

universe

Jet Propulsion Laboratory

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I n s i d e

News Briefs 2	It's About Time! 3
Special Events Calendar 2	Passings, Letters 4
Girls Meet Women Engineers 2	Classifieds 4

Odyssey reveals its first Mars images

By Guy Webster

l b e m e
M A R S



Initial science data from JPL's Mars Odyssey spacecraft, which began its mapping mission last week, portend some tantalizing findings by the newest Martian visitor.

"We are delighted with the quality of data we're seeing," said Odyssey Project Scientist Dr. Steve Saunders. "We'll use it build on what we've learned from Mars Global Surveyor and other missions. Now we may actually see water rather than guessing where it is or was. And with the thermal images we are able to examine surface geology from a new perspective."

New images taken by the thermal emission imaging system show the temperature of the surface at a remarkable level of clarity and detail during both the Martian day and night. The images can be seen at <http://mars.jpl.nasa.gov/odyssey> and <http://themis.asu.edu/latest>. Odyssey's camera system is studying Mars' surface mineralogy geologic history. The thermal infrared images are 30 times sharper than previously available, and the camera's visible-light images will fill a gap in reso-

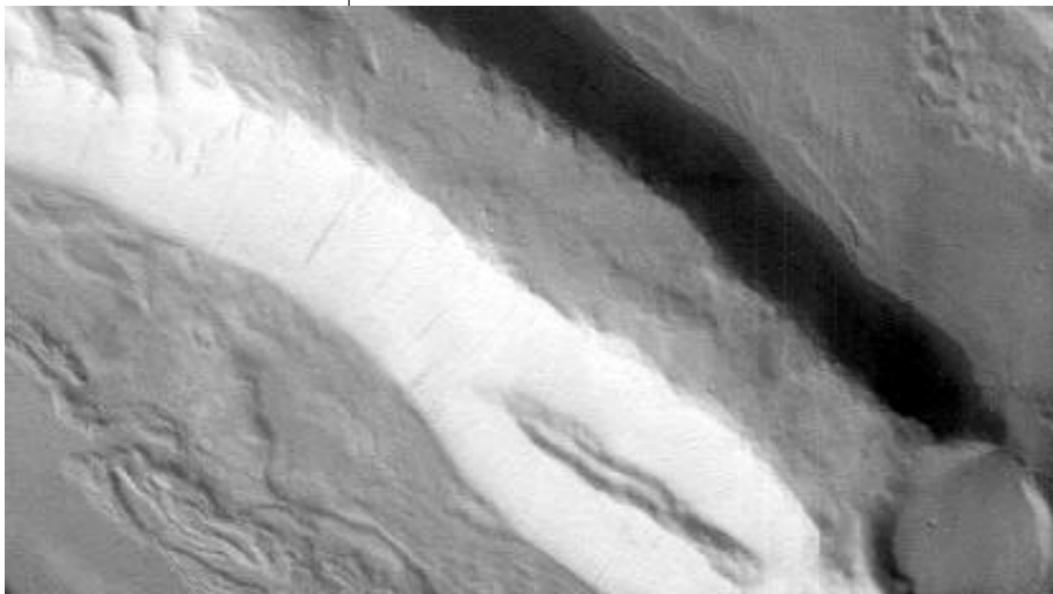
lution between Viking Orbiter and Mars Global Surveyor pictures.

Initial measurements by the gamma ray spectrometer instrument suite show the presence of significant amounts of hydrogen in the south polar region of Mars. Further analysis will be conducted to determine whether the hydrogen indicates a significant amount of water ice near the surface. The detection of hydrogen is based both on the intensity of gamma rays emitted by hydrogen, and by the intensity of neutrons that are moderated by hydrogen. The neutron intensity was observed by the high energy neutron detector and the neutron spectrometer. Additional information is available online at <http://grs.jpl.arizona.edu/results/presscon1>.

Measurements made by the Martian radiation environment experiment during Odyssey's cruise phase suggest that the daily dose of radiation experienced by astronauts on their way from Earth to Mars would be more than twice the dose endured by astronauts on the International Space Station. Investigators are in the process of troubleshooting the radiation experiment to determine why the instrument stopped communicating and was turned off in August 2001.

Above The thermal emission imaging system on JPL's 2001 Mars Odyssey took this nighttime infrared image of a massively disrupted region on Mars called Hydaspis Chaos, located near the equator. North is toward the right. The steep slopes leading down into the canyons of Hydaspis Chaos are strewn with rocks, while the plateaus and mesas are covered with dust. This pattern indicates that processes are at work to prevent the dust from completely covering the surface on these slopes, even over the very long times since these canyons were formed.

Left This visible-light image, taken by the thermal emission imaging system's camera, shows Mars' highly fractured, faulted and deformed Acheron Fossae region. North is to the top in this image, which was acquired on Feb. 19. The scarps visible in this image are about 1 kilometer (3,300 feet) high, based on topography derived from the Mars Orbiter Laser Altimeter instrument. Dark streaks only 50 meters (160 feet) across can be seen on some of the cliff faces. These streaks may have been formed when the pervasive dust mantle covering this region gives way on steep slopes to create dust avalanches. The image also shows impact craters as small as 500 meters (1,600 feet) in diameter and smooth and textured plains.



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S O L A R S Y S T E M

Combination of spacecraft observe Jupiter's magnetosphere

Scientists simultaneously using a combination of NASA spacecraft have seen into the workings of an invisible whirling bubble of charged particles surrounding Jupiter.

That bubble, Jupiter's magnetosphere, is the biggest object with distinct boundaries within our solar system, more than 100 times wider than Jupiter itself. It contracts in response to shock waves from the Sun, according to one report appearing Feb. 28 in the journal Nature. In all, seven reports appearing together will detail various results from a concerted research campaign that took advantage of the Saturn-bound Cassini spacecraft's flyby of Jupiter 14 months ago.

The campaign found extremely energetic

electrons traveling near the speed of light close to Jupiter, as well as a vast nebula of neutral atoms, and triggers for glowing auroras near Jupiter's north and south poles.

"We're seeing results from a remarkable opportunity," said JPL physicist Dr. Scott Bolton, a co-author of three of the reports. "We had one spacecraft, Galileo, inside the magnetosphere monitoring what was happening there at the same time another spacecraft, Cassini, was outside the magnetosphere monitoring the solar wind just upstream," Bolton said.

On Jan. 10, 2001, when Cassini and Galileo were more than 20 times farther from each other than Earth is from the Moon, each spacecraft encountered the boundary

of Jupiter's magnetosphere while the bubble was contracting in response to an increase in solar-wind pressure.

"This is the first two-point measurement of the Jovian system actually responding to the solar wind," said University of Iowa physicist Dr. William Kurth, lead author of the Nature report on these results. "The combined observations of Galileo and Cassini help show us the relative importance of the influence of the solar wind and the factors affecting the magnetosphere from within—primarily the energy from Jupiter's rotation and the supply of material from volcanoes on the moon Io." The Jupiter observations strengthen confidence in our understanding about Earth's protective magnetosphere.

News Briefs



Dr. Charles Elachi

Elachi named AIAA fellow

JPL Director DR. CHARLES ELACHI has been elected as a fellow in the American Institute of Aeronautics and Astronautics, the world's leading professional society in the field.

Elachi is being honored for his international technical leadership and pivotal contributions in the field of spaceborne synthetic aperture radar for observing Earth and exploring other planets. To become a fellow, a candidate must be distinguished in the field of aerospace and show strong leadership potential.

"I'm honored to be elected as a fellow in this most distinguished organization," said Elachi. "This reflects not only on me personally but on all my colleagues at JPL who helped me throughout my career."

U.S., Europe incorporate Quikscat data

In a move to improve global weather forecasts and ultimately save lives and property, the United States and Europe have incorporated wind speed and direction data from the JPL-developed Quick Scatterometer (Quikscat) spacecraft into their operational global weather analysis and forecast systems.

Using Quikscat data, forecasters can now predict hazardous weather events over the oceans as much as six to 12 hours earlier. Launched in 1999, Quikscat takes approximately 400,000 measurements over 93 percent of Earth's surface every day.

In recent years, Quikscat data have proven useful in improving forecasts of extreme wind events, such as hurricanes, and in monitoring longer-term climatic effects such as El Niño. Quikscat's SeaWinds scatterometer instrument is a specialized microwave radar that continuously measures both the speed and direction of winds near the ocean surface in all weather conditions. Participants in the Quikscat program

include the National Centers for Environmental Prediction, a branch of the National Weather Service, Washington, D.C., and the European Centre for Medium-Range Weather Forecasts in England.

"Realizing the full potential of Quikscat data is possible only because of a series of unique collaborations," said Dr. Michael Freilich, Quikscat principal investigator. "NASA researchers and engineers worked together to develop and calibrate the instrument and algorithms. NOAA personnel, in partnership with NASA, enable rapid delivery of near-real-time spacecraft data to forecast centers. There also are the teams of meteorologists who are developing and refining computer programs that incorporate the data into models and display measurements for forecasters."

SIRT telescope delivered to Lockheed

The telescope system for NASA's Space Infrared Telescope Facility arrived Feb. 20 at Lockheed Martin Space Systems Co., Sunnyvale, Calif., where it will be integrated with the spacecraft. The system, called the cryogenic telescope assembly, contains the telescope, liquid helium cooling tank and three science instruments. It was shipped on Feb. 19 from Ball Aerospace & Technologies Corp., Boulder, Colo., where it was built.

The JPL-managed Space Infrared Telescope Facility, scheduled to launch Jan. 9, 2003, will study the early universe and hunt for planet-forming regions in dust disks around nearby stars. It will also detect objects by looking for the heat they emit in the infrared portion of the electromagnetic spectrum.

The Space Infrared Telescope Facility is the fourth and final mission under NASA's Great Observatories Program, which includes the Hubble Space Telescope, the Compton Gamma Ray Observatory and the Chandra Advanced X-ray Astrophysics Facility.

Less than 20 percent of all college engineering students in the United States are female and only 10 percent of engineers in the workforce are women. Studies show girls lose interest in science and mathematics well before they enter college, and young women often lack the necessary exposure to role models in science and engineering professions.

In an effort to bring young women a greater awareness of engineering careers, JPL's Education and Public Outreach Office observed National Engineers Week by hosting "Introduce a Girl to Engineering Day" Feb. 21.

Forty high school juniors from 17 schools spent the day at the Laboratory with women scientists and engineers from a variety of disciplines. Students toured the Lab and learned about the "life-cycle" of a planetary mission.

develop is the kind of exposure that is important for women," added Valerie Duval, manager of the Space Experiments Systems and Technology Section. "Students really need to make sure that they truly have an interest in engineering—they need to like building things and should find out if they have that passion."

The young women visited several JPL research facilities, including the Project Design Center, Microdevices Laboratory, Observational Instruments Laboratory, and the Multi-Mission Imaging Processing Laboratory.

Students responded positively to the experience. "Tours like this get you more interested in this field than just hearing about it from a counselor or teacher," said Lupe Talavera of Gabrielino High School in San Gabriel.

Dawn Mission Manager Sarah Gavit, who spoke to the girls during their tour, felt the students were genuinely interested. "Everyone seemed so enthusiastic and I think they got a positive view of what we do," she said.

Organizers hope to expand the event next year and reach students in junior high. "Often sociocultural influences contribute to girls not taking adequate math and science courses," said Kneissl-Milanian.

"Although many girls may be interested in becoming an engineer, they may not have the encouragement to take the three years of high school math and science needed to major in such subjects in college."

Participating schools were invited from local directorates of California's Mathematics Engineering Science Achievement (MESA) Program, which assists students from groups with low eligibility rates for colleges. Students from MESA Program schools were selected according to coursework taken and interest in mathematics and science. Students were required to make a presentation about their JPL experience to their peers in their local student chapters.

"For this pilot program we wanted to take a focused approach by reaching girls with a certain interest in math or science," said Petra Kneissl-Milanian of the Education and Public Outreach Office. "The objective was to show them different disciplines engineering has to offer, elicit questions, and provide them with an opportunity to informally meet the engineers."

"Girls need all the encouragement they can get," said Mary Bothwell, manager of the Observational Systems Division, who welcomed the girls to the Lab. "Often they don't get the encouragement they need from parents and teachers, so it's important to provide them with role models in real life."

"The understanding of how systems

Lab event helps introduce girls to engineering

By Cynthia Cuno



Photo by Bob Brown / JPL Photolab

Jennifer Trooper, Mars Exploration Rover Project system engineer, gives visiting high school girls a tour of the In-Situ Instruments Laboratory during Introduce a Girl to Engineering Day.

Special Events Calendar

Ongoing Support Groups

Alcoholics Anonymous—Meetings are available. Call the Employee Assistance Program at ext. 4-3680 for time and location.

Codependents Anonymous—Meeting at noon every Wednesday. Call Occupational Health Services at ext. 4-3319.

Gay, Lesbian and Bisexual Group—Meets the first and third Fridays of the month at noon in Building 111-117. Call the Employee Assistance Program at ext. 4-3680 or Randy Herrera at ext. 3-0664.

Caregivers Support Group—Meets the first Thursday of the month at noon in Building 167-111 (The Wellness Place). For more information, call the Employee Assistance Program at ext. 4-3680.

Working Parents Support Group—Meets the third Thursday of the month at noon in Building 167-111 (The Wellness Place). For more information, call the Employee Assistance Program at ext. 4-3680.

Friday, March 1

Songs from Eastern Europe—The Kitka Women's Vocal Ensemble will perform at 8 p.m. in Caltech's Beckman Auditorium. Tickets are \$22, \$18 and \$14. Call (626) 395-4652.

Fri., March 1–Sun., March 3

Love's Labour's Lost—The Shakespeare comedy will be presented in Caltech's Ramo Auditorium Friday and Saturday at 8 p.m., Sunday at 2 p.m. Tickets are \$15. Call (626) 395-4652.

Saturday, March 2

Planning for Your Child's Educational Future—Caltech director of financial aid David Levy and USC associate dean of admissions and financial aid Catherine Thomas will discuss simple, effective ways for parents to develop a financial plan for their children's college education. Hosted by the JPL Child Educational Center and the Verdugo Hills Hospital Foundation, the free program is open to all parents, grandparents and expectant parents. Location: Verdugo Hills Hospital, 182 Verdugo Blvd., Glendale, 4th floor. A complimentary continental breakfast will be served at 9:45 a.m., with the talk scheduled from 10 a.m. to noon. For reservations, contact Helen Ruppel at ext. 4-3418 or hruppel@caltech.edu.

Sunday, March 3

"American Extremists"—The Skeptics Society will present Dr. John George, professor of political science and sociology at the University of Central Oklahoma, who will provide a historical overview of extremism and the conspiracy theories and religious views that attract recruits. To be held at 2 p.m. in Caltech's Baxter Lecture Hall. Donations: \$5 for members, \$8 for nonmembers.

Chamber Music—The California Classical Ensemble will perform a free concert at 3:30 p.m. in Caltech's Dabney Lounge. Call (626) 395-4652.

Tuesday, March 5

Airborne Visible/Infrared Imaging Spectrometer Workshop—To be held at Pasadena's Doubletree Hotel from 8 a.m. to 5 p.m., continuing through March 8. JPLers considering attending are asked to register; registration and agenda are available online at <http://avisir.jpl.nasa.gov/html/workshop2002.html>. Call Valentina Grigoryan at ext. 4-5615.

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

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

Wednesday, March 6

Associated Retirees of JPL/Caltech—Meeting at 10 a.m. at the Caltech Credit

Union, 528 Foothill Blvd., La Cañada.

"Celebrating the Voice of Women"—JPL's Advisory Council for Women will host a luncheon honoring guest speaker Gail McGovern, the president of Fidelity Personal Investments, who has been named as one of the top 50 most powerful women in the U.S. by Fortune magazine. To be held from noon to 1 p.m. at the La Canada Flintridge Country Club, 5500 Godbey Dr. Tickets are \$17 and seats are limited. Log on to http://ood-lib.jpl.nasa.gov/ood-lib/dscgi/ds.py/Get/File-1033/Ticket_Request.doc.

"New Materials for Perfect Vision"—Caltech chemical engineering professor Dr. Julia Kornfield will lecture at 8 p.m. in Beckman Auditorium. Free admission. Call (626) 395-4652.

"Women Shaping the World: Voices from Afghanistan, East Timor and Guatemala"—In celebration of International Women's Day, women educators and activists will share their personal histories, expertise on issues ranging from reproductive health to domestic violence, and vision for the future. To be held at 8 p.m. in Caltech's Baxter Lecture Theater. Free admission. Call the Caltech Women's Center at (626) 395-3221.

Thursday, March 7

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

Thurs., March 7–Sat., March 9

Love's Labour's Lost—The Shakespeare comedy will be presented in Caltech's Ramo Auditorium Thursday and Friday at 8 p.m. and Saturday at 2 p.m. Tickets are \$15. Call (626) 395-4652.

Friday, March 8

Travel Film—China: the 21st Century will be presented at 8 p.m. in Caltech's Beckman Auditorium. Tickets are \$9 and \$7. Call (626) 395-4652.

Fri., March 8–Sat., March 9

Winter Concert—The Caltech Men's and Women's Glee Clubs will perform a free concert at 8 p.m. in Dabney Lounge. Call (626) 395-4652.

Saturday, March 9

Lazer Vaudeville—This family show that combines the high-tech effects of lasers and black lights with the traditional vaudeville arts of juggling, comedy and acrobatics will be held at 2 p.m. in Caltech's Beckman Auditorium. Tickets are \$10 for adults, \$5 for children. Call (626) 395-4652.

Sunday, March 10

Caltech-Occidental Symphony Orchestra—The program for this free concert is to be announced. It will be held at 8 p.m. in Caltech's Ramo Auditorium. For more information, call (626) 395-4652.

Tuesday, March 12

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

Wednesday, March 13

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

JPL Toastmasters Club—Meeting at 5 p.m. in the 167 conference room. Guests welcome. Call Joy Hodges at ext. 4-7041.

Friday, March 15

Dr. Stephen Hawking—The renowned physicist will speak at 8 p.m. in Caltech's Beckman Auditorium. Admission is free, but guaranteed-admission tickets will be distributed, on the day of the event only, beginning at 9 a.m. at Beckman. Limit is two tickets per person; ticket holders are asked to return in time to be in line no later than 7:30 p.m. Call (626) 395-4652.

are we even talking about this? Doesn't every JPL employee know all they need to know about timekeeping?

A Well, no, based on questions we have received from employees and other input.

Q Why is this an important issue?

A Although funding for JPL projects comes from or through NASA, we are not government employees. We are Caltech employees and we are paid by Caltech. However, Caltech uses the JPL Timekeeping system to charge NASA for the time spent working on projects and tasks by both our exempt and non-exempt employees. The JPL Timekeeping system is also used to keep track of employees' paid and unpaid leave.

Using the JPL timekeeping system properly will get you paid accurately. Accurate labor-charging to the projects and tasks that you are working on will get the costs to your program or project appropriately and get Caltech accurately reimbursed by NASA and/or our other sponsors. Inaccurate time reporting or labor charging can cause all sorts of problems.

Q Does anyone ever come by and check up on timekeeping and labor charging practices?

A Yes. Periodically, auditors from the Defense Contract Audit Agency perform what are called floor checks. When they do, they may stop by and ask you what you are working on; ask you to show them your Work Authorization Memo (WAM), which is evidence that you are authorized to work on the program or project; or ask you about errors and how you would correct one. If an auditor approaches you, answer their questions as completely and honestly as you can. However, if they have questions you cannot answer or you need assistance, please ask them to wait while you get help from your supervisor or call for assistance from the JPL Audit Relations Office, ext. 4-0967.

Q How did we fare in the latest audit?

A JPL employees are subject to random audits to see how well we understand our timekeeping responsibilities, and how well we do it. A recent audit has shown that employees need to improve their understanding of our timekeeping requirements and their timekeeping responsibilities.

Q Timekeeping and labor charging?

These terms sound like the same thing; are they?

A Timekeeping is a term normally used when someone keeps track of their hours worked. Labor charging or labor distribution refers to spreading or charging those hours to programs or projects, referred to in the JPL system as projects and tasks that an individual works on.

Q What are the employees' responsibilities?

A Your responsibilities as an employee include working only on projects and tasks that are authorized by your supervisor and as evidenced by a WAM, charging accurately to what you are working on, and following JPL timekeeping policies and procedures.

Additionally, exempt employees are responsible for submitting time on a weekly basis, no later than 10 a.m. Monday. Non-exempt employees are responsible for submitting time on a daily basis.

Q Do I have additional responsibilities if I am a manager or supervisor?

A Yes. As a manager and supervisor you have responsibilities that include authorizing work performed by your staff and reviewing the labor charges they submit into the timekeeping system. Normally, you should discuss with the employee any task you would like them to perform and set up their WAM prior to the employee beginning work. Once a week you are required to review the time and labor charges submitted by your non-exempt employees. And at least once a quarter you are required to review the labor charges submitted by your exempt employees. Many managers and supervisors do this review more frequently.

Q How does filling out my timecard become an ethics issue?

A If someone erroneously charged their time to a project and task that they were not working on, then this would be inappropriate. There are

serious ramifications that could impact the entire Lab. If JPLers have questions about ethics pertaining to their timekeeping or other issues, they should call Roy Harris at ext. 4-6338.

Q What are the consequences of making a mistake here and there?

A Mistakes can happen, and there are a couple of ways of correcting errors. If the error is identified prior to when the timekeeping system finalizes its weekly close at approximately 10 a.m. on Monday, the employee can fix the error electronically through the timekeeping Web. When done this way, the process is simple and only requires the employee's efforts. If the mistake is discovered after the Monday morning timekeeping system close, then a Labor Adjustment needs to be initiated by the employee using a paper form. You can get a Labor Adjustment form off the NBS website at <http://nbs-web>, in the "Library" subdirectory. In either case, an audit trail is maintained by the system.

Q Are JPL subcontractors affected by these policies?

A Yes. Subcontractors are covered by their individual subcontracting company's timekeeping policies, but they are also responsible for knowing JPL's labor charging and ethics policies. Each subcontractor should take some time to be thoroughly familiar with those policies. In most cases, the subcontracting companies who work at JPL have timekeeping and labor charging policies that are very similar to JPL's. Subcontractors are also subject to floor checks by the Accounting and Finance Division's Subcontract Audit and Compliance Group, as well as the DCAA.

Q Where is all of this information available?

A A quick source of this information plus detailed guidance and "How to" steps can be found in the timekeeping website at

Who do you work for? Keeping track of it is critical

IT'S ABOUT TIME!

Universe recently sat down with Cathy Kiburtz, controller and manager, Accounting and Finance Division, to discuss some burning issues on the subject of timekeeping.



Photos by Bob Brown / JPL Photolab

<http://techinfo.jpl.nasa.gov/jpl/timekeeping>, or you can select the Help icon on your Time Entry Screen. For personal help you can call the timekeeping Help Desk at 4-4357 or visit them in Building 241.

For more details about JPL's timekeeping, labor charging, supervisory review and ethics requirements, JPLers can search DMIE, soon to be known as "JPL Rules!," using any of the keywords.

Q How do you plan to keep this issue in the spotlight?

A This will be an ongoing information and education campaign. The Accounting and Finance Division has partnered with the Daily Planet to have articles and electronic information available to JPL employees periodically. Over the next few months we will continue to remind our employees of these topics so that it does not become out of sight and out of mind. The main thing we want to get across to the folks here at the Lab is that it's easy, and it's very important to do it right. Fill out your time card correctly, and everyone benefits.

Celebrating 40 years



Former JPL directors (from left) Drs. William Pickering, Bruce Murray and Ed Stone and current director Dr. Charles Elachi share a laugh during the Feb. 15 dedication of the new visitors center museum in von Kármán Auditorium. The four took part in a panel discussion during the event, which hosted local dignitaries and JPL history makers, and was part of the year-long celebration of the 40th anniversary of planetary exploration. Former director Dr. Lew Allen was unable to attend.

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online for the JPL community

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JPL's online news source

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<http://universe.jpl.nasa.gov>



Editor
Mark Whalen

Design & Layout
Adriane Jach, Audrey Steffan/
Design Services

Chief Photographer
Bob Brown/Photo Lab

Advertising
Susan Braunheim-Kalogerakos

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Notice to Advertisers

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 on ad cards, available at the ERC and the Universe office, Bldg. 186-118, or via e-mail to universe@jpl.nasa.gov. Ads 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.

Passings

WILLIAM THOGMARTIN, 65, a retired assistant engineer and member of the technical staff in Section 353, died of stroke Feb. 3.

Thogmartin joined JPL in 1962 and retired in 1999. He is survived by his wife, Linda; three children and two grandchildren.

Services were private.

Letters

I would like to thank the "un-named" individual who found my cell phone in the blue parking lot on Feb. 11 and turned it in to the guard station. It was very nice of you. Thanks again.

Bill Mogensen

I would like to thank my JPL colleagues and friends for their sympathy and support following the recent death of my wife's mother. We also deeply appreciated the lovely plant sent to our home. Sincerely,

Herb Siegel

My family and I would like to express our sincere thanks and appreciation to my friends and co-workers for their prayers, cards, expressions of sympathy and the Armstrong's gift certificate upon the death of my father. Also, a special thank you to JPL for the lovely plant.

Vickie Wang

I would like to express my deepest gratitude to my friends and co-workers for their support following the recent passing of my mother-in-law. Keith and I also want to send a special thanks to the Mechanical Engineering Section for the thoughtful card and to ERC for the beautiful plant, which helped provide comfort during this sad time for us.

Keith and Jan Magee

Classifieds

For Sale

BABY ITEMS: clothes, 3 to 18 months, \$50 - \$1; super saucer, \$30; 3-in-1 play crib, \$50; battery swing, new, \$50; front carrier, \$5; asst. stuff. 951-3929, after 7 p.m.

BABY ITEMS: Graco swing, like new, 3-spd, \$45; baby monitor, new, \$10; crib mattress, like new, \$30; Aprica stroller, \$30; plus numerous infant toys. 626/850-4378.

BED, twin mattress & ash wood frame with 2 drawers, \$200; **DESK,** child's 44" x 18" x 30", and chair, ash wood, \$100; heating stove, antique, \$150; all in exc. cond. 790-6136.

BICYCLES, children's, four, \$15/ea. 626/357-8210.

BED FRAME, metal, for queen size bed, never used, \$15, **BATTERY CELL,** metal hydride, for Nokia 5000 and 6000 series phones, \$15; **CASE,** new case for Nokia 8000 series cell phone, never used, \$5. 366-6134.

CHEST, black, 6 drawer, 15 x 16 x 50, \$30; **CABINET,** black, low, 2 door, 1 interior shelf, 27 x 21 x 32, \$30; **BOOKSHELVES,** white, beechwood trim, 4 shelves, 3 adjustable, 27 x 10 x 69, \$30; all Ikea type. 790-0335.

CHINA CABINET, 1950s Drexel mahogany, e-mail lelson@altavista.com for photo, \$500 cash and carry. 353-9367

COMPUTER, Macintosh Quadra 850, includes monitor, keyboard, mouse, modem: \$100. 248-9418.

COMPUTER, 450 MHz, Pentium II, 256 MB RAM, AGP video, 4.36 GB hard drive, CD, \$250 obo. 626/797-3310, eves. & weekends.

COMPUTER DESK, simulated slate top, wrap around corner unit, non-hutch, 1 year old, \$350 new, sell for \$150. 909/398-1854.

COMPUTER HUTCH, wood grain appearance, pull-out keyboard tray, shelves for printer &

CPU, other cubby-like shelves, on wheels, 61" H x 32.5" W x 19.5" D, \$50/obo. 626/798-0329.

CRIB/DAYBED, Bellini "Milano", natural wood, great cond., adjusts to 3 heights, sides remove for daybed use, mattress included, \$200/obo. 709-0208, Deborah.

CROCK POTS, two, 1.5 qt., \$5/each. 364-9726.

DINING TABLE, smoked-glass top, 72 x 42, 6 upholstered fabric chairs, exc. cond., \$399;

HANDHELD COMPUTER, Cassiopeia EM500, color, windows CE, MS Word/Excel/Money, maps, voice recorder, 16 MB RAM, adv. calculator, IE, MP3 player, case, exc. cond., \$179; **CHANNEL SPEAKER,** Cerwin Vega Center, 100W, exc. cond., \$39; **COMPUTER SPEAKERS,** Sony, brand new, \$20; **VIOLIN,** hard case, exc. cond. \$250/obo. 909/592-2279.

DRYER, Frigidair, good cond., \$50. 562/693-2986.

DVD/CD PLAYER, Panasonic A110, good cond., \$65. 626/395-4567.

GARDEN HOSE HOLDERS, new, black ironwork, holds up to 100-ft hose, \$60/obo; new, aluminum, holds up to 75-ft hose, \$50/obo. 626/791-6101.

IN-LINE SKATES, K2 Extreme Flight; almost new: all receipts, paperwork, and tool; size 10.5. Rollerblade knee, elbow, and wrist guards included: \$150. 640-7479, Greg.

LOVESEAT, like new, overstuffed, hunter green/brown/tan abstract pattern, \$185/obo. 626/254-1550.

MOVING SALE: bedroom set, double bed, dresser, chest, night stand, \$275; desk, student, \$25; desk, office, \$45; day bed, \$20; curtain rods, \$3; hi-fi system, \$100; washer/dryer, \$275; range/oven, elec., \$100. 248-9418.

PALM PILOT CRADLE, original, with serial connection, \$25. 626/794-2196.

PLATES: 6 dinner, 10 inch, porcelain, nice patterns, \$9/all; 4 dinner, mocha brown, glazed, \$2/ea; other household items. 626/793-1895, Albert.

RECEIVER, a/v, Denon AVR-3200, Dolby digital, 85 watt x 5 ch.; 6 chl. ext. input; 5 chl. stereo, \$400. 661/255-5645.

REFRIGERATOR, Amana, 25 cu. ft., side-by-side, 2 years old, white, almost-new cond., ice and water maker, \$950/obo. 626/285-5683.

REFRIGERATORS, G.E., one is beige, 17 yrs. old, side by side, \$100, other is white, 15 yrs. old, freezer on top, \$100; **TABLE,** dining room, with leaf, cherry wood tops, black legs, 4 chairs, good cond., \$150; **SOFA/SLEEPER,** makes into queen size bed, abstract black, blue and mauve design, good cond., \$300. 626/357-8210.

REFRIGERATOR/FREEZER, full-size, Hotpoint, used only 2 years, \$150. 626/398-3649, Jen.

SATELLITE DISH, complete TV system, antenna with dual LNBF for operating 2 TVs separately, 2 receivers with smart cards, model ISD2200 with UHF remote, model 1000 with infrared remote, installation kit with user and installation guide, \$100/obo. 626/797-7320.

SCOOTER, Pace Saver, 4 wheel, 2 batteries, for handicapped, only 3 yrs. old, exc. cond., \$650. 790-6060.

SECTIONAL, great frame, cushions, and pillows, perfect for customizing to match your décor, \$100. 626/850-4378.

SWEATERS, girls, new, sizes 6, 8 and 10, white, blue, \$3. 790-6060.

TELEPHONE, Nokia 6185, with slim battery, \$50. 626/794-2196.

TENT, heavy duty with integral floor, rainproof, 9 x 9, sleeps 3, vg cond., clean, \$45. 626/793-1895.

TOY COLLECTION, Star Trek, huge collection; all in mint, unopened condition; pricing for individual items, but prefer to sell collection as a whole, will deal on pricing for complete collection; unpriced items are open for offers; http://briefcase.yahoo.com/john_de_pablos/ then stlist.xls for details and prices. 777-9671 or john_de_pablos@hotmail.com.

VACUUM CLEANER, Eureka World Vac Mega Boss upright w/attachments, \$45; **HAND VAC,** Dirt Devil, \$15. 626/357-8257.

VIDEO, Disney's Little Mermaid VHS, new, sealed, Special Edition, fully restored with THX sound, \$25; other brand new Disney videos also available. 562/420-2313.

WALKERS: 4 wheeler w/hand brakes, seat & carrying basket, like new, \$75, aluminum, \$25; **SECURITY BARS,** 2, for edge of bathtub, \$15/ea; **VACUUMS,** Hoover steam w/upholstery attachment, used twice, \$100, Hoover w/attachments, exc. cond., \$25. 352-3112.

WOOD, garage full of misc. types, make offer. 626/797-6472.

WORD PROCESSOR, office system, Smith Corona, 4400 plus, \$50. 352-3112.

ZIP DRIVE, 100 MB with USB, \$50. 626/794-2196.

Vehicles/Accessories

CAR COVER, from California Car Cover Co., deluxe, weather proof, custom, for 1984-96 Corvettes, orig. \$400, now \$89. 366-6134.

'96 DODGE Neon, blue, 2 dr., 5 spd., AM/FM

radio, cassette, CD w/multi changer and remote, 132K mi., \$1,600/obo. 909/596-8117.

'84 DODGE D-50 pickup truck, vg cond., 2.6L eng., auto trans, bedliner, shell, very clean, new tires, radiator, carburetor, and battery, 141K mi., orig. owner, \$2,200. 626/332-2682.

'97 FORD Taurus GL sedan, 83,000 mi., V6, automatic, 4 dr., a/c, pwr. steering/ABS brakes/window/door locks/drivers seat, cruise control, AM/FM stereo cass., tilt wheel, metallic silver exterior, gray interior, 4 new Michelin tires, current registration, \$5,495. 626/798-1765.

'95 FORD Explorer XLT, 4 x 2, 109K mi., red, auto, good cond., Michelin tires, AM/FM cass., cruise cntrl., pwr. steering/windows/door, a/c, running board, \$6K/obo. 952-1928.

'66 FORD Mustang, 4 spd., V6, original engine overhauled, new upholstery, brakes need work, tow away only, \$2,500/obo. 790-6136.

'92 HONDA Accord EX sedan, 4 dr., 106K mi., gd. cond., white w/blue int., auto., 4 cyl. 2.2L, front-whl. dr., a/c, p/s, p/w, p/dl, cruise cont., ABS, tilt whl., sun/moon roof, am/fm stereo/cassette, anti-theft, gd. tires, \$6,000. 626/296-9073, Patti.

'91 HONDA Accord EX, manual, 2 dr., sedan, orig. owner, well cared for, 137K miles, green with beige interior, a/c, power windows/locks/moonroof, \$3,000/obo. 626/797-7021, Greg.

'99 JEEP Wrangler SE, exc., black, soft-top, under 23K mi., 4-wheel drive, extras, like new, \$11,000/firm. 957-7742.

'90 JEEP Cherokee Pioneer, 4 dr., brown, a/c, auto, 4 x 4, 6 cyl., tinted wdws., new tires, 126,800 mi., \$4,000. 909/861-7121, Ted.

'87 NISSAN Sentra, 2 dr., h/b, only 64K mi., runs great, auto transmission, exc. air cond., new tires, stereo cassette, radio, anti-theft device, red, very clean, only \$2,300/obo. 626/449-8224.

'87 PLYMOUTH, Voyager LE, minivan, elect. window, seats, etc. rebuilt eng., 10K, new radiator, tires, \$2,200. 626/345-0528.

'95 SAAB 9000 CS, 5 dr., 101K mi., 1 owner, exc. cond., auto, ABS braking, front airbags, alarm, keyless entry, sun/moon roof, heated seats, climate control, AM/FM/tape player, power windows, cruise control, \$10K/obo. 626/683-3544.

'99 TOYOTA 4 Runner Ltd., 4 x 4, black leather, moonroof, running board, tow pkg., cd, V6, loaded, wooded panels, 27,000 mi., \$23,999. 909/599-3230.

'94 TOYOTA Camry LE, V6, vg cond., only 32,000 mi., \$8,200. 626/797-6472.

'89 TOYOTA Camry sedan, 4 dr., automatic, 1 owner, a/c, front-wheel dr., 4 cyl., 2.0L, good cond., clean. \$3,550/obo. 626/282-1821.

'87 TOYOTA Supra, turbo, liftback, 2 dr., straight body, new 16" tires, blown head gasket, all other parts nearly new, \$950/obo. 626/488-8616.

'83 VOLVO DL wagon, 150K mi., auto, a/c, p/s, cruise cont., am/fm/cass., roof rack, maroon, gd. cond., \$1,500. 626/794-2431.

Wanted

HISTORIC COMPUTER/ACCESSORIES: IBM-1401 manuals, drawings, card decks or software tapes, especially Autocoder or Fortran; JPL veterans and a pack rats: did you use IBM-1401 circa 1962-65? Contact me about historic preservation. 957-3675, Van Snyder.

PLAYPEN, with mesh sides for puppy. 352-3112.

SPACE INFORMATION/memorabilia from U.S. & other countries, past & present. 790-8523, Marc Rayman.

SPORTS ILLUSTRATED MAGAZINES, used, for school projects. 626/850-4378.

VOLLYBALL PLAYERS, coed, no beginners please, Tuesday nights 8-10:00 at Eagle Rock High School, \$3/nt. 956-1744, Barbara.

Lost & Found

Lost: Gold necklace with silver and gold coin pendant, sentimental value, reward. Ext. 3-4050 or 957-3296.

Free

ARMCHAIR, circa 1950s, nice classic style, needs reupholstering. 364-9726.

BOXES, U-haul, great for moving, about 20 medium and 10 small. 248-6263.

CACTUS, several cereus plants, arms to 7 ft tall, Pasadena. 626/398-4262, Martin, 10 a.m.-7 p.m.

FILL DIRT, clean, haul as much or as little as you want of the 2 cu. yds., located near Los Robles/Jackson, Pasadena. 626/791-3103.

For Rent

ALTADENA, room in Rubio Canyon area, private residence, kitchen & laundry OK, no smoking, no pets, \$400. 626/797-8082.

BURBANK, 1 bd., 1 ba., garage, patio, washer/dryer, \$800. 972-2993.

LA CANADA apt., 1 bd., 1 ba., 10 min./JPL, 2nd floor unit in 4-plex, air cond., en-closed

garage, avail. March 9, \$790. 790-7445.

MONROVIA HILLS, 2 bd., 2 full ba. in a private family home; share kitchen and laundry; electricity, water, gas and cable included; 12 miles from JPL; no smoking/pets; \$500/ea. bd. w/ba. 626/358-7728.

PASADENA, spacious 2 story condo, 3 bd., 2.5 ba., prestigious community, beaut. inter., bright kitch., prof. landscape, ctrl. air & heat, close to shop., cozy l/r with f/p, end unit, frml d/r, hdwd. flrs., immac. cond., close to schls. \$1,750. 626/396-9024.

PASADENA, 1 bd., 1 ba., in a partially furn. 2 bd., 2 ba. apt., near Caltech & PCC, subterranean parking, fireplace, balcony, recently remodeled, C/A, washer/dryer in unit, \$675. 626/564-9511.

PASADENA, townhome-style apt., furnished, 2 bd., 1.5 ba., a/c, parking, patio, laundry facilities, no pets, \$1,195 plus utilities. 626/351-9641.

PASADENA apt., furnished 2 bd., 1.5 ba., to share with Caltech Post Doc, a/c, parking, patio, laundry facilities, no pets, \$595 + utilities. 626/351-9641.

PASADENA, room, quiet neighborhood around Rose Bowl, pool privilege in summer, \$350. 626/304-0340.

PASADENA townhome, spacious 2-story, 1,513 sq. ft.; across from Caltech, Catalina & San Pasqual; 3 bd., 2.5 ba., liv. rm w/fireplace, lg. formal step-up din. rm., 2 patios & 2 balconies; newer kitchen appliances, washer/dryer in unit, dishwasher, brand new central air/heat; secure underground parking; in-complex pool, spa, and sauna; all operational all year long; rent or lease; \$2,100. 626/585-9048.

PASADENA, new view home, 5 minutes fr. JPL, 4 bd., 2.5 ba., all appliances, some furniture, private gated road, utilities negotiable, \$2,600. 626/744-9892.

SIERRA MADRE apt., 2 bd., 1 ba., 6 unit bldg, walk to village, new carpet, paint, carport, \$850. 626/355-7318.

SOUTH PASADENA, studio apt, fully furn., 1718 Huntington Dr. betw. Marengo and Milan Sts., utilities paid, car space, laundry, non-smoker, no pets, \$750. 626/792-9053, Marilyn or Ray.

SYLMAR house, 4 bd. and office, 3 ba., 3-car garage, contemporary, newer, modern style, air/heat, high ceilings/large yard/cul de sac, w/d hookups, cable, phone jacks, 20 min. drive to JPL, \$2,250 + \$1,500 deposit. 790-2489 or 213/840-8421, cell.

TUJUNGA, unfurnished room in 3 bd., 1 ba. home with pool, washer/dryer, all utilities paid, kitchen privileges, no pets, \$500. 353-1734.

Vacation Rentals

BIG BEAR LAKEFRONT, luxury town home, 2 decks, tennis, pool/spa, beautiful master bd. suite, sleeps 6. 949/786-6548.

CAMBRIA, ocean front house, sleeps up to 4, excellent view. 248-8853.

HAWAII, Kona, ocean front on Keauhou Bay, house and guest house comfortably sleep 6, 3 bd., 2 ba., rustic, relaxing and beautiful, swimming, snorkeling, fishing, spectacular view, near restaurants, golf and other attractions. 626/584-9632.

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., 4/15-12/14 \$105/nite/2, 12/15-4-14 \$120/nite/2, \$15/nite/add'l person. 949/348-8047 or jackandrandy@cox.net.

MAMMOTH Courchevel, fully equipped unit, 2 bd., 2 ba., sleeps 6, a short walk to Canyon Lodge and ski lifts. 661/255-7958.

MAMMOTH, Snowcreek, 2 bd., 2 ba., + loft, sleeps 6-8, fully equipped kitchen incl. microwave, D/W, cable TV, VCR, phone, balcony w/view to mtns., Jacuzzi, sauna, streams, fishponds, close to Mammoth Creek, JPL discount. 626/798-9222 or 626/794-0455.

OCEANSIDE condo, fully furn., 2 bd., 2 ba., fireplace, full kitchen; quiet, relaxing, beautiful beachside setting w/BBO, pool, spa, game rm.; great ocean view, easy walk to pier and restaurants; sleeps 6, weekly or monthly. 909/981-7492 or dphauge@yahoo.com, Darlene.

OCEANSIDE, on the sand, charming 1 bd. condo, panoramic view, walk to pier & harbor, pool/spa, game rm., sleeps 4. 949/786-6548.

PACIFIC GROVE hse, 3 bd., 2 ba., f/p, cable tv/vcr, stereo/CD, well eqpd. kitch. w/microw, beaut. furn, close to golf, beaches, 17 Mile Dr., Aquarium, Cannery Row, JPL discnt. 626/441-3265.

PARIS, duplex apt. in elegant new building in central Paris, available by the month, elegantly furnished, beautifully equipped kitchen, sleeps 2, walking distance to everything yet completely quiet. 626/792-5942.

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.

SAN FRANCISCO, Nob Hill honeymoon suite, sleeps 2 max, full kitchen, maid, concierge, reserve early, \$125/nite, 750/week. 626/254-1550.