

## 15 amazing years

Elachi to retire as JPL director next June | **By Mark Whalen**



Photo by Dan Goods

JPL Director Charles Elachi address employees at the State of the Lab address Oct. 28. Elachi plans to retire next June..

The most significant news revealed in JPL Director Charles Elachi’s annual State of the Lab address Oct. 28 was not about a mission, a process or a budget.

Elachi announced his intention to retire from JPL next June. And in appreciation for his 46 years on Lab and 15 years as director, the packed house in Pickering Auditorium responded with a standing ovation at the event’s conclusion.

“We’ll still have eight months together, with a lot of exciting things

to happen,” Elachi told employees. “I want to take this opportunity to thank you. What a privilege and honor it has been to be your director and your colleague.”

Elachi will become a professor emeritus at Caltech, where he now teaches. He said the retirement would allow him to continue doing research on Cassini radar and other projects.

For now, JPL’s challenging portfolio continues apace in 2016. The director noted InSight’s launch to Mars March 4, as well as the upcoming launch for

Jason 3. Orbit insertion for Juno at Jupiter will provide fireworks July 4, and InSight’s landing is due Sept. 28.

Over the next decade, Elachi said, “having a coherent, long-term program is essential. In this case, it’s not every mission on its own; as we all know, Curiosity and Opportunity rely heavily on Mars Reconnaissance Orbiter and the Odyssey orbiter to relay all the data down to Earth.”

Elachi said the intent is to consider a Mars orbiter with a refurbished telecommunications infrastructure that will

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Photo by Dan Goodis

JPL Director Charles Elachi received a standing ovation after his annual State of the Lab address.

**“Keep doing what you’re doing—by being successful and delivering on our promise, making the right commitment, stretching the limits and inspiring the public.”**

JPL Director Charles Elachi

also play a role in the reconnaissance of the surface in preparation for human missions in the 2030 timeframe.

NASA has confirmed JPL as the lead center for the Asteroid Redirect Robotic Mission, in which a spacecraft would rendezvous with a large near-Earth asteroid and use robotic arms with anchoring grippers to retrieve a 6-meter boulder from the asteroid. The agency recently released a request for proposals from industry to participate in the mission.

“The Asteroid Redirect Robotic Mission is much broader than just bringing back an asteroid,” noted Elachi. “It’s really about developing electric propulsion that’s a factor of five or 10 compared to what Dawn has. This will allow us to move heavy mass.” He added that the mission would allow astronauts to spend a significant of

time in deep space and rely mostly on themselves in learning how to operate around a low-gravity object.

Europa will be one of the most exciting missions in the coming decade, said Elachi. “It gives us the opportunity to potentially to take the next step toward finding life in our solar system,” he said. “Europa is a step toward a long-term program of exploring our oceans in the solar system. We want to have a series of missions, ranging from flagships to New Frontiers to Discovery missions, that will allow us to explore all the icy moons, including Titan.”

The federal budget is operating under a continuing resolution through Dec. 11. By the end of the calendar year, a vote on an omnibus bill that includes the fiscal year 2016 NASA budget is anticipated. Elachi said the

overall science budget is fairly stable.

Elachi was also encouraged by solid support in the Senate for the Wide-Field Infrared Survey Telescope, the top priority space mission identified in the 2010 National Academy of Sciences decadal survey. JPL will develop a telescope and coronagraph for the mission.

Both the House and Senate pledged about the same total for science—with the Senate having \$200 million more for Earth science and the House about \$200 million more for planetary.

“We have a very intellectually rich collection of Earth-observation missions, 13 orbiting missions in operation today,” the director said. But it’s not purely about science, he Elachi.

“It’s also important to apply JPL’s expertise to day-to-day challenges” of society, he said. To that end, the Earth science program is focusing on four societal benefit focus areas: carbon and ecosystems, natural hazards, water availability and sea-level rise.

“It’s not just the dollar number, it’s the intellectual diversity and richness of the missions we have,” Elachi added. “From my perspective, I’d rather have a little bit less money and have exciting missions than just have more money.”

JPL gets its exciting portfolio the old-fashioned way, Elachi told employees. “We earned them. We earned them because of your ingenuity, hard work, the passion you put in your work. We earned them because of the mighty things you all do.

“So the message is: Keep doing what you’re doing. By being successful and delivering on our promise, making the right commitment, stretching the limits and inspiring the public, that’s why they come to us.” ■

# Close shave over Saturn moon

## Cassini comes within 30 miles of Enceladus

By Mark Whalen

After dozens of pinpoint-accuracy encounters with Saturn and its moons over the past 18 years, you'd think that the Cassini navigation team would consider it another day at the office.

But there were still breaths held Oct. 28 when the spacecraft swooped within 50 kilometers of Saturn's pearl-colored moon Enceladus, flying through the plume from one of the ice geysers near its south pole.

Last week's exceptional pass marked the spacecraft's 21st close flyby of Enceladus, so the navigation team led by Duane Roth had lots of experience in its back pocket.

Their confidence paid off, as Cassini's flyby went "absolutely perfectly," said Project Manager Earl Maize.

"The navigation team got us within a few hundred meters of the target. Both the science and engineering instruments were spot on, and the instrument investigators are pleased with the results," said Maize.

"We were able to accomplish everything we set out to do," he added. "The sampling of the plume by the mass spectrometer and dust analyzer worked perfectly." Several hundred particles of the plume were obtained for analysis, he noted.

Roth said the team's experience with Enceladus—as well as all the other Saturnian moons studied—did more than build their confidence. In practical terms, they learned where Enceladus actually was.

The navigation team uses a complex model taking into account all significant forces on the spacecraft—not only gravity and events like thruster firings, but also more subtle forces such as the pressure of the solar wind, said Roth. They check the spacecraft's position on a near-daily basis with tracking techniques based on Cassini's radio signal.

But that's only part of the equation. "When you're going to do a close flyby, it's not good enough to just know where the spacecraft is—you need to know where this other body is as well," said

Roth. "Prior to Cassini going into orbit around Saturn, the uncertainty of the moons was enormous. They had hundreds of kilometers of uncertainty."

For the Oct. 28 flyby, navigators were just about on target, pinpointing Enceladus' known orbit to about 2 kilometers, said Roth. "We never had to worry that we might be flying too close; we knew we could do it."

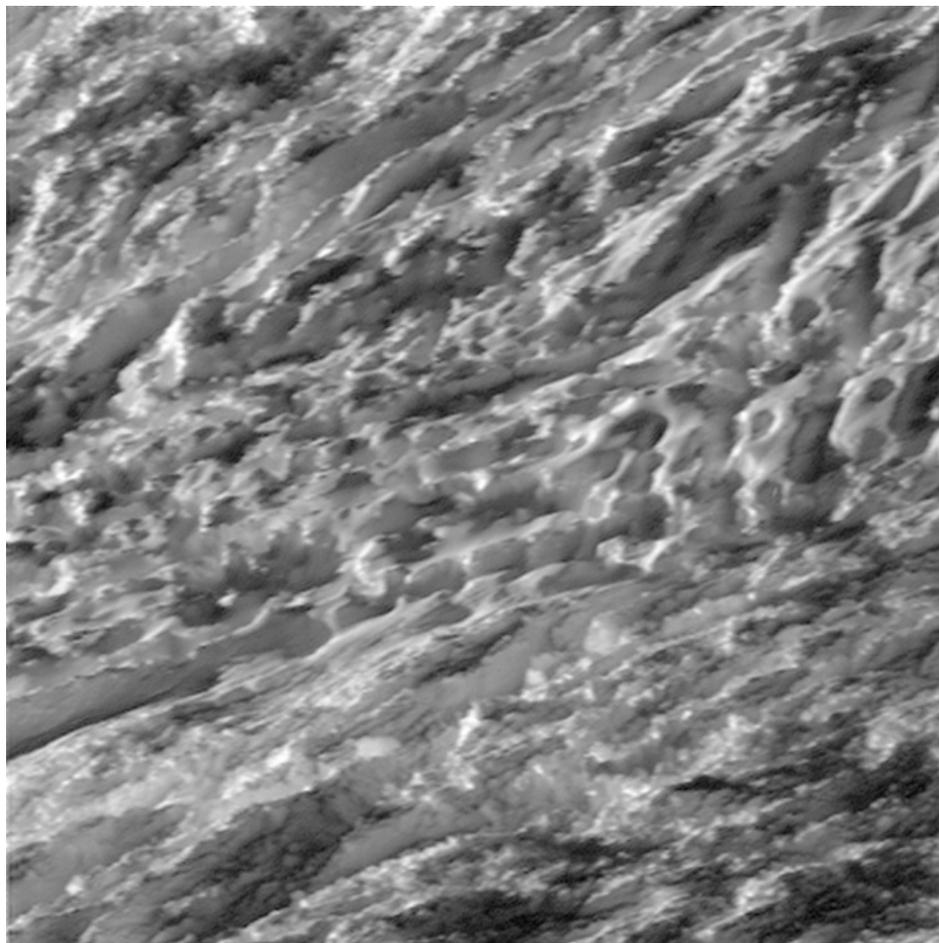
The navigation team includes about 12 full-time equivalent staff, with a good mix of veterans and newer employees, said Roth.

With almost every maneuver, something different comes up. "On this flyby, we per-

formed orbit trim maneuver number 427," said Roth. "We have canceled many, but more than 300 have been executed. We've not gotten to the place where everything is routine."

A space fan since childhood, Roth studied engineering at the University of Michigan. After graduation, he joined JPL and began working on the iconic Voyager mission. "They hired me after their Saturn flyby, of all things, so I missed Saturn then," he said. "But I was here for Voyager's Uranus and Neptune flybys.

"So now I get a chance with Cassini to finally see Saturn—up close." ■



During its closest-ever dive past the active south polar region of Saturn's moon Enceladus, Cassini acquired this view at a distance of about 77 miles from the surface. The image was taken in visible light with the Cassini spacecraft wide-angle camera on Oct. 28.

# Record crowds for open house

Temperatures in the high 90s didn't keep curious members of the public away from JPL's annual Open House Oct. 9 and 10. As a matter of fact, so many wanted to attend that some had to be turned away.

About 45,000 people were able to enter the Lab over the weekend, a number similar to last year's event, but parking lots were filled by mid-morning.

Through Twitter and Facebook, JPL's social media team helped with traffic control by alerting drivers that JPL was at capacity.

"This unprecedented interest created many challenges for us to overcome, but I am pleased that so many visitors went away happy and enthusiastic about JPL," said Blaine Baggett, JPL's director for communications and education. "This is in no small part due to the effort of those who worked at Open House—my sincere thanks to all of you. I believe that the public's fascination and appreciation of JPL will only continue to grow in the years to come."

Alternatives being considered for the future include extending Open House to three days, requiring online tickets or two two-day events. ■



Robotics engineer Matt Heverly displays a wheel from the Curiosity rover.

## New options for 2016 benefits

Enrollment is underway for 2016 benefits, and employees can choose among some new options, including a redesigned High Deductible PPO Plan (HDHP).

Several open-enrollment workshops and webinars to explain the plans are available at <http://benefits.caltech.edu/documents/63-oeeventsschedule.pdf>

Four healthcare programs are offered. Anthem HMO and Kaiser HMO are joined by two PPO plans that feature the ability to

pick your own doctors.

The Anthem HDHP was redesigned to lower the monthly employee contribution amount as compared to the rates for 2015, but to do so required an increase in the deductible and out-of-pocket maximum amounts.

"This plan is gaining interest," said Lucy Moffitt, JPL's benefits manager, "and we encourage employees to consider it." The employee cost for the Anthem HDHP

is decreasing for 2016 and the cost is now in line with Anthem HMO rates. "It's important to note that the network of doctors and hospitals for the HDHP is the same as the network for the original PPO," added Moffitt.

"When employees see the rates for next year they'll see that the costs for Anthem HMO and the high-deductible plan are very similar," she said. "This option could

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## Geology honor to Golombek

Matt Golombek, project scientist for JPL's Mars Exploration Rover project and landing site scientist for NASA's Mars Exploration Program, has garnered the G.K. Gilbert award of the Planetary Geology Division of the Geological Society of America.



Matt Golombek

Golombek received the honor during the society's annual meeting Nov. 1 to 4 in Baltimore. He is the first JPLer with the honor.

The project scientist for JPL's 1997 Mars Pathfinder Project, Golombek has been a leader in evaluating and selecting sites for every NASA Mars rover mission, for the 2008 Phoenix Mars Lander, and for the upcoming 2016 InSight lander and Mars 2020 rover.

The award, named for Grove Karl Gilbert, an influential American geologist who saw the importance of a planetary perspective in solving geologic problems, recognizes outstanding contributions to the solution of fundamental problems of planetary geology. ■

## Meteorological award to honor Willis

JPL oceanographer Josh Willis has been selected for the American Meteorological Society's Nicholas P. Fofonoff Award.



Josh Willis

Willis received the honor "for creative research in determining the circulation and heat content of the ocean and their contribution to sea level change," the society said.

The formal presentation will be made at the American Meteorological Society annual awards banquet to be held in January 2016 in New Orleans. ■

## Energy conservation kudos to JPL

For its successful efforts in energy conservation, JPL has been selected as a 2015 Cool Planet Award recipient in the aerospace sector/large business category.

Hosted by Southern California Edison and the Climate Registry, this award recognizes exemplary leadership in energy and carbon management.

The award was bestowed Oct. 16 at the Aquarium of the Pacific in Long Beach. ■

## BENEFITS *Continued from page 4*

attract people who don't necessarily need to use health services as much as others, but might find the high-deductible plan an interesting alternative."

The previous PPO plan will be available next year only to those currently enrolled, and will terminate at year's end. Only about 175 JPL employees are enrolled, and the costs to maintain it proved prohibitive. "The group has shrunk so much that the allocated costs per employee have increased significantly for 2016," noted Moffitt.

Moffitt said Kaiser rates would remain stable with very little change.

In addition to the healthcare providers, JPL is offering employees a fun chance to take more personal control of their health—the JPL Fitbit challenge. Fitbits are small activity trackers used for measuring data such as the number of steps walked or climbed, and other personal metrics.

"Fitbits are a really good tool to help people monitor their activity levels," said Moffitt. "We're distributing them to employees who complete a health assessment with Anthem or Kaiser and sign up for 'Walking Works,' which is sponsored by Anthem but is also available to Kaiser members. The program will help employees set individual activity goals and monitor their success."

Information collected by Anthem, Kaiser or Walking Works is not shared with JPL, Moffitt noted. "Anthem and Kaiser will push information to the employee that is relevant to them based on how they answered the assessment questions," she said.

Employees can sign up for the challenge and receive more information by visiting [goto/fitbitchallenge](http://goto/fitbitchallenge). It will take about 45 days after submitting the health assessment to receive the device, which will be mailed to the employee's office.

The deadline to enroll for 2016 benefits is Friday, Nov. 13. ■

## Retirees

The following employees retired in August:

**Jose Miranda**, 43 years, Section 3011; **Joel Merlo**, 40 years, Section 645; **Ronald Blom**, 37 years, Section 329A; **Violet Kitts**, 35 years, Section 3513; **Louise Veilleux**, 32 years, Section 3340; **John G. Schofield**, 30 years, Section 2671; **Kitty Twu**, 22 years, Section 2132; **Pa-**

**mela Francel**, 21 years, Section 398F; **Beverly St. Ange**, 17 years, Section 3570.

The following employees retired in September:

**Paul Weissman**, 41 years, Section 3227; **Mark Allen**, 37 years, Section 327; **Michael Rodrigues**, 35 years, Section 903; **Susan Sease**, 17 years, Section 3917.

## Classifieds

Ads submitted Oct. 24–29. To submit an ad, e-mail [universe@jpl.nasa.gov](mailto:universe@jpl.nasa.gov).

### For Sale

**FURNITURE:** children's bunk bed configurable bedroom set; light oak, two beds (39" x 74" mattress), two upper-bed supports, ladder, 6-drawer chest (18" x 24"), three-shelf bookcase unit (18" x 24"), desk unit with three drawers on the right, a cork board at back, top shelf area above the desk with desk light; \$500. 818-427-8758, [lindyhop@pacbell.net](mailto:lindyhop@pacbell.net).

**MISC.:** Pedometer, mini steam iron, Rollerblades (men's 8), head/neck/shoulder massager, soft-sided cooler, bloody Mary set, stemless decanter set, woman's M "Galileo Flt. Team Mbr" LS red turtle-neck, white roller rink skates (size 7); prices upon request. 818-272-3262.

**WINTER SPORT ITEMS**, everything from boots to helmets, M/F sizes M-XL. 818-272-3262.

### Vehicles / Accessories

'09 HARLEY-DAVIDSON Street Glide touring bike, low mileage (5,000), screaming eagle pipes, customized seat, fairing with LED lights across front, saddle bags, custom paint, flat black and beautiful, \$15,500. 626-482-1444.

### Wanted

APARTMENT/backhouse/studio to rent, 1-bed 1-bath, starting Dec. 1 in Pasadena preferably. 626-354-9332.

SPACE INFO/memorabilia from U.S. & other countries, past & present, for personal use (see <http://www.youtube.com/watch?v=S7PvjGp7mCU>). [mrayman@alumni.princeton.edu](mailto:mrayman@alumni.princeton.edu), 818-790-8523, Marc Rayman.

### Lost & Found

LOST: activity notes, April 2006–March 2007. [SOSNotez@riseup.net](mailto:SOSNotez@riseup.net).

### For Rent

ALTADENA studio, 5 min. from JPL; spacious bedroom w/full bathroom and small kitchen; room is part of a house, however completely private, has its own entrance and priv. backyard, quiet and safe area, basic utilities included; looking for a non-smoking quiet tenant (single occupancy); walking distance to Loma Alta Park; avail. Nov. 10; \$990 + 1 month deposit. Call or text 424-262-2526, [tamike@hotmail.com](mailto:tamike@hotmail.com).

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

### Vacation Rentals

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

HAWAII: Kauai condo, Pacific Fantasy, Kapaa, 1 bedroom, sleeps 4, \$950 per week; MEXICO (1 bedroom), Mayan Palace: Acapulco, Nuevo Vallarta, Riviera Maya, Puerto Vallarta; Sea Garden: Acapulco, Nuevo Vallarta, Mazatlan; trades also available with II and RCI based upon availability. 818-272-3262.

JACKSON HOLE, WY: Luxurious bed and breakfast on 3 acres of solitude on Snake River 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](mailto:info@bentwoodinn.com), 307-739-1411.

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](mailto: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](mailto: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 white-water view beach condo; virtual tour: <http://www.previewfirst.com/mls/33034>; 2 bd., 2 ba., sleeps 6; well decorated/equipped: boogie boards, wet suits, full kitchen, all linens, beach towels; Wi-Fi ready, new flat-screen TVs, daily paper, grocery stores nearby; 2-min. walk to the sand, no roads; JPL/Caltech rates: winter \$1,195/week, summer \$2,150/week, monthly & nightly rates available; see [www.warmfocus.com/video/k/1402-999npacificstc213/video.php](http://www.warmfocus.com/video/k/1402-999npacificstc213/video.php); reserve w/\$500 deposit. 760-433-4459, Grace; 831-425-5114, Ginger. ■



READ AND SUBMIT  
CLASSIFIED ADS AT JPL'S  
ONLINE NEWS SOURCE  
<http://jplspace>

E-MAIL US AT  
[universe@jpl.nasa.gov](mailto:universe@jpl.nasa.gov)

Universe

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