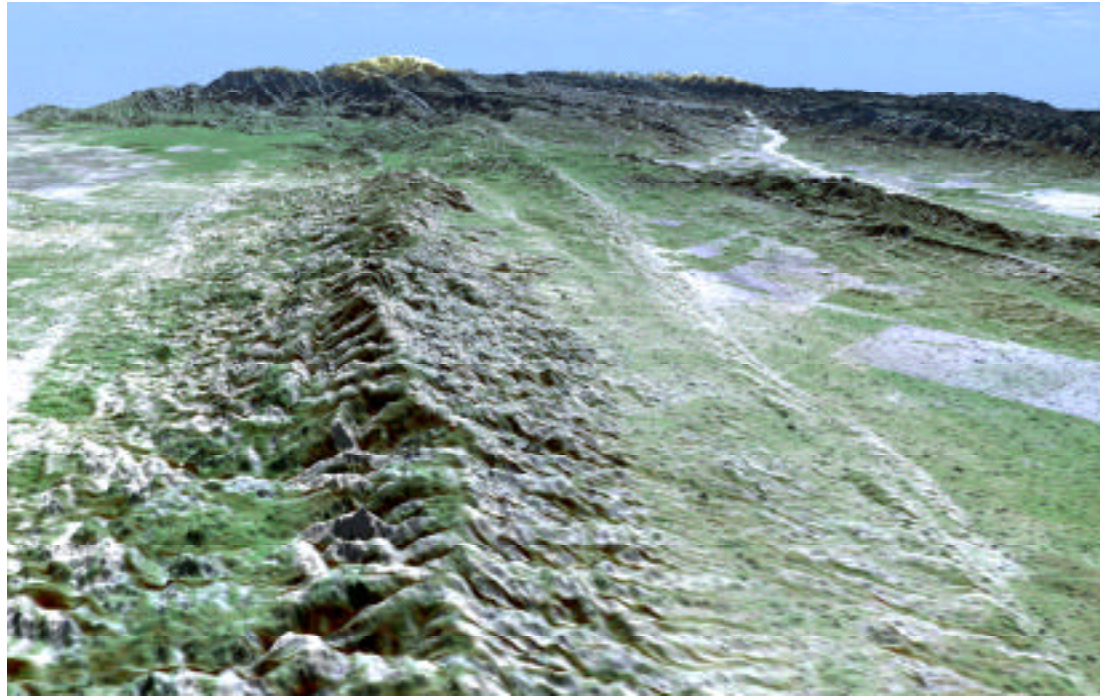


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## Radar images San Andreas fault

*This view of the 1,200-kilometer (800-mile) San Andreas Fault—generated using data from the Shuttle Radar Topography Mission (SRTM), which flew on the space shuttle last February—looks southeast, where it cuts along the base of the mountains in the Tumbler Range near Bakersfield. The fault is the distinctively linear feature to the right of the mountains.*



**t**he San Andreas is the longest faults in California and one of the most famous geological hot spots in North America. A new image from JPL's Shuttle Radar Topography Mission shows the fault as it runs through the Carrizo Plain, west of Bakersfield, on its 1,200-kilometer (800-mile) course.

The image is available online at <http://www.jpl.nasa.gov/pictures/srtm>.

The Shuttle Radar Topography Mission system, which flew onboard Space Shuttle Endeavour in February, gathered topographic elevation data over approximately 80 percent of Earth's land mass during its 10-day flight. The results of the mission will be the most extensive high-resolution database of Earth's topography.

After processing, data from the Shuttle Radar

Topography Mission will be available for active fault zones around the world. Scientists will be able to use this treasure trove of information to study places on Earth that have never before been mapped, much less studied in detail.

The Shuttle Radar Topography Mission is a cooperative project between NASA, the National Imagery and Mapping Agency (NIMA), and the German and Italian space agencies.

## Mostly high marks in JPL's 'report card' from NASA

JPL's scores in its fiscal year 2000 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.

JPL Director Dr. Edward Stone and Caltech President Dr. David Baltimore attended a Nov. 6 briefing at NASA Headquarters by a performance evaluation board chaired by Dr. Ed Weiler, NASA's associate administrator for space science.

"As compared to last year, our scores dropped slightly in programmatic, reached a new high in outreach, and improved dramatically in institutional," noted JPL Deputy Director Larry Dumas in a letter to managers. "The special areas of emphasis for the coming year include a new item on cost estimation and modifications to several other areas," Dumas said.

JPL received a score of 78 out of a possible 100 in the programmatic category, two points lower than in FY '99. In institutional management, the Laboratory received 80 points, 20 higher than the year before. Outreach scored 94, four points higher than last year.

The Lab's weighted total score of 80.1 was about four points higher than in FY '99. The three areas reviewed carry different weights in tabulating the percent of the award fee to be given.

"Obviously, the Mars '98 losses, the HESSI mishap, and the cost growth in some of our planned missions affected our otherwise strong programmatic efforts," Dumas said. "In other areas, the rebound in financial and institutional management performance and the strong showing in a coordinated approach to outreach were clearly acknowledged. It has been a challenging year, and the Director and I want to thank you and your people for your hard work in stepping up and dealing effectively with the challenges we faced."

The underlying rationale for the scores is given in the subject document from the Headquarters briefing, and is available on the Director's Office home page at <http://ood> under "Information of General Interest: 2000."

## JPL, Arizona State to develop new facility to study Mars

By Mary Hardin

JPL and Arizona State University are creating a new NASA facility that will be used by scientists and students studying Mars. ASU and JPL will jointly fund the facility, with JPL providing \$1.45 million in initial funding.

The ASU Planetary Imaging Facility and Advanced Training Institute (PIF-ATI) is an expansion of a facility originally planned to support the Thermal Emission Imaging System (THEMIS), a thermal infrared camera system that will fly on the 2001 Mars Odyssey spacecraft and is directed by ASU Geological Sciences Professor Philip Christensen. According to NASA and ASU scientists, the facility is "a new model" for planetary research projects that will allow greater instrument and data access to scientists outside the project, as well as to university students and even to 5th through 12th grade educators and their students. Also in the planning stages is a graduate and undergraduate program where entry-level personnel can be trained in spacecraft operations and maintenance.

"At NASA and JPL we are looking for new ways to share the adventure of exploring Mars," said JPL Mars Program Manager Dr. Firouz Naderi. "This new facility is a great way of opening up opportunities for scientists and kids to participate in the excitement of

our new Mars program."

"This is a new and creative way of looking at doing planetary research," said Jonathan Fink, ASU vice provost for research. "Among other things, this will allow for the first time middle school and high school students to participate directly in the scientific exploration of another planet."

The facility will offer a new process whereby scientists outside the instrument team can apply to NASA with specific research requests and also have free access to the archive of collected data. It will also allocate a significant fraction of the instrument's use to 5th through 12th grade student use. Classes will submit brief proposals to take pictures of specific regions of Mars, explaining the scientific questions that they would like to answer with the data. They will then have the opportunity to come to ASU to participate in acquiring the image, analyze the data they receive and present their findings.

It is expected that approximately 150 classes will be able to participate over the course of a year, with at least one school from every state sending representative students to campus to participate in capturing their requested image and data. The facility is expected to be completed next July.

"The student imaging facility is a cool idea—something that I

always thought would be really neat to do when I was a kid," said Christensen, the project's principal investigator. "We talked to a lot of teachers, and one of the things that really excited them was the thought that 'Wow, my class could actually be actively involved in exploring Mars rather than just standing on the outside watching!'"

"THEMIS is going to take tens of thousands, if not a hundred thousand, images. Making some fraction of those opportunities available to junior high and high school kids really only involves a tiny fraction of the data, but could have an incredible impact on education and student interest."

ASU and JPL will provide the expertise, curricular support and equipment required by the new educational program. ASU's Mars K-12 Outreach Program has already developed a large library of curricular materials and has developed a significant national network of school and educator contacts through its extensive schedule of outreach activities in planetary science.

"If we could reach a couple of hundred schools around the country with this, it could have a significant effect," Christensen said. "It will give the kids a sense that science is about participating and exploring and discovering . . . it's not about going to a museum and seeing things hanging on the wall."

## Team X collaborates on review of multinational telescope

By Gia Scafidi

JPL's "Team X," which creates the advanced conceptual designs for JPL's future missions, conducted a unique intercontinental collaboration with its European counterparts last month.

This first-of-a-kind event involved combining design activities between teams based at JPL and at the European Space Research and Technology Centre (ESTEC) in the Netherlands, a division of the European Space Agency and European equivalent of Team X.

ESTEC is ESA's biggest establishment and its technical interface with European industry and the scientific community. ESTEC has its own laboratories and extensive facilities for testing spacecraft and components under the stresses they will face during launch and in space.

Representatives from Germany, Israel, the Netherlands, Russia, and the United Nations were joined electronically with the design teams at JPL and ESTEC on Oct. 24. They joined forces for a "red team review" of the design of the World Space Observatory, a United Nations-backed multinational ultraviolet telescope. In this proposal review process, the red team takes a second look and reviews an existing project design.

"We have a big advantage when we can establish relationships with other nations in the early stages of projects like this one," said Team X lead Bob Oberto of the Mission and Systems Architecture Section.

Team X was approached by the United Nations' Office for Outer Space Affairs and the concept design facility at ESTEC to serve as the independent review board for this project.

Proposed in 1997 by the European Space Agency, the World Space Observatory would provide the missing link to studying the universe and its evolution over the

entire light spectrum. By launch date 2006, there will be space telescopes operating over every wavelength, except ultraviolet.

"The World Space Observatory will close the gap in the long-range study of the universe," said Alejandro Soto, Team X science team member. "It will provide us with the whole picture."

According to the United Nations' annual Space Science Workshop summary, the World Space Observatory would also "present an excellent possibility to enable basic space scientists in developing countries to work and collaborate with their counterparts in the developed world."

"While a smaller circle of countries will begin the development process, the entire world will be able to observe once the telescope is built," said Marie Deutsch, JPL's World Space Observatory lead.

"In the beginning stages of the project, ESTEC created a 'wish list' of all the components it needed to complete the project," explained Oberto. Since then, Russia has built the telescope hardware and provided the launch vehicle, Israel the camera and Germany the spectrograph, through which celestial objects are imaged. ESTEC developed the advanced concept design.

According to Deutsch, JPL scientists have suggested that the World Space Observatory also include capabilities for solar-system object studies and a solar weather monitor.

While JPL has offered advice, suggestions, and changes to the design of the World Space Observatory, the Laboratory "is exploring the possibilities of becoming one of the main parties involved in the project," Deutsch said, noting that a decision regarding further involvement of the Lab will be made by next year.

In an effort to enhance security in and around the Laboratory, new fencing is being installed around the entire perimeter of the facility.

The work will also include the trimming of a number of trees and the replacement of others.

"Audits conducted in recent years showed that the fencing around the Lab was insufficient," noted Security and Plant Protection Manager Joe Charles. "Fencing is rusted in some areas, sagging in others. NASA has become more security conscious, and has provided us with the funding to upgrade and improve Laboratory access for the protection of our employees."

The security-enhancement plan also includes the installation of four additional turnstiles for employee access to the Lab—at the south and east gates, on the mesa, and at von Kármán Auditorium. New wrought iron fencing will also be installed in some areas.

The new turnstiles are expected to be operational next October. At that time, pedestrians will have nighttime access to the east gate, which is locked to vehicle traffic after dark.

Other enhancements include a new alarm system to be installed on the fences, additional security cameras and new lighting in

perimeter parking lots.

The removal or trimming of some trees is included in the process because of security concerns about people climbing trees near the fence line to gain access to the Lab, Charles said.

So that access to the Lab is protected at all times, he said, new fencing will be installed side-by-side with existing fencing during some phases of the project. Minimal disruption of Lab access and operations is expected during the project.

In another development, Charles also noted that the JPL Fire Department has been outsourced to Wackenhut Corp., the same company that provides the Lab's security guard force.

Fred Gooden has been named the chief of the fire department, and three new fire captains have been added. Total personnel in the department has been increased by 25 percent since the outsourcing. Three shifts of four full-time firefighters are supplemented by 10 part-time employees.

As a safety-enhancement effort, the fire department has acquired three new defibrillators to aid heart attack victims. The department is also negotiating to buy a new fire engine to replace the current vehicle, Charles said.

## Special Events Calendar

### Ongoing Support Groups

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

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

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

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

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

### Wednesday, November 22

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

### Tuesday, November 28

**Electronic Publishing and Web Application Demos**—Representatives from Adobe Systems, Inc., and Allaire Corp. will present three 50-minute sessions in conference room 180-101. At 1 p.m. will be "Document Publishing With Framemaker 6.0"; at 2 p.m. will be "Creating Data Drive Web Sites With GoLive 5.0 & ColdFusion"; and at 3 p.m. will be "Turn Paperwork Into Electronic Documents and Forms With Acrobat Capture 3.0 & Acrobat 4.0.5." For more details about these sessions, see [http://icis.jpl.nasa.gov/iis/overview/whl\\_evt.htm#adobe](http://icis.jpl.nasa.gov/iis/overview/whl_evt.htm#adobe).

### Wednesday, November 29

**The Enterprise Authentication System, or Why Do I Need So Many @!#\$\* Passwords?**—Vance Heron, EIS security system engineer, Section 366, will discuss the development of a single "JPL Password" that would allow users to access all their computer applications: e-mail, Meeting Maker, DocuShare, The system is scheduled for rollout next spring. To be held at noon in von Kármán Auditorium.

### Thursday, November 30

**Caltech Engineering Design Contest**—Devices designed and built by teams of undergraduate students will compete at 2 p.m. in Beckman Auditorium. For information, see <http://www.design.caltech.edu/Courses/ME72>.

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

### Fri., Dec. 1–Sat., Dec. 2

**Holiday Concert**—The Caltech Men's and Women's Glee Clubs will perform music of the holiday season at 8 p.m. in Dabney Lounge. Free admission. Call (626) 395-4652.

### Saturday, December 2

**ERC Children's Holiday Party**—The annual event will be held from 6:30 to 8:15 p.m. at the Pasadena Ice Skating Rink. Children ages 3-11 years may participate. Tickets are \$2 at the ERC (tickets will not be sold at the door). Call Sharon Chapman at ext. 4-0294 or Marie Case at ext. 4-2202.

### Preservation Hall Jazz Band

The band will present traditional holiday music performed with their New Orleans jazz style at 8 p.m. in Caltech's Beckman Auditorium. Tickets are \$25, \$21 and \$17. Call (626) 395-4652.

### Sunday, December 3

**Chamber Music**—Zora Mihailovich will perform on piano. This free concert will be held at 3:30 p.m. in Caltech's Dabney Lounge. Call (626) 395-4652.

### Monday, December 4

**JPL Stories**—Norm Haynes will present "Mariner 4 and the Mad Mad World that Got Us to Mars" from 4 to 5 p.m. in the customer services area of the Library, west end of Building 111, room 104.

### Mon., Dec. 4–Wed., Dec. 6

**Biomorphic Explorers Workshop**—The second workshop on Bio-Inspired Engineering of Exploration Systems, sponsored by the New Millennium Program at JPL, will be held in Building 180-101 and von Kármán Auditorium. A reception with posters and demos will be held each of the first two evenings in von Kármán Auditorium. The workshop program, proceedings of the 1998 workshop and other information is available online at <http://nmp.jpl.nasa.gov/bees>.

### Tuesday, December 5

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

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

### Wednesday, December 6

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

### Wed., Dec. 6–Thu., Dec. 7

**Retirement plans**—During the first week in December, employees will receive a letter explaining the maximum amount they will be allowed to invest on a tax-deferred basis in 2001 to their voluntary retirement plan investments. On Wednesday, workshops will be presented in the 167 conference room at noon and 2 p.m. to explain the calculations. On Thursday, a tax-deferred annuity open house will be held from 9 a.m. to 3 p.m. in the 167 cafeteria with Fidelity and TIAA/CREF representatives available to answer questions.

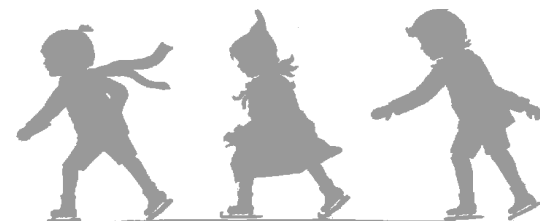
### Thursday, December 7

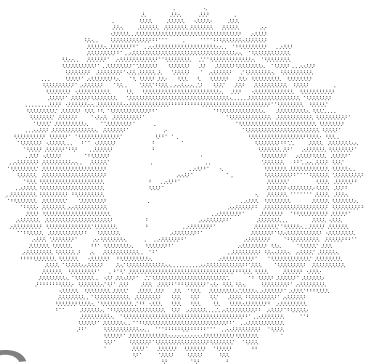
**JPL Gun Club**—Meeting at noon in Building 183-328.

### Friday, December 8

**Travel Film**—*Chile Awaits Your Discovery* will be shown at 8 p.m. in Caltech's Beckman Auditorium. Tickets are \$9 and \$7. Call (626) 395-4652.

## New fencing to be installed around the Lab





Programs step up to reward and honor employees

# SERVING JPL'S BIGGEST ASSET

By Mark Whalen

**S**uzanne Bradfield recently joined JPL as manager of employee services and recognition. The former vice president of employee benefits and corporate culture at IndyMac Bank in Pasadena discusses her new position.

**Q** You've been with JPL about three months. What attracted you to the job? What have you learned about JPL so far?

**A** The job interested me because it would allow me to follow through with some programs I had created with my previous employer but never had the chance to implement.

In just the short time I've been at JPL, I've seen how much Human Resources is respected, and that's one of the things I had not experienced very much in my past. HR is the objective voice of the people, and without that voice at the executive level, much less gets listened to and thus accomplished.

**Q** In your experience, how do JPL's programs for recognizing and rewarding employees measure up to those in the private sector?

**A** It's been very surprising to me, because as a not-for-profit organization, I didn't think there would be as many employee service and recognition programs as there are. The private sector has a lot of money to dedicate to employee programs, yet so much is done for the employees here that it mesmerizes me sometimes.

I mean, what is JPL's biggest asset? It's our employees. And how are we going to keep our employees happy? We can only pay them so much and give them a certain amount of benefits. But what we *can* afford to do, in terms of service and recognition programs, is really above and beyond anything I've ever experienced.

**Q** JPL's "Employer of Choice" initiatives are fairly new. Is that term common in the corporate world?

**A** It has become a buzzword at some companies. Fortune magazine publishes the "top 100 employers to work for." It's a good benchmarking tool to ascertain what's working for other companies. It is imperative that companies incorporate Employer of Choice initiatives into their practice for attraction and retention purposes.

**Q** Nowadays, people change jobs a lot more frequently. But JPL is much different than it was 20 or 30 years ago, in that there are so many more projects now than ever before. Is that part of the thought process in retaining employees at JPL—that people can do many different types of jobs during their career without leaving the Laboratory?

**A** Exactly. It isn't unusual in industry today to switch jobs after two to four years; however, as you point out there are many more interesting projects at JPL than ever before and we hope employees will find it attractive to stay for many years.

**Q** What has been the affect of the Employer of Choice initiatives? Are people happy with things so far?

**A** One of our newest initiatives is Rainbow Retreat. This is a childcare facility in Pasadena that provides care for mildly ill children at half price. JPL employees pay a discounted fee of \$3.25 per hour. This service was received very well and I received a number of e-mails from people who thanked us for offering this service.

Employee Appreciation Day on Oct. 27 was also very well received. People really enjoyed receiving the free lunch and free gift. One thing that really warmed my heart that day was all the smiles I saw. It was freezing cold and threatening rain, but people were happy and exuberant, and that was great for me.

We're never going to get a 100 percent reaction that says, "You guys are awesome;" however, that's not what I'm striving for. What I'd hope for is the majority of the population enjoys the programs and events we're putting on.

**Q** Have you found that people at JPL are fully aware of what's available in terms of employee service and recognition programs?

**A** One of the things I'm trying to do is streamline all of our programs and better communicate them. We're considering a universal, online nomination form for all of the recognition programs—the Award for Excellence, NASA Honor Awards, Bonus Awards, NOVA (Notable Organizational Value-Added), STAR (Special Thanks and Recognition) and the Space Flight Awareness Program. We're targeting this system for next fall.

I've found that those employees who make nominations represent a small group on Lab who are actually aware of the programs. We need a better representation of the entire Lab for nominations, so more communication is essential.

The Web is going to be our biggest communication vehicle. My staff and I are working on updating the Employee Services and Recognition Web site to make it more user-friendly and informative.

**Q** You're also responsible for overseeing JPL's cafeteria operations. Is there anything new on the horizon? What needs changing or improving?

**A** We are looking at refurbishing the 167 cafeteria. We've planned for construction to begin in March 2002.

Another big thing we're working on for Building 167, Room 111, is the creation of an employee recreation room. Yoga, aerobics, and other types of physical activity will be offered, and we will continue to try to find uses for this space that will meet the need of our employees.

We're planning to break ground on this facility in mid-December, and anticipate completion and a kickoff in March 2001.

Also, there's a proposal in to renovate the 190 cafeteria into a "trattoria" of sorts—offering specialty items like pasta and pizza.

**Q** What other services do employees take advantage of?

**A** Child care is a benefit many employees are interested in. We continue to provide funds to the Child Educational Center, which affords a discount to JPL employees, and our Child Care Assistance Program provides assistance to JPL families in need of financial support to acquire quality care for their children while they work.

Employee Family Day has also proven very popular. We're going to have it every other year, starting in 2001. And of course, people really enjoy the free lunch certificate they receive on their birthday.

**Q** All this sounds like quite an investment. How are all these activities funded?

**A** The Employer of Choice programs are funded by the award fee given JPL by Caltech for its performance each year. In 1999, about \$1 million was dedicated to the effort, and we're expecting continued support.

**Q** Another area you're responsible for is the Employees Recreation Club. What's new there?

**A** Bridget Marshall is the new ERC administrator. We'll be working on ways to give the ERC a new look and feel while bringing in new types of merchandise. One thing we will be offering for the upcoming holiday season is a gift-wrap service for items purchased at the ERC.

**Q** Besides Bridget, who is on your team? Where are your offices?

**A** Nancy Kapell is our employee services administrator. She works closely with the cafeterias, child care, employee events and is the Space Flight Awareness coordinator. Bertha Hines is responsible for service awards, birthday certificates and Web design. Nellie Vidaca is responsible for NOVA and retirement awards, pizza certificates, web design and is the United Way Campaign coordinator.

We're located in Trailer 1720B right now, and will move to the second floor of Building 310 early next year. We'll share offices with the Employee Assistance Program.

**Q** How do you plan to measure the success of the various programs?

**A** I plan to start doing target surveys to learn how effective our employees feel the programs are, as well as find out some new things people want. We can't create anything without the employees' input. NASA and Caltech have shown that they believe in us, and we want JPL employees to agree that these programs and services contribute to our being an Employer of Choice!

**"One thing that that really warmed my heart on Employee Appreciation Day was all the smiles I saw. It was freezing cold and threatening rain, but people were happy and exuberant."**



Bob Brown / JPL photo

Suzanne Bradfield,  
employee services and  
recognition manager

