

Featured Stories



Laurie Leshin. Image Credit: Worcester Polytechnic Institute

Caltech Names Laurie Leshin Director of JPL

Laurie Leshin, president of Worcester Polytechnic Institute (WPI), has been appointed director of the Jet Propulsion Laboratory (JPL) and vice president of Caltech. Leshin will formally assume her position on May 16, 2022, succeeding Michael Watkins, who retired in August 2021, and Lt. Gen. Larry D. James USAF (Ret.), who currently serves as JPL interim director.

She joins JPL from WPI, one of the nation's oldest private STEM universities, where she has served as president since 2014. She is the first woman president in the university's 150-year history and will be JPL's first female director.

"Laurie Leshin stood out in an exhaustive international search because of her profound commitment to people, her strategic approach to scientific and technological opportunities, her deep appreciation of NASA's leadership in space exploration and Earth science, her mastery of complex organizations, and her ability to inspire the next generation of scientists and engineers," said Caltech president Thomas F. Rosenbaum, the Sonja and William Davidow Presidential Chair and professor of physics. "We are so pleased to be able to welcome Laurie back to campus and to JPL."

“NASA’s Jet Propulsion Laboratory has a storied history of defying what was once thought impossible in the field of space exploration. In this new era of groundbreaking discoveries and constant innovation, it is clear that Dr. Laurie Leshin has a track record of scholarship and leadership needed to serve as director of JPL and cement the center’s status as a global leader in the 21st century,” said NASA Administrator Bill Nelson. “Under Dr. Leshin, the technology invented at JPL will continue to allow humans to explore the places in our universe that we cannot yet reach and spark the imaginations of future mathematicians, engineers, and pioneers in classrooms across America. I want to thank Mike Watkins and Gen. Larry James for their contributions that the JPL team will build on for decades to come.”

Leshin is an internationally recognized scientist whose career has spanned academia and senior positions at NASA, and included two White House appointments. She has been lauded for her barrier-breaking leadership in the space industry and in academia as well as for her accomplishments as a distinguished geochemist and space scientist.



Laurie Leshin, second from left, celebrates the landing of NASA’s Curiosity rover on Aug. 5, 2012, with other members of the science teams at JPL. Image Credit: NASA/JPL-Caltech

“I am both thrilled and humbled to be appointed the director of JPL. In many ways, this feels like a homecoming. Some of the most impactful experiences of my career have taken place on the Caltech campus and at JPL – lessons learned and goals achieved that have shaped me as a leader and a space scientist. The opportunity to return to working closely with so many colleagues across Caltech – at the Lab and on campus – and at NASA is a dream come true,” Leshin said. “We have enormous opportunities ahead to leverage JPL’s global leadership in robotic space exploration to answer awe-inspiring scientific questions and improve life here on Earth. I look forward to my work with Caltech and NASA to ensure that JPL continues to drive innovation across the global space ecosystem. Finally, I am especially honored to be the first woman to hold the title of director of JPL. I know from personal experience that diverse teams make greater impact, and I will work every day to ensure that JPL is a place where all belong and thrive. We will dare mighty things, together.”

In 2005, she became director of science and exploration at NASA’s Goddard Space Flight Center, and in 2008, she was promoted to Goddard’s deputy director for science and technology, where she and colleagues were responsible for the strategy, planning, and implementation of more than 50 Earth and space flight projects. In 2010, Leshin assumed the role of deputy associate administrator of the

Exploration Systems Mission Directorate at NASA Headquarters, where her work involved the oversight of the future human spaceflight program, including efforts to establish commercial crew capabilities and elements of what is now the Artemis program. In that role, Leshin also worked to catalyze worldwide space exploration by engaging with international space organizations and corporations, and through developing new technologies and robotic missions to create new possibilities for humans to travel to destinations deeper in the solar system. Leshin left NASA in 2011 to join Rensselaer Polytechnic Institute as dean of the School of Science.

At WPI, Leshin focused on expanding research, WPI's signature Global Projects Program, and ways to address gender disparity in STEM. In addition, during her presidential tenure, new academic and collaboration spaces were developed on the WPI campus, notably a 40,000-square-foot Innovation Studio, with flexible, creative space for active learning classrooms, and the newly opened Unity Hall, a 100,000-square-foot academic building focused on robotics engineering, data science, cybersecurity, learning sciences and technology, and other emerging interdisciplinary programs. WPI is now among STEM institutions with the highest percentage of female undergraduate students and is recognized for its balance of excellence in teaching and groundbreaking research.

Alongside her administrative career, Leshin has continued her scientific endeavors, which are focused on deciphering the record of water on objects in our solar system. For example, she served as a member of the Mars Science Laboratory science team that analyzed data collected by the Curiosity rover to find evidence of water on the surface of Mars. She has also been involved in planning and advocating for Mars Sample Return missions for more than two decades.

Raised in Arizona, Leshin earned a bachelor's degree in chemistry from Arizona State University (ASU), followed by master's and doctoral degrees in geochemistry from Caltech. After a postdoctoral fellowship at UCLA, she served as a professor of geological sciences at ASU and director of its Center for Meteorite Studies. Before leaving ASU for NASA, she led the formation of ASU's pathbreaking School of Earth and Space Exploration.

Leshin is a recipient of NASA's Outstanding Leadership Medal and Distinguished Public Service Medal, and of the Meteoritical Society's Nier Prize, awarded for outstanding research in meteoritics or planetary science by a scientist under the age of 35. The International Astronomical Union recognized her contributions to planetary science with the naming of asteroid 4922 Leshin.

In 2004, Leshin served on President George W. Bush's Commission on Implementation of United States Space Exploration Policy, a nine-member commission charged with advising the president on the execution of his new Vision for Space Exploration. In 2013, President Barack Obama appointed Leshin to the advisory board of the Smithsonian Institution's National Air and Space Museum. Since 2016, she has co-chaired the National Academies Government-University-Industry Research Roundtable.

In 2021, Leshin received Caltech's Distinguished Alumni Award, which is bestowed annually by the Institute in recognition of personal and professional accomplishments that have made a noteworthy impact in a field, community, or society more broadly.

A committee composed of Caltech trustees, faculty, senior administrative leaders, and two members of the JPL community conducted an extensive search and recommended Leshin to Caltech's president. JPL, which was founded by Caltech faculty and students in 1936, has been managed by Caltech on behalf of NASA since 1958.

Interim director Lt. Gen. James will resume his position as deputy director when Leshin formally assumes her position.

Based on Caltech and JPL news releases.



Josh Willis at Greenland's Russell Glacier in August 2021. Image Credit: Josh Willis.

For 'Climate Elvis,' the World's All Shook Up

By Celeste Hoang

Josh Willis has no interest in staying in one lane.

Growing up, he couldn't decide between becoming a scientist or an entertainer. So the Texas native became both.

"I was definitely curious about the world, and I wanted to be a scientist from a young age," he recalls. "But I always loved the theater, and I didn't want to be just a scientist and turn off that side of my brain."

Of course, Willis isn't "just" a scientist at JPL—he was the principal investigator for Oceans Melting Greenland (OMG), which wrapped at the end of 2021, and is now continuing his work as project scientist for two other major Earth missions, Sentinel-6 Michael Freilich and Jason-3.

When he's not wearing his scientist hat, Willis takes the stage as a member of the improv comedy troupe Turbine Arts Collective, performing live for audiences throughout Los Angeles once a month, Covid guidelines permitting.

While it may seem that Willis owns both identities with ease, his early years as a struggling student and "a performer who lost his way," as he puts it, reveal a bumpy journey of self-discovery.

Childhood Curiosities

Willis' father pegged him as an engineer from a young age, having observed his son's fascination with taking objects apart and figuring out how they worked. He overlooked the absence of a crucial third trait of the engineering mind: reassembly.

"For me, the figuring out of things was more exciting than the building of things," Willis says. "I like to take things apart more than I like to put them together."

While his father's guess at Willis' future calling came close, his mother hit the bullseye. Rather than predict, she guided Willis onto the path that he follows today.

"At the end of the day, it was my mom," Willis recalls of his early love for science and performance. "She was a really amazing person: she was a science teacher, so I was exposed pretty young. I started reading books and asking her questions that she couldn't answer anymore, and that made me want to dive deeper. She was also a performer—she loved to dance, sing, and play guitar."

At home, Willis put on magic shows starting at age 5, around the same time that he started divining mechanical workings. The future scientist also gravitated toward the theater, participating in plays starting in elementary school.

"I was drawn to telling stories and developing ways to tell stories that fit me," he says. "Performing became one of the best ways I could connect to people."

Willis credits that yearning to tune in with others to his mother.

"She loved to connect to people," he says. "That really made her light up. I think she passed that along to me earlier than I can remember."

Once in college at the University of Houston, Willis was determined to pursue all of his big loves, and double-majored in math and physics, with a minor in theater. He shined throughout undergrad, but the streak didn't last. But by the time grad school got underway, Willis would see his anchor in both the arts and the sciences slipping away.

PhD Dropout

Willis went west for his PhD, following his college sweetheart and joining the physics program at UC San Diego. After two years of seaside living and studying, he succeeded in wooing his now-wife, Dixie Aragaki—but flunked out of his PhD program.

"It turned out I was not meant to be a physicist," he says with an easy laugh. "It really didn't agree with me."

Willis' now-cheerful demeanor about the experience is of course thanks to hindsight, but at the time, he never entertained the possibility of not succeeding at something he had adored for so long. He was a born scientist: just not that kind of scientist.

"It came as a shock to me that I couldn't do this stuff," he says. "I wasn't mastering the material the way they wanted me to master it. It took some time for me to come to grips with why and, in the end, it was that I just wasn't passionate about the stuff I was studying."

Willis knew he was still committed to his end destination—but perhaps needed a change of course.

"Even when I failed out of physics, I knew I still wanted to be a scientist," he says. "I still wanted to explore the world, I just didn't know which part of the world."

Willis started by looking into myriad other PhD programs at UCSD, including math and engineering, before he came across the PhD program at the Scripps Institution of Oceanography.



Willis and his wife, Dixie Aragaki, who visited him in Greenland in September 2021. Image Credit: Josh Willis

“Look, you didn’t really want to do those crazy physics experiments anyway,” Willis recalls his UCSD adviser’s words fondly as insight that kindly pointed him in a more suitable direction. “You want to study something that’s important to people’s everyday lives, right now,” his adviser added.

“I found that they were studying this part of our planet that covers two-thirds of its surface and it’s big and it’s important,” he says. “Humans were in the middle of this experiment in reshaping our climate, and I realized this was something that did excite me and something I did want to spend my life studying. When I discovered that and latched onto it, that’s when my career really started.”

The Birth of Climate Elvis

One of Willis’ first real-world projects involved combining and reconciling traditional measurements in the ocean collected by ships with data from the then-new satellite Topex/Poseidon. (TOPEX was the first joint satellite mission between NASA and the French Space Agency, CNES, measuring sea level from the skies.)

“I jumped into it and did well,” Willis says. “And it was my first glimmer of a career at JPL.”

“That’s when I started to tackle global climate change in my work. If you look at sea level change and ocean warming, you’re most directly measuring the human influence on the climate. Greenhouse gases are trapping heat, and over 90% of that heat is warming the oceans. If you’re counting the heat in the ocean, you’re really measuring the human impact.”

That initial glimmer of working at JPL turned into reality when Willis began his post-doc career at the Lab in 2004, later becoming the deputy project scientist for Jason-2 and project scientist for Jason-3 in 2009.

While Willis' science career was moving forward quickly, his pursuit of the arts had been put on the back burner. Between the challenges of grad school and starting his new career at JPL, "I had lost my way from the theater for a decade and a half," Willis admits.

It wasn't until a 2011 cruise ship vacation that he remembered his long-forgotten love. During the trip, Willis watched in awe as an improv group from The Second City performed for guests, and he joined a small crowd that followed the director to a bar at the end of the show.



Willis performing as Climate Elvis. Image Credit: Josh Willis

"The director performed a blues song there, and he asked the audience what the blues song should be about," Willis says. "Someone shouted, 'blueberries!' and he sang a song about blueberry blues, and it was sorcery to me. I said, 'I'm going to learn how to do that.' Meeting him and that troupe of improvisers on the cruise brought that [performance] side of me back to life."

After the trip, Willis promptly enrolled in improv comedy classes at The Second City Hollywood, and has since been honing his craft and performing for a decade.

"Improv is really about connecting the performers with each other and with the audience," Willis says. "To me, that was what was so exciting and fun—when I can tell that people are having fun listening and taking in the story that I'm telling."

But comedy isn't his only specialty. Willis also enjoys writing and performing music, and with his signature sideburns, gave himself the nickname "Climate Elvis" over the years as both his onstage work and his climate work gained recognition.

"I'm sort of a doughy middle-aged white guy with sideburns, and I like to sing and perform," he says. "I'm an Elvis fan, too, so Climate Elvis seemed like the perfect way to go."

While some might find the two pursuits very different from one another, he finds they go hand in hand, especially when it comes to grit and experimentation.

“As scientists, we fail all the time,” Willis says. “We write proposals that don’t get funded, papers that don’t get published. Hopefully, in your career you get more funding and acceptances than rejection, but doing science is the process of trying to see what works and what fails. That’s something that improv reminded me of again—you have to fail a bunch of times before you become comfortable in your skin doing it.”



*The DC-3 plane before taking off for another day of dropping probes into the waters around Greenland.
Image Credit: Josh Willis*

An Earth-Shaking Idea

It was during an improv class that Willis came up with the now-famous acronym for the biggest project of his career.

Beginning in 2012, Willis and glaciologist Eric Rignot of UC Irvine, had begun honing in on a way to study the sea from the sky.

“He and I got this wild idea that maybe we could do something about sea level rise by studying Greenland with airplanes,” Willis says. “We could use an airplane to observe how the temperature was changing by dropping probes in the water, and we could fly a different airplane and collect data on the ice. We’d look at how the changing water determined which glaciers thinned and retreated, and which became thicker and advanced.”

The concept was immediately exciting – to a scientist. Willis recalls looking at the actors around the improv room and realizing that he needed to make an impact with people half his age. He needed a name.

“It was one of the first times I tried to bring the two worlds together,” he says. “I thought about it for a long time, and the coolest thing about the name was that in three words—Oceans Melting Greenland—you knew the science we were testing. This was our experiment: Are the oceans melting Greenland from below? The answer turned out to be yes.”



OMG team, left to right: Josh Willis, Mike Wood, Linden Hoover (of Kenn Borek Airlines [KBA]), Jim Haffey (KBA), and Ian Fenty. Not pictured are Gerald Cirtwell (KBA) and Ian McCubbin. Image Credit: Josh Willis

OMG.

It took 10 years for Willis to write the proposal, receive funding, and get it into the field to complete it, traveling to Greenland once a year to collect data.

“We’d fly on these old Douglas DC airplanes that look right out of Indiana Jones,” he says. “We flew all over Greenland in this plane and dropped 350 [probes] into the ocean to measure how the water is changing.”

Back home, Willis juggled giving countless presentations to JPL and NASA management over the years. But Willis’ improv background not only helped him explain ideas, it also helped him come up with new ideas.

“Improv gave me permission to be creative in doing science,” he says. “I think the idea for doing OMG is a very creative one—one I never would’ve thought of when I started at JPL or was in grad school. Improv gave me courage to try things I wouldn’t have tried otherwise because I wasn’t afraid anymore of putting myself out there.”

Willis also credits his luck in timing, having joined the oceanography program at a time when the science of how climate change could be measured was quickly evolving.

“Early climate scientists all studied the atmosphere,” he says. “I came along in the early 2000s when oceanography was waking up to the idea that it had a role to play in the climate change story and in sea level rise.”

Even though OMG has now wrapped, Willis hopes the data can still live on via Argo floats, an array of 3,000 to 4,000 robots with cylinders that can float up and down in the ocean, collecting profiles of ocean temperatures and radio the data back by satellite.

“One of the things we discovered from OMG was that measuring the water off Greenland is super important to predict what the glaciers will do,” he says. “How do we keep those measurements going?”

Ever the improviser, Willis will make sure the science keeps going.

[Watch a 2022 "Mission Complete" video by JPL that looks back on the OMG project on YouTube.](#)

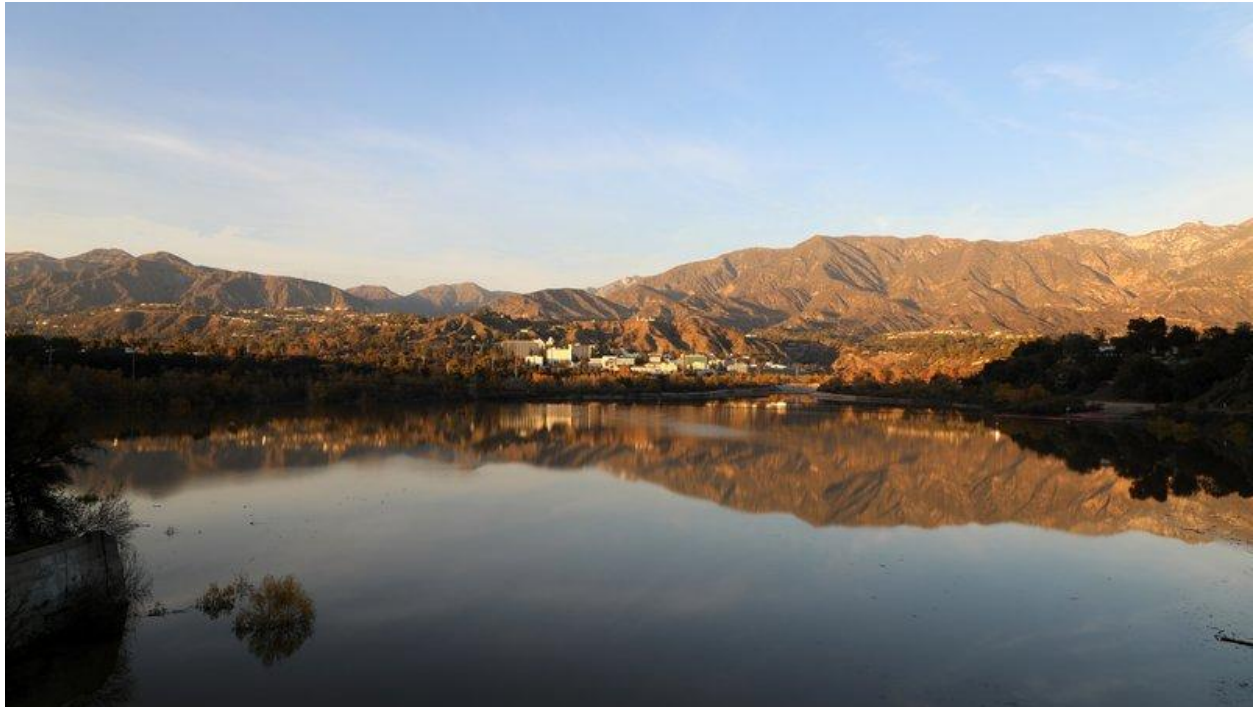


Image Credit: Andrea Donnellan

Is JPL the Newest Water World?

The Lab was sporting a new look as 2021 wrapped up and a new year began. Heavy rain storms in the area left a picturesque aftermath: a body of water adjacent to JPL that appeared like a lake.

Some JPLers couldn't resist snapping a few photos of the new scenery, and even hopping into a kayak. The "lake" showed up after the first major rains since the recent Devil's Gate Reservoir restoration project.

Below is a selection of photos, with thanks to Julie Castillo, Andrea Donnellan, Dan Goods, Rachel Weinberg and Khris Griffis.

More information on the Devil's Gate project at <https://pw.lacounty.gov/swe/devilsgate/>.

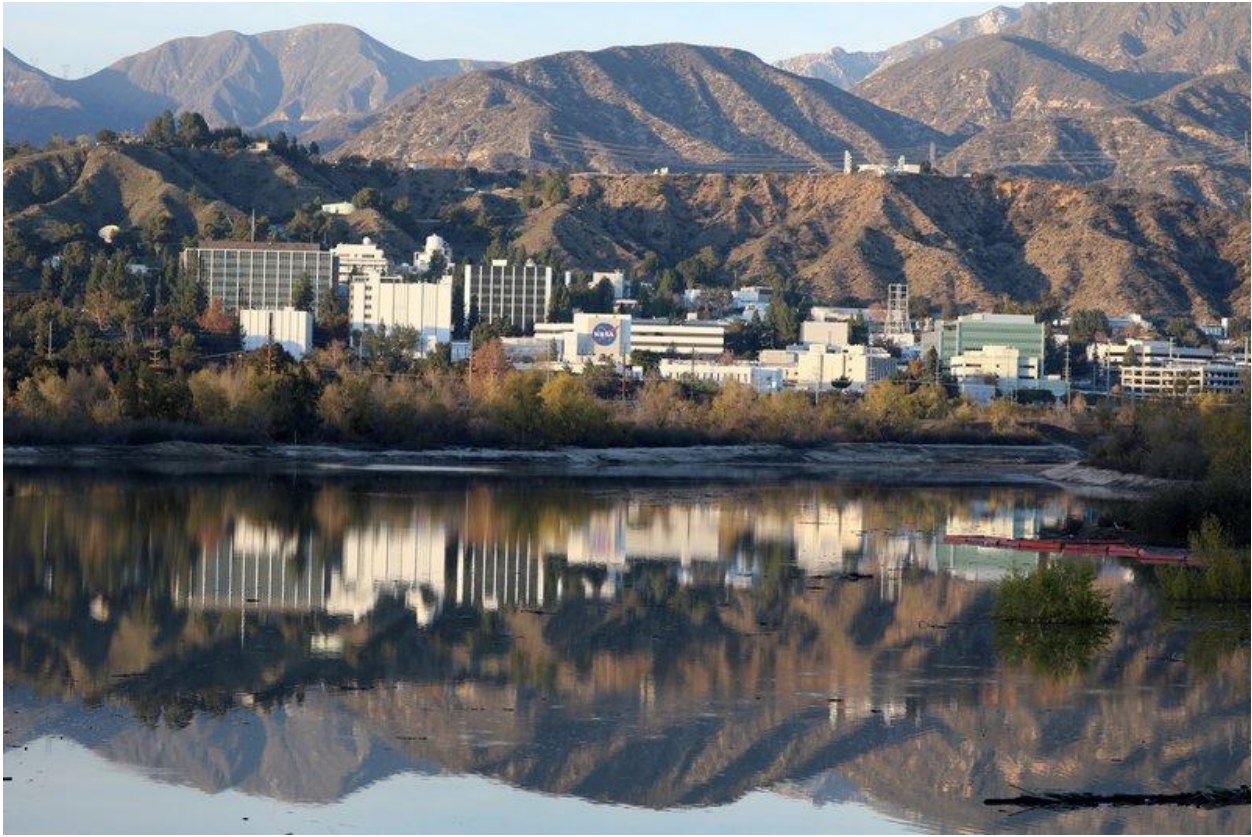
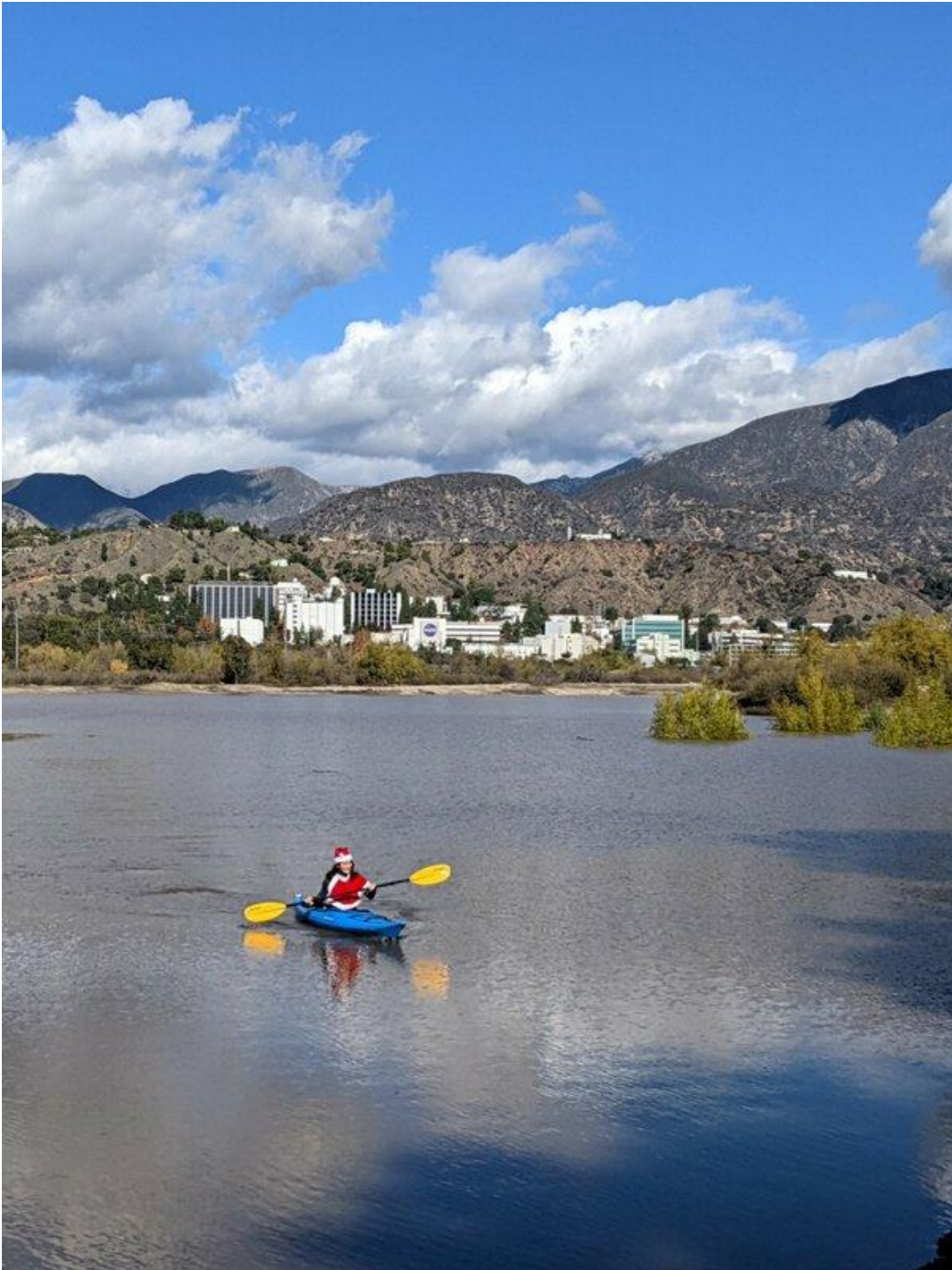


Image Credit: Andrea Donnellan



Image Credit: Dan Goods



Rachel Weinberg. Image Credit: Khris Griffis



Image Credit: Julie Castillo

Events



Von Karman Lecture Series - Roving with Perseverance: Findings from One Year on Mars

Thursday, Feb. 17

7 p.m.

[YouTube link](#)

After a year on the planet, what can Perseverance teach us about Mars' watery past and our potential future?

Speakers: Jennifer Trosper, Mars 2020 Project Manager, NASA/JPL and Dr. Kathryn Stack Morgan, Deputy Project Scientist, Mars 2020, NASA/JPL

Host: Brian White, Public Services Office, NASA/JPL

Co-Host: Nikki Wyrick, Public Services Office, NASA/JPL

JPL Family News

Retirees

The following JPL employees recently announced their retirements:

50+ Years:

Dennis N. Page, Section 397P, 55 years

40+ Years:

Deborah S. Johnson, Section 5110, 47 years

30+ Years:

Robert E. Lock, Section 4081, 33 years

Kirk Breitenbach, Section 3120, 31 years

20+ Years:

Carol A. Ferguson, Section 4020, 26 years

Paula Morgan, Section 348E, 25 years

Lorayn Xi-Amaru, Section 252A, 23 years

Letters

"I would like to thank the JPL family, friends and colleagues for your kind words and condolences after the sudden passing of my beloved husband David Thiessen (Dave). A special thank you to Section 383, all his colleagues from all different divisions/projects and friends who have been supportive and reach out during this incredibly difficult time. I also want to thank the JPL Hospitality Group for the beautiful plant in remembrance." -**Patty Thiessen**

Passings

Thomas W. (Tommy) Thompson died on Oct. 8, 2021, from a sudden heart attack.

Thompson was retired from JPL, but continued to be active in advancing the exploration of Venus and Mars as well as other professional interests.

He earned a B.S. from Case Institute of Technology (now Case Western Reserve University) in 1958, a MS in engineering from Yale University in 1959, and a PhD from Cornell University in 1966. Thompson's research career began when he was a graduate student in electrical engineering at Cornell in the 1960s. He conducted radar observations of the Moon using the 70-centimeter radar at the Arecibo Observatory in Puerto Rico. His research also included a number of radar investigations, including Apollo Lunar Sounder, Seasat-A, AirSar, and Magellan, and he was involved in planning the Voyager project.

Thompson made both scientific and programmatic contributions to the exploration of Venus. He was involved in forming the Venus Exploration Analysis Group (VEXAG) in 2005 and remained closely involved with it up until the time of his death. He also managed NASA's involvement in the European Space Agency's (ESA) Mars Express project for many years and continued to be active with the Mars program at JPL.

In addition to his scientific research, Thompson was a generous person with a warm, caring personality, and he will be greatly missed by all who had the honor of knowing him, whether on a personal or professional level.

Awards



Glassdoor Names JPL One of the ‘Best Places to Work in 2022’

JPL has earned a spot on Glassdoor's list of “Best Places to Work in 2022.”

The list is based only on anonymous and voluntary reviews from current and former employees posted on the Glassdoor website between Oct. 20, 2020, and Oct. 18, 2021.

The Lab ranks number 12 out of 100 large U.S. employers honored. This is JPL's debut on the awards list.

For the first time, this year Glassdoor included diversity and inclusion ratings.

“JPL achieves the great things it does because of the great people who work here,” said JPL Interim Director Larry James. “We’re an employer of choice. Innovation drives so much of what we do at JPL, and our inclusiveness helps drive that innovation. And to see the overwhelmingly positive feedback at a time when so many employees are away from JPL’s campus is all the more gratifying.”

JPL has also been named a best place to work in California by Forbes and a best place to work in IT by IDG Insider Pro and Computerworld.

[Read the full JPL news release.](#)



(First row, left to right): Akshata Krishnamurthy, Surendra Adhikari, Mars Ingenuity Team, Virendra Sarohia, Chris Mattmann; (Second row, left to right): Nelson W. Green, Shouleh Nikzad, Laurie Barge, L. Alberto Cangahuala

Awards & Honors Roundup

JPLers often Dare Mighty Things, and nearly as often earn awards or professional designations. JPL Space will periodically feature a roundup of recent honorees. Please join us in congratulating your accomplished colleagues.

Mars Ingenuity Team: National Space Club & Foundation Goddard Trophy

This prestigious award will be presented in March at the annual Robert H. Goddard Memorial Dinner in Washington. [Full story.](#)

Surendra Adhikari: American Geophysical Union John Wahr Early Career Award

Formerly the Geodesy Section Award, this honor is presented annually and recognizes significant advances in geodetic science, technology, applications, observations, or theory. [Full story.](#)

Laurie Barge: Scialog: Signatures of Life in the Universe

One of 18 early-career researchers to receive research funding. [Full story.](#)

L. Alberto Cangahuala: American Institute of Aeronautics and Astronautics (AIAA) Associate Fellows

“For outstanding contributions and leadership to both deep-space mission navigation and operations and deep-space mission navigation technology development.” [Full story.](#)

Nelson W. Green: American Institute of Aeronautics and Astronautics (AIAA) Associate Fellows

"In recognition of outstanding contributions to the field of spacecraft charging and for sustained service to AIAA." [Full story.](#)

Akshata Krishnamurthy: Space and Satellite Professionals International "20 under 35"

"...features 20 employees and entrepreneurs to keep your eye on in coming years." [Full story.](#)

Chris Mattmann: LA Business Journal 40 Thriving in Their 40s

The journal is spotlighting some of the leading business professionals in the region. [Full story.](#)

Shouleh Nikzad: The SPIE Luminary Series

SPIE Luminary celebrates the work of those who have "lit the way" for research in optics and photonics. In this case, "for detector technology for astrophysics." [Full story.](#)

Virendra Sarohia: American Institute of Aeronautics and Astronautics (AIAA) Associate Fellows

"For trailblazing research in jet-engine sound reduction and aircraft post-fire suppression and leading critical space sensor technology development that enabled key NASA exploration missions." [Full story.](#)
