

Featured Stories



Lindsay McLaurin working from home with her foster son, Baby L.

Motherhood, Her Own Way

By Celeste Hoang

Lindsay McLaurin had been a new hire at JPL for just a week when an on-Lab event poster caught her eye in the fall of 2019: The Hub was set to host a panel of JPLers and social workers speaking about the foster-to-adopt process.

McLaurin—then 33, single, and a West Coast transplant from Virginia with a handful of friends and no family on this side of the country—went to the panel that cool autumn day on Nov. 18, which was held in honor of National Adoption Month. Sitting in the audience, she listened to the statistics about L.A. County, where at least 30,000 children are currently in foster care.

She made up her mind in that moment to become a foster parent.

“Hearing all those statistics, I was like, ‘I have the capacity, the time, the financial resources, and the space to bring a child into my home that just needs love, a roof over their head, safety, and compassion,’”

McLaurin recalls. “Just having that level of care really spoke to me. It was very much tugging at my heart that I needed to do it.”

A Longtime Instinct

To hear McLaurin, a Public Engagement lead at the Lab, talk about motherhood is to feel as though you’re talking to someone who has been a mother many times over.

“Adoption was always something I wanted to do, even when I was four years old,” she says. “I remember praying to God that every kid could have a life like mine. I can’t tell you why I was cognizant to that reality. It was just there.”

McLaurin grew up as the youngest of two girls in the suburbs of Richmond, VA, where her father worked as a firefighter and her mother a bank executive—and who themselves were raised in the Jim Crow South.

“My parents are beautiful people,” she says. “The adversity they had and the amount of love they still instilled in my sister and me amazes me. ‘Everyone is equal to you no matter what they look like’ was just a blanket value in our house. I’m lucky. We had diverse life experiences and they made sure that we were culturally aware and taught us to not to take things at face value and research our own paths.”

Even as a child, McLaurin recognized that equal did not always mean just.

“I knew that not everyone is treated fairly,” she says. “I remember being four and thinking, ‘My life is great but not everyone’s is.’ That has always stuck with me and has led me to this process.”

Growing up, McLaurin dreamt of having 10 kids—some biological, some adopted. She couldn’t wait to start a family. But by 2019, she found herself nearing her mid-thirties with no partner.

“As the years started to go on, I realized, ‘I’m successful in my career and I have great friends and a great life, except for that missing puzzle piece,’” she says. “I felt that maternal instinct and it was going to that JPL panel that kickstarted my process in this direction.”

At the panel, McLaurin connected with Oleg Sindiy, a single parent at JPL who had adopted a teenage boy, as well as a social worker who was also the parent of an adopted child. McLaurin called her that night and the two talked for hours about the foster-to-adopt path. The next day, McLaurin started her paperwork with a foster care agency.

Do Get Attached

A month later, in December 2019, McLaurin found herself in the kids’ section of a Crate & Barrel, her eyes fixed on one prized possession she had to have: a solar system quilt with sweet smiles stitched into the Sun, planets, and asteroids.

“There was something about it, I just wanted it more than anything,” she says. “My best friend said to me, ‘Lindsay, when you want something, you manifest it, so to speak, so you have to believe and act like you already have it. You’re going to get a child, so just get it.’”

McLaurin purchased the quilt. By January, her application was accepted by the foster care agency and she was approved for the licensing process, a commitment of 14 hours of classes—held virtually because of Covid-19—covering the foster care system, including psychology, childhood trauma, CPR, and the role of judges and government agencies.



McLaurin proudly displays a framed gift from her foster care agency after completing her licensing requirements.

"You don't understand evil in this world until you go through this [process] and see what little kids go through," McLaurin says. "I learned that newborns experience trauma in the womb. The baby can hear domestic violence, and drug abuse takes a toll on their system before they come into the world."

After the classes came the interviews and the home study, where a social worker did a detailed walk-through of her house to make sure it was child-proof. By July 2020, McLaurin was licensed and ready for placements.

"When you get calls for placement, it's never this easy, planned experience," says McLaurin, who specified in her application that she was open to a child of any race, gender, or ethnicity, as long as they were between zero and two years of age with no history of medical issues. "You can get calls any time of day and they give you the basics—gender, race, age—within that call, and you have to say yes or no on the spot. You're not obligated, but you've got to be ready."

In August, she received her first placement: four-month old Baby N (full name withheld for legal purposes) was dropped off at midnight by a social worker and, for 36 hours, McLaurin took care of the little boy while he awaited the next steps in his foster care journey.

"The social worker made me sign two forms and said good luck and left," McLaurin says. "I'm staring at this baby and the baby's staring at me and I'm like, 'What did I agree to do?'"

Luckily, a neighbor and friend was still awake and offered to give McLaurin a helping hand. She watched Baby N while McLaurin made a late-night run to the grocery store for diapers, wipes, and formula.

"When I got back and the neighbor left, the kid just stared at me," McLaurin says. "He was a dream. He slept four-hour stretches, which in baby time is like 20 hours of sleep. He was cuddly and didn't cry, and my dog was obsessed with him."

As for Baby N's mother, a phone call changed everything.

"My mindset in the beginning of this process was that whatever the parent did was so egregious to have this baby taken away from them," McLaurin says. "But his mom called me on the second day and to this

day, I root for her so hard. She was a victim of being in the foster system, too. She just didn't have family support and she caught a bad break. Like the Grinch, my heart grew three sizes."

At the 36-hour mark, McLaurin walked Baby N out to the social worker's car, looked at him and said, "'You be a good boy.' And he smiled at me."

"People were like, 'How do you do it? How do you not get attached?'" she says. "The point is to get attached. I want to love all kids that come into my house like they are family."

Two Peas in a Pandemic

McLaurin's time with Baby N was brief but blissful, and it left an indelible mark as she prepared for her next arrival: two-month-old Baby L, who has been with her since the end of September.

Over these past few months, McLaurin has created a cozy world for two—five if you count her dog and two cats—where she's grown close to her baby boy, even amid the backdrop of a chaotic world.

"The one thing about him I love the most is he has a very tenacious spirit about him," she says. "He looks at something and tries to figure out how it works and what it's about. We were in a Psyche team meeting [on Webex] and he started screaming when people stopped talking. Maybe through osmosis I'm raising a scientist or engineer."

Parenting alone—for the most part—means McLaurin's days feel particularly long. On a "lucky night," she clocks four to five hours of sleep, and throughout the day, juggles her full-time job as the Solar System Public Engagement lead with meetings, phone calls, projects, and presentations in between diaper changes, feedings, and tummy time. While McLaurin does have generous friends who will offer to come watch Baby L every now and then so she can squeeze in a break for herself, one of the hardest parts has not been having consistent help.

"Some people have a warm body to take this child for a few minutes every day," she says. "Today, he was screaming and I just had to go into the bathroom and shut the door and breathe."

While McLaurin is still hopeful she'll meet the right partner one day, she acknowledges that dating is on pause at the moment and she's more than happy to have it just be about her and Baby L for now.

"Before Covid-19, I was online dating. But since Baby L, I don't know how to describe it. I want a partner and I think about it, but the logistics of managing someone else's emotions and thoughts on top of everything right now is overwhelming," she says. "Unless I meet someone at JPL or Costco, I'm good for now."

One area where she's not lacking support?

"Work," McLaurin says. "Everyone's so supportive, including leadership. People are so understanding about hearing baby noises and screaming on calls...And if I wasn't at home, I don't know how I would've been able to adapt the way that I have. The coronavirus has been a blessing in disguise for this specific reason."

In terms of financial support, the State does offer some, especially while McLaurin is a foster parent. She receives approximately \$1,000/month, and the government provides healthcare and therapy for all children in the system until they're 21.

Should she move to adopt—McLaurin's ultimate goal—the monthly checks will stop. And when it comes to fostering children, it's never a matter of when they can be adopted but if.

"It's still a big mystery and we live court date to court date," she says, explaining that the timeline could be six months or two years. In most cases, parents receive various reunification options and deadlines, as well as extensions if they qualify to regain custody.

"For him to be legally adopted, a judge would have to terminate parental rights of both parents," McLaurin says. "But between now and then, any biological family member could step forward and get first dibs over me."

And that there is one of the most challenging factors in the process for McLaurin: To love a child deeply, but to never know how long they'll be in her life.

"The absolute hardest part of this is the void of not knowing," she says. "I love this kid like he came from my own body, but I have regular reminders along the way that he's not legally mine."

Despite the obstacles, the joys have been more profound than McLaurin could've imagined.

"The most rewarding part is being able to take care of something outside of myself and be able to focus on something that's not Lindsay. The last 34 years of my life, it's been all about me. What do I want to do, where am I going to go? Me, me, me," she says. "It's rewarding for me to love and care for a child because it's no longer about Lindsay, it's about Lindsay and Baby L. It's a beautiful thing to be able to go through that."

And yes, in case you're wondering, Baby L has been loving his solar system quilt.



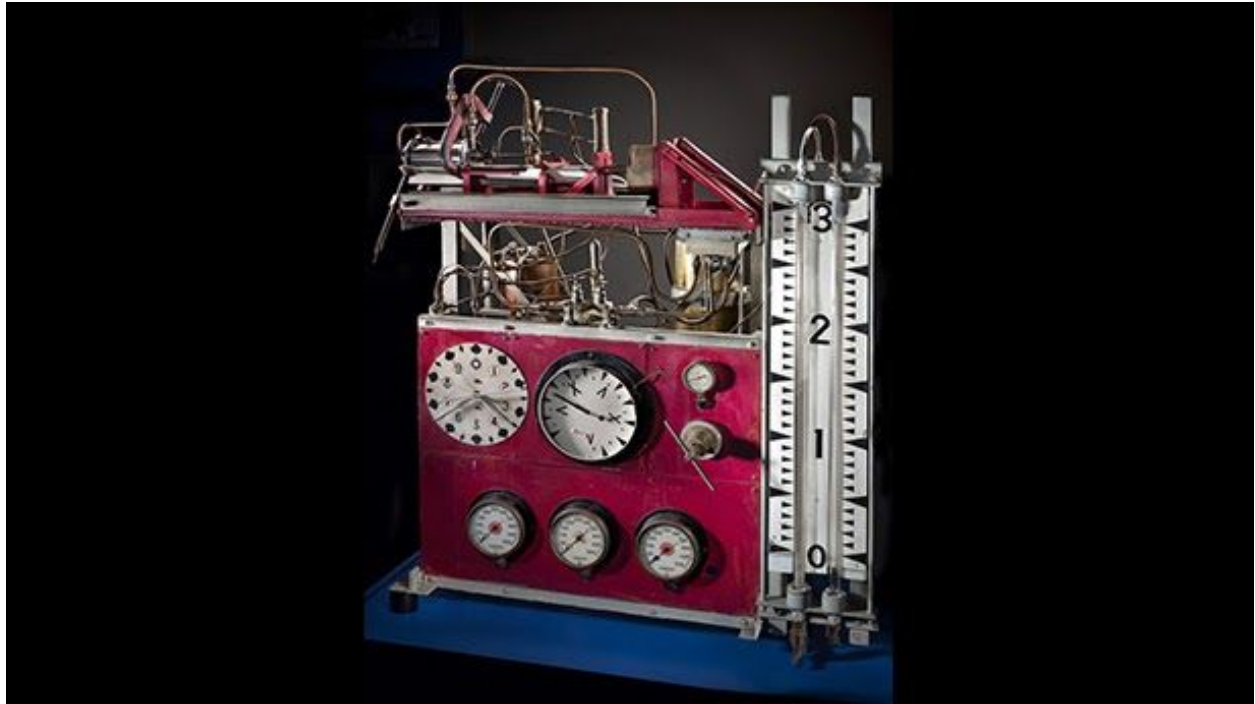
NASA and SpaceX Launch U.S.-European Mission to Monitor World's Ocean (Recap)

The ocean-observing Sentinel-6 Michael Freilich satellite launched from Vandenberg Air Force Base in California aboard a SpaceX Falcon 9 rocket on Nov. 21 at 9:17 a.m.

The satellite will collect data on sea level and how it changes over time. By measuring sea surface height, scientists worldwide can monitor sea level rise, track climate patterns, improve hurricane forecasts, and monitor and understand ocean currents.

Sentinel-6 Michael Freilich is named in honor of the former director of NASA's Earth Science Division, who was instrumental in advancing space-based ocean measurements.

To learn more about the mission, visit: <https://www.nasa.gov/sentinel-6>.



The First JPLers, Part 3: JPL vs. The American Rocket Society

By Erik Conway

Welcome to the Historian's Corner, a new JPL Space column that explores the origins, mysteries, and curiosities of our Lab. I'm Erik Conway, JPL's historian, and I'll be your guide as we travel through time together.

We usually tell the story of JPL's founding in isolation, as if no one else was interested in rocketry. But there were already rocketry clubs before the Laboratory's founders met in 1935. One, the American Rocket Society (ARS), ultimately became the principal technical society for American rocket engineers.

The ARS was founded in New York City in 1930, under the name American Interplanetary Society. The founders were 11 men and 1 woman; most were science fiction writers with ties to the magazine *Science Wonder Stories*. The first president of the society, David Lasser, was the magazine's editor. He left the group not long after its founding to become an organizer of worker relief programs in the worsening Great Depression.

The first vice president, G. Edward Pendray, would replace Lasser as the Society's principal promoter and one of its early experimenters. Pendray was a science writer at the New York Herald Tribune, and also wrote for Science Wonder Stories under the name Gawain Edwards.

Lasser and Pendray kicked off their pursuits by writing Robert Goddard, the famous but reclusive American rocket experimenter, to invite him to join the Society and give a talk. Goddard wasn't interested. Pendray also wrote to Willy Ley, one of the experimenters at Germany's Verein für Raumschiffahrt (VfR), a rocket club organized in 1927. Ley was much more responsive, and Pendray and his wife, the writer Lee Gregory (the Society's sole woman founder) traveled to VfR's test site outside Berlin in early 1931. There, they saw their first-ever rocket motor test: a motor burning liquid oxygen and gasoline.

Pendray reported on the VfR visit to the Society on May 1, 1931, after which the group voted to begin their own experiments. Instead of doing motor tests, though, they started designing complete rockets, also using gasoline and liquid oxygen.

Their first rocket, known only as ARS 1, had its only test on Nov. 12, 1932, on a farm near Stockton, New Jersey. This was a static test, with the rocket restrained so it wouldn't take off, on a stand equipped to measure the motor's thrust. It achieved 60 pounds of thrust over somewhere between 20 and 30 seconds—in their excitement, the experimenters forgot to time the burn.

ARS 1 was damaged during handling, which caused the group to realize it was too delicate. They rebuilt it to a somewhat different design, and launched it as ARS 2 from Staten Island, New York on May 14, 1933. Unfortunately, the oxygen tank also turned out to be somewhat delicate, exploding after 2 seconds at an altitude around 250 feet. A pair of boys in a rowboat fished the wreckage out of New York Bay.

The Society covered the ARS 2 flight in their newsletter, now renamed *Astronautics*, as well as by sending photographs to newspapers and inviting two newsreel companies to film the launch (before television, theaters ran news ahead of movies).

In their publicity, the Society claimed they'd achieved the first liquid-fueled rocket flight in the U.S., only to draw a stern rebuke in the mail from Goddard. He'd launched a liquid-fueled rocket in 1926, but due to his secretiveness, nobody but his sponsor knew it. The Society duly ran Goddard's letter for the record in *Astronautics*.

Over the years, *Astronautics'* editors expanded their purview beyond club activities, publishing articles on rocket theory, as well as the experimental results achieved by other individuals and clubs. This helped professionalize as well as publicize rocketry. The Society also changed its membership structure in a way designed to foster professionalization, with different tiers for active experimenters and those who were merely interested.

Society members built an ARS 3, which proved unflyable, and its successor, ARS 4, was the last of their rockets to be flown. They collectively decided flights were not very productive—there were too many other problems to be solved first—so in 1935, they switched to doing motor testing on an instrumented test stand instead. They ran tests from April to October of 1935, without a fixed test site: the loud noises and occasional explosions made them unpopular with neighbors and local authorities, so they moved around. During one of the last tests, a motor explosion injured a woman bystander, and her medical bills drove the Society to end its own experiments. Instead, they decided to build another, larger test stand that could be used by others.

The Society's new stand was finished in October 1938. It was promptly used for tests of a new, and significant, motor. Designed by a young engineer named James Wyld, the motor used its own fuel as coolant, a technique called 'regenerative cooling.' It was more efficient because the hot fuel burned more easily, and because a rocket using such a motor wouldn't have to carry the dead weight of a coolant in flight.

In 1941, Wyld and other Society members formed an outside venture, Reaction Motors, Inc., to support the war effort. Reaction Motors would make the rockets for the X-1 supersonic experimental aircraft developed by NASA's predecessor, the National Advisory Committee on Aeronautics, after World War II, among many others.

The looming onset of World War II also ended the ARS's experiments for good. Faced with a choice between making and mentoring, ASR chose the latter. It reorganized as a professional society, with the journal as its main engine of progress in rocketry.

JPL's founders had Astronautics to help guide them on what had been tried, and what had and hadn't worked. One issue had an article on the Society's first motor test stand, including photographs. The future JPLers didn't innovate in a vacuum. That would be true for everyone else who plunged into the burgeoning field of rocketry, too.

Massive military investment in rocketry during and after World War II led to exploding membership in the Society, from 347 early in the war to 21,000 in 1959, mirroring JPL's own period of rapid growth.

In 1963, former JPL propellant chemist Martin Summerfield, once JPL founder Frank Malina's roommate, became president of the Society and arranged for its merger with the Institute of the Aerospace Sciences. Its president that year: William Pickering, who had been JPL's Director since 1954.



JPL's First Sustainability Report Now Available

JPL has released its first ever sustainability report, which is a testament to our commitment to sustainability across the enterprise and enabling transparency in the process. As Deputy Director Larry James states in the opening of the report, "Making JPL more sustainable is an important priority. Our orbiting and airborne systems give us a unique view of our interconnected world, and we want to ensure that we are a benchmark for sustainable operations locally." This report presents sustainability Key Performance Indicators (KPIs) across seven formal categories that are driven by Executive Order and

NASA headquarters. JPL achieves the annual target in six out of seven KPIs, and embraces efforts for continual improvement because they recognize that more work lies ahead.

Sustainability report selected key findings include:

- Greenhouse gas (GHG) emissions have significantly decreased since the NASA-established baseline year, and this is due to reduction of energy use over time as well as general statewide increase of more electricity from zero-GHG sources in utility-scale power (e.g., hydro, solar, wind, and nuclear energy).
- Formal KPIs cover progress across energy efficiency, renewable energy, water conservation, high performance sustainable buildings, fleet management, sustainable acquisition, waste reduction/recycling.
- JPL scores well across nearly all KPIs and needs to improve in the Energy KPI. Overall energy efficiency has increased but in order to meet NASA's stringent energy efficiency KPI, JPL has a number of planned and proposed projects in the pipeline.
- Water use intensity, fleet transportation fuel consumption, renewable energy, sustainable acquisition, and waste diversion significantly exceed annual targets.
- JPL obtained 18% of its electricity from renewable sources (on-and off-site) in FY19.
- JPL supports the community through partnerships with United Way, which have helped raised money and volunteer time.

To access the report visit https://www.jpl.nasa.gov/report/2019_Sustainability_Report.pdf.

Events



Caltech Conversations on Covid-19: Why Masks Work

[Webinar Registration](#)

JPLers are invited to this special online series for the Caltech community.

Caltech researchers at every level, from undergraduates to faculty members to JPL engineers, jumped into action when the Covid-19 pandemic struck. Their work continues to advance our understanding of the virus and to accelerate progress toward solutions as they develop treatments to decrease fatality rates, create diagnostics crucial to controlling the virus's spread, and engineer models that policymakers rely on in public health decision-making.

Join Caltech science writers as they interview scientists and engineers from across campus and at JPL about how they are tackling Covid-19, and ask your own questions.

In this first webinar titled 'Conversations on Covid-19: Why Masks Work,' Professor Richard Flagan, an expert in aerosols, speaks with science writer Emily Velasco about why masks reduce the spread of disease.

About the Participants:

Richard C. Flagan is the Irma and Ross McCollum-William H. Corcoran Professor of Chemical Engineering and Environmental Science and Engineering. He graduated from the Massachusetts Institute of Technology, where he received his Ph.D. in mechanical engineering. Professor Flagan's research centers on the control of air pollutants, combustion, and aerosol processes.

Emily Velasco is a science writer in Caltech's Office of Strategic Communications, covering the latest research in the fields of chemistry, chemical engineering, and medical engineering. She originally planned to attend medical school, but late in the bio-med program at UC Irvine, she took a dramatic left turn and pursued a degree in journalism at Cal Poly Pomona instead. She has worked as a reporter, a public relations professional, and a social media manager.

This series is presented by the Caltech Science Exchange. The Science Exchange brings expert insight to the scientific questions that define our time. It offers trustworthy answers, clear explanations, and fact-driven conversation on critical topics in science and technology, including Covid-19 and other viruses.

For additional information, contact Shayna Chabner at schabner@caltech.edu.

JPL Family News

Retirees

The following JPL employees recently announced their retirements:

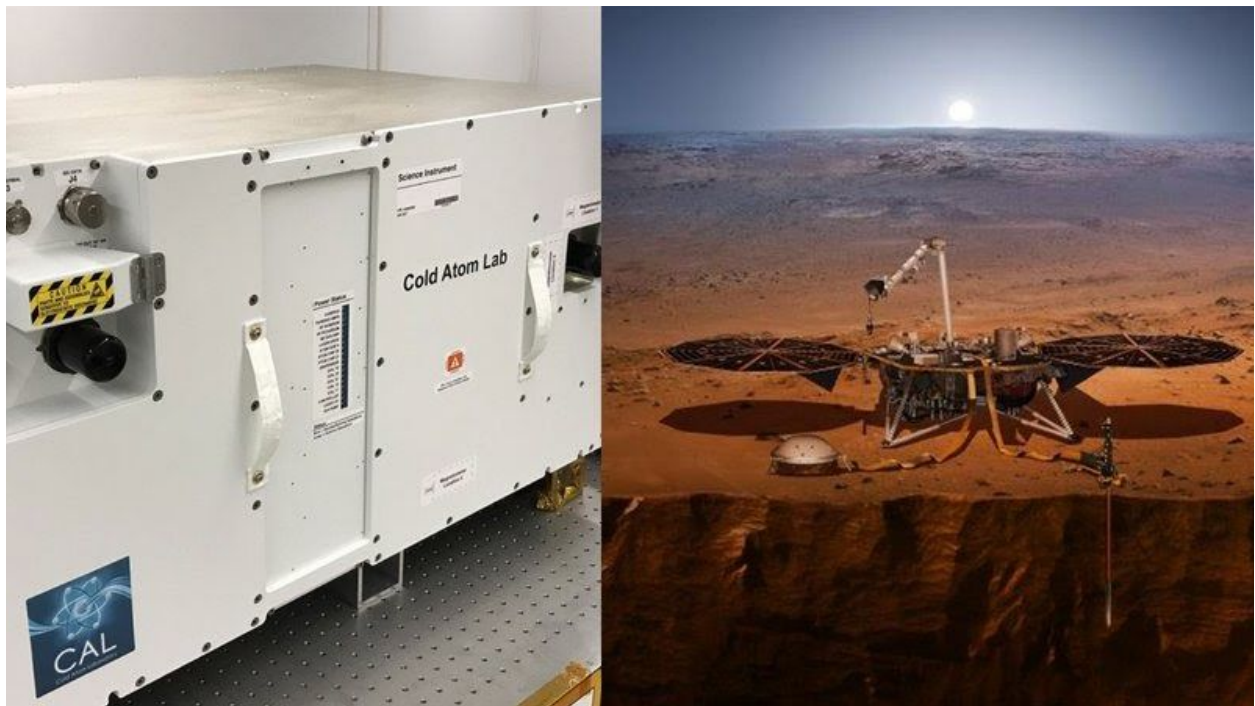
40+ Years:

Charles Acton, Section 392N, 48 years

10+ Years:

Jeffery Webster, Section 1610, 19 years

Awards



Big Honors for Two JPL Missions—More Than 50 Million Miles Apart

Although one resides on the International Space Station, and the other is firmly planted on the Red Planet, the Mars InSight mission and the Cold Atom Lab have something in common: Both have received 2020 awards from the AIAA (American Institute of Aeronautics and Astronautics).

Because of Covid-19 restrictions, both awards were presented virtually during the AIAA's ASCEND Conference, held online from Nov. 16 through 18.

The Cold Atom Lab team received the 2020 AIAA Space Science Award for “developing and delivering the highly innovative Cold Atom Laboratory to the ISS and for seminal scientific achievements.” Cold Atom

Lab achieved a historic breakthrough this year, as described in a JPL Space article from May:

<https://js.jpl.nasa.gov/news/upgrade-historic-breakthrough-and-award-cold-atom-lab/>

In the article, Project Scientist Rob Thompson had praise for "not only our current JPL team but also everyone who helped design and build it, as well as all our friends and collaborators on each of the PI teams."

InSight received the 2020 AIAA Space Systems Award for "excellence in development and operations of the InSight mission to Mars, the first mission to explore the deep interior of Mars."

The award might be considered a second anniversary gift for the InSight team, which will soon mark the second anniversary of the spacecraft's Nov. 26, 2018 landing on the Red Planet. That is—the second anniversary in Earth years...the first anniversary, if you're counting in Mars years.



To maintain social distancing, Cold Atom Lab team members made a composite image from photos taken individually. L to R: Jason Williams, James Kohel, Kamal Oudhiri, Rob Thompson, Robert Shotwell, David Aveline, James Kellogg (not in photo): Ethan Elliot

InSight Project Manager Chuck Scott said the people on the team are responsible for the lander's success and the award, including those from other organizations. "The team is comprised of JPL, CNES, DLR, and Lockheed Martin, along with support from their industry partners," Scott said. The project depends on these people and the successful relationship between the organizations to operate this mission and to return the great science that expands our understanding of the Earth and other rocky planets."

More information on the AIAA awards is at:

<https://www.ascend.events/homepage/aiaa-to-present-premier-lectureships-and-technical-excellence-awards-during-ascend/>

In addition to the mission awards, the AIAA has announced that next year, they will honor Michael Ingham, chief technologist of JPL's Systems Engineering Division, with its 2021 AIAA Sustained Service Award, "For tireless commitment to AIAA technical activities, particularly the Information Systems Group, including service as Deputy Director, TC Chair, Conference Technical Chair, and IC Member."

NASA's associate administrator for the Science Mission Directorate, Thomas Zurbuchen, has been awarded the AIAA 2020 von Kármán Lectureship in Astronautics. The honor goes to " an individual who has performed notably and distinguished themselves technically in the field of astronautics."



In pre-Covid times the InSight team posed for a group photo in the 230 darkroom, on Nov. 14, 2018.

On its website, the AIAA says the organization has been committed to ensuring that aerospace professionals are recognized and celebrated for their achievements, innovations, and discoveries that make the world safer, more connected, more accessible, and more prosperous. From the major missions that reimagine how our nation utilizes air and space to the inventive new applications that enhance everyday living, aerospace professionals leverage their knowledge for the benefit of society.