

universe

Jet Propulsion Laboratory

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NASA'S EARTH SCIENCE ENTERPRISE STUDIES
CONTINUED APACE TO END 2002 AS THE JPL-
MANAGED SEAWINDS SCATTEROMETER
INSTRUMENT LAUNCHED SUCCESS
FULLY FROM JAPAN'S TANEGASHIMA
SPACE CENTER ON DEC. 13.

SeaWinds is on its way



NASDA / h_018_018_hi.jpg

SeaWinds launches
from Japan's
Tanegashima Space
Center on Dec. 13.

The instrument joins another satellite already in orbit to measure wind speed and direction over Earth's oceans.

SeaWinds, which rides aboard the National Space Development Agency of Japan's Advanced Earth Observing Satellite 2 (Adeos 2) spacecraft, will complement and eventually replace a second, identical instrument that has been orbiting since June 1999 aboard NASA's Quick Scatterometer (QuikScat) satellite. Its three- to five-year mission will augment a long-term ocean surface wind data series that began in 1996 with the launch of the NASA Scatterometer aboard the Adeos spacecraft. The Japanese Space Agency is a partner on SeaWinds, along with the National Oceanic and Atmospheric Administration (NOAA).

Climatologists, meteorologists and oceanographers use these detailed snapshots of ocean winds in conjunction with data from other Earth-monitoring satellites from NASA and other U.S. and international entities to understand and predict severe weather patterns, climate change and global weather abnormalities like El Niño.

SeaWinds on Adeos 2 will maintain a circular, near-polar orbit about 800 kilometers (500 miles) above Earth. Initial telemetry reports received by the Adeos 2 team show the spacecraft to be in excellent health. The SeaWinds instrument will be powered on 27 days after launch and 17 days later will undergo a thorough checkout. A six-month calibration/validation phase will begin in mid April, with nominal science operations scheduled to begin in October 2003.

"Winds effectively 'stir' heat, moisture and greenhouse gases interacting between Earth's oceans and atmosphere, driving ocean circulation and ultimately weather and climate," said Dr. Ghassem Asrar, associate administrator of NASA's Office of Earth Science. "Ground-based methods of monitoring winds using ships and buoys can only provide a glimpse of this picture, whereas space-based microwave radars like SeaWinds can continuously and accurately map wind speed and direction under most weather conditions across 90 percent of Earth's ice-free oceans every two days.

"In addition," Asrar said, "since SeaWinds maps Earth's land masses as well as its oceans, its data are being used in an increasing number of other applications, from production of daily maps of sea ice extent around Earth's poles; to measuring soil moisture content, vegetation and snow cover; to detecting regional flooding."

"With its ability to 'see' ocean level winds through clouds, data from SeaWinds on Adeos 2 will be an invaluable tool for hurricane tracking and high seas marine forecasting," said Helen Wood, director of NOAA's Office of Satellite Data Processing and Distribution. "NOAA will quickly process the data for weather forecasting use by NOAA's National Weather Service, the Japanese Meteorological Agency, and other national weather agencies around the world."

Scatterometers operate by transmitting high-frequency microwave pulses to the ocean surface and measuring the "backscattered," or echoed, radar pulses bounced back to the satellite. The instrument senses ripples caused by winds near the ocean's surface, from which scientists can compute wind speed and direction.

Additional information about SeaWinds is available at <http://winds.jpl.nasa.gov>.

JPL 101 quiz will test your knowledge

Q: Where is the Carl Sagan Memorial Station?

- Ares Vallis, Mars
 - JPL Mall Wall
 - Aboard the Voyager spacecraft
 - 65 N. Catalina Avenue, Pasadena
- (Answer below)

How much do you really know about the people, endeavors and events that have shaped the history of the Laboratory? A new and fun way to find that out will make its online debut on Monday, Jan. 13.

"JPL 101" will be featured on the Lab's internal news site, the Daily Planet (<http://daily-planet>), and will include a new five-question quiz every week.

The questions and answers in JPL 101 represent information that challenges the seasoned JPLer, while informing the new hire. The Q & A's cover a broad array of information and are intended to help people gain understanding about areas where they may not have direct work-related exposure. The questions are in seven categories: JPL Basics, Science, Technology, Product Development, Missions, Stakeholders, and JPL History.

The answers contain supplemental information that encourage further exploration of JPL resources. The quiz is intended as a general educational resource for the use of all Laboratory personnel. People are encouraged to share their knowledge by submitting questions and answers for inclusion in future quizzes.

The JPL 101 Quiz was developed by the Knowledge Capture Team through the ICIS Knowledge Management Program, with the assistance of the Internal Communications Office, JPL Library, Human Resources, and Ethics Offices. For more information, contact Rebecca Nash, ext. 4-1752, or Lynne Cooper, 3-3080.

A: a) Ares Vallis, Mars.
The Pathfinder Lander was formally named the Carl Sagan Memorial Station following the successful touchdown in the Ares Vallis region on Mars.

Four JPL Earth science concepts funded

Artist's rendering depicts the Rapid-Repeat Deformation Measurement Capability for the NASA AIRSAR System.

Four JPL-led investigations are among the nine awarded funding by NASA last month for technology development of innovative Earth science remote-sensing instruments, under the Instrument Incubator Program, to support the mission to understand and protect our home planet.

Investigations led by JPL researchers Scott Hensley (Rapid-Repeat Deformation Measurement Capability for the NASA AIRSAR System), Ziad Hussein (Cryospheric Advanced Sensor: A Spaceborne Microwave Sensor for Sea Ice Thickness and Snow Cover Characteristics), Eastwood Im (Next Generation Weather Radar [NEXRAD] In Space—A Radar for Monitoring Hurricanes from Geostationary Orbit) and Bjorn Lambriksen (Prototype Geostationary Synthetic Thinned-Aperture Radiometer) have been funded for further development.

The main purpose of the Instrument Incubator Program is to invest in research and development of new and innovative technologies to support the NASA Earth Science Enterprise goals and objectives. The program focuses on creating mature technologies leading to smaller, less resource-intensive and less expensive flight instru-

ments that can be built quickly and efficiently.

The nine selected proposals focus on high-priority measurement areas of Earth's coastal region; Earth's interior processes and motions; sea-ice thickness and snow cover; pollution effects; and precipitation, evaporation and cycling of water. A proposal also focused on innovative technologies supporting measurement concepts from the L1 or L2 Lagrangian points (the points in space where the opposing pull of the Earth reduces the effective pull of the Sun; L1 being on the sun-facing side of Earth and L2 on the opposite or dark side of the Earth).

The total funding for the nine selected investigations, over a period of three years, is approximately \$22 million.

For the other investigations selected for the Instrument Incubator Program, log on to <http://esto.gsfc.nasa.gov/programs/iip>.



Image courtesy of Scott Hensley

2002

the 40th anniversary of planetary exploration as well as the 25th anniversaries of the launches of Voyagers 1 and 2. It's much busier now—the year ended with a record 14 spacecraft in orbit throughout the solar system. And there's much more to come, as the Laboratory looks forward to the busiest period in its history over the next couple of years.

JANUARY

JPL astronomers gathered evidence that a shock is created when material falls in toward a dust disk around a growing star. Scientists believe dust particles in these disks clump together, leading to small rocks that can join together to form planets and comets. ... The Galileo spacecraft flew past Jovian moon Io on Jan. 17, the mission's last and closest flyby of any of Jupiter's four major moons. ... In a partnership with Norway, JPL researchers demonstrated the design of an ice-penetrating robot on a glacier far above the Arctic Circle. The probe melted down 23 meters (75 feet), establishing the viability of subsurface exploration. ... The Mars Odyssey spacecraft was raised up out of the atmosphere to conclude the aerobraking phase of the mission on Jan. 11. ... Using data from the SeaWinds instrument on the Quick Scatterometer (Quikscat), researchers dramatically improved the warning of cyclone development in the Atlantic and Eastern Pacific hurricanes. ... Newly appointed NASA Administrator Sean O'Keefe paid his first visit to the Laboratory on Jan. 30 (above).



FEBRUARY

Mars Global Surveyor continued to shoot stunning pictures (left) as it began the second extension of its successful mission. ... Scientists began studying winter snow packs on the Colorado side of the Rocky Mountains. This will improve the

estimation of snow amount and forecasting of spring flooding due to snowmelt, and study the role of cold lands within Earth's climate. ... Scientists using a combination of data from Galileo and Cassini discovered an invisible whirling bubble of charged particles—the magnetosphere—surrounding Jupiter. ... The United States and Europe incorporated wind speed and direction data from QuikScat into their global weather analysis and forecast systems. Forecasters can now predict hazardous weather events over the oceans as much as six to 12 hours earlier. ... Mars Odyssey began its mapping mission. Initial measurements by the gamma ray spectrometer suite showed significant amounts of hydrogen in the south polar region.



MAY

Aqua, carrying the JPL-managed Atmospheric Infrared Sounder (AIRS) instrument, launched May 4. The mission is dedicated to advancing

our understanding of Earth's water cycle and environment. ... A ceremony in Washington, D.C. tribute to JPL's 40-year legacy of exploring the solar system and beyond. Attending were former Lab directors Drs. William Pickering, Ed Stone, Lew Allen and Bruce Murray, and JPL's current Director, Dr. Charles D. Elachi (below). ... A new, cost-effective technology based on a global positioning system (GPS) (left) may soon revolutionize the way Earth's atmosphere is monitored. By measuring the time delay in a few trillionths of a second—the subtle changes in the speed of GPS signals to arrive at spacecraft as they travel through Earth's atmosphere, scientists can derive data that include extremely precise profiles of atmospheric density, pressure, temperature and moisture content. ... Final observations by Galileo of Jupiter's moon Io revealed



MARCH

The JPL-managed Gravity Recovery and Climate Experiment (Grace), a five-year mission to precisely measure the planet's shifting water masses and map their effects on Earth's gravity field, launched March 17 from Russia (right). NASA's partner is the German Space Agency. ... Wind data obtained by QuikScat documented episodes of reversed trade winds that are responsible for unseasonable cyclone conditions in the northwest and southwest Pacific, and which may be a precursor of a future El Niño. ... The New Millennium Program selected two organizations to lead the work on new technologies to control a space vehicle's flight path so the payload responds only to gravitational forces. The Disturbance Reduction System technology is scheduled to fly in 2006 as the Space Technology 7 project, designed to test and validate advanced technologies for future use on NASA missions.



13 previously unknown active volcanoes, bringing the total number of known Ioian hot spots to 120. Galileo images revealed 74 of them. ... Scientists using Mars Odyssey's gamma ray spectrometer instrument suite found enormous quantities of subsurface water ice in the upper meter (3 feet) of soil in a large region surrounding the planet's south pole (top). ... Infrared images by Odyssey showing Mars' layered surface are the first direct evidence that Mars experienced a series of environmental changes during active geological periods in its history.

JUNE

Thousands of acres of burned vegetation were revealed in images of Colorado's worst forest fire, taken by the Advanced Spaceborne Thermal Emission and Reflection Radiometer (Aster) onboard the Terra spacecraft. ... JPL hosted a briefing for industry in Pasadena, where more than 200 business leaders gathered to learn about potential business opportunities with the Lab.

OCTOBER

The highest resolution mid-infrared picture ever taken of the center of our Milky Way galaxy revealed details about dust swirling into the black hole that dominates the region. The image (*right*) was taken by a team at the Keck II telescope in Hawaii with the JPL-built Mid-Infrared Large-Well Imager camera. ... The Oct. 4 opening of JPL's Commercialization Center created a one-stop shop for U.S. companies that would like to work with the Lab's Commercial Technology Program. ...



Using the NASA Global Differential GPS system at JPL, researchers demonstrated the ability to very precisely navigate airplanes in real time, anywhere in the world, independent of local navigational aids or infrastructure. This promises to extend precision navigation to infrastructure-poor areas of the world, potentially enhancing aviation safety in these areas. ... Researchers demonstrated a prototype device that automatically and continuously monitors the air for the presence of bacterial spores. The result is a novel alarm capability reminiscent of smoke detectors. ... Galileo imaged reddish spots on the icy surface of Jupiter's moon Europa, which may indicate pockets of warmer ice rising from below. This upwelling could provide an elevator ride to the surface for material in an ocean beneath the ice.

NOVEMBER

After 37 close encounters with various planets, asteroids and Jupiter's four large moons, Galileo dashed through Jupiter's inner radiation belts past the moon Amalthea (*below*) on Nov. 5, its last flyby before impacting the planet next September. ... The search for planets beyond our solar system received a major boost with the dedication of JPL's Optical Interferometry Development Laboratory, Building 318 (*right*). ...

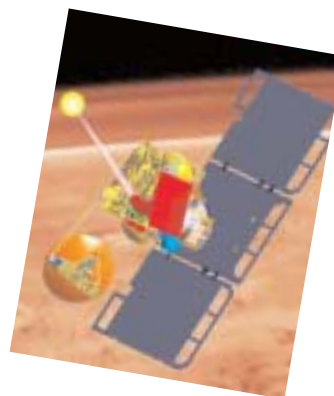


A successful test of the camera on the Cassini spacecraft produced images of Saturn 20 months before the spacecraft arrives at that planet. The image shows the shadow of the planet falling across its rings and includes Saturn's largest moon, Titan. ... All systems on the Stardust spacecraft performed successfully when tested in a flyby of asteroid Annefrank, heightening anticipation for Stardust's encounter with its primary target, comet Wild 2, in late 2003.



DECEMBER

NASA selected four proposals for detailed study as candidates for the 2007 "Scout" mission in the Mars Exploration Program. The principal investigator leaders of the four selected by NASA chose JPL to be their project management partner. If any of the four proposals were to be selected for development, JPL would provide project systems engineering, mission assurance leadership, mission trajectory design and navigation, and mission operations leadership. (*Right: Proposed Mars Volcanic Emission and Life Scout*) ... JPL welcomed more than 20 members of the Mariner 2 team (*below*) to close out the year's 40th anniversary of planetary exploration. ... Japan's Advanced Earth Observing Satellite launched Dec. 13, carrying the JPL-developed SeaWinds instrument to monitor ocean winds.



JULY

The Comet Nucleus Tour mission (*left*) launched July 3 on a 15-month journey to Comet Encke followed by a two-and-a-half-year trip to Comet Schwassmann-Wachmann 3. JPL will provide navigation and Deep Space Network support. ... QuikScat confirmed a 30-year-old, largely unproven theory that there are two

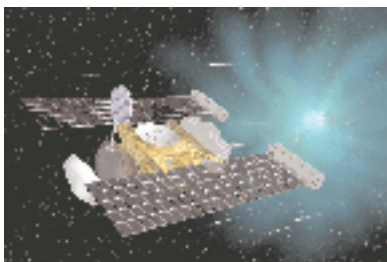


areas near the equator where the winds converge year after year and drive ocean circulation south of the equator. ... NASA selected two new missions that will be managed by JPL for the Earth System Science Pathfinder small-satellite program. The Orbiting Carbon Observatory (*right*) will generate knowledge needed to improve projections of future carbon dioxide levels within the atmosphere, while Aquarius (*bottom*) will provide the first-ever global maps of salt concentration on the ocean surface, a key area of scientific uncertainty in the oceans' capacity to store and transport heat, which affects Earth's climate and the water cycle. ... Researchers created the first four-band infrared focal camera, which will allow them to "see" details that were unachievable with previous technology. This will aid pollution detection, weather prediction and other vital atmospheric and geological applications on Earth. ... Consolidated Edison of New York signed a technology affiliates agreement with JPL to develop sensor technology to detect and quickly analyze hazardous materials in the field.



AUGUST

The JPL-managed Stardust mission (*below*) began to collect tiny interstellar dust grains on its mission to collect and return the first samples from a comet. ... Five JPL proposals were among those selected by NASA for the Earth Science Enterprise's Advanced Component Technology Program, which will provide core component and subsystem technology developments that will enable new science measurements and visionary concepts. ... Three principal investigators from JPL were among those chosen by NASA to develop technologies and other advanced propulsion ideas as part of a suite of in-space propulsion technologies, which will greatly increase NASA's capability to conduct future planetary missions, especially to the outer planets of Jupiter and beyond.



SEPTEMBER

JPL scientists confirmed the first known capture of an object into Earth orbit from a Sun-centered orbit, thanks to continuing observations of what was most likely the third stage of a 1969 rocket to the moon. ... Building upon more than a decade of work on a standard called the linear ion trap, JPL's Frequency Standards Laboratory team developed and installed a new trapped ion atomic clock for the U.S. Naval Observatory in Washington, DC. Recent JPL innovations are expected to provide 20 times improved stability over previous trapped ion clocks.



Staff generous with donations

From left, JPL United Way campaign organizers Laurie Lincoln and Peter Poon chat with United Way representatives Frank Chimarusti and Mike Zoeller during a luncheon honoring the Lab's 215 campaigners and 18 steering committee members.



Photo by Dutch Slager / JPL Photolab

JPL staff members once again showed their generosity during the holiday season with an overall donation of \$447,619 in the 2002 United Way campaign. The 4,899 employees who donated funds represented an increase of 16 people from last year's campaign. Donations dropped about \$3,000 Labwide compared to 2001. By organization, 9X led the way with 75 percent participation. Employees in 6X had the highest average yearly gift per contributor, at \$362. Labwide, staff donated \$196 per contributor. JPLers were particularly generous during the food drive, giving enough canned goods to fill 132 boxes, 41 more than last year.

Passings

EUGENE RITTEL, 77, retired electronics technician in JPL's Digital Projects Group, died of cancer Nov. 10. Rittel worked at JPL from 1969-90, and is survived by his wife Shirley, four children, 14 grandchildren and nine great-grandchildren. Services were private.

MANUEL ESQUIVEL, 37, an electrical engineer in Section 333, died Dec. 1. Esquivel had worked at JPL since 1985. He is survived by his parents, three sisters, one brother, one godson, a nephew and a niece. Services were held Dec. 15 at Holy Family Catholic Church in Wilmington.

JOHN W. ANDERSON, 75, a retired engineer and technical writer, died Dec. 12.

Anderson worked at the Lab from 1962-95. He is survived by his wife, Dorothy; sons John Jr. and Christopher; daughter Kathleen; their spouses and nine grandsons; his brothers, Norman and Arnold; and sisters Edna and Marlene.

Memorial services were held Dec. 18 at Eternal Valley Memorial Park in Newhall.

The family asks that in lieu of flowers, contributions may be made in Anderson's name to the American Lung Association.

DAVE FABRUADA, 65, a retired Electrical Engineer in the Facilities Engineering and Construction Section 6611, died Dec. 12 of kidney cancer. Fabruada worked at JPL from 1983-99. He is survived by his wife, Fregia, a son and a daughter. Services were held Dec. 21 at Azure Hills 7th Day Adventist Church in Loma Linda.

Letters

Thank you so much for the beautiful plant that was sent to my home due to the death of my mother. Your thoughtfulness meant a lot to me as I also lost my father this past March. However, each of my parents had accepted Jesus Christ as their personal savior, so I will see them once again in Heaven. Thanks again.

Robert Holt

Classifieds

For Sale

BOOTS, Lowe mountaineering, sz 12, \$10; crampons and insulators, \$10. 626/794-2431.
CHAIN SAW, McCullough, 18" chain, newly tuned up, \$75. 790-6185, Tim, or tscheck1@mac.com
COFFEE MAKERS, Krups 10-cup, white/gray, like new, \$40/obo; Braun 10-cup, white/black, like new, \$30/obo. 626/791-6101.
COMPUTER, Power Mac 7100/80 with monitor, keyboard, mouse, and Global Village TelePort Platinum modem, works fine, \$50. 790-8523.
DESK AND CHAIR, antique mahogany, \$950. 248-8853.
DINETTE TABLE, 30" x 47", oak, w/2 cushioned oak chairs and 1 oak cushioned bench seat that seats 2, very good cond., \$250; INTELLIVISION CARTRIDGES, 8 orig., \$20/all. 626/359-7666.
DRYER, electric, heavy-duty large capacity, good

cond., \$115. 648-4846, Mike.
EXERCISE EQUIPMENT, NordicTrak cross country Achiever ski machine, early model, wood & steel, vg shape, in storage, handgrips turn TV on/off, VCR, orig. sold for \$1,400, sell \$125;
PANTSUITS, 2, Susan Graver, velour tunic, size 1X, worn once, wine & gray, long, w/applique scroll on bottom, side pockets, elastic waist, \$15/each, \$25/both; other XL, 1X women's clothing. 246-3331.
FIREPLACE SCREEN, black with brass trim, exc. cond., \$20. 626/445-2616.
FURNITURE: ceramic lamps, 2 lg., dusty rose, \$25; oak desk & 2 matching bookcases, Spanish, \$700; mission golden oak sideboard w/mirror, \$1,200; mission library desk, \$400; office furn., Techline, white, 6 pc., \$500; hall table, drop leaf, \$200; butcher block utility table unfin., \$150; several mirrors, Nordic Track, \$50; 626/584-0860, or 626/794-3144, eve.
FURNITURE: teal recliner, \$49; wicker peacock chair, \$29; oak coffee table, \$19; pink/gray stroller, \$19; microwave cart, solid oak, \$39; matching oak side table, \$19; bookcase, blue metal, sliding glass doors, 4' w x 3' t, \$89; hot/cold water dispenser, stand-alone model, \$29; doctor's scale, tall with balancing lever, \$49. 626/798-4510.

MISC.: quilting frame, \$29; spare tire/wheel, donut, T105 80D-13, used once, \$39; Shiatsu massager, fits in chair, \$29; down comforter, king, \$49; mini-blinds, 72" w x 50" t, 2 for \$29; wireless doorbell/intercom, \$39; golf ball retriever, telescoping aluminum 12", \$19; rolling duffel bag, kids, multicolor, never used, \$19; 3-piece luggage set, Pierre Cardin, \$19. 626/798-4510.
MODEMS, Arescom NetDSL DSL, for MSN DSL: 2 NetDSL 800, 1 NetDSL 1000, brand new in the original boxes with all cables, documentation, CDs, \$30/each. 769-8335.
PIANO, upright, great cond., \$100/obo. 353-2772, after 5 p.m.
POOL LADDER & light, stainless steel. 626/794-2431.
REFRIGERATOR, Whirlpool, 18.2 cu. ft., freezer on top, white, auto icemaker, EZ-vue crispers, adjustable glass shelves, 2 yrs old, sacrifice \$350. 790-4028.
SCANNER, brand new Memorex 48u, 48-bit true color flat bed scanner, 600 x 1200 dpi, compatible with Windows 98/2000/ME/XP, hot plug and play, \$29. 956-3745, Steve.
SLED, green, exc. cond., was \$20, now \$10. 626/850-4378.
TELEPHONE, antique Danish hand crank, near mint cond., no dial, can be converted as an extension phone, \$95/firm. 248-5282.
TELESCOPE EQUIPMENT: Meade, 12" LX200, w/computer drive system; Apogee AP47P digital imaging system, TE cooled camera head, Gr. 1 Marconi 47-10 CCD & Maxim DL/CCD image acquisition & processing software; Meade Super Wedge & Dew Shield, + add'l accessories, virtually unused, paid \$13K, sell for \$4,900 for telescope/accessories, \$4,900 for camera, or \$9,750 for all. 805/492-0576, Tony, or ts44@gte.net.
TOYS/EQUIPMENT: Little Tikes Cozy Car w/canopy & removable push handle, was \$60, now \$30; Little Tikes Swing Along Climber w/swing, slide, and steering wheel, was \$120, now \$75; Safety 1st booster seat, was \$20, now \$10; ass't'd soft plush toys for car seats and strollers, were \$16/ea., now \$8/ea.; all in exc. cond. 626/850-4378.
TREES: red banana plant, 5' tall, \$60/obo; Fish tail, 6', \$80/obo; ficus, braided, in 30" plastic pot, >10' tall, \$250/obo; ceramic bowl, gray, 2' diam. w/planted geraniums, \$40/obo. 626/791-6101.
VANITY DRESSING TABLE, antique, mirror + 4 sm. drawers, Art Deco, circa 1930s, great cond., \$300; DRESSING TABLE, unique honey oak, ped-estal type, dual circular mirrors w/solid brass appointments, circa 1940s, must see, great cond. \$275. 368-9520.

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Jet Propulsion Laboratory

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Team X notes milestone

Advanced Projects Design Team reaches 500 studies

By Mark Whalen

Team X members collaborate in the Project Design Center.

The Advanced Projects Design Team started its work in 1995 under Spartan conditions. Created out of the need for JPL to keep up with its increasing number of mission studies in the 1990s, the team that was in on the advent of concurrent engineering didn't even have computers in its work room at the outset.



Photos by Dutch Slagter / JPL Photo Lab

Once it got going and proved its worthiness over the years to follow, however, there's been no stopping Team X, as it has come to be known. Now equipped with networked workstations, teleconferencing capabilities, technical support and more, the team recently celebrated its 500th study in support of pre-phase A mission development.

Team X enables a mission's principal investigators and their design teams to effectively plan new mission proposals. Work sessions, held in the Project Design Center in Building 301, feature staffers representing the various elements of a mission: navigation, power, structure, attitude control, propulsion, ground systems, etc.

"What we've done is evolve a culture that supports the dynamic development of requirements, designs and costs of conceptual missions in a week, and that provides the best possible return on investment," noted Team X leader Bob Oberto.

"We discuss and identify problems, and make corrections in real time, which gives the entire team a better understanding of the technical issues driving

the design," Oberto added. "This provides a better-optimized mission, in terms of cost, performance and risk, and shows scientists and technologists the limits and constraints they'll have to deal with."

"Team X was an immediate success," said former team member Louise Hamlin of Section 311D. "Customers found they could come to the team with almost any sort of mission and walk away with a design, all at about 10% of the cost of a traditional mission study."

Team X members are nominated by the technical divisions, and now number more than 100, Oberto said. The studies are thorough but quick, most of them completed in just three three-hour sessions.

Many of the studies were critical to the selection or solidification of JPL missions approved for development, including CloudSat, Dawn, Kepler, Aquarius and several Mars Scout missions, to name a few. The team has also conducted studies for other NASA centers as well as for international partners, including ideas for a Venus lander and a Europa ocean mission.

Steve Prusha, manager of the Strategic Systems Technology Programs Office, has utilized Team X's



services a number of times over the years to test the impact of various technologies on mission scenarios, and is definitely a satisfied customer.

"They have done a stellar job," he said. "I can run an end-to-end study in one week, a capability that is unique throughout the agency."

Prusha complimented the team's "agility and nimbleness, the ability to go from a Venus lander study one week, to an observatory the next week, to an Earth mission the week after that."

Team X and its work at the Project Design Center have been emulated at several other NASA centers and in the aerospace industry, Oberto said.

The approval for the Team X concept was signed in 1994 by Space and Earth Science Programs Director Dr. Charles Elachi, who is now the Lab director.

"Team X is now part of the JPL lexicon," Elachi said at a commemoration last week. "Everyone now knows what Team X means, not only within NASA but in the broader scientific community as well. Team X has significantly exceeded our expectations."

Positive news on JPL's report card from NASA

JPL's scores in its fiscal year 2002 Final Performance Evaluation (also known as the NASA report card) resulted in improvement in two of three categories.

The annual evaluation of the Laboratory's performance is used to determine the amount of an award fee to be paid to Caltech. In turn, some of that money is given to JPL for use at its discretion.

"NASA strongly commended our missions, our progress in financial and institutional management and the Lab's innovative leadership in education and outreach," noted Deputy Director Eugene Tattini. "Cost growth in some of our missions affected our otherwise strong programmatic efforts. The Programmatic score is down slightly, but both Institutional Management and Outreach attained the highest scores to date."

In the Programmatic category (worth 65% of the overall score), JPL received a score of 88 out of a possible 100, three points lower than in FY '01. In Institutional Management (25%), the Laboratory received 88 points, three more than the year before. Outreach (10%) scored 96, one point higher than last year.

The Lab's weighted total score of 88.8 was about a point lower than in FY '01.

The complete Final FY 2002 Performance Evaluation Report is available on the Director's Office home page at <http://ood> under "Information of General Interest: 2002."

Speakers, panel highlight King observance

Following the Jan. 20 observance of the birth of Dr. Martin Luther King Jr., a JPL holiday, the Laboratory will commemorate the memory of the civil rights leader with two guest speakers and a panel discussion.

On Tuesday, Jan. 21, Dr. Julian Earls, deputy director of NASA's Glenn Research Center, will speak at 11:30 a.m. in von Kármán Auditorium.

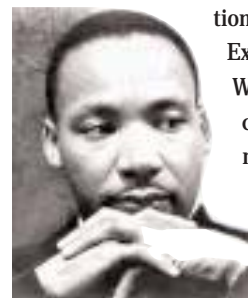
On Wednesday, at the same time and location, a panel discussion featuring seven JPL African American Ph.D.s will be held. The theme will be "Achieving the Dream"—what it means, major barriers and enablers for the panelists, and advice to up-and-coming Black Americans interested in math and science.

The panelists will be Dr. Claudia Alexander, project scientist of the U.S. portion of the Rosetta Project; Dr. Ayanna Howard of Section 3484, who works in telerobotics research and applications; Dr. Deborah Jackson, a member of the Quantum Computing Technologies Group, Section

3676; Dr. Eni Njoku of Section 3242, project scientist for Hydros, an alternate Earth Space Science Pathfinder mission; Dr. Virgil Shields, a senior member of the engineering staff in Section 3464; Dr. Edward Tunstel of Section 3483, mobility and navigation system engineer for the 2003 Mars

Exploration Rovers Project; and Dr. Keith Wilson, Section 331D, a senior telecommunications engineer specializing in optical communications.

The events will conclude on Friday, Jan. 24 as Pasadena Unified School District Superintendent Dr. Percy Clark will speak at 11:30 a.m. in von Kármán Auditorium.



Dr. Martin Luther King Jr.

News Briefs

SeaWinds detects Antarctic ice melt

An international research team using data from JPL's SeaWinds instrument aboard the Quick Scatterometer spacecraft has detected the earliest yet recorded pre-summer melting event in a section of Antarctica's Larsen Ice Shelf.

This huge, nearly 200-meter-thick (656 foot) plate of glacier-fed floating ice, which in the late 1980s was about as large as Indiana, experienced dramatic disintegration events beginning in 1995 that have reduced its area by nearly 10 percent, or more than 2 trillion tons of ice.

Researchers used near real time Quick Scatterometer data to document a rapid, extensive melting of the Larsen C ice shelf in Antarctica's Weddell Sea from Oct. 27-29, 2002. The melting, which extended to 68 degrees south, was triggered by a mid-latitude cyclone that delivered warm air to the region. The same storm is believed to have also caused a noticeable recession in the sea-ice margin to the west of the Antarctic Peninsula. Images are available at <http://photojournal.jpl.nasa.gov>.

Halpern takes White House post

Senior Research Scientist DR. DAVID HALPERN has begun an assignment at the Executive Office of the President, Office of Science and Technology Policy, commonly known as the White House Science Office.

Halpern works closely with the office's associate director for science on the national agenda related to climate change science and technology and on oceanographic programs. He also works with the office's director, who is President Bush's science adviser; interacts with organizations involved in climate and in oceanography; and is a member of several interagency teams.

Prior to starting this assignment, Halpern was manager of the Climate Variability Program in the Earth Science and Technology Directorate. His ongoing JPL research uses satellite data to improve prediction of the onset of summer monsoon rainfall in India and to understand the mechanisms of El Niño, coastal upwelling and other climate phenomena.

Peltzer receives AGU honor

JPL geophysicist DR. GILLES PELTZER received the William Bowie Medal, the highest honor bestowed by the American Geophysical Union, at the organization's fall meeting.

The annual Bowie medal acknowledges an individual for outstanding contributions to fundamental geophysics and for unselfish cooperation in research, one of the guiding principles of the organization.

Blood drive set for February

The next JPL/Red Cross blood drive will be held in von Kármán Auditorium Feb. 11 from 10 a.m. to 4

p.m. and Feb. 12, 7 a.m. to 1 p.m.

Advance sign-up sheets will be available at Occupational Health Services, Building 310-202, prior to the blood drive. You may go directly to von Kármán at your preferred time if you were not able to sign up ahead of time. To sign up now, visit http://eis/medical/blood_form.html.

The Red Cross is experiencing a critical shortage of all types of blood, and is appealing to all eligible donors.

During the two-day drive in November, the Red Cross collected 152 pints of blood. Occupational Health Services notes that 456 lives will benefit from that blood drive.

For further information, log on to <http://www.redcross.org/services/biomed/blood/supply/tse.html>.

Weight Watchers program available

A new session of the Weight Watchers program on Lab is now underway. All JPL employees and contractors are welcome to join.

You can join at any time during a series. Those who join after the Jan. 21 meeting are required to pay \$11 for each remaining meeting at the time they enroll. Payments can be made by cash, check or credit card.

Meetings are held Tuesdays from 11:30 a.m. to 12:30 p.m. in the JPL Wellness Place, 167-111. This series runs weekly through April 29, 2003.

For more information or questions, call Laurie Lincoln at ext. 4-1612 or visit <http://eis.jpl.nasa.gov/hr/esr/wellness/wwatchers.htm>.

Women's Club sponsors events

The Caltech Women's Club is offering membership to JPL staff. Among the club's activities are Preschool Playgroup and Wednesdays in the Park, both held from 10 a.m. to noon at Tournament Park.

The playgroup, held on Tuesdays, is for children ages 1-4 and offers crafts, song and story time, free play, and exploratory learning, and a supportive environment for parents and caregivers to observe and interact with their child. For more information, call JULIA KENNEFICK at (818) 792-7808.

Wednesdays in the Park offers camaraderie for the grownups and playtime for infants thru school-age children. It is a great way to meet people and share information about services and activities available for families. For more information, call IRENE LOCHER at (818) 584-5828.

Women invited to join singers

Women are invited to join the Arroyo Singers, a Pasadena-based chorus that rehearses 7:15 p.m. Tuesdays at Caltech.

Repertoire is varied, and no voice training is required. Members are planning for a spring concert. For information, call (323) 256-5332 or (626) 798-5855.

30 years

Charles Acton Jr., Bonnie Cantrell, Edward Contreras, Larry Hovland, Patti Jansma, Michael Keese, Robert Kinkade, Kenneth Klaasen, James Lesh, Thedra McMillian, Donald Moore, Charles Porter, Julie Selders.

25 years

Barbara Amago, Izeller Cureton-Snead, Louis D'Amario, Karen Dean, Rizalina Gordon, Carl Guernsey, Stuart Kerridge, Robert Klotz, Gloria Lang, Jean Lorré, Michael Marcucci, David Maynard, Patricia McGuire, Brian Muirhead, Glenn Orton, Charles Radics, Ralph Ridley, Leigh Rosenberg, Casper Sagoian, Elliott Sigman, Mahadeva Sinha, Ernest Stone, Michail Zak, Wayne Zimmerman.

EMPLOYEE SERVICES & RECOGNITION

50 years

Jay Bondi, Carl Sauer Jr.

45 years

Charles Kurzweil, Robert Toomath.

40 years

Thomas Gavin, David Griffith, Robert Hamilton, James Kelley, Donald Palmieri, Rodney Stanley, James Young.

35 years

Adeline Carr, George Frascchetti, Fred Soltis, Carolyn Stevens, Gary Stevens, John Wellman.

Special Events Calendar

Ongoing Support Groups

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

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

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

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

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

Friday, January 17

Caltech Women's Club—A Welcoming Coffee will be held from 4:30 to 6 p.m. at Rathskeller, located on campus in the Athenaeum. For more information, call Carol Anderson at (818) 790-8175.

"Do Aliens Cause Global Warming?"—Renowned author Michael Crichton will deliver a free lecture at 8

p.m. in Beckman Auditorium. For more information, call (626) 395-4652.



Michael Crichton

Sunday, January 19

Chamber Music—The Emerson String Quartet will perform at 3:30 p.m. in Beckman Auditorium. Tickets are \$29, \$25, \$21 and \$17. Call (626) 395-4652.

"Who is Science Writing For?"—Author Margaret Wertheim will give this Skeptics Society-sponsored lecture at 2 p.m. in Caltech's Baxter Hall. Donations: \$5 for members, \$8 for nonmembers, Caltech/JPL community free.

Tuesday, January 21



Dr. Julian Earls

Martin Luther King Celebration—Dr. Julian Earls, deputy director of NASA's Glenn Research Center, will speak at 11:30 a.m. in von Kármán Auditorium.

Wednesday, January 22

Martin Luther King Celebration—A panel discussion featuring seven JPL African American Ph.D.s will be held at 11:30 a.m. in von Kármán Auditorium. See page 1 article for a list of the panelists.

JPL Toastmasters Club—Meeting at 5 p.m. in the 167 conference room. Call Roger Carlson at ext. 4-2295 for information.

Thursday, January 23

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. For reservations, call Susan Lee at (626) 395-6327.

Thu.-Fri., Jan. 23-24

Von Kármán Lecture Series—Dr. Andrea Donnellan, deputy manager, Earth and Space Sciences Division, will present "Using Space Technology to Understand Earthquakes" 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 <http://www.jpl.nasa.gov/events/lectures/jan03.html>. For more information, call Public Services at ext. 4-0112.

Friday, January 24

Martin Luther King Celebration—Pasadena Unified School District Superintendent Dr. Percy Clark will speak at 11:30 a.m. in von Kármán Auditorium.



Dr. Percy Clark

Caltech Student Chamber Ensembles—A free concert featuring music by C.P.E. Bach, Mendelssohn, Milhaud and Schubert's "Trout" Quintet will be performed at 8 p.m. in Dabney Lounge.

Saturday, January 25

Caltech Jazz Bands—A free concert featuring the music of Count Basie will be presented at 8 p.m. in Beckman Auditorium. For more information, call (626) 395-4652.

Voyager Documentary—JPL's longest-running mission is the subject of a two-hour documentary, "Cosmic Journey: The Voyager Interstellar Mission and Message," to be broadcast at 1 p.m. on the A&E network.

Sunday, January 26

Super Bowl Alternative Concert—Trios by Beethoven, Mendelssohn, Debussy and Peter Schickele, as well as music for piano duet, will be offered at 3:30 p.m. in Caltech's Dabney Lounge. For more information, call (626) 395-4652.

Tuesday, January 28

Mr. Smith Goes to Washington—A part of Caltech's Frank Capra Film Festival, this 1939 classic will be shown at 7:30 p.m. in Beckman Auditorium. A panel discussion will immediately follow the screening. Admission is free.

Wednesday, January 29

"Fuel Cells: Powering Progress in the 21st Century"—Caltech materials science associate professor Dr. Sossina Haile will lecture at 8 p.m. in Beckman Auditorium. Admission is free.

Volunteer Professionals for Medical Advancement—A board meeting will be held at 10:30 a.m. and a technical review at 1:15 p.m. at the Caltech Credit Union, 528 Foothill Blvd., La Cañada. The group seeks a volunteer mechanical engineer to modify the design of a sled used in a magnetic radiation information unit of a local hospital. Other engineers, managers and support volunteers are needed in all fields. For more information, call Herman Bank, (626) 791-3748.

Thursday, January 30

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

JPL Stories—Retired JPL engineer Herman Bank will present "55 Years at JPL (Cheers and Tears)," at 4 p.m. in the Library, Building 111-104. For information about the story series, call Teresa Bailey, ext. 4-9233.

Service awards bestowed

For the period from October 2002 through January 2003, the following JPL recipients celebrating 25 or more years of service were invited to attend a luncheon and ceremony in their honor on Jan. 14.

h

ere's how Washington, D.C. works: By

February, an initial budget request by the Bush Administration for fiscal year 2004 will begin to make its way through the laborious process for which the capital is famous. Of course, even though the federal government is now three months into fiscal year 2003, the current budget has not yet been signed into law.

To further illustrate the level of JPL's support in Congress, O'Toole mentioned that Rep. Nancy Pelosi (D-San Francisco), the new House minority leader, is very familiar with JPL, and has visited Caltech several times.

As part of the redistricting—in which California gained a seat in the House for a total of 53—traditional Republican strongholds La Crescenta and La Cañada are now in Dreier's district. In turn, Schiff's

The result is a more hard-line stance and more party-line votes. "Over the last few elections, the House has become more polarized and a bit more acrimonious," O'Toole said.

In the California House delegation, 20 are Republican, 33 are Democrat (including one new seat.). In addition to the breakdown along party lines, "California doesn't vote as one block," O'Toole observed. "Northern and Southern California don't often have a lot of interests in common."

No changes are expected for the leadership of the Appropriations Committee of the Republican-led

Capital Gains

By Mark Whalen



Photo by Bob Brown / JPL Photolab

**Budget
still not
final; Lab
has new
congress-
man**

NASA, AS WELL AS MANY OTHER FEDERAL agencies, is now operating under a continuing resolution; that is, we're all able to do our work as long as we do not spend at a rate greater than last year's rate of spending.

This scenario is not at all uncommon, explained Dr. Richard O'Toole, manager of the Legislative and International Affairs Office, during a von Kármán Auditorium talk on Dec. 9. He explained the inner workings of the budget cycle and discussed the impacts of November's midterm elections.

NASA's budget is allocated as part of a package that includes the Veterans Administration, Department of Housing and Urban Development, and other independent agencies.

"Of the 13 appropriations bills submitted for approval for FY '03, only two have been approved," O'Toole said. "I expect that appropriations subcommittees will have their conference during the month of January in order to complete the bill by the end of the month. The continuing resolution is now in effect through Jan. 28 and the goal is to complete all the appropriations bills prior to the President's budget address for FY '04 on Feb. 3."

JPL has a new congressman, O'Toole noted. Last month, voters overwhelmingly reelected Democrat Adam Schiff (61%) and Republican David Dreier (63%). But due to redistricting, JPL is now in Dreier's district, while Caltech remains in Schiff's district.

"This is the best possible outcome for JPL," O'Toole said. "Congressman Schiff has supported JPL extremely well, and since he retains Caltech, he won't forget about us."

Dreier, in his 12th term, is chair of the House Rules Committee. Dreier has also gone to bat for the Lab numerous times, noted O'Toole. "In fact, he came by and showed his support during the search for Mars Polar Lander in late 1999."

new geographic boundaries count more traditional Democratic voters. "This will be to the advantage of these two Congressman for the next election," O'Toole said, "following a pattern that has emerged throughout the state in redistricting following the 2000 census."

Nationwide, there were very few competitive Congressional races in November, when the GOP gained a 24-vote edge in the House—229–205—"a fairly significant margin," O'Toole noted. There were only four races out of 53 in California where the winner had a vote percentage less than 60%—other races had even higher margins of victory.

It helps to be an incumbent—97% of House incumbents nationwide were reelected. Throughout all of the 435 districts that make up the House, only

"This is the best possible outcome for JPL. Congressman Schiff has supported JPL extremely well, and since he retains Caltech, he won't forget about us."

— Dr. Richard O'Toole, on the reelection of Congressmen Adam Schiff and David Dreier.

20 races resulted in victories for non-incumbent and some of these were "open seats" where no incumbent was running.

"Wherever President Bush showed up to campaign, his presence was able to move 20 to 30 percent of the undecided vote," noted Jeff Lawrence, former NASA associate administrator for Legislative Affairs, who was a guest at the O'Toole talk. "The Democrats couldn't counter-balance."

"In the House, majority rules," O'Toole said. "Again, due to redistricting, GOP can operate with more rigidity and party discipline; all that is needed is a 218 to 217 vote to pass legislation."

House. As for the Senate, the new Appropriations Subcommittee chair is Rep. Chris Bond (R-Mo.). The former chair, Rep. Barbara Mikulski (D-Md.), is now the ranking minority member of the sub-committee. Even with this new leadership, "Don't expect a lot of changes," O'Toole said. "Sen. Mikulski will be taking the lead on NASA as before."

The Senate now counts 51 Republicans, 48 Democrats and one independent. This is not expected to have a huge impact on NASA, O'Toole said. "The three-vote margin now seen in the Senate isn't worth as much as the larger majority enjoyed by Republicans in the House," he said, "because it takes 60 votes in the Senate to bring legislation to a vote on the floor."

O'Toole noted the top issues that will be tackled by the 108th Congress—and NASA isn't among them. "The main issue will be homeland security," he said. "Other priorities will be further tax cuts, prescription drug benefits, and free trade."

O'Toole termed as "winners" the areas of defense, health and education, with "losers" as "everything else." We're not a priority," he said, but "we are also not a target for cutting." O'Toole noted that, "the space program was not even mentioned in the last presidential election."

When it comes to allocating NASA's budgetary resources, it's all relative. Maryland, for instance, receives by far the most per capita in government NASA funding than California, mostly because JPL's FY '03 budget of \$1.4 billion is "lost in the noise of the economy" in California, where it represents only 1/10 of 1 percent of the economy. In contrast, Marshall Space Flight Center's budget represents about 2% of Alabama's economy.

When the FY '03 budget process is completed, O'Toole expects the NASA budget to be about \$15.3 billion. But budget planners must also deal with the growth of "earmarks," projects of local interest such as science centers, libraries, etc., that are not authorized by a policy committee but are funded as additional programs in the appropriations process.

Often, these projects have little or nothing to do with NASA projects or needs, but the agency must find a way to fund them. "They're nice for the district," said O'Toole, but it's difficult for agencies to fund these programs."

O'Toole expects that the NASA budget for FY03 could total \$15.3 billion after additions for earmarks, but that the new earmarked programs will leave NASA with a \$200 million shortfall in funding. "We're hoping our budget increase will stay above inflation for the out-years beyond 2003," he said.



Photo by Bob Brown / JPL Photo Lab

Rover review

During their visit to JPL last month, several NASA astronauts viewed the Mars Exploration Rovers in the Spacecraft Assembly Facility. From left are Dr. Eric De Jong, principal investigator of JPL's Visualization Lab; astronauts John Young, Kevin Ford, Andrew Feustel and Eric Boe; Dr. Andrea Donnellan, deputy manager, Earth and Space Sciences Division; and Tony Ganino, MER engineer.

JPL'S ONLINE NEWS SOURCE

Classified ads will be available the day before Universe is published at

<http://dailyplanet>

Ad deadline extended

Due to the Jan. 20 holiday observing the birthday of Dr. Martin Luther King Jr., the Universe ad deadline has been extended to Tuesday, Jan. 21 at 2 p.m.

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

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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 JPL Store and the Universe office, Bldg. 111-B29C, 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.

Letters

We would like to thank our friends and co-workers and the ERC for the kindness expressed at the recent passing of Elaine's father. We were very touched by your comforting words and thoughtful cards. Also, thank you for the beautiful plant.

Harry and Elaine Woo

Thank you for the beautiful plant sent to my home in remembrance of the demise of my mother. It is a living memorial of your kindness and of my mother's life.

Edwin Kan

Passings

PETER LINDLEY, 80, retired member of the technical staff in the former Section 368, died of pancreatic cancer Dec. 17, 1960-87. He is survived by his wife, Jean, daughter Jenni, son Bob and four grandchildren.

Retirees

The following JPL employees retired in January: Judith Hoepfner, 18 years, Section 902; Eugene Pastor, 14 years, Section 351; Donna Jones, 11 years, Section 701.

Classifieds

For Sale

AQUARIUM, 100 gallon, (60 x 18 x 20") SeaClear System II acrylic, blue background with 4 lights (2 blue, 2 white), black stand with rounded corners, CPR Bak-Pak 2 protein skimmer, \$600. 626/578-9720, eve.

BACKPACK, aluminum frame, \$40. 395-6804, lv. msg.

BASEBALL TICKETS, season for Anaheim Angels, \$425 for 2 field level seats (10 games). 626/966-3538.

BOOTS for snowboarder, Airwalk Ridge women's, w/Thinsulate, size USA, black, brand new, never been worn, \$25. 550-7555, Rob.

BIKE RACK, Rhode Gear, \$45; **CAR AUDIO**: Kicker Impulse 352xi stereo power amp and two 8" Kicker Impulse sub woofer speakers mounted in box, \$175. 472-9173, James.

BUNK BED, Ikea, with mattress, \$200. 395-6804, lv. msg.

CHAIRS, 4, oak, straight backs, rush seats need replacing, best offer. 626/578-0599, Allan Klumpp.

CLOCK, Mauthe wall; greatest Westminster chimes; clock OK, chimes need fix; \$50. 909/593-4046.

COFFEE MAKERS, Krups 10-cups, white/gray, like new, \$40/obo; Braun 10-cups, white/black, like new, \$30 obo. 626/791-6101.

COFFEE TABLE and end table, wood, contemporary design, medium color stain, \$50 for both; **PANT & TUNIC SETS**, women's 1X velour, Susan Graver, worn only 1 time, \$15/ea. or 2 for \$25. 246-3331, before 9 p.m.

COMPUTER, 2 Dell Pentium XPS 500s, 6.4 GB HD, 384MB RAM, 32MB Diamond Viper 770D video card, 100MB Zip, CD-ROM, MS Office 2000; \$250. 626/584-0860, Donna.

COMPUTER, PowerMac G3, 300 MHz, 192 MB, 8 GB, AV, Zip, CD-ROM, 2nd video card (Xclaim 3D Rage Pro 8 MB), to support another monitor, Dell Ultrascan 1000 HS Trinitron color monitor (15.9" viewable), external USB-Robotics 56K modem, new unopened Claris software, Wacom graphics pad, Microtek Scan-Maker E6 SCSI scanner, \$400. 661/297-8533.

DESK & CHAIR, antique mahogany, \$500. 248-8853.

DINETTE TABLE SET, 30" x 47," oak, 2 beige upholstered oak chairs and 1 beige upholstered oak bench seat, seats 4, vg cond., \$250; **SWIVEL/ROCKING CHAIR**, bamboo framed, beige, upholstered, good cond., \$50; **GAMES**, 8 orig. Intellivision cartridges, \$20 for all. 626/359-7666.

EDUCATIONAL GAME, Geo Safari, with 7 card packs of (approx.) 18 interactive games each, includes: basics (animals, insects, nature, ...), geography, math, reading, English, getting ready for school, ages 4-7, vg cond., \$45. 626/303-1927.

EXERCISE BIKE, Tunturi Executive Ergometer, \$50/obo. 897-1203.

EXERCISE TAPES, only used once; Billy Blanks Tae Bo, \$10/each; Line Dancing, \$5; Weight Training for Women with Cathe-Abs/Legs, \$5; Arms, \$5. 248-6062, Elizabeth.

EXERCISER, NordicTrak Achiever X country, original leather, wood and steel model, good cond., orig. cost \$1,400, sell for \$125;

WASHER AND DRYER, Sears Kenmore stackable, washer needs a new timer, dryer runs well, 110V, color harvest gold; shabby chic from the '70s with orig. paint, p/u in Glendale; \$75 for both. 246-3331, before 9 p.m.

EXERCISER, VitaMaster ski machine with electronic console, \$30. 626/836-4767.

HOCKEY TICKETS, 2, L.A. Kings, Staples Center lower bowl, \$100 for both. 626/852-0821.

KIDS' ITEMS: Little Tikes Cozy Car with a canopy and removable push handle, was \$60, now \$30; Little Tikes Swing Along Climber with swing, slide, and steering wheel, was \$120, now \$75; Safety 1st booster seat, was \$ 20, now \$10; assorted soft plush toys for car seats and strollers, were \$16/each, now \$8/ea.; all items in exc. cond. 626/850-4378.

KITCHEN APPLIANCES: Farberware T4800 conv/broil oven, black, \$150; Goldstar ER-3010 microwave oven, Little Cookee, white, \$20; Proctor-Silex Cool-Touch extra-wide slot toaster, white, \$15; Osterizer Contemporary Classics blender, \$40. 626/744-9064.

LAMP, Southwestern, w/shade, \$20; **CAR CABLES/CHAINS**, never used, \$20; **CAR WAXER**, professional, \$20. 626/462-9457.

LASER PRINTER/copier/fax/scanner, HP 3100, 1998, good, best offer. 626/795-3859, Allan Klumpp.

MATTRESS, Cal-King, gd. cond., \$90. 626/850-4378.

MINI-DISC PLAYER with record capability, Sony, remote, anti-skip, 10 blank discs, great sound, tiny, mint condition, \$99/obo. 687-8627, Alberto.

MOUNTAIN BIKE, 2002 Diamond Back, model Sorrento, 21 speed, Shimano components, silver, like new, \$175/obo. 353-4872, Mike.

PHONICS GAME & training, contains videos, cassettes, manuals; a comprehensive course for children through adult, exc. cond., paid \$200, sell for \$100. 626/303-1927.

PRINTER, new, unopened Epson Stylus C42UX USB inkjet for PC or Mac, 2880 x 720 optimized dpi, prints black text at up to 12 ppm and color graphics at up to 5.5 ppm, \$50. 661/297-8533, Bob.

REFRIGERATOR, GE, 22 cu.ft., side-by-side, white, good cond., \$150. 248-9418.

SCREEN, 3-panel wicker, natural rattan, 72" H x 54" W, \$60; **TYPEWRITER**, Smith Corona electric, with Word Processor Office System, \$50. 352-3112.

SKI CLOTHES: all new; women's powder suit, sz. 10, turquoise/magenta; women's bibs, sz. M, black; women's X-C knickers, grey wool, sz. 12R; rainpants, unisex, sz. M, blue. 952-0474, lv msg.

TRANSCRIBER, Sanyo; old but works fine; you'll need today's earphones; \$45. 909/593-4046.

TREES, Red Banana plant, 5' tall, \$60/obo Fish tail, 6' tall, \$80/obo; Ficus, braided, in 30" plastic pot >10' tall, \$250/obo; ceramic bowl, gray, 2' diameter with planted geraniums, \$40 obo. 626/791-6101.

TV, 16" screen Hitachi, exc. cond., w/remote control, wood frame, \$90. 626/794-4921.

TV, 25" color diagonal Sharp Linytron, gd. cond., needs antenna, \$60. 626/447-1095.

TV, 32" color Toshiba, plus stand, less than 4 yrs. old, exc. cond., \$300/obo. 661/297-5234.

VANITY DRESSING TABLE, antique, mirror and 4 small drawers, Art Deco circa 1930s, great cond., \$300; unique honey oak dressing table, pedestal type, dual circular mirrors with solid brass appointments, circa 1940s, great cond., must see, \$275. 368-9520.

WASHER AND DRYER, \$60 each. 626/584-1164.

WHEEL HUB, heavy, for big wagon but not used as such; 12" hi, 7" wide; wired as a lamp; light comes thru open spoke slats; hand made from dark solid oak; \$50. 909/593-4046.

Vehicles/Accessories

AUTO TEST SET, electronic, incl. analog ignition oscilloscope that displays primary/secondary parade and raster wave-forms plus a full function analyzer with timing light all on a chrome roll-away cart, \$500. 249-6071.

'00 BMW 328i, 6 cyl. automatic, 20,850 mi., equipped w/sports package/Harman-Kardon stereo, \$29,900. 626/510-9152.

CABLE CHAINS, 2 sets, new; 1 set never used; 1 used < 2 miles; fits variety of tires, call for

sizes; \$25/ea./obo. 353-6369, eves.

'95 DODGE Ram pickup, black, lifted, exhaust system, CD stereo, tinted windows, custom tires, euro-lights, bed liner, 103K miles, \$11,000/obo. 249-9747.

'99 FORD Taurus wagon, metallic silver, great spacious family car, 12-valve V6 3.0 L engine, 80K miles, exc. cond., \$6,900/obo. 626/584-1164.

'68 FORD Mustang hardtop, 289 V8, auto, factory a/c, p/s, am radio, orig. owner, orig. candy apple red paint, mint cond., runs great, Calif. car - no rust, owner's manual, factory invoice/window sticker/sales brochure, \$10,000. 248-6489.

GREASE/GEAR MANUAL PUMP with 5-gal. container, incl. 6 ft. of 3/8 high pressure hose with standard coupler; delivers grease at high volume or high pressure; exc. cond., \$50; **BRAKE BLEEDER KIT**, for most brake systems; built-in heavy duty safety valve & pressure regulator gage; 1.5-gal. capacity; includes adapters for Ford, GM, VW, Honda; exc. cond.; sells new for over \$400, sell for \$115. 249-6071.

'97 HONDA Valkyrie motorcycle, exc. cond., extra chrome, garage kept, purple/white, studded seats, leather bags, many accessories, 23K miles, see to appreciate, \$7,900. 957-2852.

'94 HONDA Nighthawk 250cc, 2,500 miles, exc. cond., kept in garage, \$1,500. 562/693-1136.

'94 INFINITI J-30, clean, well-maintained, good condition, all power, sunroof, leather, loaded, \$7,900/obo. 661/424-1420.

'91 NISSAN 300ZX Twin Turbo coupe, beautiful vehicle, automatic, leather, power seat, T-bar roof, rear spoiler, prem. wheels, prem. sound, AM/FM stereo/cass., CD; high-performance 300+ HP machine in exc. mechanical cond. thru regular dealer service, records avail.; Blue Book valuation of \$7,700 obo. 626/447-2404.

'90 PLYMOUTH Voyager LE, 7-passenger minivan, silver, 159K, V6, new Jensen CD/cass/am/fm, HD susp., rebtl AT, PS/PB/PW/PDL/PD seat, luggage rack, sunscreen glass, well maintained, orig. owner, records, Carfax rpt., \$3,000/obo. 768-5195.

SNOW CHAINS (traction cables) for tire sizes P135, P145, P155, P165, and P185, \$20. 626/836-4767.

'02 TOYOTA Camry DLX, 6K miles, 4 dr., 4 cyl., front side & curt. airbags, ABS, sunroof, 6 CD chgr, a/c, \$20,600/obo. 626/794-0073.

'00 TOYOTA Celica GTS, silver, black leather int., automatic & manual tran., sunroof, loaded, exc. cond., 53,010 miles, \$15,900/obo. 957-1427.

'88 TOYOTA Camry LE, 135,000 miles, gd. cond., \$1,600/obo. 731-0470.

'86 TOYOTA Celica GTS liftback, one owner, vg cond., a/c, power doors/windows, \$1,700. 790-8007.

'83 TOYOTA Supra, 25K miles on rebuilt engine, 5-spd. manual, am/fm/cass., very reliable, clean inside/out, shiny original paint, new tires, \$2,100. 957-2852.

'95 VOLVO, 850 GLT wagon, 92,000 miles, exc. cond., \$9,500. 248-8853.

Free

COMPUTER, Power Mac 7100/80 with 13" monitor, keyboard, mouse, and 28K modem, works fine. 790-8523.

Lost & Found

Found: Silver frog figurine with gold crown, in room 264-531. Ext. 4-8998.

Wanted

ADULT CARE for two boys, ages 9 and 12, 7-8:30 a.m. in Glendora; ensure they are ready for school and drive to school; req.: car, driver license, insurance and reference; pay \$8 to \$10 depending on exper. 626/963-6712, Sahar.

HOME IN LA CANADA School District for JPL Research Associate and family, 2 quiet children, non smoking, no pets; possibly furnished, arriving in Jan. 2003 for 9 mo. - 1 year. mveli@corona.jpl.nasa.gov, Marco Velli.

MATH TUTOR, high-school level classes (geom-etry, algebra, SAT math, etc), eves and/or week-ends, \$15/hr. 888/784-1639, leave msg. for David.

RIDESHARE with Santa Clarita resident, full or part time OK. 661/424-1420, ext. 4-0880.

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

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

For Rent

ALTADENA house, 1 mile from JPL, 2 bd., beautiful hardwood floors, wood-burning fireplace, French doors, remodeled kitchen and bathroom, dishwasher, a/c, washer/dryer, gardener included, detached 2-car garage, gat-

ed backyard w/patio, \$1,400. 626/791-7081.

ALTADENA house, 5 min./JPL, charming 2/1 with family room, garage, laundry, fireplace, large yard, fruit trees, \$1,200. 626/791-7928.

GLENDALE, room in charming Spanish-style home, quiet, lovely residential area, ~15 min. from JPL, private ba., shared kitchen/washer/dryer, no smoking, no pets; \$525 incl. utilities. 545-0455.

LA CRESCENTA house, above Foothill, 2 bd., 1 ba., stove, hardwood floor, w/d hook-ups, \$1,595. 248-0190, Nita.

N. ALTADENA loft apt., city view, stove and refrigerator, off-street parking, priv. entrance; perfect for a single person; non-smoker, no pets; first, last and deposit required; \$550 includes utilities. 626/398-8844.

N. ALTADENA bachelor's apt., full kitchen and dining area, off-street parking, priv. entrance; single person required; non-smoker, no pets; first, last and deposit required; \$750 includes utilities. 626/398-8844.

PASADENA condo for lease, 1 ba., 1 ba., in centrally located development 1 mile from CIT, unfurn.; JPL owner; \$1,400. 626/449-0701, Teresa.

PASADENA, fully furn. townhome-style to share with 2 Caltech post docs; 3 bd., 3 ba., a/c, patio, laundry, near Caltech & JPL, \$625 including utilities. 626/351-9641.

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

PASADENA, delux large 2 bd., 1 1/2 ba., a/c, dishwasher, patio, good area, no pets, \$1,100. 626/358-6154.

PASADENA townhouse, 2 bd., 1.5 ba., on Michigan Av. nr. Caltech, washer/dryer inside, new dishwasher, tile floor, \$1,500. 626/379-3503.

PASADENA, charming duplex, lower level, hardwood floors, fireplace, 2 bd., 1 ba., nr. shopping & bus line, \$1,595 incl. util. 626/536-5592.

SIERRA MADRE townhouse-style apt. to share, 1,000 sq. ft. apt, lg. patio, 2 bd., 1.5 ba., quiet street, garage parking, washer and dryer for this unit, \$605 plus 1/2 util. 626/355-4838.

SUNLAND, fully furn. room in condo, share kitchen/bath/laundry; garage parking, a/c, fireplace, pool, spa, tennis court; 10 mi. to JPL; prefer male, non-smoking, no pets; \$450 + 1/2 util.; security deposit; references. 352-3112.

Real Estate

MT. WASHINGTON house (next to Glendale, Pasadena, Eagle Rock, Occidental College), 2,000 sq. ft., lg. custom 3 bd., 2 1/2 ba., 2-car garage., lots of storage, exc. elem. schools, 12 min. from JPL, cyn. view, quiet neighborhood, available summer 2003. 626/403-0446.

Vacation Rentals

BALBOA ISLAND, fully furnished 2 bd., 1 ba., patio, washer/dryer, parking, steps to bay, winter rates \$150/night or \$875/week. 626/351-9641.

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

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

HAWAII, Maui condo, NW coast, ocean front vw., 25 ft. fr. surf, 1 bd w/loft, compl. furn. phone, color TV, VCR, microwave, d/w, pool, priv. lanai, slps 4, laundry fac., low season rate \$105/nite/2, high season rate \$120/nite/2, \$15/nite/add'l person. 949/348-8047, jackandrandy@cox.net.

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

NEW SMYRNA BEACH, FL, condo, fully furn. 2 bd., 2 ba., fireplace, full kitchen; quiet, relaxing, beautiful beach setting, w/BBQ, pool, spa, game room, overlooking ocean; easy walk to restaurants, 1/2 hour to KSC; sleeps 6; avail. monthly. 909/981-7492, Darlene or dfhaug2@yahoo.com.

OCEANSIDE condo, fully furn. 2 ba., 2 ba., fire-place, full kitchen; quiet, relaxing, beautiful beachside setting, w/BBQ, pool, spa, game rm., great ocean view; easy walk to pier and restaur-rants; sleeps 8; avail. weekly or monthly. 909/ 981-7492 or dfhaug2@yahoo.com, Darlene.

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

ROSARITO BEACH condo, 2 bd., 2 ba., ocean view, pool, tennis, short walk to beach on priv. rd., 28-hole golf course 6 mi. away, priv. secure parking. 626/794-3906.

universe

Jet Propulsion Laboratory

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Antennas spared damage in Australia fire

By Guy Webster

Canberra blaze comes close to DSN facility

Smoke billows near an antenna at the Canberra, Australia, Deep Space Network facility.



Australian antennas of NASA's Deep Space Network used for communicating with spacecraft are back in normal operation after a close call with wildfires that destroyed hundreds of homes and took four lives in the Canberra area.

Brush fires surrounded the network's Canberra complex on Saturday, Jan 18. Workers used hoses to douse spot fires on the site Saturday and were still extinguishing flare-ups on Monday, Jan 20.

"A group of staff performed magnificently,

successfully ensuring that no fires took hold at the site," said Peter Churchill, director of the Canberra antenna complex. "They also assisted the local fire service in their efforts to protect homes and farm infrastructure in the Tidbinbilla Valley."

The Canberra dish antennas were inactive for about three and one-half hours on Jan 18 so workers could concentrate on the fire. During that period, the complex had been scheduled to be in communication with five spacecraft on interplanetary missions or in Earth orbit, but none of the missed transmissions was critical or irreplaceable, said Joseph Wackley, Deep Space Network operations manager at JPL.

Strong winds spread the fires across expanses of drought-parched vegetation. One entrance to the Canberra complex has been closed because of a burned-out bridge, Churchill said. An outlying support structure—a tower, used in calibrations of the antennas—was damaged by the fires. The site's visitor center is temporarily closed. The fire destroyed another important astronomical resource in the area, the Mount Stromlo observatory of Australian National University.

The antenna site has its own backup electrical generators and water supply. The facility is sharing hot meals and water with area residents who have temporarily lost power and water to their homes.

"We are expecting further adverse weather conditions during the week and continue to prepare ourselves for fire duties as required," Churchill said.

Besides the Canberra complex, the Deep Space Network also has antenna clusters in Spain and near Barstow, Calif.

HANCOCK COUNTY, Miss.—Since coming to work for NASA in 1995, engineer Karen Vander has seen the basis for the One NASA ideals at work every day.

As the executive secretary for the Rocket Propulsion Test Management Board, NASA's decision-making body for the agency's rocket propulsion testing, Vander provides the daily coordination of the board composed of NASA staff members from White Sands Test Facility, Las Cruces, N.M.; Marshall Space Flight Center, Huntsville, Ala.; Glenn Research Center - Plum Brook Station, Sandusky, Ohio; and Stennis Space Center, Hancock County, Miss., Vander believes the team approach used by the the board is an example of what can work for the whole agency.

"The management board is the One NASA concept," she said. "The board works openly in an atmosphere of trust. Everyone has a say, but the goal is to find the best match of assets for propulsion test programs."

NASA Administrator Sean O'Keefe introduced the One NASA concept in December 2002 by asking employees to help shape the effort through their thoughts and ideas. One NASA will require each employee to consider all decisions within the context of what is best for the agency rather than for any one organization.

"Mr. O'Keefe's support will help the agency achieve the One NASA goal," said Vander. "With his leadership and his knowledge of federal administration, there's no limit to what we can accomplish."

Although Vander sees One NASA ideals at work daily, she says the initiative can be fully realized only through hard work and cooperation. "We're doing it now," said Vander. "We just have to strengthen what we have. We have to continue to find ways to do our jobs better. We have to work as a team."

Part of achieving the One NASA goals will mean overcoming old-fashioned, center-centric ideas. "Even though we sit in different states or come from different places, we're still one organization, and we should work that way," said Vander. "What center we come from should be nearly invisible. We all need to be working toward a common goal to meet NASA's mission."

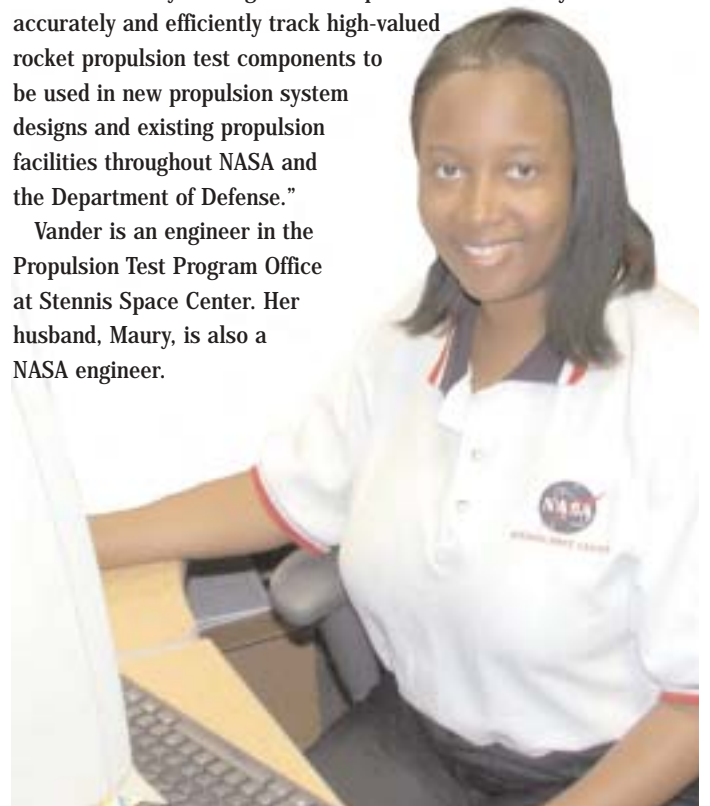
The NASA community can help further One NASA, said Vander,

by being flexible. "We're going through a lot of changes now. But as long as the communication lines keep flowing, that's going to help."

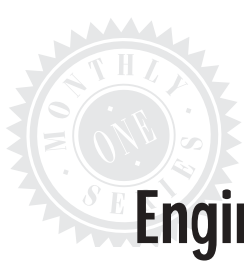
As One NASA ideals improve inter-agency cooperation, Vander noted, the practice will also benefit the agency in its interactions with other federal organizations. "We're building relationships," Vander said. "We have to build on our commonalities to strengthen the agency."

"Karen has risen to meet every challenge we have put in front of her," said NASA's Mike Dawson, assistant director, Stennis Space Center, who has seen Vander put the One NASA values to work to benefit NASA and its relationships with other federal agencies. "She is currently leading the development efforts of a system to accurately and efficiently track high-valued rocket propulsion test components to be used in new propulsion system designs and existing propulsion facilities throughout NASA and the Department of Defense."

Vander is an engineer in the Propulsion Test Program Office at Stennis Space Center. Her husband, Maury, is also a NASA engineer.



Karen Vander of NASA's Stennis Space Center.



Engineer sees bright future for One NASA

This article is the first in a monthly series that describes how NASA centers are realizing the One NASA goal.

News Briefs

Security clearances reduced

Security and Protective Services Manager JOE CHARLES has announced that beginning in January Security began a Department of Defense-mandated reduction of security clearances held by JPL personnel. This reduction is in conjunction with a nationwide requirement by the department to reduce security clearance levels at all cleared facilities.

The Department of Defense's mandate specifies that personnel with a "compelling need" or a critical "need-to-know" may retain security clearances. The department describes "compelling need" as anyone with a clearance who is working with classified information or material, receiving or disseminating classified information, being involved with or in an operation or project impacting national security.

The National Industrial Security Program defines "need-to-know" as a determination made by the possessor of classified information that a prospective recipient has a requirement for access to knowledge of, or possession of, the classified information to perform tasks or services essential to the fulfillment of a classified contract or program. Project managers furnish Security with the specific need to be associated with a project.

The Defense Security Service has directed JPL to reduce its clearances by 25% to 50%. This ratio is based on the number of current clearances and the number of classified visits. At present, the Lab's outgoing visit requests indicate only about 25% of the persons holding clearances are using them. Incoming classified visits are only about 5% at the present time.

Security will contact the persons affected and ensure their supervisors provide Security with the information necessary to process a new clearance or a renewal.

JPL Security only clears JPL employees. Each contracting company that is cleared through the Defense Security Service has the same requirement as JPL. In order to do business with the Lab as a contractor, the company must have the necessary paperwork issued by the Defense Security Service.

Lab to host small-business conference

JPL will host the 15th annual High-Tech Conference for Small Business on March 4 and 5 at the Westin Los Angeles Airport Hotel.

The conference will focus on subcontracting and marketing opportunities for small, minority, women-owned and veteran-owned businesses in high-tech industries. It includes several "how-to" workshops featuring information on major programs, small-business initiatives and other topics.

Attendees will have the opportunity to interface with approximately 250 corporate, federal, state and city government representatives to discuss potential contracting and subcontracting opportunities. One-on-one counseling to discuss potential business opportunities is available with more than 100 exhibitors. There is no fee to exhibit. Due to space limitations, exhibitors are limited to prime contractors and government agencies.

For further details, e-mail ARTHUR DURAN or call ext. 4-7531.

Discovery video receives awards

"Unlocking the Mysteries," a video overview of NASA's Discovery Program and the 10 ground-breaking science missions selected to date, has won two honors in The Communicator Awards 2002 Video Competition.

The video, written and produced by SHARI ASPLUND of JPL's Discovery Program Office (101) in collaboration with RICHARD L. GOLDBERG at the Johns Hopkins University Applied Physics Laboratory, won a Crystal Award of Excellence in the Government category and an Award of Distinction for writing in the Creative category.

The 23-minute production looks back at the program on its 10-year anniversary and highlights the achievements of missions such as Mars Pathfinder and Near Earth Asteroid Rendezvous that are enhancing our understanding of the solar system. The video was also a finalist in the New York Festivals International Film and Video awards competition in the Sciences category.



Lab honors Dr. King

JPL celebrated the birth of civil rights leader Dr. Martin Luther King Jr. the week of Jan. 20. To the left are guest speakers Dr. Julian Earls (left), deputy director of NASA's Glenn Research Center, and Dr. Percy Clark, superintendent of the Pasadena Unified School District. A panel discussion with seven JPL African American Ph.D.s was also offered.

Special Events Calendar

Ongoing Support Groups

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

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

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

Gay, Lesbian and Bisexual Group—Meets the first Friday and third Thursday 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.

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

Saturday, February 1

"A New Kind of Science"—Stephen Wolfram, creator of Mathematica and chief executive of Wolfram Research Inc., will describe ideas and discoveries from his new book, their implications for various fields of science, and their personal and historical context. To be held at 1 p.m. at Caltech's Beckman Auditorium. A panel discussion and question-and-answer session will follow. Admission is free. For more information, call (626) 395-4652.

Sunday, February 2

Chamber Music—The Calder Quartet will give a free concert at 3:30 p.m. in Caltech's Dabney Lounge. For more information, call (626) 395-4652.

Monday, February 3

"A Conversation With David Baltimore"—Join the Caltech president in a live interview with Larry Mantle, host of KPCC's AirTalk, at 4:45 p.m. in von Kármán Auditorium. Some questions from the audience will be taken, but you are encouraged to submit questions in advance so Mantle can make the discussion as relevant to the Caltech community as possible. Send questions to cma.announce@jpl.nasa.gov. This event is sponsored by the Caltech Management Association. For more information, call Michael Eastwood, ext. 4-9273.



Dr. David Baltimore

Tuesday, February 4

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

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

What's the Color of Funny?—Aaron McGruder, creator of the Boondocks comic strip, will give a talk at 8 p.m. in Caltech's Beckman Auditorium. Free admission. For more information, call (626) 395-4652.

Tues.-Wed., Feb. 4-5

Investment Advice—TIAA/CREF representatives will be available for one-on-one counseling. For an appointment, call (877) 209-3140, ext. 2614, or visit <http://www.tiaacref.com>.

Wednesday, February 5

Associated Retirees of JPL/Caltech—Meeting at 10 a.m. at the Caltech Credit Union, 528 Foothill Blvd., La Cañada.

Thursday, February 6

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

Friday, February 7

"An Evening with Tommy Lasorda"—The Dodgers' senior vice president and ex-manager will be honored at Caltech's in Beckman Auditorium at 8 p.m. Guests include former Dodgers owner Peter O'Malley; Buzzie Bavasi, the general manager who hired Lasorda into the Dodgers organization; Sparky Anderson, Baseball Hall of Fame manager; and former USC baseball coach Rod Dedeaux. The event is free, open to the public, and no tickets or reservations are required. For more information, call (626) 395-4652.

Saturday, February 8

Princely Players—With song and poetry from the earliest sources of African American music in this country to the civil war and the civil rights movement, this eight-member ensemble performs a program of spirituals, work songs, hymns and songs of freedom. They will appear at 8 p.m. in Caltech's Beckman Auditorium. Tickets are \$22, \$18 and \$14 for adults, \$10 for high school age and younger. For more information, call (626) 395-4652.

Tuesday, February 11

Caltech Credit Union Annual Meeting—To be held at 5 p.m. in Caltech's Beckman Auditorium.

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

Meet John Doe—This 1941 classic, part of Caltech's Frank Capra Film Festival, will be shown at 7:30 p.m. in Beckman Auditorium. A panel discussion will follow the screening. Free admission. Call (626) 395-4652.

"Understanding the Genome: How Close are We to a Star Trek Medical Diagnosis?"—Dr. Bruce Shapiro of JPL's Machine Learning Systems Group will speak at noon in the Building 167 conference room.

Wednesday, February 12

"The Chauvet Cave Now: the Oldest Rock Art Site in the World"—Rock art expert Dr. Jean Clottes will deliver this lecture at 8 p.m. in Caltech's Beckman Auditorium. Tickets are \$10. For more information, call (626) 395-4652.

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

JPL Toastmasters Club—Meeting at 5 p.m. in conference room 167. For more information, call Roger Carlson, ext. 4-2295.

Thursday, February 13

"Getting Started"—This workshop is for employees just starting or not yet participating in JPL's tax-deferred accounts. Debt management, investment basics, advantages of tax-deferred savings and compounding, and the benefits of starting early will be discussed. To be held from 8:30 to 10:30 a.m. in conference room 167.

Investment Advice—A Fidelity representative will be available for one-on-one counseling. For an appointment, call (800) 642-7131.

This month in aeronautics and astronautics history

1.11.43 60 years ago • Franklin Delano Roosevelt became the first U.S. President to fly while in office.

1.31.58 45 years ago • Explorer 1 lifted off, the first satellite ever launched by the United States. JPL designed, built and operated the satellite that would serve as the rocket's payload.

1.7.68 35 years ago • JPL's Surveyor 7 moon lander was launched.

1.25.78 25 years ago • The JPL-managed Infrared Astronomical Satellite was launched.

1.28.86 17 years ago • Space Shuttle Challenger exploded shortly after liftoff, killing the entire crew of seven. A faulty o-ring was blamed for the disaster.

1.6.98 5 years ago • NASA's Lunar Prospector satellite was launched to an orbit of the moon. Ames Research Center managed the project.



For the record: American Geophysical Union honor

An article in the News Briefs section of the Jan. 17 issue of Universe contained incorrect information about JPL's Dr. Gilles Peltzer winning the American Geophysical Union's William Bowie Medal.

In fact, Peltzer was not awarded the Bowie Medal, but did deliver the Bowie Lecture at the organization's fall meeting last December.

For more information, log on to <http://www.agu.org/webcast/archive.html>.

THE BIG FIVE-O

Two JPL employees recently commemorated half a century at JPL. Universe talked with Carl Sauer and Jay Bondi, about their careers, retirement, and how life, and the Lab have changed over the last 50 years. Bondi retired from the Lab in December, but Sauer continues in his job as a Trajectory Specialist in Advanced Studies.



Carl Sauer, left, and Jay Bondi

BY SUSAN BRAUNHEIM-KALOGERAKOS

What compelled you to stay at JPL so long?

C S It has been a combination of a few things. I think the main reason I have stayed so long is because my family got settled in the area. Also, when I arrived, JPL maintained a very academic climate. For someone in a technical field, it was really a very exciting place to be.

J B I just never got around to changing jobs, I guess. In all seriousness, I have enjoyed the opportunities that JPL has provided me. It has been an honor to work the people here. JPL has been a great place for me.

How did your employment begin?

C S I graduated from Caltech with a physics degree and I always thought that I would end up here. I was hired on as just a simple engineer. When I applied for the job I was informally interviewed by several levels of management. I got increasingly more nervous throughout the process. Finally, I was actually interviewed by the Lab director at the time, Dr. Louis Dunn. He sincerely made me feel very comfortable. The Lab was much more casual back then.

J B Life is a series of unexpected events. My stepfather passed away. He had worked as a machinist for most of his life. I had been going to Caltech and UCLA, taking

mechanical engineering classes. When my stepfather died, I needed to find a job fast. I brought in his toolbox and literally knocked on the door at the JPL machine shop. I didn't really know anything about machining but I had taken a lot of engineering classes and I was extremely mechanically minded. Before I knew it, JPL had put me in on the swing shift as a machine shop helper. I certainly thank my lucky stars that I knocked on that door.

What is your best memory of JPL? What have you liked the most?

C S I was privileged to see a lot of exciting things that occurred in the early days of the Lab. When I first started working here I went out to White Sands, N.M., to see the Corporal launches. To a young engineer just out of college that was thrilling. There were all these amazing people showing me the most amazing things. I will never forget it.

J B It has been the friends I have made through the years. JPL is an interesting place filled with interesting people. I still play poker with the same group of JPLers I played with back in 1958. It just shows what a strong bond all of us share.

What do you consider to be your greatest accomplishment at JPL? What are you most proud of?

C S As a Trajectory Specialist in the Advanced Studies area, I got to work on part of the software that was used in the Deep Space 1 mission that few a few years ago. I take a

great amount of pride in that. Also, in 1999, I had the honor of having an asteroid named after me.

J B The most important thing that the Lab has given me is my wife, Carol. We met on Lab, and worked in the same section.

As far as work goes, I was also involved in creating a set of configuration management procedures tailored to JPL's unique needs. I feel that has been a sizeable contribution to the Lab.

For you, how has the Lab changed the most over the years?

C D Outside of the vast increase in size, JPL has become a lot more top heavy in management. At one time, I could work directly with someone at NASA Headquarters on certain things. Now there are several levels of management in between. It makes it much more difficult to get things done now than it was back then.

J B In the 1950s the Lab was like one big family. Back in those days we had one or two projects and everybody knew what everybody else was doing. Today, it is less like one big family but more like several smaller ones. JPL was and still is a great place to work.

Do you have any regrets about staying so long? Was there a defining moment telling you it was time to move on?

C D No, I don't have any regrets. If I wasn't here I don't know what else I would be doing. I am a Caltech graduate so I have always felt

linked to JPL. I have never really thought about being anyplace other than here.

J B I don't really have any regrets. I have never even given my time at JPL a second thought. I decided to retire when I "suddenly" turned 70. Time really does fly. I didn't want to go out of here feet first so I decided to walk out.

Did the two of you know each other during your time at the Lab?

C S Surprisingly, the first time I met Jay was at the 50-year commemoration luncheon last month. We worked in separate areas. I was completely unaware that there was another employee with 50 years.

J B I don't think either of us knew that there was another person with so many years at JPL until we met at the commemoration ceremony. It is difficult to believe that our paths never crossed in all of the 50 years we were on Lab together.

Carl, when are you going to retire?

C S When they stop giving me work, I'll retire. When I do, I plan to spend some time with my wife and my teenage granddaughter.

Jay, how are spending your time now?

J B Now that I have retired I plan to do some traveling with my wife and fix all of the things around the house that I promised to do when I retired.

Letters

I'd like to express my gratitude to the entire JPL community for their support and thoughts regarding the loss of my brother.

Lars Meyer

Thank you so very much for the everlasting plant that was sent to our home for the loss of our son. He was our first child that God brought down to share with us for six months. The time with him was memorable, and he will never be forgotten. We know he is with God and we will see him again. I would like to thank my co-workers for the support you have given to my family and me during this difficult time. I would also like to thank JPL for the beautiful plant. Thank you again.

Carmen Dycus

I want to thank the JPL community for the beautiful plant that was sent to acknowledge the passing of my mother. That remembrance provided a source of comfort to my family and me. Thanks to all for your support and kind expressions of sympathy. Sincerely,

Jim Kulleck

My family and I would like to thank all of the friends and co-workers for the card and beautiful plant sent to my home in remembrance of the passing of my mother. My father has transferred the plant to his garden where it is flourishing nicely.

Ray and Jim Stagner

I would like to thank my friends and co-workers for their care and support during the long hospital stay and subsequent passing of my mother-in-law Marie. (She had a good life at 104.) You made the rough times easier.

Kathie Reilly

I would like to extend sincerest thanks to all my friends and colleagues for the cards, plants and expressions of sympathy following the death of my beloved father. Your kind thoughts and words have touched my heart and are so appreciated at this time of great sorrow. I also wish to thank the JPL store for the beautiful plant sent to my home.

Edna Villareal

I want to thank all of my coworkers for their sympathy and support during the recent passing of my mother-in-law. The beautiful plant was a lovely gesture during a difficult time.

Bridget Landry

Classifieds

For Sale

APPLIANCES: microwave, \$50/obo; washer and electric dryer, \$150/pair/obo; washer and gas dryer, \$175/obo, all located less than 1 mile from East lot. 626/222-6943, Luke.

BED, roll away, w/spring mattress, exc. cond., \$65. 626/286-1883.

BED, Somma Flotation, queen w/ light pine headboard, \$150/obo; PICNIC TABLE, redwood, round, 60 inches across w/ 4 benches, needs work, \$15. 626/914-7853.

BEDS, 2 twins, gently used, matching twin size captain beds painted red, white and blue, each has 3 long drawers underneath and comes with matching 6-drawer chest, \$200/obo. 626/797-9846, after 6 p.m.

BOOSTER SEAT, Safety 1st, foldable, exc. cond., \$5. 626/850-4378.

CARPET, "oriental," 5 x 8, exc. cond., navy blue w/rose and beige, value \$350, \$50; BREAD MAKER, Welbilt, exc. cond., \$25; FOOD PROCESSOR, new-in-box, Moulinex, \$50. 626/398-4960.

CELL PHONE ACCESSORIES: Nokia 5100 - batteries: Ni-MH 900mAh & Li-ION 1200mAh, ACP-7U standard charger, LCH-9 auto charger, CCM auto hands-free mount/charger, horizontal leather case w/belt hook, all for \$30/obo. JeffreySBoyer@netscape.net or 626/644-2495.

CHAIRS (2), swivel, made in the Philippines, dark bamboo frames with orange pattern cushions, \$40 for both. 244-5489.

CHAIRS, side (4), wrought iron, designer (Santorini), c.1950, \$500. 323/255-3226.

CLARINET, Yamaha YCL-20, good condition, list price \$600, sell \$300/obo. 952-8455.

COMPTUER, Compaq, 400 MHz, with monitor, new modem, free Internet. 951-0000, Nik.

CONCERT TICKETS, 4, L.A. Phil., Feb. 15, 8 p.m., Dorothy Chandler; Strauss, Beethoven, Dvorak, Orchestra Level, \$30/ea., 626/564-1654, Heather.

COUCH, shades of gray/blues, with oak trim, very versatile and comfortable, \$200/obo; GUITAR, Takamine, 6 string, acoustic, with case, F360 with silk/steel strings, tuning fork, battery operated tuner included, \$300, reasonable offers considered; DESK, white, with glass fitted top piece, 3 drawers, \$50/obo; EXERCISE BENCH & WEIGHTS, exc. cond., \$100. 626/794-0081, Bonnie.

DINETTE TABLE, oak, w/leaf and 4 blue swivel armchairs, \$900 new, sell for \$150. 244-5489.

DOORS (10), interior, standard 23 1/2" w x 79 1/2" H, some w/hardware, good cond., \$5/ea. 957-0515.

DOG KENNEL, Vari Kennel, for travel, extra large for dogs to 90 pounds, 40 inches high, new, \$125. 249-4603.

DUFFEL BAG, 29", wheeled, vertical, recessed internal handle, 6 external dry storage pockets, U-shaped main storage opening, in-line skate wheels, black, used only once, \$30/obo. 780-0470.

EXERCISE BIKE, Ergometer, used only 280 mi., exc. cond., was \$300 new, sell for \$95/obo. 248-1793.

FURNITURE, Poplar: quality, no particle board, 4-drawer dresser, 37" W x 43" T x 16.5" D, \$129 3-drawer computer desk, w/keyboard drawer, 43" W x 30" T x 22" D, \$169; clear urethane finish, also clean white 1.3 kw microwave, \$50; free delivery to curbside in Pasadena area. vona@ai.mit.edu.

FURNITURE, Spanish mission style, matching dining table and 6 chairs, sideboard & entry table, exc. cond., cost over \$2,000 new from El Paso Imports, sell the set for \$1,200. 248-6721.

FUTON COUCH, oak mission style frame with dark mahogany finish, extra-thick 9" pad, Canyon Country, \$400. 661/816-7799, Stan.

GENERATOR, Coleman Poermate, 5000 watts, exc. cond., \$500/obo. 661/305-6597, Mike.

GOLF CLUBS, Ping ISI-K, men's 350 series shafts, regular flex2, 4-9, W & SW2 \$300/obo; Ping IST Titanium Driver, 10 Degree, RUD, \$250/obo; set with walking bag and Pure Spin LobWedge, \$600. 626/799-1786, eve.

GOLF CLUBS & CART, complete set of used irons, putter and driver, exc. cond., \$75. 626/914-1737.

INFANT CARRIER, Baby Bjorn, black and black & white plaid, good for 8 to 33 lbs. / 21 to 35.5", vg cond., \$50. 626/256-6606.

HOCKEY TICKETS (2), Kings, lower bowl at the Staples Center, individual games available, \$100/pair. 626/852-0821.

LOVE SEAT, antique (settee) and side chairs, 1860s, American walnut, recently appraised. 626/355-5166.

MAGAZINE RACK, wood, "vintage," \$10; VASES, misc. assortment including "butterfly" vases (new), \$3-5 each, ROCKING CHAIRS, "vintage," wooden with back and seat pads, exc. cond., needs cleaning, \$15; 1 for yard, circa 1940, \$5. 626/398-4960.

MATTRESS and BOX SPRING, with metal frame, full size, exc. cond., from guest room, \$100. 626/256-6606.

MOVING SALE, everything must go. 248-8853.

MOVING SALE: Pottery Barn/Z Gallery/Ethan Allen/designer, bakers rack, \$125; pine buffet, \$175; pine DR table, \$125; maple dbl. head/footboard, \$100; dressers/chests, \$100-250; 3 matching LR tables, \$150-175; custom overstuffed chair, \$200; casual sofa/double sleeper, \$200; pine bookcase, \$250; glass/metal patio set, \$250; prints/paintings, \$25-\$250; chairs, desks, lamps, bookcases, mattresses, \$15-75. bbon@earthlink.net or 952-2581.

PIANO, Yamaha digital, YDP121, in rosewood-style finish with weighted keys, 3 full-functioning pedals, built-in amplifier, speaker and power, barely used, \$1,000. 626/850-4378.

PIANO, upright, ~100 years old, exc. sound, \$150/obo. 626/449-1589.

PLAYER PIANO, 1925, 5'4", Grand, with Ampico A reproducing player (complete but needs restoration), original finish, \$2,000/obo. 714/745-7442.

RADIAL ARM SAW, DeWalt 10" deluxe model 7770 with table, less than 15 hours running time, dual voltage, powerful 2-1/4 HP motor, includes instruction and maintenance manual, vg cond., \$225. 626/398-0921.

RECLINER/ROCKER, by Lane, taupe color, good cond. \$25; BOOKCASE, 6' T/2' W/10" D, 3 top open shelves, 2 bottom shelves w/2 sliding doors, good cond. \$25; LAMP, ceramic ginger jar, 25", deep blue, \$15; DINING TABLE, Duncan-Phyfe mahogany, brass claw feet, rnd corner cust glass top, 40" x 60", sacrifice \$275. 626/296-3782.

REFRIGERATOR, GE, side-by-side, almond color, 17 yrs. old. 626/357-8210.

REFRIGERATOR, 1950s, GE, pink with chrome rotating shelves, good cond., works great, many unique features, blue inside, door opens w/foot or handle, wine/bottle rack inside, has original sticker and original butter dish, \$400/obo; STOVE, 1950s, gas, white, griddle in middle of stove top, storage on side and a working clock, good cond., works great, \$400/obo. 626/222-6943, Luke.

ROCKING CHAIR, bamboo framed, beige, upholstered, swivel, good cond., \$25. 626/359-7666.

SOFA, 92", beige multi-stripe, good cond., \$60/obo. 248-1793.

SOFA and LOVESEAT, large, overstuffed, pattern of off-white and beige, oak trim on base, 10 years old, very good cond., \$150/obo.

TWIN BED with frame, exc. cond., \$150/obo. 951-5952, after 5 p.m.

SPEAKERS, Eminent-Technology LFT-8, hybrid magnetic-planars, crossovers re-wired w/prem. components, serious for the audiophile, specs at <http://www.eminenttech.com/lft8prod.html>, listening session can be arranged, \$850. 902-9231, David.

TOYS, outdoor, Little Tikes: castle climbing structure with tower and slide, \$75; small slide, \$15; Cozy Coupe car, \$25; desk w/chair and compartment storage, \$45, all

reasonable offers considered. 626/797-9846, after 6 p.m.

VACUUM CLEANER, Sears Kenmore, canister, with all attachments, four years old, excellent condition, \$150/obo. 626/791-7645.

VIDEO GAME PLAYER, Playstation 2, all cables, dual shock analog controller, orig. Sony memory card, 4 games, Final Fantasy X, Metal Gear Solid 2, Grand Turismo 3, Time Crisis 2 w/gun, exc. cond., less than 25 hrs. play, \$250/obo. 500-9163, yng_azn_boi@hotmail.com.

Vehicles / Accessories

'92 ACURA Integra LS hatchback, red, automatic, 122K mi., original owner, well maint., new tires, all service records, pwr. windows, cruise cont., am/fm/tape, tilt wheel, int. trunk & gas release, \$3,995/obo. 562/420-2313.

'99 CHEVROLET Monte Carlo LS, white, 80K mi., exc. cond., \$6,500. 626/379-3503.

'91 CHEVROLET Blazer, 4 dr., V6, 4.3 eng., good cond., 166 mostly hwy mi., service records avail., Blue Book \$1,900, sell \$1,700. 841-6282.

'00 FORD Focus LX, a/c, alarm, tinted windows, stereo cassette player, 47,000 miles, clean, great cond., \$7,500. 909/854-6355.

'98 FORD Taurus SE, 3.0L 24-valve V6, 90K miles, loaded, leather, white, factory spoiler, CD changer, new tires/brakes, \$6,495/obo. 661/424-9441, Carl.

'98 FORD Taurus SE, V6, 3.0, 24 v, beautiful cond., \$4,900. 626/379-3503, Erik.

'91 FORD Taurus L sedan, 144K mi., V6, 4 dr., auto trans., a/c, pwr. steering, tilt whl, cruise contr., am/fm stereo/cass, wht ext., gray int., new tires & brakes, current registr., good cond., \$1,600/obo. 955-8253.

'85 FORD Bronco II XLS, black/graphite, 4 x 4, 2 door, 5-spd. manual, rebuilt 2.8L V6 eng., (<25K miles), rebuilt carb, good tires + spare (<7K miles), must sell, \$950/obo. 626/791-7219, evenings & weekends, Khee, or KheeChan@earthlink.net.

'88 HONDA Accord, 188K mi., auto, p/s, p/b, a/c, power locks, exc. interior, vg exterior, exc. engine, carb may need some adjustment, \$1,500. 626/584-5944.

'88 HYUNDAI Excel hatchback, 5 spd., air, am/fm, 84,000 miles, no body damage, good tires, \$750/obo. 909/593-7558.

'96 JEEP Grand Cherokee Laredo, loaded, 67,000 mi. w/extended warr. until 4/03, 2WD, V6, single owner. \$8,500/obo. 626/862-3744.

'85 KOUNTRY Lite 5th wheel trailer, 30 ft., orig. owner, alum. frame, 13.5K mi., a/c, side bath, microwave, TV/VCP avail., new tires & water pump, sleeps 6, exc. cond., \$6,000/obo. 626/963-5727.

'88 MAZDA 323, 5 spd. manual, 216K mi., new brakes, recent smog test and registration. <http://babette.homelinux.net/Mazda>; bmsparr@yahoo.com.

'95 MERCEDES-BENZ C-280, exc. cond., automatic, ABS, a/c, power locks/windows/ mirrors/seats, am/fm/cassette/CD, white, 55,000 mi., \$14,500/obo. 323/254-5685.

'97 NISSAN truck, a/c, tinted windows, alarm, rear sliding window, bedliner, Masterflow muffler, Pioneer CD player with Sony 3-way speakers, clean, great cond., \$6,500. 909/54-6355.

'98 SATURN SW1 wagon, 84K mi, 5 speed, cruise control, keyless entry, am/fm/cassette, original owner, well maintained, \$5,200/obo. bbon@earthlink.net or 952-2581.

'02 TOYOTA Tacoma PreRunner TRD, white, power locks/windows, a/c, heater, CD, tape player, rino lining, off-road package, \$17,000/obo. 522-6033.

'93 TOYOTA pickup truck, 4 x 4, forest green, w/ shell, lg. tires, am/fm/cassette stereo, new engine, good work truck, \$2,200/obo. 626/301-1538, Matt.

'92 TOYOTA Camry LE, V6, runs awesome, vg cond., auto entry, power windows/doors, sun-roof, only 125K mi.. \$4,251. 626/ 487-9173, James.

'88 TOYOTA Camry, auto, air, cassette, 135,000 mi., gd. cond., \$1,500/obo. 731-0470.

TRUCK SHELL, white, 8' bed length, \$200/obo. 957-0515.

'95 VOLVO 850 GLT wagon, 92,000 mi., \$9,500. 248-8853.

Wanted

ENGLISH TUTOR, for middle- and high-school students. 952-7192, evenings and weekends.

FRENCH SPEAKER, native, for in-home infant care 8-10 hours/week, hours flexible, Arcadia/Sierra Madre area. 626/355-5166.

MATH TUTOR, high-school level classes; geometry, algebra, SAT math, etc.; eves and/or weekends, \$15/hr. 888/784-1639, David, lv. msg.

MORTGAGE OR TRUST DEEDS, if you sold a property and carried back mortgage I can buy that note for immediate cash. 626/836-6667, Leo.

POTTERY WHEEL, used or new. 562/693-2986.

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

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

WETSUIT, men's, size XL to XXL. 661/305-6597, Mike.

Free

CAT, to good home, beautiful 5-yr.-old male, Maine Coon, house cat, neutered, "Harley." 626/284-1851.

CLEAN FILL DIRT, 30 cu. yds. Avail. you haul as little or as much as you like, near Los Robles/Jackson, Pasadena. 626/791-3103.

WORKSTATION MONITORS, functioning, fixed frequency, if you don't know what that means you don't want them, can work with most

modern PCs, 1 IBM 9504 21" grayscale w/ matching PCI SVGA card & cable, 3 IBM 6091 19" color or similar, free delivery to curbside in Pasadena area. vona@ai.mit.edu.

TOILET, working, white, + two small blue porcelain kitchen sinks. 626/794-0081, Bonnie.

For Rent

GLENDALE, 5 minutes from JPL, exc. location, spar heights area condo, 2 bd., 2 ba., pool, nice view, easy access to park and tennis court, fully remodeled, must see. \$1,650. 626/584-7668, day or 667-5569.

LA CANADA house, very private location, panoramic views, 3 bd., 3 ba., c/a, large fire place, all appliances included, La Canada schools, \$2,900. 653-5594.

LA CANADA, private rm. in home, with private bath, off-street parking, BBQ, pool, full kitchen priv., wash/dry, etc., \$450 + utilities. 790-1280.

PASADENA, San Rafael area, 2 bd., 1 ba., new kitchen, new ba., tile and hardwood floors throughout, quiet, pool, w/2-car carport, view of mountains, large yard, includes gardener and pool man, \$1,300. 952-7016.

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

PASADENA, condo in centrally located large complex, 1 bd., 1 ba., 1 mile from Caltech (near Hilton), JPL owner, walking distance from Paseo Colorado, unfurnished, pool, rec. & weight rms., laundry, secure parking, \$1,300. 626/449-0701.

PASADENA apt. to share, fully furnished 3 bd., 3 ba., townhome style apartment with patio, laundry facilities, near Caltech & JPL, \$625/mo. 626/351-9641.

PASADENA, 2 rooms, many amenities including hardwood floors, new carpet, pool, spa, sauna, mt. views. \$750. 626/676-5365.

SIERRA MADRE, townhome-style apt. to share, 1,000 sq. ft. apt, large patio, 2 bd., 1.5 ba., quiet street, garage parking, washer and dryer for this unit, \$605 plus 1/2 utilities. 626/355-4838, Heather.

SOUTH PASADENA house, 1 bd., 1 ba., avail- partially furnished, water and trash paid, stove, refrigerator, garage parking, \$1,000 + \$500 security dep. 626/441-6955.

Real Estate

ENSENADA beach house, 2 bd., 2 ba., lg. liv. rm. w/magnificent vw of Ensenada and the islands, custom kitchen, plenty of storage, carport, glassed-in patio, all furn. and furnishing go with the house, \$37,000. 626/355-3621.

LA CANADA, 3 bd., 2 ba., f/r, dining area, LC schools, 2 blks. from JPL, h/w floors, land-scaped yards with auto water and lighting, workshop off garage. 626/798-4134.

MT. WASHINGTON house, next to Glendale, Pasadena, Eagle Rock, Occidental College; 2,000 sq ft., large custom 3 bd., 2 1/2 ba., 2-car garage, lots of storage, excellent Mt. Washington elementary school, 12 minutes from JPL, canyon view, quiet neighborhood, available summer '03. 626/403-0446.

PASADENA, newer, beautiful Craftsman-style townhome on lovely tree-lined st. betw. Caltech and So. Lake shops/restaurants, 2 bd., 2 1/2 ba., bonus rm./office, incl. security gate & priv. garage, wood-burning fr., vaulted ceiling, recessed lighting, hard-wood & tile floors, maple cabinets, ceramic tile counters, French doors to patio, eat-in kitchen, laundry rm., bright and airy, feels like a house, \$415,000. sandiesz@pachell.net, 626/844-4670.

Vacation Rentals

BALBOA ISLAND, fully furnished 2 bd., 1 ba., patio, washer/dryer, parking, steps to bay, \$150/night or \$875/week. 626/351-9641.

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

COPACABANA Beach, Rio de Janeiro, Brazil, 1 bd. furnished apartment overlooking beach, superb view and location, sleeps 2-3, \$80/day. 626/303-1616 or 626/304-0688.

COSTA RICA condo, Pueblo Real, Quepos, 2 bd., 2 ba., fully equipped kitchen, TV, VCR, sleeps 6, air, newly remodeled, large pool, tennis, typical restaurant, near Manuel Antonio, next to river with mangroves and monkeys, close to beach, JPL rates. luisalfaro@earthlink.net or 760/723-8522.

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

HAWAII, Maui condo, NW coast, ocean front view, 25 ft. fr. surf, 1 bd. w/loft, compl. furn. phone, color TV, VCR, microwave, d/w, pool, priv. lanai, slps 4, laundry fac., 4/15-12/14 \$105/nite/2, 12/15-4/14 \$120/nite/2, \$15/nite/add'l person. 949/348-8047, jackandrandy@cox.net.

MAMMOTH, Snowcreek, 2 bd., 2 ba., + loft, sleeps 6-8, fully equip'd 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 & harbor, pool/spa, game rm., sleeps 4. 949/786-6548.

OCEANSIDE condo, fully furn., 2 bd., 2 ba., fireplace, full kitch., quiet, relaxing, beautiful beachside setting; BBQ, pool, spa, game rm., and great ocean view, easy walk to pier/restaurants, slps 8, avai. weekly/monthly. 909/981-7492 or dfhaug@yaho.com, Darlene.

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

JPL'S ONLINE NEWS SOURCE



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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 JPL Store and the Universe office, Bldg. 111-B29C, 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.