

Here's to 'Mr. JPL'

321 auditorium named for former Director Bill Pickering

By Mark Whalen



Photo by Josh Krohn

JPL's Flight Projects Center auditorium has been dedicated in honor of William Pickering, JPL's longest-serving director who led the Lab as it created America's first successful satellite and sent the first spacecraft to Venus and Mars.

In a ceremony July 27, past JPL leaders, dignitaries, current employees and many retirees packed the venue in Building 321 as it was formally named the William H.

Pickering Auditorium.

"His legacy shaped the JPL of today," said JPL Director Charles Elachi.

Pickering joined JPL in 1944, and 10 years later was named Lab director. When the Soviet Union launched the Sputnik satellite in October 1957, Pickering quickly organized a team to design and build Explorer 1, America's first satellite, launched Jan. 31, 1958.

When NASA was created later

that year, JPL became the agency's only center staffed and managed by an educational institution. Under Pickering's leadership, robotic missions to the moon, Venus and Mars cemented JPL's reputation as the preeminent institution for deep-space exploration.

Elachi noted there was a lot of pressure on JPL during Pickering's tenure, due to the Cold War and

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“I know that he would be absolutely thrilled to know his name was permanently affixed to this auditorium.”

Beth Pickering Mezitt, William Pickering's daughter

President John F. Kennedy's pledge to safely send astronauts to the moon by 1969. “At that time, we barely knew how to launch things,” he said.

Key successes under Pickering include Mariner 2's successful flyby of Venus in 1962 and Mariner 4's first close-up photos of Mars in 1965. Pickering retired in 1976. He died in 2004.

It's rare that a federally funded building is named for a person, noted JPL Deputy Director Larry James. “It's a very special day for JPL. We are honoring a tremendous leader who really made such a difference

for science and exploration and for the world. It's testament to what Pickering meant to this organization and the nation.”

Under Pickering, “JPL really became part of the fabric of the American culture, part of the nation's identity,” said David Crouch of the NASA Management Office.

Leon Grice, consul general of New Zealand in Los Angeles, said Pickering remained “very connected with his home country,” with a focus on education.

Pickering's daughter Beth, who grew up in Altadena, traveled from

her current home in Massachusetts for the ceremony. “I know he would be absolutely thrilled to know his name was permanently affixed to this auditorium,” she said.

Also in attendance were former Director Ed Stone, former Deputy Director Larry Dumas and former Executive Council members Tom Gavin and Kirk Dawson.

When Elachi first came here, he joked, Pickering was “one step below God.” But he added that one of Pickering's favorite honors came when JPLers reverently called him “Mr. JPL.” ■



William Pickering (left), James Van Allen and Wernher von Braun display a full-scale model of Explorer 1 at a news conference announcing the successful launch.



Photo courtesy of Tom Meehan

Larry Young (center), with Tom Yunck (left) and Tom Meehan, at Coyote Dry Lake Bed in the Mojave Desert around 1986, preparing to test a GPS receiver.

The godfather of GPS

Young honored with NASA Distinguished Service Medal

When Larry Young joined JPL in 1978, the Defense Department was launching the first satellites in its Global Positioning System. For its creators, GPS was a huge advance in navigation for military purposes. But for the young physicist with a freshly minted doctorate, the system had the potential for much, much more.

In the decades since, GPS became the driver that has powered innovations from TomToms on automobile dashboards to

smartphone locators. For JPL, it has been a critical technology enabling science in areas such as ocean research and gravity studies. And all of those efforts owe a big debt to Young.

Now in his 37th year at the Lab, Young was recently feted with NASA's Distinguished Service Medal—the highest honor given in NASA's Honor Awards—for his decades of work making GPS more precise and more valuable to researchers in a variety of disciplines.

In the early 1980s, Young formed a JPL team to develop a paradigm-changing GPS receiver. Key among its features, the receiver would be able to calculate position based on signals from GPS satellites without needing classified codes—one of the features of the existing Defense Department system. This paved the way to industry's widespread adoption of codeless GPS tracking methods. Young's work also helped

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Most experts thought Topex's goal of pinpointing its position within 10 centimeters was unattainable. Remarkably, it produced results 10 times better.

the Air Force architect a new frequency scheme for its next-generation of the GPS to better accommodate both civilian and military use.

The innovations in GPS receivers are fairly subtle, Young said. "They are things that are buried back in the details—such as how JPL recovers codes that are encrypted by the military and uses them to make measurements."

That work resulted in a GPS receiver, built for JPL by Motorola based on specifications from Young and his group. It was the first receiver to offer enough position accuracy to enable geodetics work, applying precise positioning of a consistent coordinate system that defines latitude, longitude, height, scale, gravity and orientation. One of the receivers flew on JPL's Earth-orbiting Topex-Poseidon satellite launched in 1992. Most experts thought Topex's goal of pinpointing its position within 10 centimeters was unattainable. Remarkably the work by Young and his team—along with work from other JPL groups to collect and process data—allowed the satellite to achieve an astonishing accuracy even 10 times better. This allowed Topex to measure heights of sea levels to within a few centimeters.

Numerous ocean-altimetry missions have followed, taking advantage of one-centimeter orbit accuracy from JPL's GPS space receivers. The receivers



Larry Young

have enabled precise measurement of sea-level rise over more than two decades by these missions, one of the most influential and compelling results from NASA's Earth-science programs.

In total, more than two dozen GPS payloads using the design invented by Young's group have been successfully deployed on missions as diverse as the Shuttle Topography Radar Mission, IceSat, Jason 1, Jason 2 and Grace. A variant of the receiver was developed for and flown on the successful Grail lunar gravity-mapping mission.

The contributions by Young's group to plate tectonics are visible from the north-bound Glendale (2) freeway en route to

the 210. On the east side of the freeway is a precise-measurement tracking station with an antenna protected under a dome. There are several hundred others throughout Southern California. "This effort was a lot of clever work by various people to make the whole system work," said Young. "It's a collaborative effort that allows us to see sub-millimeter motions of the ground."

Being able to predict an earthquake was always the Holy Grail golden grail" has always been to, said Young. "But the physics of what goes on beneath the surface is just too chaotic for us to model at the moment. What we can do is look at where the most strain is being accumulated, then we get a pretty good idea of where the most destruction will occur in an earthquake."

Young modestly puts the emphasis for his successes on his team, the Global Positioning Satellite Systems Group, which he has led for more than 30 years.

What's next? Young's goal is to keep the innovations going.

"I want to make sure we don't become a buttonholed producer of a widget," he said. "I'd like to keep the group of people I work with supplied with work they are good at and enjoy doing, and therefore are productive. Of course, that's not only my responsibility; others in the group have to put forward their ideas too." ■

OFFICIAL VISITORS

In late July, JPL hosted newly named NASA Deputy Administrator Dava Newman, who toured the Lab and met with various JPL groups. At right, Aaron Parness of the Extreme Environment Robotics Group shows her a prototype Microspine gripper developed for the Asteroid Redirect Mission.



Photos by Josh Krohn

Ten of the 13 members of the NASA Advisory Council (below) visited JPL for a week of meetings and presentations.



NASA Advisory Council members, from left: Diane Rausch, Ken Bowersox, Scott Hubbard, Wayne Hale, Steve Squyres, David Spergel, John Borghese (for Marion Blakey), Bradley Peterson, David Frankel, William Ballhaus.

Passings

Charles Lawson, 83, a retired mathematician, died July 2.

Lawson joined JPL in 1960 and retired in 1996. He was supervisor of the Computational Mathematics Group, a unit responsible for mathematical software that is still in use at JPL. He was the coauthor of two books, 'Solving Least Squares Problems' and 'Computer Approximations,' and many scientific papers. His work was considered a key factor in JPL employing modern computing methods in its early days.

He is survived by his wife, Dottie; children Michael, Brian, Melanie and Marcella; and numerous grandchildren.

Claudia Alexander, 56, a longtime JPL scientist who was the final project manager for the Galileo mission to Jupiter, died July 11.

Alexander had worked at JPL since 1986, when she began as a Galileo team member prior to its launch. Seventeen years later, she led the team that in 2003 guided the probe's fiery entry into

the Jovian atmosphere. After Galileo, she served as science coordinator for Cassini's plasma wave instrument. In 2000, NASA chose Alexander as the U.S. project scientist on the European Space Agency's Rosetta mission, which entered orbit of comet 67P/Churyumov-Gerasimenko in September 2014.



Claudia Alexander

Alexander is survived by sister Suzanne and brother David.

Services were held July 25 at Forest Lawn Hollywood Hills. A second memorial will be held in San Jose Aug. 8 at 11 a.m. at Oak Hill Funeral Home and Memorial Park.

Her family requests that donations be considered for the Dr. Claudia Alexander Memorial fund [<http://www.gofundme.com/Dr-Alexander>]. The funds will be used for academic scholarships to science, technology, engineering and math students.

Letters

I would like to thank my fellow co-workers (my JPL family) for the support and card for the passing of my father. I'd also like to thank JPL for the lovely plant. It is beautiful and so symbolic at this difficult time. I appreciate all of your kind words and hugs. Thank you again.

Kelly Gaudet

Thank you to Tony Bejczy's colleagues who sent condolence messages and attended his memorial service on July 11. Your support and condolences have helped through a very difficult time. Tony continued to have a strong attachment to JPL and the international community of robotics researchers after his retirement as a senior research scientist in 2001. He will be greatly missed.

Margo Bejczy

Classifieds

Ads submitted July 25–31. To submit an ad, e-mail universe@jpl.nasa.gov.

For Sale

MISC.: Pedometer, mini steam iron, Rollerblades (men's 8), head/neck/shoulder massager, Blackberry Curve, soft cooler, bloody Mary/decanter set, white roller-rink skates. 818-272-3262.

Vehicles / Accessories

'03 MERCEDES BENZ C-240, V6, automatic, one family car, very clean, 56K miles, silver with gray interior, \$7K or best offer. 818-952-7434.

Lost & Found

LOST: activity notes, April 2006–March 2007. SOSNotez@riseup.net.

Real Estate for Sale

PASADENA, urban living at its best, spacious 2-bed / 2-bath condo in prime location, west-facing corner unit, bright and sunny, recently renovated with gleaming hardwood floors, smooth ceiling, new crown and baseboard moldings, new paint, granite counters, maple cabinets, gas stove and breakfast bar, new a/c unit, dishwasher, microwave, enormous master walk-in closet; 2 parking spots (tandem) in enclosed garage, HOA installed new roof in 2014; walking distance to Lake, Playhouse and Old Town districts; see at <http://www.propertybycasey.com/10/listing/85700>; \$499,000. 626-222-4116.

For Rent

ALTADENA, furnished room w/view for lease; non-smoker to share a 4-bedroom, 3-bath house; close to local colleges/Pasadena schools, walking distance to JPL; utilities are included, central air/heat, Internet access; near 210/134/110 freeways, bus stop, shopping, banking, entertainment and restaurants; must see; \$740/month. 818-370-0601.

ALTADENA apt., ground floor, appliances optional, freshly painted, 2 bdrms, 1 bath, fireplace, gd. size closets & bdrms., carpeting TBD, tile in kitchen &

bath, miniblinds throughout, carport parking, storage, laundry on site; close to JPL/Odyssey Charter School/bus/grocery stores/shops/pharmacy/24-Hour Fitness/bank, clean; option: \$740 shared rooms or \$1,375 rent entire apt. 818-370-0601.

ALTADENA (91001), 2-bedroom, 1 3/4-bath condo, available September; security access and gated, security alarm, cable Internet ready, central air/heat, well maintained, carport parking, nice closet organizers, kitchen w/marble floors, washer/dryer, den, fireplace, patio with garden and hot tub, community pool and more, you pay utilities, excld. trash; \$1,875/month. 818-798-6185.

ALTADENA, one room in a lovely 3-bd./2-bath house, big backyard, hardwood floor, big closet, furnished or unfurn., shared bathroom, kitchen and laundry privileges; 5-min. drive to JPL, close to public transport; short- or long-term lease; must like dogs and be very clean; \$750 furn., \$700 not furn., including util. + \$650 deposit. 626-712-3451.

Vacation Rentals

BIG BEAR lakefront, luxury townhome, 2 decks, tennis, pool/spa, beautiful master bedroom suite. 949-786-6548.

CABO SAN LUCAS, Xmas/New Year's weeks (12/19/15–1/2/16), spectacular property, lg. 2-rm. ground floor unit, garden view, sleeps 6, full kitchen, 2 baths, daily maid, use of all Sheraton facilities; pictures: <http://haciendadelmar.com.mx/sites/en/suites/master-suite>; \$1,400/wk. tujungadude@gmail.com or 818-605-0415.

JACKSON HOLE, WY: Luxurious bed and breakfast on 3 acres of solitude on Snake River and near Jackson Hole Mountain Resort and south entrance to Grand Teton Natl. Park; see <http://www.bentwoodinn.com/>; mention JPL for discount. info@bentwoodinn.com, 307-739-1411.

KAUAI condo, Pacific Fantasy, Kapaa: 1 bedroom (sleeps 4), \$950 per week. 818-272-3262.

MAMMOTH, Snowcreek, 2 bd., 2 ba. + loft, sleeps 6-8, fully equip'd kitchen incl. microwave, D/W, cable TV, VCR, phone, balcony w/mtn. vw., Jacz., sauna, streams, fishponds, close to Mammoth Creek, JPL discount, no pets. 626-798-9222, 626-794-0455 or valeriee@caltech.edu.

MAMMOTH, Snowcreek, beautiful updated condo, 2 bd., 2 ba. + loft (sleeps 6-8), great location by pond/meadow, new appliances, TVs, DVD players, free wireless Internet and washer/dryer, no pets. 818-952-2696 or BigMtnPrettySky@gmail.com.

OCEANSIDE condo, on the sand, watch the beautiful sunsets, charming, 1 bedroom, panoramic view, walk to pier or harbor, pool/spa, game room, sleeps 4 max, all amenities. 949-786-6548.

OCEANSIDE whitewater view beach condo; virtual tour: <http://www.previewfirst.com/mls/33034>; 2 bd., 2 ba., sleeps 6; boogie boards, wet suits, full kitchen, all linens, beach towels; Wi-Fi ready, new flat-screen TVs, daily paper, grocery stores; 2-min. walk to sand, no roads; JPL/Caltech rates: summer \$2,150/week; monthly and nightly rates available; see www.warmfocus.com/video/k/1402-999npacificstc213/video.php; reserve w/\$500 deposit. 760-433-4459, Grace; 831-425-5114, Ginger. ■



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