

latimes.com

Next Card  
VISA

How low can we go?

SEARCH

[Home](#) | [Discussions](#) | [Print Edition](#) | [Archives](#) | [Site Map](#) | [Home Delivery](#) | [Advertise](#) | [Help](#)**News****Politics****Entertainment**music, movies, art,  
TV, restaurants**Business****Travel****Classifieds**jobs, homes,  
cars, rentals**Sports****Commentary****Shopping**<http://www.calendarlive.com/calendarlive/features/secretcity/jpl.htm><< back to story  
calendarlive

## Star Power

By Jeremy Rosenberg,  
Calendar Live Associate Editor

Here's one way to glimpse outer space: Get abducted by aliens.

Here's another way: Take the 2 Freeway north and the 210 Freeway east to La Cañada Flintridge. Get off at the Berkshire Avenue exit and take Berkshire to Oak Grove Drive. Arrive at the Jet Propulsion Laboratory (JPL).

Sponsored by NASA and operated by the California Institute for Technology, JPL is located not far from the Arroyo Seco spot where Cal Tech Professor Theodore von Kármán conducted his first experiments in rocketry in the 1930s. Later, during the '40s, the lab developed missiles for the U.S. Army. In 1958, NASA was founded and JPL became part of the agency. In the decades since its inception, JPL has conceived and built an astounding array of extra-planetary explorers and the remarkable technologies that accompany them.

Today, JPL is a sprawling suburban campus. The place is nicely landscaped. It has a fountain. Employees eat lunch at outdoor tables. It is also confusing to navigate. The map given out by the visitors center lists so many buildings, and the names are printed in such a small size that you almost need the Hubble Telescope to read it.

A few of those campus edifices are open to tourists. The Space Flight Operations Facilities building features a glassed-in balcony, à la the New York Stock Exchange. From this perch, visitors can watch the Network Operations Director and other JPL staffers staring at banks of computer terminals, monitoring data from various satellites. High up on the front wall, a digital readout counts down the time to upcoming launches, as well as the retirement date of a longtime employee.

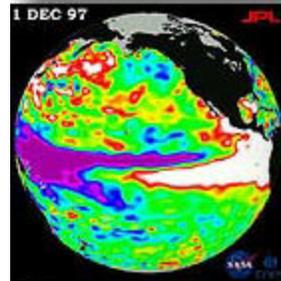
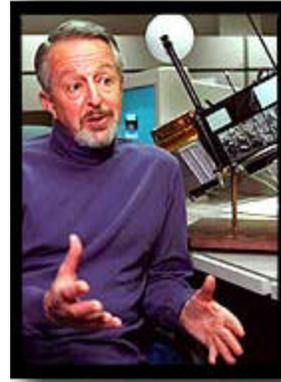
Another building with a public viewing gallery is the Spacecraft Assembly Facility where, during the past 30 years, JPL has constructed such famous unmanned extraterrestrial vehicles and satellites as Ranger, Mariner, Voyager and the Viking orbiters. Right now, a scale model of the Cassini craft is kept here.

\*\*\*

For reasons ranging from cleanliness to national security, much of the work JPL does goes on behind closed doors. Perhaps that's why, despite all the attention its various projects have received, JPL is still far from being, ahem, universally known.

"One very common reaction I get is: 'JPL? What's that?' " says Bob Mitchell, program manager of operations for the Cassini/Huygens craft and probe, which was launched in 1997 and is scheduled to arrive at Saturn's largest and most viable moon, Titan, in 2004.

Mitchell recently took a reporter on a private tour of the Cassini operations. One of the stops is the operations room, where staffers, dubbed "aces," sit in front of computer screens and monitor the coded ones and zeroes that relay vital data from the spacecraft, such as temperatures, currents, voltages and pressure levels.



"Their job is to look at the telemetry and say, 'everything is going just right,' or, 'whoah, what's going on here?' " Mitchell says. "They're just sitting at their desks, looking at their computers, tracking what's going on. So it's not very exciting."

A mission to Saturn not very exciting? Hey, speak for yourself.

"Well, it doesn't appear to be very exciting," Mitchell says with the nonchalance that only someone in his profession could have. "It's not somebody walking around in a spacesuit."

Photos from top to bottom:

With a model of the Topex-Poseidon satellite behind him, oceanographer Bill Patzert discusses his work.  
*Photo by Associated Press*

Topex-Poseidon data led to the creation of this 1997 image of the Pacific Ocean.  
*Photo courtesy of JPL*

An experimental ultrasonic drill designed by Dr. Yoseph Bar-Cohen and his team turns rock into powder with little power.  
*Photo courtesy of JPL*

The Cassini spacecraft is scheduled to reach Saturn in 2004.  
*Ken Lubas/ Los Angeles Times*

\*\*\*

Dr. Yoseph Bar-Cohen is, most certainly, a genius. He holds 11 patents and has another two pending. He is involved with mind-bending futuristic research on a number of subjects, including the use of ultrasonic waves as an energy source; the development of artificial muscles; the ability to do virtual reality "telesurgery"; and, ultimately, the construction of something called a "robonaut."

Bar-Cohen is also every bit the pop-culture vision of a hard-working "mad" scientist. He's in his two-room JPL workspace pondering matters far more significant than the bad hair day he's so obviously suffering. He wears a short-sleeved, white dress shirt. He tugs repeatedly at his slacks, hitching them up when they droop. When he attempts to show off a small extraterrestrial rover that his team has constructed, he drops the vehicle. It is sturdy, of course, and not damaged.

Bar-Cohen and his associates have other projects to demonstrate: a pump, a drill, a fountain and what seems to be a tiny air-hockey table with a miniscule puck that is moved -- as the other experiments are -- via ultrasonic waves. The drill is especially impressive -- it weighs less than a pound and uses only 12 watts of energy. In about a minute, the drill turns part of a rock into powder. Think of this appliance on Mars, coring mineral samples, cutting bricks for housing projects.

And think again of the scientists, testing inventions on a taxpayer-funded budget.

"There is no rock we cannot drill," says Bar-Cohen. "But we are not going to touch diamonds -- they are too expensive."

\*\*\*

Dr. William Patzert, a member of the Topex/Poseidon ocean-mapping satellite mission, feigns disappointment that a photographer hasn't accompanied a visiting reporter. Patzert is wearing a festive shirt depicting zigzagging rocket ships.

Patzert, whose father was a sea captain, was practically born to be an oceanographer. As a kid he read Melville and Verne; he's also a surfer. Patzert has worked at JPL since 1983, and lately, thanks to tremendous interest in the 1997-98 El Niño/La Niña phenomena, he's been

quoted more often than the price of Microsoft stock.

"Climate touches all of us," says Patzert, while giving a tour of the Poseidon mission control room. "It really governs human affairs. On a longer time scale, probably the most important determinant of human civilization has been climate."

Patzert explains that Poseidon was expected to function for three to five years. After eight years, it is still in operation. He points out again how lives were saved thanks to JPL's early detection of El Niño. He discusses how other Poseidon data can be used to identify coral reefs at risk, set shipping lanes, assist commercial fishermen and much more.

With deserved pride, Patzert then utters a statement that would make a reasonable motto for all of JPL: "I don't want to blow our horn too much," the scientist says. "But it doesn't get much better than this."

*JPL "Visitor Day" tours take place three days per month. Tours include trips to the von Kármán Visitors Center, Space Flight Operations Facilities and Spacecraft Assembly Facility. Reservations are required and may be made in advance by calling (818) 354-9314. Group tours and wheelchair-accessible tours may also be arranged. See the [Jet Propulsion Laboratory's web site](#).*

Copyright 2000 Los Angeles Times



**Tired of credit card debt?**

