

Featured Stories



JPL's 'Founders Plaque' Isn't Quite What it Seems

By Erik Conway

Editor's Note: Oct. 31, 2021 marked the 85th anniversary of the rocket motor tests commemorated on a familiar landmark. The JPL Space editorial team observed the occasion with this look at our founding story.

In 1968, JPL Director William Pickering decided to commemorate the founding of JPL with the installation of the plaque still present on the JPL Mall near Visitor Control. It's supposed to contain the names of those present at the first set of rocket motor tests in the Arroyo Seco on Halloween 1936, and a "blueprint" of the motor etched in metal.

At least, that's the story it tells.

I started investigating the plaque a few years ago. At first, I was just trying to discover the identities of two unnamed students who helped set up the first tests and are mentioned in the first volume of JPL's history,

Clayton Koppes' "JPL and the American Space Program." (I didn't succeed. They'll unfortunately remain anonymous.)

But I discovered along the way that two of the people named on the plaque were not actually present for this first set of tests: Edward S. Forman, their machinist, and Apollo M. O. Smith (Amo), a Guggenheim Aeronautical Laboratory at Caltech (GALCIT) student. Why were they named on a plaque that's ostensibly dedicated to the participants that day?

Forman built the motor, so without him there would have been no tests. His presence on the plaque makes sense even without his presence that Halloween.

But Amo Smith's contribution on Oct. 31, 1936, like that of someone who's missing entirely from the plaque, Qian Xuesen, was intellectual—if he made any contribution at all. It's actually not clear when, precisely, Smith joined JPL founder Frank Malina's merry band of rocketeers (which is also true of Qian). We know from the "Nativity Scene" photo that Smith was at the second set of tests on Nov. 15, while Qian never attended a test.

In his own memoir, Smith wrote that Malina had hired him to help develop drawings for a textbook Theodore von Kármán was writing, and that's how he found out about the rocket group. That textbook project also started up in October 1936, so Smith's contribution to the work couldn't have been much by Halloween.

It turns out Frank Malina intervened to get Amo Smith on the plaque. The JPL historian at the time, R. Cargill Hall, had written to Malina to invite him to the ceremony and described the plaque. Malina, who lived in Paris by this time, had written back and requested that Smith's name be added to it. The foundry welded Smith's name after they'd cast the plaque.

Malina didn't ask to include Qian, who had been deported to the Peoples' Republic of China in 1955 after being caught up in the 1950s Red Scare, perhaps understanding that the politics of the Cold War weighed against a NASA center naming him on a commemorative plaque.

This didn't stop Malina from advocating for Qian's inclusion in JPL history, though. In his remarks at the 1968 plaque dedication, he named six people as his core group: himself, John W. Parsons, Edward S. Forman, Qian Xuesen, Amo Smith, and Weld Arnold. Arnold was the small group's financier, a meteorology student at Caltech who'd provided \$1,000 to keep them going. But Arnold met them after they'd moved back to the Caltech campus in January 1937, so Malina's core group dates not to Halloween, 1936, but to sometime in early 1937.

Malina wrote to historian Frederick C. Durant III, then involved in building the new National Air and Space Museum in Washington, to tell him about the plaque ceremony and to explain that William Bollay, William Rockefeller, and Carlos Wood, Caltech students all listed on the plaque, had only been observers, not participants, and that Qian should have been listed.

Malina also wrote to Vickie Melikan, Director Pickering's executive assistant (her title at the time was Special Assistant to the Director) and wondered if the plaque might be fixed in the future: "Perhaps after some time has elapsed we can do something about the text on the plaque. The absence of the names of Weld Arnold and [Qian Xuesen] is really a bit much—as well as the presence of the names of Rockefeller and Carlos Wood as now listed."

To Frank Malina, the key actors in JPL's founding were a different group than those who were there on the first test day. His group had three components: the three original enthusiasts (himself, Forman and Parsons); the theoreticians who joined them (Smith and Qian); and their late-arriving funder (Arnold). In his correspondence, he took care to emphasize these individuals, and not the varying cast of characters who helped set up each of the four arroyo rocket motor tests. Rudolf Schott, for example, who appears in the Nativity Scene photo, was at three of the four tests but is never mentioned in Malina's correspondence

with historians. He was a friend of Malina's during 1935 and 1936, but had no other connection to Caltech, to rocketry, or even to the aviation industry. There were others, too, at these tests whom Malina clearly did not consider significant enough to note.

In other words, Malina sought to steer historical conversation away from those who were merely present towards those who made intellectual (and financial) contributions to their cause. He was quite deliberate about this, too, perhaps remembering a letter Qian had written him in 1954 from house arrest in Altadena prior to his deportation:

"Do you believe in history at all, knowing it is being rewritten all the time? . . . Do you expect to be famous and honored in the U.S.A. without being your own press-agent, or without having a public relations man under your employ? Dear friend, let us not believe in fictions!"

Malina didn't agree with the plaque's focus on those present at the first test, and while he didn't hire his own public relations person, he took some pains to influence the historical record.



Blaine Baggett standing in front of posters for three of his documentaries.

The Man Behind the Camera: Meet Blaine Baggett, JPL's Documentarian

By Celeste Hoang

I can still remember the summer of 2014 when I first watched Blaine Baggett's documentary *The American Rocketeer*. That night, seated in the crowded auditorium at Caltech, I became mesmerized by the story of Frank Malina and a ragtag group of science nerds who—in the middle of the Great Depression—dared to launch rockets and dream of interplanetary travels.

I applied for a communications role at JPL in 2017. My final interview was with Baggett himself, who was then the Director for 18x, the Communications and Education directorate. I got the job, but our paths rarely crossed.

Then, during the summer of 2020, I was invited to apply for a fellowship grant to work directly with Baggett, by then a JPL Fellow, as my mentor, learning the ropes of documentary filmmaking as he embarked on his next project about Cassini. It was not lost on me that I got to learn from one of the best: Baggett spent decades in television programming and production; is a multiple Emmy Award winner; one of NASA's finalists for the first Journalist in Space program; and a recipient of NASA's highest honor, the Distinguished Service Medal.

I spent approximately two days a week with Baggett, virtually learning the process of how he—alongside his film editor, Arthur Hurley—breathed new life into archival footage, spinning the tale of a spacecraft exploring Saturn into two-and-a-half hours of enthralling imagery and storytelling. The result is *Triumph at Saturn*, which premiered Oct. 15; Part I can be seen on-demand [here](#), and Part II [here](#). (The full collection of Baggett's "JPL and the Space Age" can be seen [here](#).)

At the end of our mentorship, I had the pleasure of asking Baggett more detailed questions about his career, why it matters to document JPL's history for current and future generations, and what his next filmmaking venture will be. Below, get to know the person behind the camera. (Answers have been edited for length and clarity.)



Baggett visiting Keck Telescope under construction during filming of "The Astronomers" in Mauna Kea, Hawaii in 1990.

You were previously the director for 18x at JPL. How did you transition from that role to being a JPL Fellow producing, directing, and writing documentaries for the Lab?

I joined the Lab in 1999 and managed our communications and educational activities for 18 years. That's a long time in one job. I had accomplished most of what I had set out to do, and truth be told, I missed telling stories. I was already—in my 'spare' time—producing some episodes about the early years of the Lab's history. So I pitched the idea of working full-time on new episodes and our senior management said yes. I'm very grateful to them.

You're one of the few non-technical fellows at JPL. What does that distinction mean to you?

I believe it speaks to the value our Lab places on telling our story to the world. And I take it as a statement of high regard that our communications, public engagement, and educational activities are viewed, as they should be, as professional disciplines.

Why do you think it's important for JPL to document its history, missions, and people on film?

You only explore the Solar System for the first time once, and we need to do all we can to capture the stories of these journeys of exploration and the people who made them possible. Besides, these adventures just make for good stories. And need I mention that the science is fascinating?

Although many documentaries about JPL missions have been made by various TV networks, they are scattered here and there and aren't readily accessible. I wanted to create episodes that exist like beads on a chronological string. That way, JPL's evolution as an institution devoted to exploration comes to light. Another goal has been to show the role of governmental policies play with our work. We don't operate in a political vacuum, but that dimension of our work rarely gets any attention, at least not in documentary form.

And paramount, of course, is the importance of the viewer. And I always have two groups in mind with these programs: the public and JPLers. I'm especially mindful of people new to the Lab. It gives me a great sense of satisfaction to know that these documentaries are screened in the JPL library for our summer interns. No matter where they end up in their lives, they will always know and have some degree of appreciation for what the Lab has accomplished.

There are also "lessons to be learned" embedded in the documentaries that, if you watch carefully, are worth taking to heart. Said more bluntly, smart people learn from their mistakes, but brilliant people learn from other peoples' mistakes.

Before joining JPL, you spent decades at PBS. What was your greatest career lesson from your time there?

The early part of my PBS experience was in advertising and promotion. And I learned two things. Even when communicating with complex subjects (we're talking PBS programming here!), remember what Henry David Thoreau said: "Simplify! Simplify! Simplify." Always be mindful of what and how much your audience can absorb. That sounds simple but it's so often overlooked.

How did you find your way from PBS to JPL?

In the second half of my PBS career, I made documentaries. The topics varied, but I kept bumping into opportunities to make films that were space related. One was a series called "The Astronomers." A Caltech professor [and Voyager Project Scientist] named Ed Stone was our science advisor. Not long after we finished the series, Ed became the Director of JPL. Eight years later, he and his management team hired me.

How did you select Cassini as your most recent documentary subject?

Cassini is a standout when you look at the span of our planetary missions. And as I march through chronological time towards the present, there's absolutely no way you could ignore it. And on a personal

level, its time frame closely mirrors my years as JPL's Director for Communications and Education. I had just arrived when Cassini was about to do its gravity assist swing-by of Earth—a somewhat touchy topic, brought home to me when two Department of Energy officials right out of Central Casting showed up at my door to give me a primer on how the spacecraft was powered by plutonium.

Fast forward 18 years to Cassini's end of mission, "Grand Finale." That was also my grand finale as 18x's director. The fact that our 18x team won a national Emmy – JPL's first—for its work on the Grand Finale was a wonderful capstone. Highly satisfying.



Baggett testing zero gravity in 1984.

You've been both the interviewer and the interviewee for decades. What's a question you always wished someone asked you?

I'm going to dodge your question with a truthful answer. The very best question you can ask of someone is, 'What's your story?' The simplicity of that inquiry can lead to intriguing places.

You've met Marlon Brando a couple of times. How did that happen and what was your impression of him?

Brando? You want me to name drop? I met him a couple of times, once at his house up on Mulholland Drive. He wanted to make a series about an island he owned in the Pacific. The idea didn't go anywhere.

But do allow me to shamelessly mention Orson Welles. He was the narrator for my first full-length nationally broadcast documentary. So I can brag that I once 'directed' the great Orson Welles. "Kinda."

If you could interview anyone past or present, who would you choose and why?

In the field of science and engineering: Carl Sagan. I encountered him twice in two very different circumstances, but they weren't the kind of sit-down one-on-ones I would like to have with him now. "Cosmos" was an influential television event for so many, including me. I remember one scene where he's at JPL, walking down a hall and he inserts a card into a code reader, unlocking a door that leads into a mission room where Voyager images are coming down. And I thought to myself, that's really cool! Fast forward 40 years and wow, I have my own card that gets me into rooms just like it. Who would have thought it? Sagan shows up from time to time in my JPL documentaries, including the one I'm working on now.

Not to play favorites, but of the people you've interviewed, who left a particularly lasting impression on you and why?

Yet more name dropping? From my "Spaceflight" series: Mike Collins. He was the command module pilot on Apollo 11 – the fellow who didn't set foot on the Moon and thus got very little attention. He served as one of my advisors, so I got to spend a good bit of quality time with him. He was so unassuming, gentle, thoughtful, and helpful. Just the kind of person you needed to pair up with Neil and Buzz. Sadly, we lost Mike earlier this year.

Where do you see the future of storytelling—particularly in sciences—headed?

As evidenced by the anti-science reaction by so many people surrounding the pandemic, it's clear we've got a lot of work to do. One of the reactions to the surprise of the Soviet Union's Sputnik in the 1950s was, for a time, a greater emphasis placed on science and math in schools.

Covid is our Sputnik moment. We need to do more in our schools to explain how science works and what the scientific method is all about. Skepticism is a healthy part of that process, of course, but the refusal by so many today to accept empirical evidence is alarming. It is especially dangerous for a modern world built on technology and science.

Looking back at your career at JPL, what has been the most rewarding and most challenging project you've worked on at JPL?

When I was hired at JPL, my assignment was to create a communications and educational organization for the 21st century. That was the easy part. The hard part was the execution. Without going into gory details, being an agent of change was harder than I expected. A lot of people in a lot of places liked things just the way they were. It took a lot longer than I anticipated, but we got there.

Now I look back with satisfaction that today our staff is nationally known as pioneers and leaders in internet web design, visualization, and social media. We are trusted and respected by science reporters. We have a beautiful visitor center, and in pre-pandemic years, Open Houses [now known as Explore JPL] became so popular, they required tickets. A thousand summer college students were also interning at the Lab. These and other accomplishments have happened because people and groups started working more closely together.

The latest in JPL's series of historical documentaries, "Triumph at Saturn" chronicles the story of NASA's Cassini mission. Part I can be seen on-demand [here](#), and Part II [here](#). These films use rare archival footage and interviews with pioneering engineers and scientists in the retelling of humanity's first steps into the cosmos. Each episode of "JPL and the Space Age" is available on the [JPL website](#).



(L. to R.): Scott Crossfield, Baggett, Mike Collins, Wally Schirra, and Jerry Carr at the 1985 premiere of "Spaceflight" at the Air & Space National Museum.

What do you hope viewers will take away from the Cassini films?

On all of these documentaries, I ask people who worked on the missions to serve as advisors. And I'm struck by how many Cassini advisers were pleased by the mixture of science and engineering. And given the length of Cassini—30 years from development to the mission's end—you can witness a societal shift taking place in the roles women play in the mission. Personally, I found myself becoming unusually emotionally attached to the spacecraft. I will confess that I teared up more than once when editing Cassini's last moments. That's a special moment I hope others might experience, too.

The latest in JPL's series of historical documentaries, "Triumph at Saturn" chronicles the story of NASA's Cassini mission. Part I can be seen on-demand [here](#), and Part II [here](#). These films use rare archival footage and interviews with pioneering engineers and scientists in the retelling of humanity's first steps into the cosmos. Each episode of "JPL and the Space Age" is available on the [JPL website](#).



JPL Interim Director Larry James reads to children at a literacy event in 2019. Image credit: NASA/JPL-Caltech

United Way Giving Campaign: Virtual But Mighty

By Jane Platt

The pandemic has altered but not stymied the options for JPLers to help those less fortunate in our local communities. For the second year in a row, the United Way Greater Los Angeles (UGWLA) giving campaign will be 100% virtual, with an easy-access online portal to help the Lab community match and even surpass its generous contributions of past years.

This year's giving campaign runs Nov. 4 through Dec. 3. Through the JPL giving portal, you will be able to donate to United Way, and any other 501c3 designated organizations, through a one-time or recurring payroll deduction.

Last year's virtual campaign drew more than half a million dollars in donations, and the Lab hopes for a similar outcome this giving season.

Donations, including those from the JPL community, help United Way with its crucial goal of ending homelessness and poverty in L.A. County by fighting root causes. The organization supports housing, other basic needs, and economic mobility.

JPL Interim Director Larry James sits on the UGWLA Board of Directors and sees concrete examples of how contributions help.

"I get to see first-hand the dramatic impact that United Way has on our community, from bringing vaccines to the homeless, breaking ground on a brand new homeless facility in Chinatown, and working with our local school districts to lessen the impacts of remote learning on disadvantaged students," James says. "I encourage us all to dig deep to share the resources we have."

During the lingering pandemic, as community needs have surged, the overall UGWLA Pandemic Relief Fund has provided emergency relief to individuals and the organizations that work with them. For

example, they provide rapid response funds to families in immediate need, and offer support and resources to students and educators who need technology tools for online learning.

- Results of UWGLA efforts to end poverty and homelessness include:
- Moving 45,000 people out of homelessness and into safe homes
- Increasing the college-ready graduation rate by 5.2%
- Securing over \$11 million in tax returns for low-income households

In addition to the internal JPL giving link, retirees or others in the community who would like to donate can access the site here: <https://www.unitedwayla.org/en/give/jpl/>.

UWGLA, in conjunction with JPL, plans other opportunities to help during the coming year, for example, with "WalkUnitedLA" on Nov. 6, and with mentoring sessions. Events will be virtual or in-person, depending on circumstances during the coming months.

For questions, contact Mark Lopez at mark.a.lopez@jpl.nasa.gov or 818-393-6878.



The climate roundtable, held at JPL's von Karman Auditorium.

NASA Administrator Bill Nelson Visits JPL

When NASA Administrator Bill Nelson and Deputy Administrator Pam Melroy arrived for a visit on Thursday, Oct. 14, a full lineup of activities awaited them. Four stops included a view of an Earth-observing spacecraft being built, a climate roundtable, and a meeting with Mars mission team members.

The visit, which followed all safety protocols, was hosted by the Lab's Interim Director Larry James and also included Caltech President Thomas Rosenbaum and some California elected officials and dignitaries, who joined for various parts of the scheduled events.

A climate roundtable included a briefing on how NASA and JPL help California by measuring greenhouse gas emissions, sea level rise, and other climate change indicators. They joined a discussion of opportunities for scientists, engineers, resource managers, and policymakers to team up to tackle the challenges. And they heard how decision-makers and responders are actively using Earth data to monitor such crises as fires and the Huntington Beach oil spill.

At the Spacecraft Assembly Facility gallery, the guests watched engineers and technicians assembling the NASA-ISRO Synthetic Aperture Radar (NISAR) spacecraft. NISAR, an Indian Space Research Organisation partnership, will track subtle changes to Earth's surface and help mitigate the threat of natural hazards, better manage natural resources, and understand climate change.

In the Perseverance Mars rover surface mission support area, scientists and engineers previewed upcoming activities for the rover and the Ingenuity Mars Helicopter, and future plans for Mars Sample Return.

JPL's core value of Inclusion was highlighted at a lunch meeting with the Lab's new Diversity, Equity, and Inclusion Manager Neela Rajendra and members of the Lab's Employee Resource Groups.

The group of visiting elected officials and dignitaries included Reps. Pete Aguilar, Julia Brownley, Judy Chu, and Ted Lieu, California Natural Resources Sec. Wade Crowfoot, and California Environmental Protection Sec. Jared Blumenfeld.

Some local media representatives covered the event.



The latest posters feature a "Roasted Planet" and "Dark Energy," available for download in English and Spanish.

Two New Galaxy of Horrors Posters for 2021

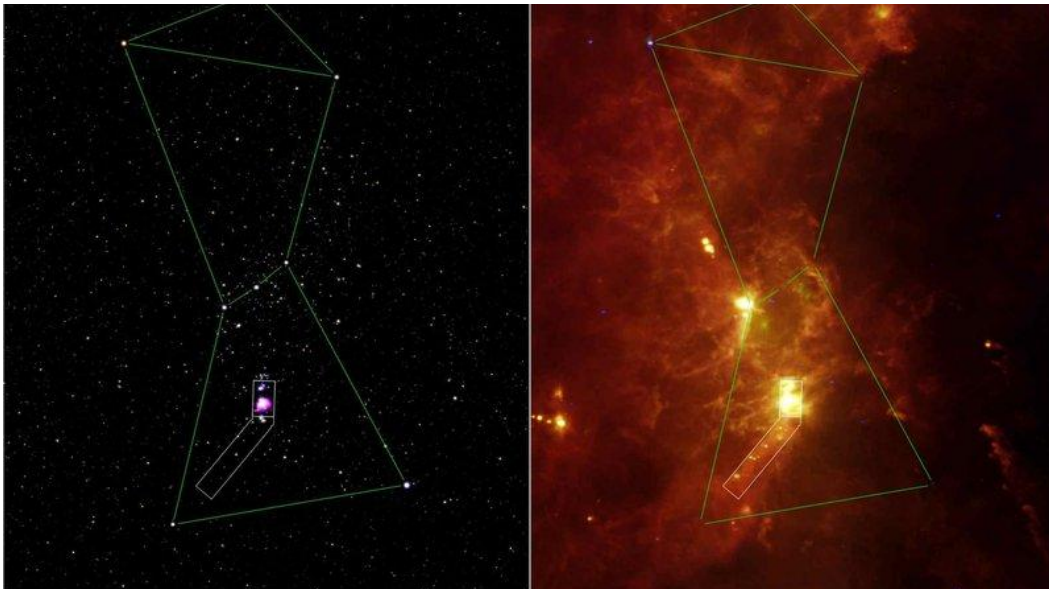
JPL's Exoplanet Exploration Program office has unveiled two new additions in its Galaxy of Horrors poster collection.

The first poster, titled "Roasted Planet," highlights HD 80606 b as it approaches its star from an extreme, elliptical orbit. Located 217 lightyears from Earth, the gas giant suffers star-grazing torture that causes howling, supersonic winds and shockwave storms across the planet.

The second poster features "Dark Energy," An unseen power prowling throughout the cosmos, driving the universe to expand at a quickening rate. This relentless pressure, called dark energy, is nothing like dark matter, that mysterious material only revealed by its gravitational pull.

To learn more about these posters and download both the Spanish and English versions for free, visit the [Galaxy of Horrors](#) site.

Events



WalkUnitedLA 2021

Saturday, Nov. 6

8: 30 a.m.

[Fundraising link](#)

Join your fellow JPLers for the first annual WalkUnitedLA family 5K walk/run to end poverty in L.A. County. Spend your Saturday with United Way of Greater Los Angeles and the Los Angeles Rams. Together we are powering the movement to end poverty for our unhoused neighbors, students, and working families.



Von Karman Lecture Series - Rising Tides: First Year in Space for NASA's Earth Flagship

Thursday, Nov. 11

7 - 8:30 p.m.

[YouTube link](#)

Sentinel-6 Michael Freilich will continue a decades-long effort to measure global ocean height from space, which started in the early 1990s. Tune in to hear what we've learned from the newest sea-level monitoring satellite.

Speaker:

Dr. Josh Willis, Lead NASA Scientist for Sentinel-6, NASA/JPL

Hosts:

Nikki Wyrick, Public Services Office, NASA/JPL

Jocelyn Argueta, Public Outreach Specialist, NASA/JPL

JPL Family News

Retirees

The following JPL employees recently announced their retirements:

50+ Years:

Bruce E. Goldstein, Section 3260, 50 years

30+ Years:

Earl H. Maize, Section 4040, 38 years

Christopher L. Potts, Section 4240, 37 years

Carol J. Bruegge, Section 329H, 36 years

Yu-Wen Tung, Section 397C, 31 years

20+ Years:

Susan L. Poverin, Section 1050, 28 years

Christine S. Preheim, Section 3022, 25 years

Passings

Some of the material in obituaries is provided by family members.

Ray Newburn Jr., who worked at JPL for 46 years, died in his sleep on Sept. 2, 2021, at the age of 88.

Newburn was born Jan. 9, 1933, to Ray and Gertrude Newburn in Rock Island, Illinois. After his family moved to Southern California in 1941, young Ray would discover Mount Wilson, Griffith Observatory, and a lifelong love of astronomy.

After he received his bachelor and master's degrees from Caltech between 1950 and 1956, a summer job at JPL led to a lengthy career with the Lab.

Newburn's many accomplishments included helping in the acquisition and construction of the observatory at Table Mountain, California, and work on such projects as Mariner 2, Cassini, and Stardust. He held a co-leadership position with the international Halley's Comet watch.

During his years at JPL, Newburn interacted with such luminaries of astronomy and popular culture as Carl Sagan, Gene Roddenberry, Pope John Paul II, Edwin Hubble, Fred Whipple, Lew Allen, and astronauts.

His extensive work-related travels included many observing trips to Mauna Kea in Hawaii, as well as visits to the former Soviet Union, East Germany, Japan, and European countries. Newburn's hobbies included reading, collecting stamps and covers, hiking, and off-roading.

Newburn is survived by his wife of 53 years, Virginia, his twin boys Kevin and Steven, daughter-in-law Erin, and grandchildren Kristen, Jeff, and Alyssa.

Awards



Larry James Accepts 3G Diversity Award at IAC 2021

JPL Interim Director Larry James accepted the International Astronautical Federation's 3G Diversity Award on behalf of JPL during the International Astronautical Congress event on Oct. 27 in Dubai, United Arab Emirates.

The IAF's diversity award subcommittee conferred the award in recognition of JPL's contributions to the 3G (Geography, Generation, Gender) diversity initiative within the space sector.

The IAF considers award nominees annually, and confers the award when the federation receives nominations it considers to have exceptional merit.

Inclusion is a core value at JPL. All JPLers are encouraged to join a panel discussion with JPL leaders Nov. 4 at 1 p.m. covering best practices for creating engaged teams, and research on why and how inclusion can lead to more effective workplaces.

For more information on JPL's core value of inclusion, visit: <https://inclusion.jpl.nasa.gov/>

More information on the award is available [here](#) and [here](#).