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Mars Odyssey prepares for launch at KSC

By Mary Hardin

Right: In the Spacecraft Assembly and Encapsulation Facility 2, an overhead crane lifts the crate covering the Mars Odyssey spacecraft. Launch is scheduled for April 7.

the first major step toward NASA's return of a spacecraft to an orbit around Mars was achieved Jan. 4, when JPL's Mars Odyssey spacecraft arrived at NASA's Kennedy Space Center in Florida. The spacecraft was shipped aboard an Air Force C-17 cargo airplane from Denver, location of the Lockheed Martin plant where the spacecraft was built.

Mars Odyssey was moved on a transport trailer from the Shuttle Landing Facility to the Kennedy Space Center's Spacecraft Assembly and Encapsulation Facility 2, where it will undergo final assembly and checkout. This includes installation of two of the three science instruments, integration of the three-panel solar array, and a spacecraft functional test. It will be fueled and then mated to an upper stage booster, the final activities before going to the launch pad.

Launch is planned for April 7, the first day of a 21-day launch opportunity. Mars Odyssey will be inserted into an interplanetary trajectory by a Boeing Delta II launch vehicle from Pad A at Complex 17.

The spacecraft will arrive at Mars on Oct. 20, 2001, for inser-

tion into an initial 25-hour elliptical capture orbit.

Its final operational altitude at Mars will be a 400-kilometer-high (250 miles) sun-synchronous polar orbit. Mars Odyssey will conduct a two-year mission in Mars orbit, mapping the planet's surface and measuring its environment.

"Ultimately, the spacecraft could contribute significantly toward understanding what may be necessary for a more sophisticated exploration of Mars, and perhaps an eventual human visit," said Mars Odyssey Project Manager George Pace of JPL.

A live video feed of launch preparations at Kennedy Space Center is available at <http://mars.jpl.nasa.gov/2001/orbiter/webcam.html>. For more information on the mission, log on to <http://mars.jpl.nasa.gov/2001>.

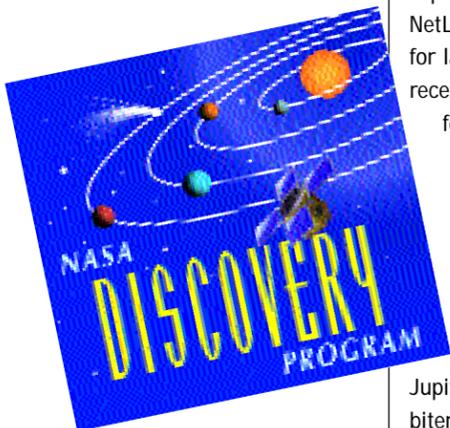


Kennedy Space Center photo

JPL-led Discovery proposals move forward

Lab also awarded participation in French-led Mars mission in 2007

By Mark Whalen



JPL-led proposals to look deep inside Jupiter's atmosphere and magnetosphere, and to orbit two of the largest asteroids in the solar system, are two of three proposals selected by NASA's Office of Space Science for detailed study as candidates for the next mission in the agency's Discovery Program of lower cost, highly focused, rapid-development scientific spacecraft.

Also under the Discovery Program, NASA will fund American participation in a mission to Mars being flown by another nation. In this "Mission of Opportunity," a team led by Dr. Bruce Banerdt of JPL's Research Element 3236 will contribute to seismology, meteorology and geodesy (using radio tracking to measure rotational irregularities of Mars) experiments on the French-led NetLander Mission, scheduled for launch in 2007. The team will receive \$250,000 to conduct its feasibility study.

Dr. Edward Smith of JPL, who also serves as NASA project scientist for the Ulysses mission to the sun, would lead the Interior Structure and Internal Dynamical Evolution of Jupiter (INSIDE Jupiter), an orbiter designed to observe and measure processes occurring within the Jovian magnetosphere

and atmosphere. The mission would determine the internal structure of the planet by obtaining high-resolution maps of the magnetic and gravity fields.

Co-investigators from JPL are Dr. John D. Anderson, Dr. Arvydas Kliore and Sami Asmar, all of Section 331; Dr. Neil Murphy, Element 3239; and Dr. Thomas Spilker, Section 311.

The cost of the proposed mission is \$296 million. Ball Aerospace & Technologies Corp. of Boulder, Colo., would design and build the spacecraft.

Smith said the mission would launch in November 2005 and arrive at Jupiter in September 2011. In between, the spacecraft would fly by Venus in 2006 and Earth in 2007 and 2009.

"A major scientific goal is to determine if Jupiter's dynamic atmosphere is a visible response to flows in the deep interior of the planet" he said.

The proposed Dawn mission intends to achieve an understanding of the conditions and processes acting during the dawn of our solar system. To achieve this, it will orbit Vesta and Ceres, two of the solar system's largest and most diverse asteroids, which reside in the main asteroid belt between Mars and Jupiter. A suite of instruments onboard Dawn will provide information on the aster-

oids' geophysical and geochemical properties. Because both planetoids have remained intact over the age of the solar system, they would provide a record of events and processes from the time of planet formation.

The Dawn mission would be led by science Project Investigator Chris Russell of UCLA. Mike Shirobacheh of Section 341 is the proposal manager for this mission, and Sarah Gavit of JPL will serve as the project manager if the mission is selected for flight this fall. JPL will provide overall project management for the mission, as well as lead the effort for system engineering, mission assurance, navigation and mission operations. JPL would also supply the solar electric propulsion system, which is based on the flight-proven Deep Space 1 design. JPL members of the science team are Dr. Carol Raymond of Element 3236 (magnetometer) and Dr. Alex Konopliv of Section 312 (gravity).

Gavit said Dawn would launch in July 2005, fly by Mars for a gravity assist, then arrive for a nine-month stay at Vesta starting in June 2008, followed by a nine-month study of Ceres starting in May 2013.

The NetLander mission—which will launch an orbiter and four landers all from the same Ariane

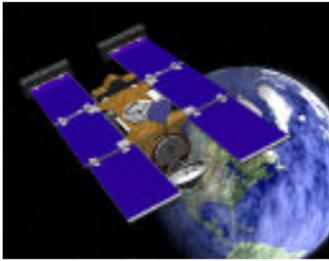
5 rocket—will create the first science network on Mars to study the planet's internal structure and climate, as well as surface, crustal and atmospheric properties. JPL's contribution includes short-period seismometers and wind and temperature sensors on the landers, and a precision radio tracking instrument for geodesy on the orbiter. The cost of the U.S. contribution to NetLander is set at a total cost to NASA of \$35 million.

JPL staff joining Banerdt on the NetLander team are Dr. Tom Pike (Section 346) for seismometers, Dr. David Crisp (Element 3233) for temperature and wind sensors, and Dr. Bill Folkner (Section 335), Dr. Bob Preston (Section 335) and Dr. Charles Yoder (Element 3236) for geodesy.

Each of the instruments will be built at JPL, Banerdt said. "All of them are part of larger instrument packages that are being built in Europe," he noted.

The other Discovery proposal selected by NASA for further study is the Kepler mission, a space telescope designed to detect Earth-sized planets around stars in the sun's neighborhood of the galaxy. Dr. William Borucki of Ames Research Center, Moffett Field, Calif., would lead Kepler at a total cost to NASA of \$286 million.

News Briefs



Stardust completed a successful flyby of Earth on Jan. 15, gaining the gravity-assist needed to reach Comet Wild 2 in two years.



JPL was recently honored for its college recruitment posters, one of which is shown above.

Stardust Earth flyby successful

JPL's Stardust spacecraft completed a successful Earth flyby Monday, Jan. 15, giving it the needed speed boost to put it on course to meet Comet Wild 2 in January 2004.

Stardust's closest approach occurred at approximately 3:13 a.m. Pacific time and took it just southeast of the southern tip of Africa. The spacecraft was traveling about 5,950 kilometers (3,700 miles) from the Earth's surface.

Project Manager Tom Duxbury said the gravity-assisted energy boost changed Stardust's orbit from a two-year orbit around the sun to a two-and-a-half year orbit. Stardust will encounter Wild 2 (pronounced "vilt-2") on its second circuit around the sun. The spacecraft will then perform another Earth flyby and in January 2006 Stardust will parachute a reentry capsule containing a canister of comet dust in Utah for study by scientists.

Stardust is the first comet sample return mission, the first of its kind since the Apollo missions to the moon in the early 1970s.

Clinton honors Mars Pathfinder

Former President BILL CLINTON has awarded JPL the Presidential Award for Design Excellence for the Mars Pathfinder mission, which explored the red planet following its landing on July 4, 1997.

JPL Director DR. EDWARD STONE received the honor on behalf of the Laboratory and NASA during a Dec. 20 ceremony at the White House.

The award, one of nine presented in a quadrennial competition, honors projects that represent the highest standards of federal design in architecture, landscape architecture, urban design and planning, historic preservation, interior design, engineering, graphic design and products and industrial design. Juries reviewed more than 300 submissions from 71 federal agencies for the awards.

"The project's multidisciplinary, concurrent engineering appears to be a great improvement over the compartmentalized, sequential fashion of the past," the award jury noted. "The direct

entry, descent and landing sequence were unique and innovative. The low cost is a result of other scientific programs to emulate."

SIRTF opens Spanish Web site

Spanish-speaking space fans can hitch a ride via the Internet on an orbiting space observatory, thanks to the first-ever Spanish-language Web site tied to a NASA mission.

The newly unveiled Web site for JPL's Space Infrared Telescope Facility (SIRTF) can be accessed from the main SIRTF home page at <http://sirtf.caltech.edu>. It delivers in Spanish the latest news about the SIRTF mission, its scientific background, an infrared astronomy tutorial, and other educational activities. The mission, launching in 2002, will study the early universe and hunt for planet-forming regions around nearby stars.

The new Web site will be updated monthly, with more frequent updates planned closer to launch. Visitors to the site will be able to submit questions and receive answers in Spanish. Additional NASA Spanish-language Web sites are anticipated in the near future.

The new site was created by UCLA student MARISA EISENBERG, a SIRTF intern at Caltech's Infrared Processing and Analysis Center.

College recruitment posters honored

JPL has been recognized with a "best of category" award for its college recruitment posters by the Employment Management Association.

The Lab and its advertising partner, Bernard Hodes Group of Los Angeles, received the honor as part of the association's 2000 Creative Excellence Awards, said TOBY SOLORZANO of Section 195, who coordinates the Lab's recruiting efforts for new college graduates, co-op students, academic part-timers and summer candidates.

Five posters designed for JPL's college recruitment program are sent to college campuses each fall and spring to announce upcoming JPL visits. Last year, the Lab's recruitment teams visited 17 campuses nationwide.

Special Events Calendar

Ongoing Support Groups

Alcoholics Anonymous—Meeting at 11:30 a.m. Mondays, Tuesdays, Thursdays (women only) and Fridays. Call Occupational Health Services at ext. 4-3319.

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

End of Life Issues and Bereavement—Meets the second Monday of the month at noon in Building 111-117. Call the JPL Employee Assistance Program at 4-3680.

Gay, Lesbian and Bisexual Support 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.

Parent Support Group—Meets the third Thursday of the month at noon in Building 167-111. Call Greg Hickey at ext. 4-0776.

Senior Caregivers Support Group—Meets the first Tuesday of the month in Building 167-111. For information, call the Employee Assistance Program at ext. 4-3680.

Monday, January 22

Caltech Ballroom Dance Club—Amateur-taught beginning American Cha Cha will be held in Winnett Lounge from 7:30 to 9 p.m. Lessons are \$1 per session. See www.its.caltech.edu/~ballroom or call Don at 626/791-3103.

Wednesday, January 24

Caltech Ballroom Dance Club—Beginners' American Foxtrot will be held in Winnett Lounge from 7:30 to 9 p.m. Professionally taught lessons are \$7 per session. See www.its.caltech.edu/~ballroom or call Don at 626/791-3103.

JPL Toastmasters Club—Meeting at 5:30 p.m. in the Building 167 conference room. Guests welcome. Call Jim Raney at ext. 4-6301.

Thursday, January 25

ArtistLecture—Painter, sculptor and American origami master George Rhoads will give a free lecture at 7:30 p.m. in Caltech's Sharp Lecture Hall. Call (626) 395-4652.

Caltech Architectural Tour—The Caltech Women's Club presents this free service, which is open to the public. The tour begins at 11 a.m. and lasts about 1 1/2 hours. Meet at the Athenaeum front hall, 551 S. Hill St. Call Susan Lee at (626) 395-6327.

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

Von Kármán Lecture Series—Mark Helmlinger, a field researcher in JPL's Earth and Space Sciences Division, will share digital movies and images from his recent work in southern Africa as part of MISR's participation in the SAFARI 2000 international field campaign. Held at 7 p.m. in von Kármán Auditorium. Open to the public.

Friday, January 26

TheKingston Trio—The folk group will appear at 8 p.m. in Caltech's Dabney Lounge. Tickets are \$29,

\$25 and \$21. Call (626) 395-4652.

Von Kármán Lecture Series—Mark Helmlinger, a field researcher in JPL's Earth and Space Sciences Division, will share digital movies and images from his recent work in southern Africa as part of MISR's participation in the SAFARI 2000 international field campaign. Held at 7 p.m. in The Forum at Pasadena City College, 1570 E. Colorado Blvd. Open to the public.

Sunday, January 28

Super Bowl Alternative—A free Caltech student chamber music concert will be offered at 3:30 p.m. in Caltech's Dabney Lounge. Call (626) 395-4652.

Monday, January 29

Caltech Ballroom Dance Club—Amateur-taught beginning American Cha Cha will be held in Winnett Lounge from 7:30-9 p.m. Lessons are \$1 per session. See www.its.caltech.edu/~ballroom or call Don at 626/791-3103.

Tuesday, January 30

Microsoft Office Update—A Microsoft specialist will give one-hour introductory briefings on the 2000/2001 Office Suite in the 167 conference room. Sessions for general users will start at 12:30 p.m. for Office 2001 (Macintosh), 2 p.m. for Office 2000 (Windows) and a repeat session at 3 p.m. for Office 2000 (Windows).

Things To Come—The 1936 film will play at 7:30 p.m. in Caltech's Baxter Lecture Hall as part of *The Future of the Universe* science fiction film festival. A panel discussion between film scientists, industry professionals, scholars and writers will follow the screening. Admission is free. Call (626) 395-4652.

Wednesday, January 31

Caltech Ballroom Dance Club—Beginners' American Foxtrot will be held in Winnett Lounge from 7:30-9 p.m. Professionally taught lessons are \$7 per session. See www.its.caltech.edu/~ballroom or call Don at 626/791-3103.

Thursday, February 1

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

"The Challenges and Opportunities of SIRTF"—Space Infrared Telescope Facility Project Manager David Gallagher and Project Scientist Dr. Michael Werner will discuss the cryogenically cooled observatory for infrared astronomy, set for launch in July 2002. To be held at 11:30 a.m. in von Kármán Auditorium.

Saturday, February 3

Gizmo Guys—Performers will demonstrate scientific principles with the use of juggling. To be held at 2 p.m. in Caltech's Beckman Auditorium. Tickets are \$10 for adults, \$5 for children. Call (626) 395-4652.

Sunday, February 4

Chamber Music—The Juilliard String Quartet will perform at 3:30 p.m. in Caltech's Beckman Auditorium. Tickets are \$27, \$23, \$19 and \$15. Call (626) 395-4652.

Huntington displays art and science of astronomy

Anyone who is a fan of history, astronomy or art is likely to be delighted, if not awestruck, by the current exhibit at the Huntington Library in San Marino.

The three disciplines come together in "Star Struck: One Thousand Years of the Art and Science of Astronomy," featuring familiar images returned to Earth by JPL missions and others from NASA, including Voyager, Mariner 6, Galileo and the Hubble Space Telescope.

But the exhibit is much more than this relatively recent period of history. Numerous other displays highlight carefully preserved manuscripts, books, letters, artwork, photographs and other published material, much of it dating back hundreds of years. Vintage telescopes and other hardware are also on display.

Visitors to the exhibit, which runs until May 13, will also see the first hand-drawn star map of the southern hemisphere and a 1913 letter from Albert Einstein asking astronomer George Ellery Hale, founder of the Mount Wilson

and Palomar Mountain observatories, to review his new theory of general relativity.

Star Struck's tantalizing displays also include the first printed book on astronomy, *Astronomicum*, circa 1473; a classic 1543 work by Nicolas Copernicus, who demonstrated—contrary to popular belief—that the Earth was not the center of the universe; and illustrations from Galileo Galilei's 1632 *Dialogue on the Two Chief World Systems*, which was banned by the Inquisition.

This Huntington exhibit is one in "The Universe" series of current space-related events in the Pasadena area, continuing through May. Other institutions taking part are Caltech, the Armory Center for the Arts, Art Center College of Design, Norton Simon Museum, One Colorado, Pacific Asia Museum and Southwest Chamber Music.

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

Lo, Robert Lock, Daniel Lyons, Janine Medlin, J. Ed Riedel, Tseng-Chan Wang, Robert Werner, Roby Wilson.

Section 313: Donna Bradford, Scott Doudrick, Steve Howard, Alan Nicholson, Derrick Stockhausen, Marisol Vargas, Jason Willis.

Section 314: Paul Herrera, Kathryn Schimmels.

Element 3235: Nancy King.

Section 333: Farrokh Baher, Richard Emerson, Manuel Esquivel, Wendy Hodgins, Julius Law, Jan Loreman, Patricia Lux, Leslie Manalo, Dudley Neff, David Tyner.

Section 336: Constantine Andricos, Bryan Bell, Selahattin Kayalar, Derrick Nybakken, Dorothy Stosic.

Section 354: Jane Cho.

Section 367: George Hockney.

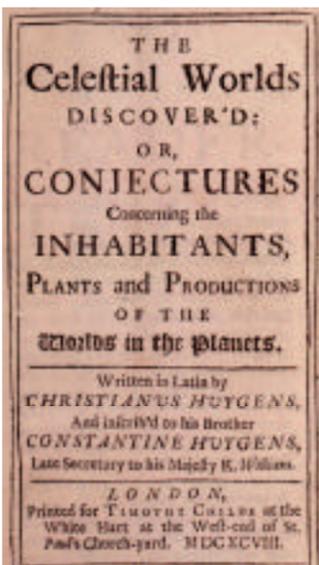
Section 368: Donald Eagles.

Section 509: Kristine Asatrian, Jeff Behar, Jeannine Darrett, Ruth Le Blanc.

Section 602: Laurann Lafoca, Judith Novelty, Alison Weisbin, Leticia Woodard.

The following contractors were also awarded NOVAs as part of JPL teams: James Evans, David Glucksberg, Denise Island, David Murrow, Kenneth Museth, Richard Orozco.

Photo courtesy of Huntington Library



This page from a 1698 work by Christian Huygens, who identified Saturn's rings and one of its moons, is part of the "Star Struck" exhibit at Huntington Library.

NOVA awards

The following employees received JPL's Notable Organizational Value Added (NOVA) awards in December:

Section 214: Juan Montoya.

Section 311: Roger Diehl, Richard Pomphrey, Nathaniel Bachman, Brian Barden, Shyam Bhaskaran, Larry Bright, Min-Kun Chung, Todd Ely, Troy Goodson, Allen Halsell, Edward Hirst, Brian Kennedy, George Lewis, Martin



JPL CAFETERIAS: NEW MISSION FOR CALTECH CHEF

JPL cafeterias begin operating under the consolidated agreement with Caltech Dining Services. Presiding over the upcoming

changes is the Director and Executive Chef of Caltech's Dining

Services, André Mallié. Mallié was chef in Bordeaux, France, and California States in 1984, where he has operated

restaurants. In 1986, his restaurant in Scottsdale, Ariz., The Provence, was named the Best by the Phoenix Sun newspaper. In 1994 Mallié came to California to be the Executive Chef at Stanford University, and in 1997, he joined Caltech as the Director and Executive Chef. Mallié, as JPL's new Chef, faces the challenges the job will hold for him, and the changes that will take place.



Q What kind of changes can JPL employees expect in the cafeterias?

A This is an opportunity to elevate the food service to a different level—one that reflects the food requirements of health-conscious customers, and our ethnically diverse population. Vegetarian, high-end, and kosher selections are some of the offerings that I will be making. And, of course, a focus on customer service. I will implement some new services and conveniences that I believe the JPL population will find very handy.

Q What will be some of the new ideas?

A In addition to the salad bar, all three cafeterias will have a baked potato bar, and there will be an Asian noodle bar in Cafeteria 303, and a fresh pasta bar in Cafeteria 167. We will also be offering a full line of in-house fresh-baked pastries, freshly baked breads, and made-to-order deli items. There will be carving stations, which will serve freshly prepared meat selections. In the near future, we are looking to have a pizza oven and an Indian tandoori menu. Starting on day one, we will have Krispy Kreme doughnuts; these are world-famous doughnuts for their taste and texture. I am also going to improve some of the food selections that the employees are currently enjoying. For example, there will be fresh sushi available in Cafeterias 167 and 303 every day.

Q What kind of new customer conveniences will you be offering?

A There will be a "Box Lunch" selection, so that on days that you can't sit down and have a hot lunch, you can come to the cafeteria, buy a complete, healthy lunch in a box, and eat it at your convenience, at a location of your choice. We will also be offering dishes that you can purchase at the cafeteria during the day, take home for dinner, and heat up. In addition, there will be a new coffee cart that will operate from 7 a.m. to 4 p.m. on the mall and will offer a wide array of coffees, smoothies, beverages and snack items, depending on the time of day.

Q Sounds like there will be many changes. Will employees still be able to get their favorite menu items?

A We will have the tried-and-true things, like sandwiches, soups and entrees. The ingredients will be completely fresh—we use very few frozen items. The majority of items will be made from scratch; for example, the pasta at the pasta bar will be made fresh daily. The big emphasis is on the freshness and the high quality of the ingredients. We will be using fresh herbs and spices, and no preservatives or artificial colors or flavors in the food.

Q What other new things can Lab employees expect?

A The cash registers will accept any cash transactions, as well as purchases made using a Dining Services Debit Card. The Debit Cards are magnetic striped cards, similar to ATM cards, which allow cardholders to add value by cash at self-service units located in the cafeterias. The cards will be made available free of charge by the cash register staff.

Q What is your long-term vision for JPL's cafeterias?

A I have a customer focus rather than a program focus. Food services need to reflect the trend of today, and the trend of today is a high level of customer service. I achieve a high level of customer service by listening to the customer, through survey and comment cards, and by anticipating the needs of the customer. It is very exciting, and a challenge. It's fun to see change happening and especially to see the level of satisfaction increase.

Q What do you see as some of the challenges in running the JPL food service?

A One of the challenges will be to learn the culture of the Lab, and to understand what people want. I will need to listen to the employees' likes and dislikes, and from that make a determination whether or not I am doing the right thing. I am looking to provide a great value for the JPL population. I will do this by providing excellent quality and selection of food, for the same price that they were paying previously. I am also looking to satisfy a wider base of customers. I am going to accomplish this by offering a greater variety of foods that the cafeterias will be serving, and by enhancing the dining experience.



Caltech photo

"I achieve a high level of customer service by listening to the customer, through survey and comment cards, and by anticipating the needs of the customer."

— Chef André Mallié, who will oversee food services at JPL

WHY THE CHANGE?



Sue Henry, JPL's Human Resources Director, answers some of the questions employees have asked about the changes that will be occurring at JPL cafeterias.

Q Are cafeteria employees being laid off? What are we doing for them?

A The cafeteria's employees are actually employees of Eurest, which is a large company providing food services at many locations. It is a

Eurest decision whether the employees will be laid off or will be offered transfers to other locations.

While Caltech does have sufficient staff to serve the JPL cafeterias, they are anticipating adding additional services

and are accepting applications.

We share the concern being expressed about the impact of the decision on the Eurest employees. Human Resources is in the process of discussions with Eurest management to see what can be done to assist them. JPL has offered to provide placement assistance to all Eurest employees to help them transition to new jobs.

Q Who made the decision about the cafeteria services?

A A large group of people from JPL and Caltech participated in the decision to use Caltech Dining Services at JPL. The change is being made to provide excellent quality and a variety of menu selections that have been popular at Caltech at reasonable prices.

Q Will prices go up?

A No overall increase in prices is planned. You can expect to see many new items on the menu, but in the same price range we're accustomed to.

Q Why was the decision made?

A The decision to select Caltech Dining Services to provide service in the JPL cafeterias was based on several important factors.

One of these factors is the desire to provide for the JPL community the enhanced quality and increased variety of menu options that have been popular at Caltech since the arrival of Chef André Mallié. We also had a concern about future cost increases, as the contract with Eurest has no cost cap, and an increase was anticipated in early 2001. However, the decision to consolidate the food services with Caltech was not based on cost savings for JPL or Caltech.

The consolidation of the food services operation will offer state of the art food service processes and overall excellent management available from Caltech Dining Services, such as a debit card system to speed checkout and reduce the need for cash; an automated inventory system for efficient, just-in-time ordering and tracking of popular menu items to ensure availability and reasonable prices; enhanced food services such as take-home meals, special-occasion cakes to order, special-event catering, vegan and kosher meals, and a world-class chef and professionally trained staff to ensure a healthy and appetizing menu to meet diverse dietary needs.

Most importantly, please be assured that we value very highly the long service of the Eurest employees and will continue to work on a smooth transition.

Lab celebrates King's birthday

Dr. Clyde Oden Jr., president and chief executive officer of Watts Health Systems Inc., was the guest speaker at JPL's Dr. Martin Luther King Jr. celebration.



Terrt Griffin / JPL photo

JPL celebrated the life and legacy of Reverend Dr. Martin Luther King Jr. on Jan. 11 as "MLK 2001: Equality, Equity and Excellence . . . Mission to Action" played to a full house in von Kármán Auditorium. The event—co-sponsored by the Human Resources Directorate, the Advisory Committee on Minority Affairs and the African American Resource Team—included inspirational talks in addition to the entertainment that was provided by JPL's Big Band Theory, musical group Vessels of Honor, and John Muir High School's vocal ensemble. Guest speaker Dr. Clyde Oden Jr., president and chief executive officer of Watts Health Systems Inc., called King "a legitimate American hero," but soberly noted the

civil rights leader's unique status in that role, as "his country tried to destroy him." Displaying a symbol of American apartheid—a metal sign that simply said "Colored"—he reminded viewers that King lived in a time "when the law said it was OK to discriminate. This sign said there was a place for colored and a place for everybody else, and this gave people of color a false sense of inferiority." But Oden also reminded the audience that King believed in excellence "and always urged people to be the best they can be." King was more than just a dreamer, Oden said. "He was a man of principle, and spoke with optimism about the future. We, too, must do so."

View this and previous issues of Universe online
<http://universe.jpl.nasa.gov>

Universe

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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

GEORGE MORROW, 89, retired manager of Section 661, died of cancer Oct. 19. Morrow joined JPL in 1959 and retired in 1978. He is survived by his wife, Marvel, daughter Jane Runyen, seven grandchildren and four great grandchildren. Services were private.

CHARLES "TOM" BOREHAM, 54, chief data system engineer for JPL Deep Space Mission System Telecommunication Services, Section 368, died of a heart attack Dec. 6 at Verdugo Hospital. Boreham had been a JPL/OAO contract employee for 30 years, working in mission operations. Boreham is survived by his mother, two sisters, daughters Lisa and Michelle, and two grandsons. Services were held Dec. 8 at the Weekirk of the Heather Chapel at Forest Lawn.



Tom Boreham

Classifieds

For Sale

BABY ITEMS: 2 Evenflo infant car seats with luggage style handles, Looney Tunes characters, \$30 each; one Italia baby crib with mattress, \$250; all items hardly used and in excellent condition. 626/443-9774.

BEDROOM FURNITURE: dresser w/mirror and 2 matching nightstands, dresser is 70" wide by 30" high with 9 drawers, nightstands are 26" wide by 23" high with 2 drawers, all for \$225/obo. 626/914-7853.

BIKE, mountain, girl's 24-inch Diamondback, white, 18 speed, \$50/obo. 310/451-0045.

BREAST PUMP, Medela pump-in style, excellent condition, was \$279, now \$150. 626/850-4378.

CAMERA, Olympus OM-4 with Olympus 28 and 50 mm lenses, T-32 flash, Tokina 70-210 mm lens and doubler, filters, padded carry case, \$250/obo. 626/797-6121.

CD JEWEL CASES, 50, \$10; DIET TAPES, Jenny Craig, set of 14, \$50; COMPUTER PWR CONTR. CTR, 5 power switches + 1 master switch, 5 surge-protected outlets + 2 modem/fax/phone jacks, new, \$20; ORGAN, Yamaha 415, electronic console w/13 pedals, 3 keyboards, 144 rhythm patterns, pd. \$7,500, sacrif. for \$3,000. 790-3899.

CHAIR, Papasan, with cream-colored cushion, excellent condition, \$50/obo; COFFEE TABLE, oval, cherry finish, excellent condition, \$30/obo; TV, Zenith, color, 21", w/VCR, remote and stand, \$100/obo. 626/403-9002.

CLAY POTS, round, large (2-ft and 3-ft diameter), \$50/obo each 2', \$60/obo each 3'. 626/398-3480.

COFFEE, Kona, top of the line, 100% pure, hand picked from top-quality trees, 100% sun dried, rich, dark roast, limited supply, discounted 45% at introductory price of \$21/lb. 626/584-9632.

CRIB, oak Childcraft, w/mattress, makes into toddler bed, storage drawers under and at side, ex. cond., \$100; ELECTRIC DRAWER, Speed Queen, \$100/obo; REFRIGERATOR, 2 door, good cond., \$100/obo. 626/345-9630.

DINETTE SET, small, w/4 chairs, high gloss table top w/extension, \$175. 909/599-7429.

ETAGERE, chrome and glass, 6 feet tall, 30 inches wide, 14 inches deep, four glass shelves supported on chrome frame, \$75. 626/798-5855.

EXERCISE STEPS, The Original Step, 3 steps in one: 4", 6", 8", workout video included, \$60. 909/599-7429.

FAX CARTRIDGE, 2 new, Brother PC-201, for use with fax 1010/1020/1030, fax 1170/1270/1570MC, MFC-1770/1970, \$10 each. 626/443-9774.

FUTON, queen size futon couch/bed, light Indian/desert design/colors, heavy-duty wooden frame, \$95/obo; BED, California king, converted waterbed with mattress, dark wood, large head board with 7 shelves, 2 cabinets & 2 hideaway compartments, mirror and 12 large drawers, \$350/obo; CAR SEATS, 3, \$25/each; STROLLERS, 2 umbrella, \$12/each, fold up, \$16; SNOW SKI RACK, large car, \$75. 626/303-5595, Paul.

GPS RECEIVER, Magellan handheld model, Blazer 12, \$50. 957-1409, Allen, evenings.

JOYSTICK, Microsoft Sidewinder Precision Pro, exc. cond., \$18. 625-9964.

LAMP SHADE, drum style, gold damask silk fabric, silk-lined, 14" top, 17" bottom, 16" height, \$75/obo. 952-8455.

LOT in Forest Lawn Glendale, space 1 in lot #3961, "Brotherly Love," contact transfer clerk for transfer in Glendale, \$745. Melvin Nystrom, P.O. Box 188, George, IA 51237-0188.

MATERNITY CLOTHES, size 8, casual & business wardrobe of dresses, tops, pants, shorts, swimsuit, all for \$200; PORTABLE CRIB, like-new cond., \$35; CRIB BUMPERS, 3 sets, \$5/set; CRIB SHEETS, \$10/all; CHAIRS, 2 circa 1950 occasional chairs, spring-rocker, '50s modern style, original upholstery, \$200/pair. 249-3677, eves.

MOVING SALE: GE Super Frank-N-Burger, unused, \$25; Hamilton Beach mini food processor, hardly used, \$25; Procter Silex smart bagel toaster, unused, \$12; Black & Decker steam & spray iron, hardly used, \$12; Rival crockpot, \$10; Waring can-opener & knife sharpener, \$10; coffee percolator, 2-4 cups, \$10. 626/304-2766.

MOVING SALE: Hitachi, 4-hd VCR, Intelscan multi-language guide, auto hd. cleaning, etc, \$55; Singer Mini Sewing Machine (Mini-Minder), hardly used, \$25; fan 20" \$10; antique floor lamp; antq design coffee tables (2); mirror w/wooden fancy frame (4); clock radio; gift items, many more. 626/304-2766.

ORIENTAL RUG and pad, 9' x 12', just cleaned and no defects, must sell, \$2,500.

626/798-0024.

POOL COVER, mesh, 20 x 40 ft. + 30 four-foot water bags, good condition, \$20. 626/794-2431.

SKI BOOTS, Salomon SX-71, men's size 11, worn only a few times, in original box, \$24/obo. 236-4869, evenings.

TABLE, dinette, square glass top 5'x5' w/ metal feet and 4 matching chairs, \$800/obo; BAR STOOLS, 4 matching, metal frame, all in superb cond., \$400/obo. 626/398-3480.

TABLE SAW, Sears, with attachments, approximately 6 years old, excellent condition, \$250. 626/966-8794.

TELEVISION, 50", RCA home theater big screen, exc. cond., crisp, clear picture, remote cont., audio/video input, great sound, must sell, pictures at <http://members.xoom.com/thecoverups/bigscreen.html>, \$850/obo. 626/379-0971 or lundeensr@altavista.com.

TROMBONE, Yamaha, excellent condition, \$425. 626/850-4378, day or 909/598-0065, after 7 p.m.

WINDSURFER, Calypso, 3.2 m board, 4 m mast, Bic Sport 2 m. boom, small sail, stable board for beginners, \$150/obo. 626/797-6121.

PHOTOCOPY MACHINE, Xerox, perfect condition w/new toner cartridge, \$300; IBM COMPUTER, w/monitor & keyboard and laser printer, make offer; ACCESSORIES for Motorola flip phone: three chargers, leather case and three spare batteries, \$70. 626/798-0024.

Vehicles/Accessories

'88 ACURA Legend, 2 dr. coupe, auto, a/c, new Alpine CD and speakers, good condition, dark blue, runs great, \$4,100. 526/695-5197.

'00 BMW 328i, automatic transmission, power leather seats, CD player, am/fm radio, auto rain sensor, moon roof, power everything, 12,000 miles, a/c, like new, \$33,000. 909/599-3230.

'72 CHEVROLET Malibu, original, new parts, must sell, \$3,500/obo. 626/446-1054, Mike.

'70 CHEVROLET Chevelle Malibu, 2 dr, hard top, classic muscle car, 1-yr.-old paint (Chevy medium green), headliner/some interior, window tinting, new chrome on bumpers etc. & more, Center Line rims, 350 eng., automatic, runs great, 159,000 orig.miles, photos avail. by e-mail at Pj1mktg@aol.com, \$7,600/obo. 626/303-5595, Paul.

'97 FORD Explorer XLT, very clean, only 26 k miles, 6 cylinder, new tires, new brakes, \$17,500. 626/355-5631.

'96 FORD SVT Cobra Mustang convertible, 5 speed, all black, leather interior, stereo with CD changer, security alarm with LoJack, clean, well maintained, excellent condition, no modifications to body or engine, garage kept with cover, less than 30K miles, \$21,000/obo. 626/379-1540.

'94 FORD Club Wagon XLT, 12-pass. van, 5.8 L V8, 76 k miles, a/c, power everything, ABS, alarm, AM/FM cass. premium sound, tow pkg., recent tires, front brakes, shocks, excellent condition, \$12,500/obo. 790-3217.

'93 LINCOLN Continental, 4-dr. sedan, black, automatic, a/c, pwr. steering/windows, am/fm stereo cassette, leather seats, cruise control, tilt wheel, \$5,900. 626/792-6444.

'67 LINCOLN Continental convertible, suicide doors, 118 k miles, one owner, complete and original, some bodywork required, \$9,800. 661/254-3119.

'94 MAZDAMX-6, a/c, automatic, power windows, AM/FM cassette, dark green, 75K, sporty little car, \$5,750. 790-1979.

'87 NISSAN 200SX-SE, hatchback 2 dr., 5 sp, A/C, stereo, power door locks, 109 k miles, original owner, \$3,300. 957-3675.

'80 PONTIAC Grand Prix, runs well, auto, new battery, 100 k+ mi., needs some work, \$1,250 obo. 626/398-6564.

Wanted

FEMALE ADULT SOCCER PLAYERS, to form a new Glendale Parks and Recs. league. 249-2990, evenings, Tracy.

LUXURY CAR, 1999 or 2000, low mileage, Acura 3.5RL, Lexus GS-300/400 or Lexus LS-400, will pay finders fee. 236-4869.

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

VOLLEYBALL PLAYERS, coed, all levels of play, every Tuesday night from 8:00 to 10:00 at Eagle Rock High School, \$3 per night. 956-1744, Barbara.

Lost & Found

Lost: PENDANT, silver geometric-shapes on black leather backing, on thin leather string. 4-7468.

Lost: EARRING, gold, small hoop, sentimental value, lost in parking area or between bldgs. 306 and 171. 4-9159 or 626/355-

3886.

Found: BROOCH, ladies' monogram initial, found on mall area 1/3/01, call C. Tippit to claim at 4-2720.

Found: PAGER, Motorola LS 350, in east lot Dec. 11, call Francisco to claim at 4-4372.

Found: COAT, women's black leather, + UMBRELLA, black, in Credit Union lobby Jan. 11. Call Cindy at 4-3280.

For Rent

ALTADENA, 2 bd., 1 ba, l/r., d/r., den, detached gar., 1,200 sq.ft., \$1,250. 957-3675.

LAS VEGAS house in The Lakes, 2 bd., 2 ba., 1,250 sq. ft., new carpet in bedrooms, new tile elsewhere, 2-car garage, gardener pd., includes new appliances, avail. 2/5, \$1,000 + sec. deposit. 661/254-6134 or 702/592-0921.

PASADENA, room for rent in apartment, tree-top and mountain views, close to Old Town, South Lake district, Caltech, 10 min. from JPL and PCC, gated secured parking, full privileges, telephone excluded, female preferred, \$475 utilities paid. 626/796-8982 or 310/512-1564, leave message.

SOUTH PASADENA, fully furnished studio apt, nice area at 1718 Huntington Dr. between Marengo and Milan Sts., car space, laundry facilities on premises, utilities paid, non-smoker, no pets, \$600/mo. 626/792-9053, Marilyn.

WINNETKA home, spacious new 4 bd., 2.75 ba., lg. fr with fireplace, lg. l/r with cathedral ceiling, gated cul de sac, near Lanark, Roscoe and Winnetka Blvd., option to buy, \$2,295. 626/584-6526, Fred.

Real Estate

PRESCOTT, Arizona, 1/2 acre lot, Timber Ridge subdivision location, one of Prescott's finest, in the Ponderosa Pines, located at end of a cul-de-sac, includes underground utilities, indoor pool, outdoor pool and tennis courts, lot ref. #MLS-357840, \$65,000. 626/798-2440, or real estate Agent Tim Parker, Prescott Pines Realty 888/540-7355.

Vacation Rentals

BIG BEAR cabin, quiet area near village, 2 bd., 1 ba., sleeps 8, completely furnished, F/P, TV/VCR, \$75/night. 249-8515.

BIG BEAR LAKEFRONT lux. townhome, 2 decks, tennis, pool/spa, nr. skiing, beaut. master bdrm., sleeps 6. 949/786-6548.

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

HAWAII, Kona, on 166 feet of ocean front, on Keauhou Bay, priv. house and guest house, comfortably sleeps 6, 3 bd., 2 ba., rustic, relaxing & beautiful, swimming, snorkeling, fishing, spectac. views, near restaurant, golf and other attractions. 626/584-9632.

HAWAII, Maui condo, NW coast on beach w/ocean view, 25 ft. fr. surf, 1 bd. w/loft, compl. furn., phone, color TV, VCR, mcrow., d/w, pool, priv. lanai, slps. 4, 4/15-12/14 \$105/nt./2, 12/15-4/14 \$120/nt./2, \$10/nt. add'l person. 949/348-8047.

LAKE ARROWHEAD house, 4 bd., 2 1/2 ba., sleeps 10, quiet, secluded, relaxing, snowy, woody area of Cedar Glen, http://www.highcountryrents.com/cedar_run.html for pictures/rates, JPLers who book directly with owner get 2 for 1 + cleaning fee. 626/403-0446.

MAMMOTH, Chamonix condo, at lifts 7, 8, 16, 17, walk to Warming Hut, 2 bd., 2 full ba., sleeps 6, fully equipped elec. kitchen, incl. microw., & extras; fireplace & wood, col- or TV, VCR, cable, FM stereo, o/d Jacuzzi, sauna, game, rec. & laundry rms., conv. to lifts, shops, events, spec. midweek rates. 249-8524.

MAMMOTH, Courchevel, walking distance to Canyon Lodge and lifts, 2 bd., 2 ba., sleeps 6, fully equipped unit. 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, on the sand, charming 1 bd. condo, panoramic view, walk to pier or harbor, pool, spa, game rm., sleeps 4. 949/786-6548.

OCEANSIDE condominium, fully furnished 2 bd., 2 ba., fireplace, full kitchen, quiet, relaxing, located at beachside, with great ocean view, sleeps 6, 2 night minimum \$100/night. 909/981-7492, Jim or Darlene.

PACIFIC GROVE hse, 3 bd., 2 ba., f/p, cable TV/VCR, stereo/CD, well-eqpd. kit. w/microw., beaut. furn, close to golf, bches, 17 mile dr., aquarium, Cannery Row, JPL discnt. 626/441-3265.

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.