

# Next Mars orbiter arrives at Cape

By Guy Webster

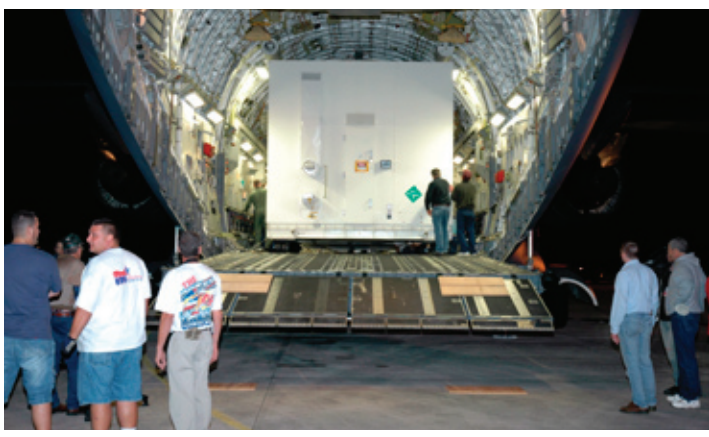
One of two containers with Mars Reconnaissance Orbiter equipment is prepared for removal from an Air Force C-17 cargo plane at Kennedy Space Center.

A large spacecraft destined to be Earth's next robotic emissary to Mars has completed the first leg of its journey, a cargo-plane ride from Colorado to Florida in preparation for an August launch. NASA's Mars Reconnaissance Orbiter is an important next step in fulfilling NASA's vision of space exploration and ultimately sending human explorers to Mars and beyond.

The spacecraft's prime mission will run through 2010. During this period, the project will study Mars' composition and structure, from atmosphere to underground, in much greater detail than any previous orbiter. It will also evaluate possible sites for future martian landings and will serve as a high-data-rate communications relay for surface missions.

"Great work by a talented team has brought Mars Reconnaissance Orbiter to this milestone in our progress toward a successful mission," said Project Manager Jim Graf.

The spacecraft arrived at Kennedy Space Center's Shuttle Landing Facility on April 30 aboard a C-17 cargo plane and was taken to the Payload Hazardous Servicing Facility to begin processing. It was built near Denver by Lockheed Martin Space Systems. Launch is scheduled for Aug. 10 at 4:53:58 a.m. PDT, at the opening of a two-hour launch window.



Kennedy Space Center

The spacecraft will undergo multiple mechanical assembly operations and electrical tests to verify its readiness for launch. A test this month will verify the spacecraft's ability to communicate through Deep Space Network tracking stations. A June test will check the deployment of the spacecraft's high-gain communications antenna. Another major deployment test will check out the spacecraft's large solar arrays.

In July, the spacecraft will be filled with hydrazine fuel for the "Mars orbit insertion" engine burn, which will be used to reduce the velocity of the spacecraft and place it in orbit around Mars. The fuel also will be used for attitude-control propellant. On July 26 the Mars Reconnaissance Orbiter will be encapsulated in the Atlas V fairing prior to being moved to its launch site on Cape Canaveral Air Force Station.

The Lockheed Martin Atlas V arrived at Cape Canaveral Air Force Station aboard an Antonov cargo plane on March 31 and was taken to the high bay at the Atlas Spaceflight Operations Center. The Atlas booster will be transported in May to the Vertical Integration Facility at Space Launch Complex 41 to be erected. The Centaur upper stage will be transported to that facility for hoisting atop the booster in June.

Prelaunch preparations will include a "wet dress rehearsal" in July, during which the Atlas V will be rolled from the Vertical Integration Facility to the launch pad on its mobile launch platform. The vehicle will be fully fueled with RP-1, liquid hydrogen and liquid oxygen, and the team will perform a simulated countdown. The Atlas V will then be rolled back into the Vertical Integration Facility for final launch preparations.

The Mars Reconnaissance Orbiter will be transported from the Payload Hazardous Servicing Facility at Kennedy Space Center to the Vertical Integration Facility on July 29. It will be hoisted atop the launch vehicle to join the Atlas V for the final phase of launch preparations. The spacecraft is scheduled to undergo a functional test on August 1, followed by a final week of launch vehicle and spacecraft closeouts.

Information about Mars Reconnaissance Orbiter is available online at <http://marsprogram.jpl.nasa.gov/mro>.

# Mars Express instrument ready to go

Radar will search for underground water

The European Space Agency's Mars Express orbiter will this month deploy its radar instrument for the first time. The instrument is designed to look below the surface of Mars for different layers of material, most notably water.

Once the deployment is successful, the Mars Advanced Radar for Sub-surface and Ionosphere Sounding (Marsis) instrument will complement the orbiter's study of the planet's atmosphere and surface. The instrument was funded by NASA and the Italian Space Agency and developed by the University of Rome, Italy, in partnership with JPL.

The instrument's co-principal investigator, JPL's Dr. Jeffrey Plaut, said, "We look forward to the start of the Marsis experiment, and to becoming full partners in the mission of discovery that is Mars Express. The radar gives us two ways to explore the fate of the water that once flowed on the surface of Mars. We will probe beneath the surface for evidence of frozen or liquid reservoirs, and we will study the outer fringes of Mars' atmosphere, where the planet may have lost its water to space."

The deployment of the three radar booms will take place in three phases, in a window spanning from May 2 to 12. These operations will be initiated and monitored from the European Space Agency's European Space Operations Centre in Darmstadt, Germany. Each boom will be deployed separately, with the two 20-meter-long (66-foot-long) dipole

booms to be unfurled first and the 7-meter (23-foot) monopole boom to follow a few days later.

Before each deployment, the spacecraft will be placed in a "robust" attitude control mode, which will allow it to tumble freely while the boom extends before regaining standard pointing to the Sun and Earth.

The result of each deployment can be assessed only after a series of tests, each taking a few days. After the deployment of the three booms, European Space Agency engineers will start the analysis of the complete behavior of the satellite to be able to confirm the overall success of the operation. The current schedule is subject to change, due to the timing and nature of the complex series of operations.

Once deployment is complete, Marsis will undergo three weeks of commissioning before the start of actual science investigations. This timing coincides with the spacecraft's orbit reaching a favorable position to examine one of the prime targets for radar observations.

JPL's Richard Horttor, project manager for NASA's roles in Mars Express, said, "The first data from the radar next month will signal the success of an innovative international partnership." Italy provided the instrument's digital processing system and integrated the parts. The University of Iowa built the transmitter for the instrument, JPL built the receiver and Astro Aerospace, Carpinteria, Calif., built the antenna.

# Kids have their day

About 600 attend Take Our Children to Work Day April 28



Youngsters participate in a starfinder activity that will allow them to find constellations in North America. Greg Neat's daughters Rita (left) and Abbey are joined by Rachel Wolf and her dad Aron.



Maura Rountree-Brown shows Jewelina Murrell how the Deep Impact mission will work.

Photos by Richard Hasegawa, JPL, Photolab



News Briefs



Dr. Jakob van Zyl

Van Zyl named to head directorate

DR. JAKOB VAN ZYL has been appointed director of the Astronomy and Physics Directorate, effective June 1. He will replace the retiring LARRY SIMMONS.

Most recently the deputy director for Astronomy and Physics, van Zyl joined JPL in 1986 and held positions of increasing responsibility in the Synthetic Aperture Radar Program. Van Zyl also managed the Radar Science and Engineering Section, the Earth Science Flight Missions and Experiments Office and the Focused Physical Oceanography and Solid Earth Program Office.

Van Zyl received a Hons. B. Eng. degree cum laude in electronics engineering from the University of Stellenbosch, Stellenbosch, South Africa. He received both his master's and doctorate in electrical engineering from Caltech.

Reorganization for Office 107

JPL Deputy Director EUGENE TATTINI has announced a reorganization of the Office of Legislative and International Affairs (Organization 107).

Previously, the office, managed by DR. RICHARD O'TOOLE, was responsible for:

Legislative Affairs, including congressional outreach, research and tracking of legislation and budgets, legislative and international visits, and foreign travel processing; and

Export Compliance, including export licensing of technology and technical assistance, release of controlled technical information/technical assistance and due diligence auditing, and immigration (foreign nationals, visas, etc.).

Effective April 25, the Export Compliance function was reassigned to the Office of the Management System (Organization 108). OLGA KING will continue as the JPL Export Compliance manager and Empowered Official and will report to DR. JERRY SUITOR, manager of Organization 108. This reorganization strengthens the role of export compliance at the Laboratory, Tattini said.

O'Toole will retain management of the Office of Legislative Affairs, focusing on JPL's interactions with local, state and federal government entities and agencies. Legislative and international visits and foreign travel processing will be reassigned to the Office of the Director, reporting to GAIL ROBINSON.

190 Cafe to reopen in June

Following six months of construction, the 190 Cafe will be re-open for business on Monday, June 6.

The cafe menu will include freshly made pizzas, a wide variety of grill items, hot entrees, a soup and salad bar, made-to-order sandwiches, and pre-packaged sandwiches and salads.

The cafe will be open from 6:30 to 10:30 a.m. for breakfast, 11 a.m. to 1 p.m. for lunch and 1 to 3 p.m. for coffee break.

For more information, call BONNIE GERSZT, ext. 3-6519.

CEC to have arts summer camp

The JPL/Caltech Child Educational Center is offering a performing arts camp this summer. Two sessions will be available in August, with each session lasting two weeks.

The camp will provide an extensive experience that includes each child's full participation in choosing, creating, writing, producing and performing each play for the program and local community.

The CEC also offers an enriching and diverse summer camp program from June 20 to Aug. 25 that includes swimming, sports, arts and crafts, science activities, creative writing, music and gardening. Planned educational field trips include the Discovery Science Center, Natural History Museum and Adventure Playground. The program offers a high ratio of adults to children and highly qualified and professional staff.

For more information, contact LISA DORST or ERINN JOHNSON at ext. 4-3418 or e-mail [ldorst@caltech.edu](mailto:ldorst@caltech.edu).

Sixty-nine days before it gets up-close-and-personal with a comet, NASA's Deep Impact spacecraft successfully photographed its quarry, comet Tempel 1, from a distance of 64 million kilometers (39.7 million miles).

The image, the first of many comet portraits it will take over the next 10 weeks, will aid Deep Impact's navigators, engineers and scientists as they plot their final trajectory toward an Independence Day encounter.

"It is great to get a first glimpse at the comet from our spacecraft," said Deep Impact Principal Investigator Dr. Michael A'Hearn of the University of Maryland. "With daily observations beginning in May,

Tempel 1 will become noticeably more impressive as we continue to close the gap between spacecraft and comet. What is now little more than a few pixels across will evolve by July 4 into the best, most detailed images of a comet ever taken."

The ball of dirty ice and rock was detected on April 25 by Deep Impact's medium-resolution instrument on the very first attempt. While making the detection, the spacecraft's camera saw stars as dim as 11th visual magnitude, more than 100 times dimmer than a human can see on a clear night.

"This is the first of literally thousands of images we will take of Tempel 1 for both science and navigational purposes," said JPL's Keyur Patel, the Deep Impact deputy program manager. "Our goal is to impact a one-meter long (39-inch) spacecraft into about a 6.5-kilometer wide (4-mile) comet that is bearing down on it at 10.2 kilometers per second (6.3 miles per second), while both are 133.6 million kilometers (83 million miles) away from Earth. By finding the comet as early and as far away as we did is a definite aid to our navigation."

Deep Impact is comprised of two parts, a "flyby" spacecraft and a smaller "impactor." The impactor will be released into the comet's path for a planned high-speed collision on July 4. The crater produced by the impact could range in size from the width of a large house up to the size of a football stadium and from 2 to 14 stories deep. Ice and dust debris will be ejected from the crater, revealing the material beneath.

The Deep Impact spacecraft has four data collectors to observe the effects of the collision—a camera and infrared spectrometer comprise the high resolution instrument, a medium resolution instrument, and a duplicate of that camera on the impactor (called the impactor targeting sensor) that will record the vehicle's final moments before it is run over by comet Tempel 1 at a speed of about 37,000 kilometers per hour (23,000 mph).

The overall Deep Impact mission management for this Discovery-class program is conducted by the University of Maryland; project management is handled by JPL. The spacecraft was built for NASA by Ball Aerospace & Technologies Corporation, Boulder, Colo.

To view the comet image, visit [www.nasa.gov/deepimpact](http://www.nasa.gov/deepimpact).

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.

Tuesday, May 10

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

Wednesday, May 11

"Are There Really Atoms? What Einstein Showed Us In 1905"—John Norton, professor and chair of the department of history and philosophy of science at the University of Pittsburgh, will deliver this free lecture at 8 p.m. in Caltech's Beckman Auditorium. For more information, call (626) 395-4652 or visit [www.events.caltech.edu](http://www.events.caltech.edu).



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

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](http://www.jplcaltechtostmasters.com).

Fri.-Sun., May 13-15

"Brain, Mind and Consciousness"—The Skeptics Society Annual Conference will include lectures in Caltech's Beckman Auditorium, following Friday evening magic and party and Sunday brunch at Pasadena's Westin Hotel. To register, visit [www.skeptic.com](http://www.skeptic.com) or call (626) 794-3119.

Saturday, May 14

Folk Music—The Scottish quintet Old Blind Dogs will appear at 8 p.m. in Caltech's Dabney Lounge. Tickets are \$15 for adults, \$5 for children under 12. For more information, call (626) 395-4652 or visit [www.folkmusic.caltech.edu](http://www.folkmusic.caltech.edu).

Sunday, May 15

Caltech Women's Club Spring Family Potluck—Join club members from 4 to 7 p.m. at Tournament Park. The club will provide the plates, utensils, napkins and drinks; just bring your family and a potluck dish to share. For more information, call Nancy Hewett at (626) 793-2535 or e-mail [nancyhewett@earthlink.net](mailto:nancyhewett@earthlink.net).

Monday, May 16

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

Wednesday, May 18

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.

"Thirty Thousand Years of World Rock Art"—Anthropologist Dr. Jean Clottes will speak at 8 p.m. in Caltech's Beckman Auditorium. Tickets are \$12. For more information, call (626) 395-4652 or visit [www.events.caltech.edu](http://www.events.caltech.edu).

Wed.-Thurs., May 18-19

Investment Advice—TIAA/CREF will offer one-on-one counseling in T1720. For an appointment, visit [www.tiaa-cref.org](http://www.tiaa-cref.org) or call (949) 809-2614.

Thursday, May 19

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

JPL Stories—Huygens systems engineer Shaun Standley of the European Space Agency will present "Hitchhike to Titan: Huygens' Journey to the Shrouded Moon" at 4 p.m. in the Library, Building 111-104. Come hear about Huygens' journey to Saturn aboard the Cassini orbiter, the probe's troubles along the way, the spectacular, historic descent through Titan's clouds, the moment of relief when Huygens phoned home, a moon with wet weather and being a "foreign devil" at JPL. If you have questions about the JPL Story series or wish to participate, call Teresa Bailey at ext. 4-9233.

Thu.-Fri., May 19-20

Von Kármán Lecture Series—Mars Exploration Rover Project Scientist Dr. Joy Crisp will present "Spirit and Opportunity: Field Geology on Mars" 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/may05.cfm](http://www.jpl.nasa.gov/events/lectures/may05.cfm). For more information, call Public Services at ext. 4-0112.



Friday, May 20

Caltech German Language Film Series—The 1997 film "Comedian Harmonists" will be shown at 7:30 p.m. in Baxter Lecture Hall. An uplifting story from pre-war Germany that begins in 1927 and ends in 1934, it deals with the members of a great vocal group and the impact of the Nazis on their lives. They deluded themselves that their fame would protect them. Free admission and reception after the movie. For more information, e-mail [aebi@hss.caltech.edu](mailto:aebi@hss.caltech.edu).

Tues.-Fri., May 24-27

2005 AVIRIS Earth Science and Applications Research Workshop—To be held at Pasadena's Hilton Hotel, 168 S. Los Robles Ave., from 8 a.m. to 5 p.m. Registration and agenda are available at <http://aviris.jpl.nasa.gov>. For more information, call Sharis Dilanchian at ext. 4-2605.

Correction

An article in the April 22 issue of the Universe misspelled the name of a winner of the One NASA Peer Award, Farrokh Shoar. Universe regrets the error.



# Explore. Discover. Understand. May 14–15

## JPL Open House

Share JPL’s “Spirit of Exploration” at the annual Open House, scheduled for Saturday and Sunday, May 14 and 15, from 9 a.m. to 5 p.m.

Visitors will go behind the scenes to learn about the Lab’s myriad missions to study the solar system, the universe and our home planet.

Guests will be able to talk with scientists and engineers working on JPL missions, and find out how spacecraft are sent to other planets. Visitors will see exhibits, displays and presentations about new technologies, solar system exploration and spacecraft communication. Spacecraft models will be on display and movies will highlight the excitement of the

Cassini–Huygens mission to Saturn and the upcoming Deep Impact mission to a comet.

The Open House is a fun and educational event for children too, with planetary puzzles and games, science projects and the chance to get rolled over by a rover. High school students will display robots they built for regional and national competitions.

In addition to the theme descriptions below, visitors may also find activities by location. Areas open to the public will be color-coded in the Open House program to show areas of interest that are close together. Here’s a sampling of what’s coming up:

It’s not too late to help make this Open House an even greater event. If you can volunteer a half-day, full day or both days, call Public Services at ext. 4-0112.

### General Information and Security

Several buildings will be used as display venues. However, individual offices are off limits to visitors and family members. Please do not take visitors or family members into areas that are not specifically designated as venues for Open House exhibits. Exhibits venues will be in buildings 167, 168, 169, 170, 179, 180, 186, 230, 249, 303 and 317. Prior to the event please lock office doors and properly secure sensitive items, equipment and material to prevent theft, damage or disclosure. In addition, personnel should challenge anyone without proper identification in closed buildings and report the incident immediately to JPL Security (4-3530).

The requirement for guests to board buses to get to the Main Gate has been eliminated, which will help in reducing traffic delays, reduce congestion at Turnaround Circle and the Main Gate, and eliminate waiting in line for bus service.

Guests will be directed to park in the West, Blue, East and Arroyo lots. The Blue Lot will be re-configured for off-Lab and will be accessed from the West Lot. The Visitor Lot will be reserved for disabled guest parking.

To help visitors get on Lab, there will be three additional pedestrian entry points, for a total of four, with pedestrian pathways to direct the foot traffic. These entry points will be at the Main Gate, east of Building 277 at Mariner & Explorer via the East Gate, west of Building 300 at Mariner via Arroyo Lot, and west of Building 126 at Explorer and Pioneer Road. Each entry point will be staffed by uniformed Security and Public Services greeters.

Personnel with a JPL badge may park on-Lab but must drive through the South Gate. Please park in lots located north of Explorer Road to maximize guest parking. The Main Gate will be restricted to outbound tour buses and emergency vehicles only.

Additional security measures will be in place. Specifically, all vehicles, persons and possessions will be subject to inspection. Prohibited items include backpacks, ice chests, alcohol, controlled substances, weapons, dangerous devices, explosives, skateboards, skates, roller blades and pets (except guide animals).

In case of an emergency, from an on-Lab phone, dial 911; from cell

phones, dial (818) 393-3333. For non-emergency assistance, from an on-Lab phone, dial 4-3530; from cell phones, dial (818) 354-3530.

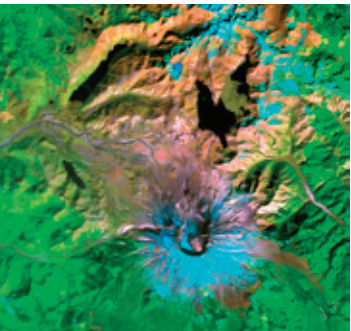
### Earth

#### Image Processing

See 3-D and stereo images and animations from the Multi-angle Imaging SpectroRadiometer, a unique nine-camera instrument onboard NASA’s Terra satellite.

#### Earth Science

See your home planet through the eyes of JPL’s armada of satellites and instruments, which continuously study Earth’s land, seas and sky.



### Solar System

#### “Night of the Comet” Video

After a half-year, one-way, 268-million-mile voyage, Deep Impact reaches comet Tempel 1 at the speed of 23,000 mph on July 4.

#### “Ring World” Show

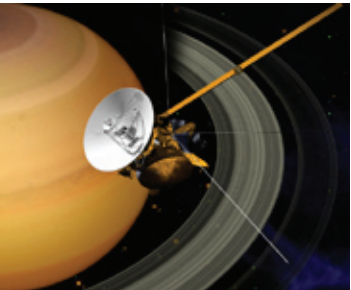
A multimedia presentation about the Cassini–Huygens mission to Saturn and Titan.

#### Deep Space Operations

Visit the “hub” of all communications with spacecraft exploring our solar system.

#### Solar System Exploration

Solar system missions to Saturn, comets and beyond, plus revolutionary technology and communications that would enable the future of solar system exploration.



### Technology



#### FIRST Robotics Demonstration

High school robotics teams compete with their own robots as part of the For Inspiration and Recognition of Science and Technology program.

#### Spiderbot

Experience the expertise of JPL’s robotics engineers as they demonstrate Spiderbot, which can walk and climb as a real spider would.

#### Multimission Image Processing Laboratory

View space science data processing, animations and 3-D images.

#### Cutting-Edge Technologies, New Methods

See the latest in lasers, thermal electric conversion, artificial intelligence systems and robotic technologies. Learn about mission safety, quality assurance and launch services that pave the way for space exploration. Keeping a sharp technological edge is the key to successful future missions and instruments. Developing unusual advanced technologies is one of the most exciting pursuits at JPL.

### Mars

#### Mars Reconnaissance Orbiter

See a half-scale model of the spacecraft, a one-tenth-scale model of the Atlas launch vehicle and full-size models of several science instruments.



#### Mars Exploration

Visit Mars, where friendly martians will roll rovers over small earthlings and teleport the latest images and discoveries from Mars to you.

### Institutional Activities

#### Education Office

Learn about activities of the JPL Education Office that benefit students, teachers and lifelong learners in the local community.

#### “Spirit of Exploration” Show

A multimedia presentation celebrating JPL’s most recent accomplishments—from landing on Mars to Cassini’s arrival at Saturn.

#### NASA’s Groundwater Cleanup at JPL

Displays and materials describe NASA’s projects to clean up groundwater beneath JPL and areas to the east of JPL.

#### Spacecraft Assembly Facility

Visit High Bay 2, the largest clean room at JPL. This class-10,000 hardware assembly and test area provides a superclean environment and supports a number of JPL projects.

#### Spacecraft Fabrication Facility

Learn about spacecraft fabrication and how mechanical, developmental and flight hardware is made for JPL programs and projects.



### Universe

#### Night Sky Network Telescope Station

Experience the wonders of the universe.

#### Universe Plaza

See how NASA is exploring the universe, from discovering new planets to investigating stars, black holes and distant galaxies.





# Cassini finds particles near Enceladus

The Cassini spacecraft has discovered intriguing dust particles around Saturn's moon Enceladus. The particles might indicate the existence of a dust cloud around Enceladus, or they may have originated from Saturn's outermost ring, the E-ring.

“We are making measurements in the plane of the E-ring,” said Dr. Thanasis Economou, a senior scientist at the University of Chicago's Enrico Fermi Institute. Economou is the lead researcher on the high rate-detector, part of a larger instrument on Cassini called the cosmic dust analyzer. “It will take a few more flybys to distinguish if the dust flux is originating from the E-ring as opposed to a source at Enceladus.”

Enceladus is rapidly becoming a very interesting target for Cassini—so much so that scientists and engineers are planning to revise the altitude of the next flyby to get a closer look. Additional Cassini encounters with Enceladus are scheduled for July 14, 2005, and March 12, 2008. The July 14 flyby was to be at an altitude of 1,000 kilometers (620 miles), but the mission team now plans to lower that altitude to about 175 kilometers (109 miles). This will be Cassini's lowest-altitude flyby of any object during its nominal four-year tour.

## Passings

Retiree **RON BURNS**, 61, died April 11.

Burns was a digital electronics engineer in Division 38 from 1977 through his retirement in 1997. He contributed to many projects, including the MOPS (Multispectral Observation of Pollutants System) airborne experiment, the UARS (Ultraviolet Atmospheric Research Satellite) space shuttle experiment, and the Galileo NIMS (Near Infrared Mapping Spectrometer) instrument. He is credited with reprogramming NIMS and along with others the Galileo spacecraft software in flight to enable the successful transmission of science data after the failure of the Galileo high-gain antenna deployment.

Burns is survived by his brother, Carl, sister Susan Bernstein and their families. A memorial was held in West Hollywood.

## Classifieds

### For Sale

BABY ITEMS: Trail King jogger w/bigger wheels for rough roads, easy folding for travel; wooden crib w/mattress; portable crib w/mattress; solid ash changing table top; high chair; photos avail., make offer. 626/398-7504.

CAMCORDER, Sony DCR-HC40E PAL MiniDV, bought for Christmas '04, used so little it's like new, in original box w/all manuals, bought for \$700, sell for \$450. 885-6317, Peter\_Peng\_888@hotmail.com.

CHILD CARRIER, Graco Chauffeur travel system, car seat, base and stroller, w/cold weather boot, light blue, cream & gray color, \$70. 626/394-9629.

CRIB and changing table/dresser, Simmons, blond maple, beautiful condition, \$200. 626/794-1621, evenings before 8 p.m.

DISHWARE: dishes, stoneware, Victoriana pattern, 5-piece place setting for 8, includes: dinner plates, salad plates, soup/cereal bowls, cups and saucers; serving pieces include salt/pepper set, sugar/creamers, butter dish, gravy boat w/stand, oval platter, 2 serving bowls, casserole dish w/cover, and beverage server; all pieces in original box and in exc. cond., \$75/obo. 626/791-7645.

DODGER TICKETS: 2 seats in Field 48 row K from season ticket package, most games available, \$23 per ticket. 626/818-3146, thegoodson@gmail.com.

DOGS, 2 male pure Chihuahuas, one is white w/freckles, 2 mo. old, will be full size, very playful & loves kisses, \$250; second is white/tan, hazel eyes, 2 mo. old, will be 3.5–4 lbs., very small w/big personality, \$650; can be bought separately. 626/797-6388.

FURNITURE: plush reclining couch & loveseat, beige, both have 2 reclining seats, middle seat on couch does not recline, 1–1/2 yrs. old, too big for my living room, must sell, \$1,200 for set/obo, can be sold separately, \$700 couch; \$500 loveseat. 626/859-6393, Cheryl.

FURNITURE: dining room table w/3 leaf extensions, 6 chairs & china hutch, cherry wood, \$800; sofa \$200; washer/dryer, Maytag, \$250; refrigerator, Amana \$200; 3-piece oak wall unit w/beveled glass upper cabinet doors, \$800. 248-7836.

FURNITURE: kitchen table, forest green tile & dark wood top, w/1 expansion leaf & 4 matching chairs, gd. cond., \$150; white leather desk w/matching chair, leather is inlaid on top, good condition, slightly discolored due to age, was my mother's childhood desk, e-mail for pics, \$150. nicksmomkelly@yahoo.com.

FUTON, frame & cushions, \$40. 626/794-1621, evenings before 8 p.m.

GAZEBO, redwood, 18' x 14', w/bar and 4 bar stools, you disassemble & haul, must sell, \$200/obo. 626/918-0822. 9 a.m.-4 p.m.

GPS navigation unit, Garmin Street Pilot, black, rectangular, about 4" x 7", sets on base or portable, 2 3/8" x 3.5" screen, batteries or auto power, unit includes: A/C and 12V pwr. cables, antenna w/6 ft. cable, PC serial port cable w/GPS input plug, one 64 MB data card, US & WorldMap software, exc. cond., 4 yrs new, \$400. 626/963-5727.

HAT, Western Stetson, size 7–1/2, light tan, cost \$180 new, doesn't fit, sell for \$45. 248-5282.

INVERSION TABLE, Hang Ups F5000III, hang upside down for back relief, like new, paid \$300, used 10 times, sell for \$175/obo. 626/577-2882.

JEWELRY: ladies new Coach Metropolitan brown leather strap watch, \$50; 14K tri-color gold diamond cut bracelet, \$140; 14K two-

sided 18" diamond cut necklace, \$180. 653-9037.

KEYBOARD, Casio CT655, 61-key "tone bank," built-in tones, rhythms, 140 presets, memory, line-out, Midi, perfect cond., \$40/obo. 310/804-1858.

MISC: logging chain, \$5; come-along chain, compresses fences, metal, etc, \$10; wig, red, shoulder length, never used, \$20; portable basketball set, adjustable, needs net, \$200; fishing pole, saltwater, \$25; baseball glove & conditioner, small, good cond., \$15; small food chopper, \$5; landscape oil painting, autumn tones, \$100; antique cedar chest, lid needs repair, \$75; trash can w/wheels, \$5. 626/357-8210.

MISC: beautiful 3-piece entertainment center, lots of storage, \$1,250; oak hutch w/glass doors; \$450, both in exc. cond., push lawn mower, \$20; southwest-style end tables & coffee tables w/glass tops, \$25/ea. 626/351-9641, Bettyrs@earthlink.net.

MISC: rowing machine, Kettler Coach, like new, \$300/obo; tabletop stereo system, Yamaha, \$100/obo; turntable system, Denon, \$60/obo; two cordless phones, Siemens, 2 GHz, \$50/obo. 626/844-9090, Claudio.

MISC: matching metallic grey DVD & CD racks, 1 of each, brand new, paid \$15 each, sell for \$10 each; green chair & ottoman, folds out to twin size sleeping pad, ottoman has storage space inside, \$75. 626/859-6393, Cheryl.

MUSIC PLAYER, Apple iPod digital audio, 20 GB HD, stores 5,000 songs, pocket-size design just under 0.6" thick, weighs 5.6 oz., supports MP3/MP3 VBR/AAC/Audible/AIFF/Apple Lossless/WAV, up to 12 hrs. continuous playback, lithium-ion battery, recharges fully in 4 hrs. (2-hr. fast charge to 80% capacity), incl. ear bud headphones, AC adapter, FireWire and USB 2.0 cables, brand new, \$270. 790-3899.

NECKLACE, ladies' Paloma Picasso Daisy Pendant, platinum, round brilliant diamonds from Tiffany's., 15 carat total, G color, VS Clarity, 16" chain, paid \$1,395, sell for \$800. 653-9037.

ORGAN, Yamaha 415 electronic console w/13 pedals, 3 keyboards, 144 rhythm patterns, pd. \$7,500, sacrifice for \$2,000; PORT REPLICATOR, for IBM Thinkpad, works with T20, T21, A20, A21, or X, R series, like new, \$85; ULTRA ATA CONTROLLER CARD w/ cable, fits into 32-bit PCI 2.1, or 2.2 expansion slot on motherboard, brand new, \$20. 790-3899.

PHOTOGRAPHER'S KIT, Canon EOS Digital Rebel camera, w/ 18-55 mm and a 28-300 zoom lens, equipped w/matching polarizing filters for each, a 512 MB flash card, Li-ion battery pack, software instructions, disks and a tarmac bag, \$1,500. 957-8926, Mark, 5–9 p.m.; 618-8771, cell/day.

RINGS: 1K diamond anniversary, cleaned and checked every 6 months, gift box included, \$750; 10K diamond, YG, never worn, still in box, \$90. 364-1283 or 272-3262.

TROPICAL PLANTS, plumerias, variety of colors and sizes; shell gingers. 626/444-6156, Annie & Bob DePonte.

WASTEBASKET, white, plastic w/metal guide rail, about 1 x 2 x 3 ft. tall, installs inside kitchen cabinets to hide trash, brand new, in orig. box w/screws for installation, \$40/obo. 626/840-0955, leave msg.

### Vehicles / Accessories

AMIGO BAJA scooter, 3-wheel, heavy duty, senior citizen, w/batteries, charger, and basket, mint condition, \$1,200/obo. 248-3912.

'01 AUDI A6 Quattro, 4.2 V8, 42K mi., great shape, garaged, lease ends May 31, would like to sell for more than the \$26K residual, Blue Book about \$30K. 790-7129, wtkjohnson@mac.com.

'97 AUDI A4 1.8 T 90K, pearl white, auto, clim., stereo, excellent condition, runs great, w/cover, \$6,300. 323/356-3940.

'97 BMW M3 sports pkg., black, 5 speed auto, black leather interior, sunroof, anti-lock wheels, a/c, keyless entry, dual airbags, 4 pics see BMW album under www.phase.com/onegr13byz, \$16,500/obo. 909/626-5679.

'03 GMC Sonoma truck, 3-door extended cab, SLS trim, one owner, auto, 14.5 K mi., ac, power steering, tilt wheel/cruise control, CD player, aluminum wheels, tachometer, heavy duty suspension, white color, excellent cond., under warranty, \$11,995/obo. 952-0047.

'98 HONDA Accord EX Sedan, V6, exc. cond., loaded, champagne, leather, 113K mi., \$8,800/obo. 626/390-8585, jabreid@integrity.com.

'98 HONDA Civic LX, green, 4 dr., 4 cyl., 73K mi., auto, CD player, air, runs well, some body-work needed, \$6,000 firm. 626/825-9965, leave msg.

'89 JEEP Limited, 6 cyl., auto, 4x4, power windows/locks, 5 dr., stereo w/tape, dark gray leather interior, dark burgundy exterior, gold pkg., a/c (not working), cruise, 137K mi., sold as is, my parents bought it new in '89, gave it to me in 2000, \$2,400. 421-3679, Rebecca.

'99 LEXUS RX300, 4WD, emerald green exterior, leather interior, 100% dealer serviced, 1 owner, lots of extras, Nakamichi audio, 6-CD changer, heated front seats, alloy wheels, towing pkg., programmable garage opener, moon/sun roof, 78K mi., \$16,000/obo. 323/257-8640 or microsec@yahoo.com.

'03 NISSAN Sentra GXE, 4d, 24K mi., white, A/C, am/fm/CD, power windows/doors,

Earlier this year Cassini completed two flybys of Enceladus. On Feb. 17, Cassini encountered Enceladus at an altitude of 1,167 kilometers (725 miles). On that date, the cosmic dust analyzer with its high-rate detector recorded thousands of particle hits during a period of 38 minutes. Cassini executed another flyby of Enceladus on March 9 at an altitude of 500 kilometers (310 miles). “Again we observed a stream of dust particles,” Economou said. The largest particles detected measure no more than the diameter of a human hair—too small to pose any danger to Cassini.

Scientists have speculated that Enceladus is the source of Saturn's E-ring, the planet's widest, stretching 302,557 kilometers (188,000 miles). It's possible, the scientists say, that tidal interactions between Enceladus and Mimas, two other moons of Saturn, have heated Enceladus' interior causing water volcanism.

“These measurements are extremely important in order to understand the role of Enceladus as the source of the water ice particles in the E-ring,” said Dr. Ralf Srama, principal investigator of the cosmic dust analyzer science team.

\$10,000. 626/375-4717.

ROOF RACK, Yakima "Railrider," fits Jeep Gr. Ch. '93-'97 only, 48" long, round bars, \$10; ski rack, Yakima, holds 4 pr. skis, lockable, fits any round bar Yakima rack or Jeep Gr. Ch. factory roof rack, \$10. 626/372-4239, Peter.

'86 SAAB 900S hatch, clean, 121,700 k mi., near-new tires, newly rebuilt automatic trans, well maintained, silver with dark violet interior, very reliable, \$2,500. 626/296-0912.

'98 SUBARU Forester L, sport utility, AWD, exc. cond., near perfect paint (white), gray interior, manual 5-spd, ABS, am/fm/cass., a/c, cruise control, dual front airbags, pwr. door/locks/steering/windows, roof rack, tilt wheel, fold-down back seats, rear defogger/wiper, towing, 92K mi., well maintained, moving to NYC, \$9,500. 626/794-9668, Jeremy & Sarah.

TIRES and chains, Firestone Wilderness AT, P225/75R15, nearly new condition, \$10; chains, cable style, never used, fit the following sizes: P235/70-14, P255/60-14, 235/70-15, P225/75-15, P235/75-15, P255/60-15, P245/70-14, 235-15, 255/65-15, P234/70-15, P245/70-15, \$10. 626/372-4239, Peter.

'99 TOYOTA Camry LE sedan, 4 dr., beige, 4-cyl., 67k mi., auto, CD player (w/MP3), exc. cond., \$7,400. yh15@caltech.edu.

'01 TOYOTA AvalonXLS, diamond pearl, exc. cond., loaded, nav. syst., 1 owner, 36K mi., \$18,500. 249-0469.

'01 TOYOTA Corolla CE, manual trans., 4 dr., 43K mi., oil changes only required, white w/minor scratches, tires recently replaced w/4 Michelins, \$7,995. 626/577-2882, Linda.

### Free

CAT, to a good home, neutered male, about 1 year old, tan w/stripes, very friendly & personable. 626/798-3732, Curt or Mary.

CATS, two beautiful indoor females, looking for a good, loving home, ages 10 and 4, color black, very loving & compatible w/one another. 551-9511, Tues.–Saturday, after 2:30 p.m., Robin.

DOG, rescued female, mixed breed, handsome, athletic, very sweet. 626/282-1982, Jeff Sakamoto.

PROJECTOR, JBL model 6810 3 CRT front projection TV, ceiling mount model, can project 5–10' image, as is, was working when last used, pick up only, extra parts also available. tcfs@aprelix.com.

TV, 19" Zenith Space Command color. 626/345-1476, Stacey.

### Wanted

HOUSE TO RENT, military assignee to JPL seeking 4 bd./2 ba, garage, A/C, L.R, DR, FR, SG Valley, good schools a must, June occupancy. 757/877-1779, gehrlcni@aol.com.

ROOM in exchange for house sitting, college student with job in Pasadena available May 21–Aug. 6. 714/840-3688 or 714/504-3688, cell.

SINGER, 20–26 years of age, influences: Sevendust, 311, Deftones. 626/357-8210.

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

TWIN BABY STROLLER, in good condition. 626/577-6773.

VOLLEYBALL PLAYERS, coed, no beginners please, Tues. 8–10 p.m. at Eagle Rock High School, \$4/night. 956-1744, Barbara.

### Real Estate

BELIZE, 5 + acre parcels w/river front, Belize river stretches about 100 ft. in diameter, forming the rear border of the parcels: property is well elevated, ideal for resorts, homes, or small farms; water, electric, city-maintained road, river, huge trees, beauty, and thick jungle make properties a dream come true, from \$20,000–\$50,000, photos avail. 363-9999, jwishard@socal.rr.com, http://belizeland4sale.com.

BELIZE FOREST, 100.1 acres, property has a stream (w/pools and small rock waterfalls), hills, flats, views, thick jungle, good farming soil, land for livestock, access roads, visiting howler monkeys; located in Cayo district near San Ignacio city; could be used as resort, home, or ranch; photos available, \$79,000. 363-9999, jwishard@socal.rr.com, http://belizeland4sale.com.

PASADENA, 1910 home, major fixer, 4 bd., 1 bat., 1,598 sq. ft., 20,000 sq. foot lot, living rm., dining rm., porch, hardwood floors, lg. unfinished attic, fruit trees, 1502 El Sereno Ave., \$599,000 or higher. 626/676-1993.

### For Rent

ALTADENA, large 3 bd., 2 ba., fam., liv., kit., firepl., ceil fans, lots of amenities, close to JPL, gardener incl., avail. Jun 1. 226-6598, gindifrench@yahoo.com.

ALTADENA, fully furnished 1 bd., 1 ba, guest house, ideal for 1 person, hardwood floors, TV/DVD/CD, dinnerware, utensils, pots/pans, bed linens & towels, utilities included, electrical, gas, water, and trash, street parking, no smoking, no pets, month-to-month, \$1,200. 626/791-0317.

MONTROSE, new condos for lease, 3-bed, 3-bath, 1,800 sq. ft., large kitchen, ref, stove, microwave, 2 balconies, 4 units avail., 2,950; 2-bd., 3-ba., 1,600 sq. ft., one unit, \$2,750. 421-1552.

PASADENA, beautiful 2 bd.+ 2 ba., spacious condo, next to Caltech, park-like setting, walk to Lake Ave., huge master suite, large private balcony w/mtn. and tree views, remodeled kitchen w/dishwasher, stove, 2 ovens, and a large fridge w/ice & water disp., laundry facility in complex, lg. pool & spa, \$1,900 + sec. dep., 1-yr. lease preferred. 626/585-9048.

PASADENA, easygoing, non-smoker housemate wanted to rent a small bedroom in a 4-bd. house with central air/heat, fireplace, patio and backyard; privileges include laundry, kitchen and wireless network; within walking distance of JPL (2 blocks); no pets, off-street parking; \$600 + \$300 deposit, utilities included. 626/807-0699, Myr.

PASADENA loft, 1 bd., 1 ba.; the whole upstairs, beautiful view, only garages below; hardwood floors; near Eaton Cyn.; gas stove, fridge, window A/C; cable-ready; private washer/dryer; garage; ~6 mi. from JPL; near bus to JPL; neighbors JPL/Caltech ees; owner pays water, trash, maintains grounds; no dogs, other pets negotiable; nonsmokers only; \$935 + \$1,000 security; avail. -6/11. 626/794-1841, Claire Marie-Peterson.

TUJUNGA house, 8 miles & 12 min. from JPL, beautiful home in very quiet woody area, 1,600 sq. ft., 2 bd., 3 ba. + office/bonus rm., attached 2-car garage & workshop, hardwood floors, central heat & air, fridge, dishwasher, stove, washer & dryer, move-in cond., serene environment, \$2,200 + dep. 352-7892.

### Vacation Rentals

BALBOA ISLAND, cute, 2 bd., 1 ba., fully furnished upstairs apt., covered deck, just steps from the bay on Little Island & short walk to main st., sleeps 5, includes laundry/parking, avail. weekly for summer beginning June 1, \$1,200–\$1,500/week. 626/351-9641, bettyrs@earthlink.net.

BIG BEAR LAKEFRONT luxury townhome, 2 decks, indoor pool/spa, near skiing, beautiful master bd. suite, sleeps 6. 949/786-6548.

CAMBRIA, ocean front home, exceptional white water view, accommodates up to 4 people, all amenities provided. 702/256-1359, ereynolds2@cox.net.

FLORIDA condo, beautifully furnished, 2 br., 2 ba., second floor, on the surf of New Smyrna Beach, half hr. to Cape Canaveral, 90 minutes to Walt Disney World, enjoy all the comforts of home, relaxing, overlooking the beach and the Atlantic, BBQ, pool, game room, easy walk to stores, and restaurants. 760/439-7821, dhnaue@yahoo.com, Darlene.

HAWAII, Maui condo, NW coast, ocean front view, 25 ft. from surf, 1 bd w/loft, compl. furn., phone, color TV, VCR, microwave, d/w, pool, priv. lanai, slps 4, laundry fac., low season rate, \$115/nt/2, high season rate \$130/nt/2, \$15/nt/ea/add'l person. 949/348-8047, jackandrandy@cox.net.

HAWAII timeshares, 1 week, Kauai, Kapaa, 1 bd., sleeps 4, \$90/night; 1 week, anywhere in the world, 1 bd., \$100/night; 2 bd., \$150/night, not avail. after 10/17/05. 364-1283, 272-3262.

JACKSON HOLE, Wyoming, visit Grand Teton and Yellowstone National Parks in style; 2 bd. + loft townhome; totally outfitted, with stunning Teton view; sleeps 6, cable, microwave, etc.; borders Grand Teton Park. connlematt@sbc.global.

LAKE TAHOE: Marriott Timber Lodge in Heavenly Village, studio, king bed, full sofa bed, sleeps 4, microwave, small refrigerator, dishes, coffee make, five blocks from lake, Aug. 5–12, 2005, \$60/night, additional locations avail. 626/794-9579, fivestarresorts@earthlink.net.

MONTREAL condo, RCI Gold Crown Resort @ La Voliere Du Mont Tremblant, 1 bd., full kitchen, max occ. 4, prv. occ. 2, \$600, June 10–17, '05. 626/374-4900, beberts63@hotmail.com.

OCEANSIDE beachfront, lovely 2 bd., 2 ba., single level deluxe w/ fireplace, and white water ocean views, end unit, luxurious gated complex on the sand, w/game rooms, fitness rm., pools, barbecues, and Jacuzzi, 10-min. walk to pier/harbor, sleeps 6, JPL discount. 760/433-4459, http://www.beachvisitors.com.

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

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

UTAH, Park City studio condo, 2 queen beds, indoor & outdoor pool/jac., fitness center, kitchenette incl. small frig/freezer, microwave, stove, toaster, blender, coffee maker, pots/pans, dishes; cable TV, VCR/DVD, phone, balcony. 24-hr. desk, concierge, child care, laundry service, free transportation to ski resorts and downtown Main Street (all within 1–2 miles), JPL discount. garyglass500@charter.net.

WORLD WIDE/LOCAL, five-star vacation resorts, including Marriott and Hyatt, luxurious, residential style studios, w/furnished kitchenette, starting at \$60/night; one bd. with full furnished kitchen and living room, starting at \$96/night. 626/794-9579, fivestarresorts@earthlink.net.

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## CloudSat now at Vandenberg

By Alan Buis

Technicians unload and install the JPL-managed CloudSat spacecraft at Vandenberg Air Force Base.

A JPL-MANAGED SPACECRAFT DESIGNED TO REVEAL the inner secrets of Earth's clouds has arrived at Vandenberg Air Force Base, Calif., to begin final launch preparations.

The CloudSat spacecraft arrived at Vandenberg from Ball Aerospace & Technologies Corp., Boulder, Colo., on May 2. Following final tests, it will be integrated onto a Boeing Delta II launch vehicle, sharing its ride into orbit later this year with another NASA spacecraft, the Cloud-Aerosol Lidar and Infrared Pathfinder Satellite Observation, or Calipso.

CloudSat and Calipso will give us new, 3-D perspectives on Earth's clouds and aerosols that will answer questions about how they form, evolve and affect our weather, climate, water supply and air quality.

CloudSat and Calipso employ revolutionary measurement technologies that will probe Earth's atmosphere as never before. Each spacecraft



transmits pulses of electromagnetic energy and measures the portion scattered back to the instruments. CloudSat's Cloud Profiling Radar is more than 1,000 times more sensitive than typical weather radar. Calipso's polarization lidar instrument can tell the difference between ice and water in clouds, and between liquid and solid aerosol particles. By distinguishing aerosols from ice particles based on combined Calipso and CloudSat data, we will gain new insight into dynamics and properties of clouds and their influence on Earth's radiation balance.

The satellites will be launched into a 705-kilometer (438-mile) circular, Sun-synchronous polar orbit, where they will fly just 15 seconds apart as part of NASA's "A-Train" constellation of three other Earth Observing System satellites.

The usefulness of data from CloudSat, Calipso and the other satellites of the A-train will be much greater when combined. The data will help scientists better understand how sources of local pollution affect air quality, and will improve weather forecasting and climate prediction.

The other three Earth Observing System satellites that make up the A-Train are NASA's Aqua spacecraft; NASA's Aura spacecraft; and the French Space Agency's (Centre National d'Etudes Spatiales) Polarization and Anisotropy of Reflectances for Atmospheric Sciences coupled with Observations from a Lidar, or Parasol, spacecraft.

CloudSat is an international and interagency mission. The CloudSat radar instrument was developed at JPL with hardware contributions from the Canadian Space Agency. Colorado State University provides scientific leadership and science data processing. Other contributions include the U.S. Air Force (satellite on-orbit operations control) and the U.S. Department of Energy (scientific contributions). Ball Aerospace & Technologies Corp. designed and built the spacecraft.

Calipso is being developed through collaboration between NASA and France's Centre National d'Etudes Spatiales. NASA's Langley Research Center, Hampton, Va., is leading the Calipso mission and is providing overall project management, systems engineering, payload mission operations and validation, and processing and archiving of data. Goddard Space Flight Center, Greenbelt, Md., is providing project management and system engineering support, and overall program management for the mission. Centre National d'Etudes Spatiales is providing a Proteus spacecraft developed by Alcatel, the imaging infrared radiometer, payload-to-spacecraft integration, and spacecraft mission operations. The Institut Perre Simon Laplace in Paris is providing the imaging infrared radiometer science oversight, data validation and archiving. Hampton University, Hampton, Va., is providing scientific contributions and managing the outreach program. Ball Aerospace & Technologies Corp. developed the lidar and on-board visible camera.

For more information on CloudSat and Calipso, visit [cloudsat.atmos.colostate.edu](http://cloudsat.atmos.colostate.edu) and [www-calipso.larc.nasa.gov](http://www-calipso.larc.nasa.gov).



## Griffin to visit Lab May 25

MIKE GRIFFIN IS SCHEDULED TO VISIT JPL for the first time in his new role as NASA Administrator on Wednesday, May 25. Griffin's schedule currently includes an overview of JPL's major programs and projects as well as an opportunity to visit with JPLers. Griffin will also hold an all-hands meeting in von Kármán Auditorium in the early afternoon.

Griffin testified before the Senate Subcommittee on Commerce, Justice and Science on May 12, where he presented an overview of NASA's FY 2006 budget.

Over the past year NASA has made great strides in implementing the Vision for Space Exploration and meeting other national priorities, Griffin said. He testified that NASA has adopted a "go-as-you-can-pay" approach toward space exploration, and that several NASA missions and activities will need to be deferred or accomplished in other ways in order to ensure adequate funding for the priorities of the president and the Congress: "NASA cannot do everything that we, and our many stakeholders, would like to accomplish," Griffin said. "Several missions will have to be delayed, deferred or cancelled in order to pay for the missions where the priorities were set by the president and Congress. We have tried to be sensitive to the priorities of the affected research communities, and have listened carefully to their input."

While the proposed budget for NASA currently schedules the space shuttle for retirement in 2010, the next crew-rated vehicle, the Crew Exploration Vehicle, is expected to be ready by 2014. Griffin advocates closing the four-year gap. "The development of space transportation capabilities for human space exploration beyond low-Earth orbit with

the Crew Exploration Vehicle, consistent with the goals of the Vision for Space Exploration, must be accelerated in order to minimize the gap between the space shuttle retirement and the first operational flight of the CEV," he said.

Griffin seeks to balance among planetary science, Earth science, solar physics and astronomy within the overall science program by revisiting the Mars exploration program strategy and mission sequence. Deferring the Mars Science Laboratory is an option in this reassessment.

Griffin stated that in order to service the Hubble Space Telescope and provide for a safe deorbit, NASA will need to defer work on even more advanced space telescopes like the Space Interferometry Mission and the Terrestrial Planet Finder. NASA will also restructure Project Prometheus for space-qualified nuclear systems to support human and robotic missions with clear priorities focused on near-term needs. "The extent of this deferral and an appropriate follow-on strategy for the Origins program is currently under review," he said. "Space nuclear power and propulsion are absolutely essential for future space exploration. However, we must focus our nuclear technology efforts on our highest priorities for near-term needs. NASA will examine alternative nuclear systems—including surface nuclear power, nuclear thermal and nuclear electric systems—to support human and robotic missions. As a result, we are able to restructure Prometheus Nuclear Systems and Technology, which, in the near-term, helps pay for FY 2005 unrequested Congressional items and agency priorities."

JPLers will have the opportunity to ask questions of Griffin at his von Kármán Auditorium talk on May 25. For more details, visit <http://dailyplanet>.

NASA / Bill Ingalls



# News Briefs



James Williams



Dr. Yoseph Bar-Cohen

### Williams gets astronomy honor

For his many outstanding contributions to celestial mechanics, JAMES WILLIAMS of the Space Geodetic Science and Applications Group has won the Brouwer Award, an annual honor bestowed by the American Astronomical Society's Division of Dynamical Astronomy.

The organization cited Williams as "Perhaps the best practitioner of ultra-precise celestial mechanics in the world."

The Brouwer Award was established to recognize outstanding contributions to the field of dynamical astronomy, including celestial mechanics, astrometry, geophysics, stellar systems, galactic and extra-galactic dynamics. The award includes of an honorarium of \$2,000.

Williams joined JPL in 1969. His broad area of research is solar system dynamics—the orbits and rotations of solar system bodies—both theory and data analysis. His major activity has been the modeling and analysis of lunar laser ranging data, which is very precise range data to the moon.

Williams and his colleagues have analyzed lunar laser ranging data for lunar science, relativity, ephemeris, Earth rotation, geophysics and geodesy studies. "A few months ago," he said, "we published a paper with a very accurate test of the equivalence principle and an improved limit on any variation of the gravitational constant. The JPL ephemeris of the moon, as well as the planets, is used by all spacecraft missions."

In addition to working on lunar science, orbit and rotation, Williams has also done extensive work on asteroid orbit evolution and asteroid families, the recognition of the debris of shattered former parent bodies.

A previous Brouwer Award winner from JPL was astronomer MYLES STANDISH.

### Bar Cohen receives honor

DR. YOSEPH BAR-COHEN, senior research scientist and group leader for Nondestructive Evaluation and Advanced Actuators, has been selected by the American Society for Nondestructive Testing to receive the 2006 Research Council Award for Sustained Excellence.

The award award honors Bar-Cohen's many years of excellent technical accomplishments and contributions to the field of nondestructive evaluation.

Bar-Cohen will receive the award at the American Society for Nondestructive Testing's 2006 spring research symposium next March in Orlando, Fla.

Bar-Cohen joined JPL in 1991. He is a Fellow of both the International Society for Optical Engineering and the American Society for Nondestructive Testing.

### Shoar chairs conference

FARROKH SHOAR, a principal in the Electrical Computer Aided Engineering Tools & Technical Development Group, served as chairman of Mentor Graphics' International User Conference, held in April in Santa Clara, Calif.

MIKE SANDER, manager of the Exploration Systems and Technology Office, delivered a keynote address, "Robotic Exploration of Space—Fruits of the First Fifty Years." His talk was summarized in EE Times at <http://www.eetimes.com/news/design/technology/showArticle.jhtml?articleID=162100269>.

The more than 500 attendees from aerospace and defense companies took advantage of technical paper sessions, usability labs, workshops, training, tool demonstrations and a vendor fair.

### Information Providers Fair a success

Twenty-two poster sessions and 10 online demonstrations at the April 28 Information Providers Fair brought together the diverse information resources and services available at JPL.

An estimated 300 JPL staff members attended the event—sponsored by the Library, Archives and Records Section—which provided JPL staff with the opportunity to learn about the 21 participating Lab organizations.

Logistics and Technical Information Division Manager WILLIS CHAPMAN reflected on the theme, "Connecting Knowledge—Celebrating the Power of

Networking. "It is vitally important to work together as an information and knowledge community. When we work together it creates and forms something much bigger, more powerful and meaningful than we could ever imagine or accomplish alone as individuals or as independent organizations working in silos. Working together and networking converts into what I call 'real JPL intellectual capital.'"

For more information about the fair, call SUSAN HENDRICKSON, ext. 4-2883 or TERESA BAILEY, 4-9233.

### After-school project tours Lab

The JPL Education Office hosted 65 leaders of Collaborative After School Project sites in the Los Angeles area on May 4. The visit included a tour of the Lab and presentations of the NASA resources available at JPL.

Presentations included those by DR. PARVIN KASSAIE, manager of the JPL Education Office; PAULA PADILLA of the JPL Educator Resource Center; DORIS DAOU of the Spitzer Space Telescope project; SHARI ASPLUND of the Discovery Programs Office; SHANNON MCCONNELL of Cassini; Rich Alvidrez, JPL Education Office; MAURA ROUNTREE-BROWN, Deep Impact, EVA GRAHAM, minority programs; and LESLIE LOWES, Solar System Education Forum.

The Collaborative After School Project provides training, technical assistance and resource development for school-age care and after-school programs in California. Its offices are at Cal Poly Pomona. For more information about the organization, visit [www.csupomona.edu/casp](http://www.csupomona.edu/casp).

More JPL meetings will be scheduled in September for an additional 70 leaders and a follow-up meeting will occur in January 2006 to evaluate the results of this initiative and the use of NASA education materials.

### 5 new Explorer Schools for JPL

NASA has announced the selection of 50 new Explorer Schools, including five from Southern California that will be partnered with JPL. The Explorer Schools are the heart of a unique educational program that reaches elementary- to high-school pupils in all 50 states, Puerto Rico and the District of Columbia.

The five Southern California schools selected to partner with JPL are 96th Street Elementary and Florence Griffin Joyner Elementary in Los Angeles; Charles Kranz Intermediate in El Monte; Village Academy High in Pomona; Nestle Avenue Elementary in Tarzana and Columbia Elementary in Perris. They join nine other schools that are already partnered with JPL.

Since its inauguration in 2003, the Explorer Schools program has established three-year partnerships annually with 50 schools. The program partners NASA centers with school teams composed of students, teachers and administrators serving grades four through nine from diverse communities across the country. Schools in the program are eligible to receive grants up to \$17,500 over the three-year period to support student engagement in science and-mathematics.

### Weight Watchers orientation May 24

JPL staff are welcome to attend a free orientation for the next Weight Watchers at Work series. Those considering joining are invited to Building 79-16 on Tuesday, May 24, at 11:30 a.m.

The cost for the 14-week series is \$167.30 (based on an \$11.95 charge for each meeting). Checks, cash and the following credit cards are accepted: Visa, MasterCard, Discover or American Express. A three-check payment plan is available for those who sign up on or by May 31. Three checks (dated May 31) for \$55.77 each are collected at the first meeting and are deposited May 31, June 30 and July 30.

JPL and contractor employees are welcome to join the series at any time. Those who join after the first week are required to pay \$12 for each remaining meeting. The total for all remaining meetings is due at the time of enrollment. For more information, visit [eis.jpl.nasa.gov/hr/esr/wellness/watchers.htm](http://eis.jpl.nasa.gov/hr/esr/wellness/watchers.htm).

# 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, May 20

Von Kármán Lecture Series—Mars Exploration Rover Project Scientist Dr. Joy Crisp will present "Spirit and Opportunity: Field Geology on Mars" at 7 p.m. in Pasadena City College's Vosloh Forum, 1570 E. Colorado Blvd. For more information, call Public Services at ext. 4-0112.

### Saturday, May 21

Caltech Ballroom Dance Club—The spring term party will begin at 8:30 p.m. in Avery Hall with a mini-lesson and will continue with dancing. Free admission and refreshments.

### Tues.–Fri., May 24–27

2005 AVIRIS Earth Science and Applications Research Workshop—To be held at Pasadena's Hilton Hotel, 168 S. Los Robles Ave., from 8 a.m. to 5 p.m. Registration and agenda are available at <http://aviris.jpl.nasa.gov>. For more information, call Sharis Dilanchian at ext. 4-2605.

### Wednesday, May 25

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](http://www.jplcaltechtostmasters.com).

"Powering the Planet: Where in the World Will Our Energy Come From?"—Caltech chemistry professor Nate Lewis will give this free lecture at 8 p.m. in Beckman Auditorium. For more information, call (626) 395-4652 or visit [www.events.caltech.edu](http://www.events.caltech.edu).

Volunteer Professionals for Medical Advancement—Meeting at 10:30 a.m. at the Caltech Credit Union, 528 Foothill Blvd., La Cañada.

### Thursday, May 26

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.

"Finding Balance and Life Goals"—Debbi Llata of Organization 7200, a locally recognized inspirational speaker, will lead this participatory one-hour workshop presented by the Advisory Council for Women beginning at 11:30 a.m. in Building 180-101. Got too much going on with time ticking away? Overwhelmed? Have trouble saying no? Or are you a procrastinator? Make sure that time is working in your favor.

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

### Friday, May 27

"Planning for Retirement and Other Goals"—This TIAA/CREF workshop will be offered from 10 to 11:30 a.m. in Building 180-101. It will cover the features and benefit options that are available with TIAA/CREF products used to fund both basic and supplemental retirement plans.

TIAA/CREF Enrollment Meeting—To be held at noon in Building 180-101, this workshop is designed to assist employees newly eligible for the JPL/Caltech retirement plan with selection of investment options and the completion of their enrollment forms.

### Wednesday, June 1

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

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.

Women's Career Panel—The Advisory Council for Women will sponsor a



presentation on project/program/line management at 11:30 a.m. in Building 180-101. Panelists will be Mary Bothwell, ST 8 project manager; Valerie Duval, WISE payload manager; Polly Estabrook, Section 332 deputy manager; Magalene Powell-Meeks, Division 37 manager (left); Kendra Short, Division 35 manager (right); and Kathryn Weld, Cassini Science and Uplink Office manager.

### Thursday, June 2

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

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

# 190 cafe ceremony June 3

The 190 cafe, which began renovation about six months ago, is set to reopen for business at 6:30 a.m. on Monday, June 6. To celebrate the reopening, JPL Deputy Director Eugene Tattini will lead a ribbon-cutting ceremony Friday, June 3, at 2:30 p.m. Cookies and punch will be served.

The updated cafe will be open from 6:30 to 10:30 a.m. for breakfast, 11 a.m. to 1 p.m. for lunch and 1 to 3 p.m. for afternoon break.

Menu items will include freshly baked wood-fired pizza; hearty casserole entrees; a full grill menu including panini sandwiches; made-to-order sandwiches; "grab and go" salads and sandwiches; a salad and soup bar; Hot Express meals; assorted desserts and beverages.



# OPEN HOUSE

## AGAIN A HUGE HIT

An estimated 40,000 people took in JPL's Open House May 14 and 15. Here's a small sample of the action, as captured by Photolab's Dutch Slager.

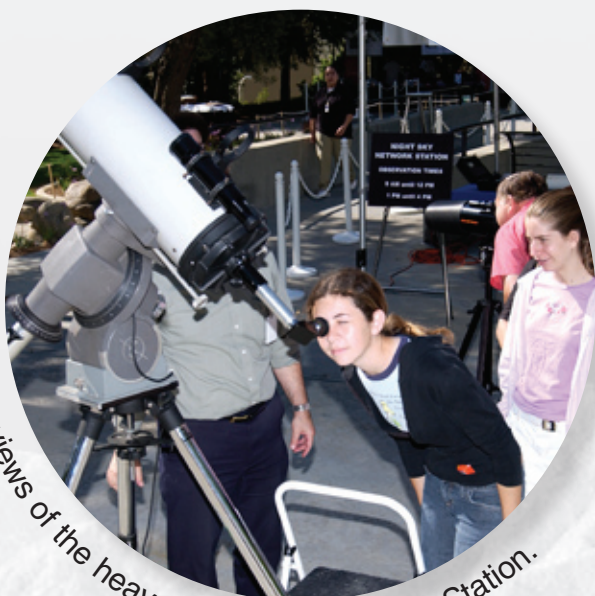
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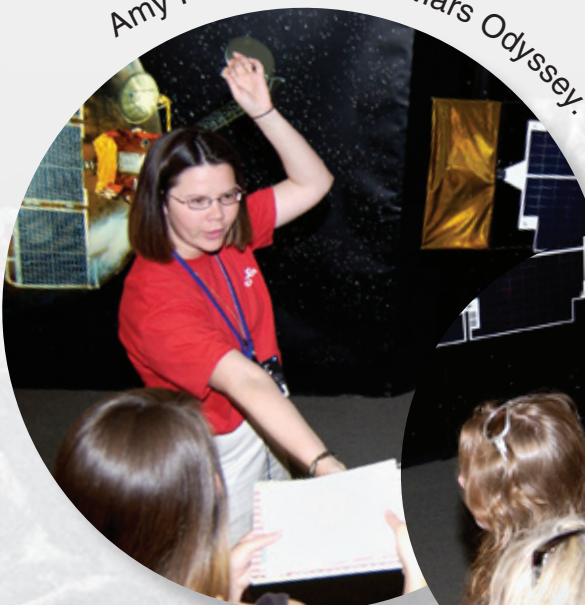
Open House rocks.



Visitors check out a model from Project Prometheus.



Taking in views of the heavens at the Telescope Station.



Amy Hale discusses Mars Odyssey.



Lee Magnone prepares to demonstrate the Mars rover.



Pondering the wonders of technology.



# A few words about Universe advertising

- Universe is not responsible for the quality of merchandise sold or claims made through its ads.
- Ads are for the exclusive use of JPL and Caltech employees, contractors and retirees, and their immediate families.
- Please provide your full name, as well as your home phone number and/or home e-mail address. If applicable, indicate Caltech (campus) employee or retiree.
- Only home phone numbers and e-mail addresses are to be used for items for sale or rent and in the Wanted and Free sections; work extensions may be published for Lost and Found and carpool/vanpool information only.
- No more than two ads of up to 60 words

each will be published for each advertiser.

- E-mail ads to *universe@jpl.nasa.gov*. Ad cards are available at the JPL Store; mail to Building 111-B29.
- No faxes, handwritten ads or photocopies of ad cards are accepted, with the exception of submissions for the Letters column. Also, ads are not taken over the telephone.
- Unless otherwise noted in Universe, the normal deadline is the Monday following publication, at 2 p.m., for the next issue.
- We ask that readers not submit ads for “work sought,” such as babysitting or house-keeping services or other types of private businesses. Also not acceptable are ads for franchises, dealerships, distributorships, etc.,

and products sold through those means.

- Ads for weapons, ammunition, etc. are not accepted.
- Real estate ads (for rent and sale) must be signed on the back of ads (non-discrimination clause). E-mail ads will be returned to advertisers with this clause included for your “electronic” signature.
- Those placing housing and vehicle ads should be listed as an owner on the ownership documents.
- Prices listed on rental ads are shown per month unless otherwise specified.
- Telephone numbers on ads are in the 818 area code unless otherwise specified.

Thank you very much for your compliance.

## Passings

DALLAS BEAUCHAMP, 83, retired from Section 371, died April 28. Beauchamp worked at JPL from 1963 to 1987. He is survived by his son, John, and grandchildren Owen and Quinn. Memorial services were scheduled to be held in Arcadia.

## Letters

I would like to thank my co-workers at JPL, and especially the kind thoughts and prayers I received from people in Section 346. The passing of my dear mother was hard to take, but all you folks made it a little bit easier. The plant arrangement was a very kind thing also. Thank you very much.

Matt Tuchscherer and family

I would like to thank my friends and co-workers at JPL for the wonderful send-off party in von Kármán Auditorium marking my retirement. It was an honor to have so many good folks participating. Thanks to all for the many gifts. We will enjoy them! I have certainly enjoyed all my years at JPL and feel proud to have been associated with all the people who contributed toward JPL's many successful endeavors.

Donald Wetton

## Retirees

The following JPL employees retired in May:

Clifford Heindl, 46 years, Section 3200; John Beedy, 43 years, Section 2724; William Jensen, 41 years, Section 2202; Richard Miller, 38 years, Section 9110; Irma Lopez, 35 years, Section 3115; Kathleen Ulrich, 33 years, Section 2141; Ellen Sherman, 32 years, Section 2142; Mary Reaves, 28 years, Section 352F; Gene Hanover, 23 years, Section 3454; Norma Simpson, 16 years, Section 3114; Eileen Clark, 14 years, Section 3454.

## Classifieds

### For Sale

BABY ITEMS: Baby Bjorn, dark blue, excellent condition, \$69; Medela pump-in-style, exc. cond., \$195; Step 2 townhouse climber with slide, \$85. 626/646-1937.

BEDROOM SET, 1886 antique, four-post double bed, large dresser and dressing table, both with detachable mirrors; bedside table and small rocking chair, make offer. 790-7223.

CAMCORDER: Sony DCR-HC40E PAL MiniDV., bought for '04 Christmas, used so little that it is like new, in original box with all user menus, bought for ~\$700, sell for \$450. 885-6317, Peter\_Peng\_888@hotmail.com.

CEILING FAN w/light fitting, 48", like new, brightly colored, suitable for kid's room, \$50, e-mail for pics: mvozoff@hotmail.com. 272-1994, Max.

CELLULAR PHONE, Nextel i860, exc. cond., no scratches, also includes USB data cable and CD that has thousands of ring tones, wallpapers, games, and applications; great phone for business/personal use; originally \$299, sell \$150. 626/712-4794.

COMPUTER, Compaq Celeron, 633 MHz, 64 MB RAM, 16 GB hard drive, CD-ROM, 56K modem, keyboard, mouse, 15" color monitor, \$150. 626/575-0124.

COMPUTER, brand new Compaq Presario M2010US laptop in unopened box, 512 MB RAM, 15" display, 40 GB hard drive, DVD/CD-RW drive, 802.11g wireless, \$750. 626/241-7084, Steve.

COUCHES, traditional Italian style, sofa, love seat, armchair, great condition, ivory w/small flowers, \$1,000 for three piece. 626/483-9446, cell; 626/564-0590, home, Anna.

CRIB and mattress, Pali "Rebecca" model, beige wood finish, pull-out drawer; Kolcraft "baby supreme" mattress, 280 coils, water resistant, both in perfect cond., \$180. 310/804-1858, Ken.

DOG, male Chihuahua, 3 lbs., 3 mo. old, white/tan, hazel eyes, very cute and playful, \$600, e-mail for pictures: olikaboo@yahoo.com. 323/559-9990.

FRAMED PHOTO: sepia repro, Teddy Roosevelt with John Muir, 1903, simple light oak frame, approx 14" x 18", \$25. 626/449-6799, Lucia.

FRAMED PICTURES: pair of etchings by Sylvia Immel, signed and numbered, simple light oak frame, approx 23" x 30", \$25 each. 626/449-6799, Lucia.

FURNITURE: 42" round kitchen table, forest-green tile & dark wood table-top with 15" expansion leaf, 4 matching chairs, good condition, \$150; white leather desk with matching chair, leather is inlaid on top, good condition, slightly discolored due to age, \$150. nicksmomkelly@yahoo.com for pictures.

LAWN MOWER, push, Murray, 22" blade, 3.8 HP Tecumseh engine, works great, starts first time every time, \$65. 310/489-8308, Peter.

MAGIC MOUNTAIN TICKETS, 4 adult general admission, good for all of 2005, \$20/ea. 626/791-3178.

MISC: Charminglow portable propane gas grill with metal/wood stand, \$100; jogging stroller, original "Babyjogger" brand, royal blue, foldable with 20" wheels, shade cover, \$100; brown wood laminate table for family room, octagonal, 59" x 41", with four matching chairs, \$200. 790-5902.

MISC: fax cartridge, model PC-102RF for Brother fax machines, brand new; \$20; Jenny Craig diet tapes, set of 14, \$25; computer power control center, 5 power switches + 1 master switch, 5 surge-protected outlets + 2 modem/fax/phone jacks, new, \$20; ultra ATA controller card w/cable, fits into 32-bit PCI 2.1 or 2.2 expansion slot on motherboard, brand new, \$20. 790-3899.

MISC: 1K diamond anniversary ring w/gift box, \$750; diamond ring (10K YG) w/gift box, never worn, \$90; ladies auburn/brunette human hair short wig, never worn, \$80. 364-1283.

MISC: sofa, 8' long, light blue floral chintz upholstery, heavy, solid construction, exc. cond., \$200/obo; drapery, matches sofa, floor-length tie-back panels and valance, vg cond., 2 sets, \$60; drapes, loose weave, cream w/pink dots, floor length, 2 sets, \$60, photos available. 909/596-4390.

MISC: dining room table with 6 chairs, 3 leafs and china hutch, cherry wood, \$800; Amana Refrigerator, \$200; Zenith console color TV, \$50. 248-7836.

MISC: 31" television, RCA, exc. cond., \$100; mesquite and leather barstools, pair, \$250; 1850s oak demi-lune table, \$125. 626/864-6495, evenings, Sue.

MISC: logging chain, \$5; come-along chain (compresses fences, metal, etc.), \$10; wig, red, shoulder length, never used, \$20; portable basketball set, adjustable, needs net, \$200; fishing pole, saltwater, \$25; small baseball glove & conditioner, good cond., \$15; small food chopper, \$5; landscape oil painting, autumn tones, \$100; antique cedar chest, lid needs repair, \$75; trash can w/wheels, \$5. 626/357-8210.

MONITOR, Envision EN-910, 19" flat screen, barely used, \$125. 626/797-6982.

MUSIC PLAYER, Apple Ipod digital audio w/20 GB HD, stores up to 5,000 songs, pocket-size design just under 0.6" thick, only 5.6 oz., supports MP3, MP3 VBR, AAC, audible, AIFF, Apple Lossless and WAV, lithium-ion battery provides 12 hrs. continuous playback, recharges fully in 4 hrs., 2-hr. fast charge to 80%, comes w/ear bud headphones, AC adapter, FireWire/USB 2.0 cable, brand new, \$250. 790-3899.

ORGAN, Yamaha 415 electronic console w/13 pedals, 3 keyboards, 144 rhythm patterns, pd, \$7,500, sacrifice for \$2,000; port replica-tor for IBM Thinkpad, works with T20, T21, A20, A21, or X, R series, like new, \$85. 790-3899.

PDA, IPAQ rz1715, exc. cond., Microsoft mobile PC '03, organize, locate, and share photos/videos, play music, etc., comes w/data cable, charger, originally \$275, sell for \$200/obo. 626/712-4794.

RADIAL ARM SAW, Sears/Kraftsman, 10", 2.75 HP, good condition, includes variety of blades, \$50/obo, 730-7596.

RECLINING CHAIR, BarcaLounger type, blue print pattern, excellent condition, \$100. 790-5341.

SPA, Catalina, seats 6-8, great condition, ozone generator for cleanliness, wood needs oiling, gazebo and thermal/security cover included, \$1,500. 626/447-6423.

SPEAKER / PA, Mackie SRM450, 1 yr. old, used for a few gigs, excellent condition, user's manual, \$550/obo. 626/840-0955, mlel@lgo.caltech.edu.

TV, Sony big screen HDTV, 4 years old, exc. cond., paid \$2,200, sell \$700. 395-9631.

WASTEBASKET, metal guide rail, white plastic, about 1' x 2' x 3', tall, for installation inside kitchen cabinets to hide trash, brand new, in original box w/screws, \$40/obo. 626/840-0955, mlel@lgo.caltech.edu.

### Vehicles / Accessories

'97 DODGE Grand Caravan, V6, 3.8L, leather, roof rack, tow pkg., rear a/c, well maintained, 105K mi., \$5,900/obo. 500-0330.

'66 FORD MUSTANG coupe, V8, 289, 4-barrel carb, blue/blue, black plates, always a California car, no accidents, excellent original shape, drives like new, mature owners, beautiful, \$12,500. 626/296-3441.

'99 GMC Jimmy, 4 dr., V6, auto, air, power seats, 88K mi., gray w/gray leather, \$7,400/obo. 427-4138 or 991-7245.

'93 HONDA del Sol Si, manual transmission, removable top, CD, a/c, runs great, all records, green, 174k mi., \$2,800. 626/575-0124, James.

'85 HONDA Civic, automatic, 4-door, \$1,200/obo. 626/345-0969.

'93 JEEP Grand Cherokee, 4.0 L, 6 cyl., 4x4, good shape, white, \$3,800. 957-8463.

'89 JEEP Ltd., 6 cyl., auto, 4x4, power windows/locks, 5 dr., stereo w/ tape, dark gray leather interior, dark burgundy exterior, gold pkg., a/c (not working), cruise, 137K mi., sold as is, parents bought it new in '89, gave it to me in '00, \$2,400. 421-3679, Rebecca.

'94 LEXUS SC-400 sports coupe, black, 79K miles, tan leather interior, exc. cond. inside and out, custom wheels, 12-disk CD player in trunk, automatic, sun roof, rear spoiler, two owners, me for 8 years, \$11,500. 790-6185, Tim Scheck, or tscheck1@mac.com.

'93 NISSAN 300ZX 2-seater, auto, a/c, pw, pd, cc, Bose am/fm/cassette, T-tops, red w/black interior, chrome wheels, new tires, all main-tenance performed, exc. cond., 85K mi., \$7,400/obo. 438-0428 or kniazio1@yahoo.com.

'97 SUBARU Imprezza Outback Sport Wagon, 88K mi., 1 owner, dark metallic green/gray two-tone with gray interior, all-wheel drive, alloy wheels, a/c, power windows/locks, ABS, stereo w/tape, new Dunlop tires, always maintained by dealer/specialists, a few minor dings but good cosmetic condition, \$7,200/obo. 626/796-8210.

TIRES, four, '05 Chrysler 300 Limited original chrome wheels and tires, less than 500 miles, new and self-sealing, bolt pattern 5-115, \$700 total/obo. 626/792-7753.

### Free

TV, JBL model 6810 3 CRT front projection, ceiling mount, can project 5- to 10-ft. image, as is (unit was working when last used), pick up only, extra parts also avail. tcfs@aprelix.com

### Lost & Found

LOST: 3-stone anniversary ring, could be at east parking lot or on walkway from east lot to Trailer 1714; reward guaranteed. Ext. 3-0048 or 952-7062.

### Wanted

GUITARIST, drummer and keyboard/guitarist to form classic/current rock and roll band. 626/272-2341, Dennis or dmanster@hotmail.com.

HOUSE TO RENT, military assignee to JPL seeking 4 bd./2 ba., garage, a/c, LR, DR, FR, SG Valley, good schools a must, June occupancy. 757/877-1779, gehrleinmt@aol.com.

MUSICIANS for rock/blues/folk/jamband/ originals sought by guitarist, 44, jamming in Pasadena/Glendale area, goal is to have fun and make some music. reverb2020@yahoo.com.

ROOM in exchange for housesitting, college student with job in Pasadena avail, May 21-Aug. 6, 714/840-3688 or 714/504-3688, cell.

SINGER, 20-26 years of age, influences: Sevendust, 311, Deftones. 626/357-8210.

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

### Real Estate

ALHAMBRA, newly renovated, 2 bd., 1 ba., 1,200 sq. ft., 5,200 sq. ft. lot, beautiful hw floors, dining rm., living rm., quiet neighborhood, close to shopping, 2929 Terrace Ave., \$499,000. 626/296-2729.

### For Rent

ALHAMBRA, 2 bd., 1 ba., DR, hardwood floors, lg. enclosed yd. w/garage, 25 min. from JPL, \$1,500 + all util. 626/282-5380.

ALTADENA, large 3 bd., 2 ba., fam., liv., kit., firepl., ceil. fans, soft H2O & reverse osmosis & more, hrdwd. flrs., new cpt. in fam. & bath, Jacuzzi, close to JPL, corner lot, lots of trees incl. apricot & plum, grdnr. incl., avail. June 1. 226-6598, glndiffrench@yahoo.com.

ALTADENA, beautiful guest house, 2 story, 2 bd., 2 ba., large cedar closets, new carpet & paint, 1,400 sq. ft., full kitchen, a/c, washer/dryer, share 1-car garage w/roommate, non-smoker, no pets, close to bus, quiet neighborhood, \$850 + sec. dep. 949/689-8103.

LA CRESCENTA, 1 bd. guest house, rock fp., wood floor, high beam ceiling, large yard, pri-

vate parking, 800 sq. ft., 10 min. to JPL, \$800. 248-7839.

N.E. PASADENA, cute sabbatical house, 2 bd., 1 ba., fully furnished, Jacuzzi, utilities included, \$1,000/wk. or \$2,800/mo. 626/422-8119.

PASADENA, beautiful 3 bd., 2 ba., home in Hastings Ranch, remod. kitchen w/new appliances, remod. baths, central heat & a/c, hardwood floors, refrig., washer/dryer, den wired for 4 computers, speakers throughout, pool & covered patio w/wet bar; \$2,850 & utils & sec. dep., gardener & pool service included. 626/351-9641 or bettyrs@earthlink.net.

PASADENA, beautiful & private detached 2-story guesthouse loft, \$850 incl. utilities. 626/233-9496 or kevin@k-von.com.

PASADENA condo, 1 bd., 1 ba., in small complex, close to Caltech/Old Town/Gold Line, refrig., new stove, central heat and a/c, carport w/storage, \$1,050 + dep. 626/797-2765.

PASADENA, 2 of 3 bedrooms in a charming house w/JPL employees (late 20s), excellent neighborhood, near Orange Grove and Hill, easy 15-min. drive to JPL, gated parking, in ground pool, patio, deck, built in BBQ, gardens, fireplace, HW floors, etc. \$775 & \$550, utilities included. 626/590-8844.

PASADENA, spacious 1 bd., 1 ba. + bonus room, 10 min. from JPL, 5 min. from Old Town: one-car parking, no smokers/pets please, includes washer/dryer, fridge, stove, microwave; unfurnished, 1st and last rent required + \$250 dep., \$900. 626/808-3891 or 626/796-4966, Colleen.

PASADENA, charming furnished guesthouse, newly updated and painted, 2 large rooms, bath and kitchenette, all utilities except phone are included, full-time broadband Internet connection provided; one block from Linda Vista and Lida, near Rose Bowl; one person, one car; no pets; avail. June 3, \$1,075 + \$1,400 dep. 626/793-0147, Ruth.

POMONA townhome, betw. 60 & 10 fwy's., 2-story 3 bd., 2.5 ba., c/a & h/wood floors downstairs, cpt. upstairs, frplc., nicely decorated w/patio, community pool in small gated community, \$2,200. 626/376-5463.

SAN GABRIEL, 9062 Camino Real Ave., Temple City schools, 2 bd. + den and 1.75 ba., large fenced yard, close to all, \$1,800. 626/285-1341.

TUJUNGA home, charming 2 bd., 1 ba., for lease or lease option, quiet location, decorator interior, paint colors and hardwood floors make it warm & inviting, split-level backyard, intimate patio area w/waterfall, upper level grassy area and another patio, work bench in garage, lease for \$1,650 or ask about lease options. 249-4536, Steve or Shelley.

TUJUNGA house, 8 mi. & 12 minutes from JPL, beautiful, in very quiet woody area, 1,600 sq. ft., 2 bd., 3 ba., plus office/bonus room, attached 2-car garage & workshop, hardwood floors, central heat/air, refridge, dishwasher, stove, washer/dryer included, move-in condition, serene environment, \$2,200 + dep. 352-7892.

### Vacation Rentals

BALBOA ISLAND, cute, 2 bd., 1 ba., fully furnished upstairs apt. w/covered deck, just steps from the bay on Little Island, short walk to the main street, includes laundry & parking, sleeps 5; summer weekly rental begins June 1: \$1,200-\$1,500/week. 626/351-9641 or bettyrs@earthlink.net.

CABO SAN LUCAS, 1 bd., 5-star resort on the beach, slps. 4, a/c, 2 pools, tennis, restaurant and bar, short walk to town and other nearby activities, \$400/wk., before June 30, info at clubcascadas.com, e-mail tcfs@aprelix.com.

FLORIDA condominium, beautifully furnished 2 bd., 2 ba., 2nd floor, on the surf of New Smyrna beach, half-hour to Cape Canaveral, 90 min. to Walt Disney World, enjoy all the comforts of home, quiet, relaxing, BBQ, pool, game room, easy walk to stores and restaurants. 760/439-7821, Darlene, or dfhaugc@yahoo.com.

JACKSON HOLE, Wyoming, visit Grand Teton and Yellowstone national parks in style, 2 bd. + loft townhome, totally outfitted, borders Grand Teton, stunning view, sleeps 6, cable, microwave, etc., conniematt@sbcglobal.net.

MAMMOTH, Snowcreek, 2 bd., 2 ba., + loft, slps. 6-8, fully equip'd kitchen incl. microwave, d/w, cable, VCR, phone, balcony w/mtn. vw, Jacz., sauna, streams, fish ponds, close to Mammoth Creek, JPL disc'nt. 626/798-9222 or 626/794-0455, valeriee@caltech.edu.

OCEANSIDE, beachfront, lovely 2 bd., 2 ba., single level deluxe w/fireplace and white water ocean views, end unit, luxurious gated complex on sand w/game rooms, fitness room, pools, barbecues and Jacuzzi, 10-min. walk to pier/harbor, sleeps 6, JPL discount. www.beachvisitors.com, 760/433-4459.

OREGON, Brookings, Moosehead Lodge at the Winchuck River Estuary, fully furnished 3 bd., 2 ba., 1 mile from California border, short walk to Pelican Bay beach w/tidepools, surf and driftwood, fish the Pacific or wild rivers along Southern Oregon/Northern California coast, enjoy the Redwood and Siskiyou National forests, 800/221-8175. www.mooseheadlodgeoregon.com.

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

#### Editor

Mark Whalen

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