hour's drive from JPL via Angeles Crest Highway. Activities will include a special station with coaching for persons who would like to try their hand at ham radio operation. Field Day operations begin at 11 a.m. on June 24. For more information, call CHRIS CARSON at ext 3-3888 or MARK SCHAEFER, 4-6504.

Special Events Calendar

Ongoing Support Groups

Alcoholics Anonymous—Meets Wednesdays at 11:30 a.m.

Caregivers Support Group—Meets the first Thursday of the month at noon in Building 167-111 (the Wellness Place).

Codependents Anonymous—Meets at noon every Wednesday.

Lambda (Gay, Lesbian, Bisexual and Transgender Networking Group)—Meets the first Friday and third Thursday of the month at noon in Building 111-117. For more information, call Randy Herrera, ext. 3-0664.

Parents Group for Children With Special Needs—Meets the second Thursday of the month at noon in Building 167-111 (the Wellness Place).

For more information on any of the support groups, call the Employee Assistance Program at ext. 4-3680.

Saturday, June 17

Wine Tasting—The Child Educational Center's annual spring fundraiser will be held from 6 to 10:30 p.m. at Caltech's Avery House. Live jazz, food from area restaurants and silent and live auctions will be featured. Tickets are \$75 in advance, \$85 at the door and are available at the JPL Store, Caltech Book Store, the CEC office or online at www.ceconline.org. For more information, call ext. 4-3418.

Tuesday, June 20

JPL Hiking Club—A slide show titled "Tears, Fear and Adventure" will be presented by James Dorsey at noon in Building 300-217.

Tues.-Wed., June 20-21

Investment Advice—TIAA-CREF will offer one-on-one counseling in T1720. For an appointment, visit tiaa-cref.org or call (626) 432-6363.

Wednesday, June 21

JPL Chorus—Meets at noon in Building 233-303. For more information, call Shary DeVore at ext. 4-1024.

JPL Library Orientation—Stop by Building 111-104 at 11:30 a.m. for an overview of the Library's products and services, and learn how to access numerous electronic resources from your desktop. For more information, call the reference desk, ext. 4-4200.

Thursday, June 22

Caltech Architectural Tour—Hosted by the Caltech Women's Club, from 11 a.m. to 12:30 p.m. Free and open to the public. Meet at the Athenaeum front hall, 551 S. Hill Ave. For reservations, call Susan Lee, (626) 395-6327.

Clogging Class—Meets at noon in Building 300-217. For more information, call Shary DeVore at ext. 4-1024.

Thu.-Fri., June 22-23

Von Kármán Lecture Series—Mike Sander, manager of JPL's Exploration Systems and Technology Office, will present "Moon, Mars and Beyond: Apollo on Steroids" at 7 p.m. Thursday in von Kármán Auditorium and Friday in Pasadena City College's Vosloh Forum, 1570 E. Colorado Blvd. Thursday's lecture will be webcast at www.jpl.nasa.gov/events/lectures/jun06.cfm. For more information, call Public Services at ext. 4-0112.

Friday, June 23

Investment Advice—TIAA-CREF will offer one-on-one counseling in T1720. For an appointment, visit tiaa-cref.org or call (626) 432-6363.

Monday, June 26

Lessons Learned—At 11:30 a.m. in von Kármán Auditorium, Systems Safety Program Office Manager Jim Lumsden will discuss the safety lessons learned from a September 2003 repositioning incident involving the

National Oceanic and Atmospheric Administration N-Prime satellite.

Mon.-Tues., June 26-27

Investment Advice—TIAA-CREF will offer one-on-one counseling in T1720. For an appointment, visit tiaa-cref.org or call (626) 432-6363.

Wednesday, June 28

JPL Chorus—Meets at noon in Building 233-303. For more information, call Shary DeVore at ext. 4-1024.

JPL Library Orientation—Stop by Building 111-104 at 11:30 a.m. for an overview of the Library's products and services, and learn how to access numerous electronic resources from your desktop. For more information, call the reference desk, ext. 4-4200.

JPL Toastmasters Club—Meeting at 5 p.m. in conference room 167. Call Dirk Runge, ext. 3-0465, or visit www.jplcaltechoastmasters.com.

Thursday, June 29

Investment Advice—TIAA-CREF will offer one-on-one counseling in T1720. For an appointment, visit tiaa-cref.org or call (626) 432-6363.

JPL Golf Club—Meeting at noon in Building 306-302.

Wednesday, July 5

Associated Retirees of JPL/Caltech—Meeting at 10 a.m. at La Cañada United Methodist Church, 104 Berkshire Place, La Cañada. Visit www.jplreclubs.caltech.edu/arc or call (626) 794-1698 to leave a message for an ARC board member.

JPL Chorus—Meets at noon in Building 233-303. For more information, call Shary DeVore at ext. 4-1024.

JPL Library Orientation—Stop by Building 111-104 at 11:30 a.m. for an overview of the Library's products and services, and learn how to access numerous electronic resources from your desktop. For more information, call the reference desk, ext. 4-4200.

Thursday, July 6

JPL Gun Club—Meeting at noon in Building 183-328.

Tuesday, July 11

JPL Genealogy Club—Meeting at noon in Building 301-271.

JPL Stamp Club—Meeting at noon in Building 183-328.

Wednesday, July 12

JPL Amateur Radio Club—Meeting at noon in Building 238-543.

JPL Chorus—Meets at noon in Building 233-303. For more information, call Shary DeVore at ext. 4-1024.

JPL Library Orientation—Stop by Building 111-104 at 11:30 a.m. for an overview of the Library's products and services, and learn how to access numerous electronic resources from your desktop. For more information, call the reference desk, ext. 4-4200.

JPL Toastmasters Club—Meeting at 5 p.m. in conference room 167. Call Dirk Runge, ext. 3-0465, or visit www.jplcaltechoastmasters.com.

Thursday, July 13

Clogging Class—Meets at noon in Building 300-217. For more information, call Shary DeVore at ext. 4-1024.

JPL Stories—Earth and planetary atmospheres research scientist Terry Martin will present "Viking: A Really Big Mars Mission" at 4 p.m. in the Library, Building 111-104. Few people at JPL now recall the Viking mission, which in 1976 occupied most of Building 264; in fact, before Viking, 264 was only two stories tall. Come hear some tall stories of the 900-person flight team, the two landers and two orbiters all operating at once in a very serious search for life on Mars. If you have questions about the story series or wish to participate, call Teresa Bailey, ext. 4-9233.

Royal visit

Prince Joachim of Denmark, left, gets a closeup view of a Mars Exploration Rover model with the help of Dr. Albert Haldemann, deputy project scientist for the rover mission. During his June 5 visit to JPL the prince also was briefed on the Cassini-Huygens mission and visited the Space Flight Operations Facility.



Tom Wynne / JPL, Photolab

Awards honor Lab's best

In recognition of their outstanding contributions to the NASA mission, JPL employees, contractors and partners were presented the 2006 NASA Honor Awards on June 7. The 10 categories of awards recognized individuals and groups that include both government and nongovernment employees.



Dr. Ed Smith, winner of the Distinguished Service Medal, is joined by Dr. Charles Elachi and Dr. Colleen Hartman.

Dr. Colleen Hartman, deputy associate administrator for NASA's Science Mission Directorate, was joined by Dr. Charles Elachi, director of JPL; Eugene Tattini, JPL's deputy director; and Cozette Hart, JPL's human resources director, in presenting 159 awards to staff members for their significant accomplishments, exceptional performance and personal impact contributing to the NASA mission.

NASA's highest honor, the Distinguished Service Medal, went to veteran JPL scientist Dr. Ed Smith for "for unique and critical impact on NASA's space science research in space magnetometry and leadership of the Ulysses mission." A joint project between NASA and the European Space Agency, Ulysses for the first time sent a spacecraft out of the ecliptic—the plane in which Earth and other planets orbit the Sun—to study the sun's north and south poles. The prime mission concluded in 1995 but Ulysses continues to monitor the sun.

Here is a list of the honorees:

★ DISTINGUISHED SERVICE MEDAL

Awarded to any person in the federal service who, by distinguished service, ability or courage, has personally made a contribution representing substantial progress to the NASA mission in the interest of the United States. The contribution must be so extraordinary that the other forms of recognition by NASA would be inadequate. This is the highest honor that NASA confers.

Edward Smith.

★ OUTSTANDING LEADERSHIP MEDAL

Awarded for notably outstanding leadership that affects NASA technical or administrative programs. May be given for an act of leadership, for sustained contributions based on a leader's effectiveness, for the productivity of the leader's program, or for the leader's demonstrated ability in developing the administrative or technical talents of other employees.

David Diner, Margaret Frerking, Richard Grammier, Robert Laskin, Michelle Viotti.

★ EXCEPTIONAL ENGINEERING ACHIEVEMENT MEDAL

Awarded for unusually significant engineering contributions toward achievement of the NASA mission. This award may be given for individual efforts or applications of engineering principles or methods that have resulted in a contribution of fundamental importance in this field or have significantly enhanced understanding of this field.

Keyur Patel.

★ EXCEPTIONAL SERVICE MEDAL

Awarded for significant, sustained performance characterized by unusual initiative or creative ability that clearly demonstrates substantial improvements or contributions in engineering, aeronautics, space flight, administration, support or space-related endeavors that contribute to the NASA mission.

Jack Barendt, Gajanana Birur, Andrew Downen, John Duxbury, Kay Ferrari, Henry Garrett, William Greene, Shannon Grover, Jefferson Hall, Jr., Paul Hardy, Mary Johnson, Albert Kirk, Leslie Lowes, Claire Marie-Peterson, Charles Norton, Timothy Parker, William Patzert, Gail Robinson, Guillermo Rodriguez, Donald Sevilla, Anita Sohus, Patricia Spray, Francis Taylor, Susan Watanabe.

★ EXCEPTIONAL ACHIEVEMENT MEDAL

Awarded for significant, specific accomplishment or contribution clearly characterized by a substantial and significant improvement in operations, efficiency, service, financial savings, science or technology that contributes to the NASA mission.

Ali Abtahi, Arden Acord, Douglas Adams, Harlow Ahlstrom, David Allestad, Sami Asmar, Phillip Barela, Kevin Barltrop, Todd Bayer, Bonnie Buratti, Phillip Callahan, Magdi Carlton, Carolina Carnalla-Martinez, Steve Chien, Eugene Chu, Richard Cofield, Kathleen Crean, Annmarie Eldering, Melissa English, William Folkner, Daniel Graham, Simon Hook, Richard Horttor, John Houseman, William T.K. Johnson, Jeremy Jones, Kenneth Klaasen, Daniel Kubitschek, Timothy Larson, Sharon Laubach, Allan Lee, Steven Lee, Nathaniel Livesey, Nickolaos Mastrodemos, Jacob Matijevic, Kyle Miller, Son Nghiem, Robert Preston, William Read, Jennifer Rocca, Ali Safaeinili, Felicia Sanders, Edwin Sarkissian, Douglas Shepard, Michael Sierchio, David Spencer, John Waters, Julie Webster, James Wolfenbarger, Helen Worden.

★ EXCEPTIONAL SCIENTIFIC ACHIEVEMENT MEDAL

Awarded for unusually significant scientific contributions toward achievement of the NASA mission. May be given for individual efforts that have resulted in a contribution of fundamental importance in this field or have significantly enhanced understanding of this field.

Michael A'Hearn, David Charbonneau, Drake Deming, John Le Marshall, Edward Stone.

★ EXCEPTIONAL TECHNOLOGY ACHIEVEMENT MEDAL

Awarded for technology contributions achieved in early technology development, significantly contributing to the NASA mission, exemplary collaborative effort in achieving significant technology transfer, or exceptional utilization of a NASA-developed technology resulting in a significant commercial application.

Yoseph Bar-Cohen, Renaud Goullioud, Alina Moussessian.

★ PUBLIC SERVICE MEDAL

Awarded to any individual who was not a government employee during the period in which the service was performed. The award is granted for exceptional contributions to the NASA mission.

Kevin Croft, Suzanne Dodd, Robert Harwood, Monte Henderson, Angus McMechen, Stuart Spath, Dennis Wellnitz.

★ GROUP ACHIEVEMENT AWARD

Given in recognition of an outstanding accomplishment that has been made through the coordination of many individual efforts and has contributed substantially to the accomplishment of the NASA mission. This award may be used to recognize the accomplishments of either a total government employee group or, as a team award, a group comprised of both government and nongovernment personnel.

Antenna Controller Replacement Implementation Team, Aura Microwave Limb Sounder Science Team, Bose-Einstein Condensate Team, Cassini-Huygens Literacy Program Team, Cassini Radar Instrument Operations Team, Cassini Radio Science Systems Team, Deep Impact Business Team, Deep Impact Encounter Working Group, Deep Impact Ground Data System and Data Management Teams, Deep Impact Mission Assurance Team, Deep Impact Mission Control, Engineering and Support Team, Deep Impact Navigation Team, Deep Impact Project Information Systems Team, Deep Impact Spacecraft and Science Operations Teams, Deep Impact Test Team, Deep Space Mission Systems Business Analysis Team, Exploration Systems Mission Directorate Program Management Handbook JPL Team, Genesis Capsule Recovery and Recovery Operations Team, Genesis Flight Operations Team, Genesis Mission Design and Navigation Team, Herschel Submillimeter Wave Sensors Team, Herschel/Planck Bolometer Technology Development for Use in the Far-Infrared to Millimeter Wavelengths Team, Huygens Ground Doppler Team, Huygens Probe Earth-Detection Team, iPICS Phase I Team, James Webb Space Telescope Keck Dispersed Hartmann Sensor Experiment Team, Lithium-Ion Battery Technology Team, Management Information Processing Center Team, Mars Global Surveyor Extended Mission Operations Team, Mars Laser Communication Demonstration Ground Network Team, Mars Reconnaissance Orbiter Mission Operations and Ground System Development Team, Mars Reconnaissance Orbiter Project Development Team, Mars Reconnaissance Orbiter Project Development Team (Flight), Mars Reconnaissance Orbiter Project Launch Team, Mars Advanced Radar for Subsurface and Ionosphere Sounding Antenna Deployment Analysis and Test Team, Mars Advanced Radar for Subsurface and Ionosphere Sounding Instrument Development-Receiver, Transmitter and Antenna Team, Master Clock and Timing System Development Team, Microwave Switch Controller Implementation Team, Molecular Spectroscopy Team, Planck Cryocooler Development Team, Quantum Gravity Gradiometer Team, Research Support Agreement Team, Space Interferometry Mission (SIM) PlanetQuest Double Corner Cube Team, SIM PlanetQuest Instrument Modeling Team, SIM PlanetQuest Internal Metrology Beam Launcher BrassBoard Team, SIM PlanetQuest Optical Compressor Development Team, SIM PlanetQuest Siderostat Development Team, SIM PlanetQuest Thermal/Optical/Mechanical Testbed Team, Spitzer Deep Impact Support Team, Spitzer Graphics and Animation Team, Spitzer Integrated Support and Administrative Team, Spitzer Pointing Calibration and Reference Sensor Team, Spitzer Pointing Control System Team, Spitzer Research Support Agreements Team, Spitzer Space Telescope's Target of Opportunity Development Team, Technology Working Group, Tropospheric Emission Spectrometer Instrument Operations Team, Voyager Interstellar Mission Team, Work Force Planning System Team, Z-Spec Team.

★ ONE NASA CENTER BEST PEER AWARD

CLARAty Development Team.

★ PUBLIC SERVICE GROUP ACHIEVEMENT AWARD

Given to a group of nongovernment employees in recognition of an outstanding accomplishment that has contributed substantially to the NASA mission.

BAE Systems, Ball Aerospace and Technologies Corp. Deep Impact Team.

