National Aeronautics and Space Administration

What mighty things did we dare together in 2024?

Jet Propulsion Laboratory

Director’s Message

NASA s Jet Propulsion Laboratory has a long history of pushing boundaries, defying expectations, and redefining possibilities through groundbreaking space exploration and 2024 was no exception.

Our extraordinary teams continued to drive the forefront of scientific discovery by seeking answers to humanity’s biggest questions about our changing home planet, the mysteries of the cosmos, and life as we know it.

In 2024, we began new journeys to explore the unknowns of our solar system sending Europa Clipper on an epic expedition to search for signs of habitability on an icy moon of Jupiter, and the twin PREFIRE satellites to study Earth’s thermostatas at our poles.

We continued nearly 40 active missions in flight, delivering unprecedented insights and exploring farther than ever before from collecting Earth science data that empowers action, to sampling rocks that could tell us whether microbial life ever thrived on Mars, to keeping the Voyager spacecraft traveling beyond the edge of our solar system nearly 50 years post launch.

We celebrated spacecraft that successfully completed their primary and extended missions and furthered our knowledge and capabilities in space including the NEOWISE mission that studied asteroids and comets while boosting our nation s planetary defense, and the Ingenuity Helicopter that proved we can fly in the thin Martian atmosphere.

We drove forward projects that will pave the way for next generation technology and discoveries such as the Nancy Grace Roman Space Telescope s Coronagraph Instrument that will hunt for exoplanets and bring us closer to finding potentially habitable worlds orbiting other stars.

We upgraded NASA s Deep Space Network to enable future giant leaps enhancing our ability to communicate with explorers beyond the Moon and provide critical mission support to the agency and international partners.

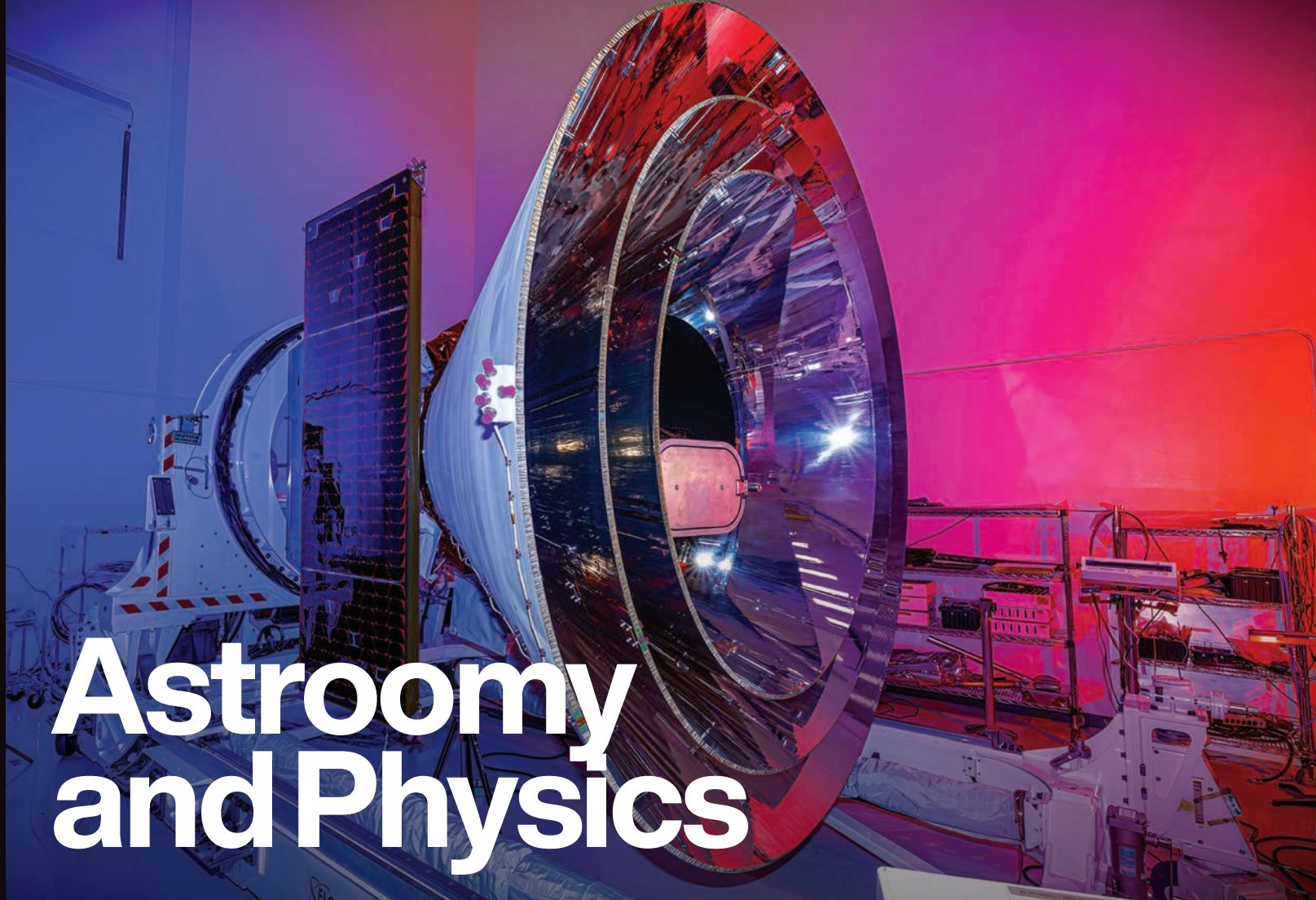
And, we laid the foundation to continue JPL s legacy of pioneering discovery and innovation far into the future establishing the Brinson Exploration Hub in partnership with Caltech to advance bold ideas, and inspiring the next generation of explorers to imagine themselves in space.

We can only achieve what was previously thought to be impossible when we dare mighty things together. In the year ahead and beyond, we’ll continue to fearlessly pursue the most awe inspiring questions, complex technical challenges, and incredible projects for the benefit of all.

Laurie

Laurie Leshin
JPL Director

Contents



Astroomy and Physics

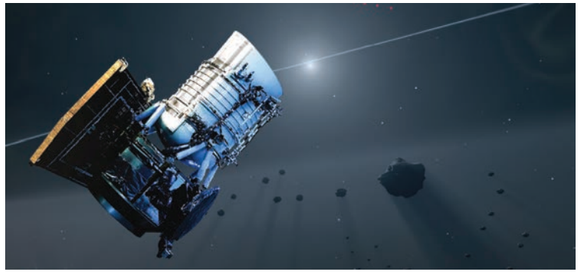
Can we spot Earth's larger cousins hiding in starlight?

JPL's astronomy expertise and collaborative spirit shone through as the groundbreaking Roman Coronagraph was mounted onto the Roman Space Telescope at Goddard Space Flight Center in October 2024. This piano-sized instrument, designed at JPL to redefine planetary discovery, harnesses advanced masks and active mirrors to overcome blinding starlight, revealing previously invisible exoplanets circling distant suns. The milestone marks a vital step toward Roman's 2027 launch — with the instrument already surpassing its performance requirements — and validates technology that future missions like the Habitable Worlds Observatory will need to seek out potentially life-supporting worlds. The achievement showcases a seamless collaboration between JPL and Goddard teams in pushing the boundaries of space observation.

READ MORE

IMAGE: UNBOXING OF THE COMPLETED CORONAGRAPH INSTRUMENT AT NASA'S GODDARD SPACE FLIGHT CENTER
CREDIT: GSFC/CHRIS GUNN

What can we achieve when we refuse to stop exploring?



On Aug. 8, 2024, JPL powered down the NEOWISE spacecraft — a NASA space telescope that exceeded its planned 10-month lifetime by nearly 15 years. Originally launched in 2009 as the Wide-field Infrared Survey Explorer, the observatory mapped the entire sky in infrared light, unveiling millions of cosmic objects — from distant galaxies to mysterious brown dwarfs. Reimagined in 2013 as NEOWISE, the spacecraft turned its infrared eyes toward planetary defense, tracking thousands of asteroids and comets that could pose risks to Earth. NEOWISE's impressive record in astronomy and protecting Earth from hazards proves that expert engineering and innovative thinking — areas in which JPL excels — can unlock years of bonus science from aging spacecraft.

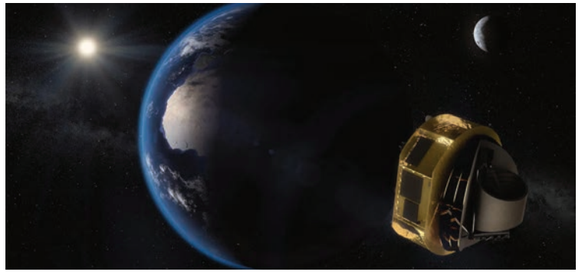
READ MORE

NEOWISE DISCOVERED 158,000+ ASTRONOMICAL OBJECTS INCLUDING:

52,000+ NEAR-EARTH OBJECTS

5,163 COMETS

How do we decode distant exoplanet atmospheres?



In 2024, JPL delivered its contribution to the European Space Agency for the ambitious ARIEL exoplanet mission, set to launch in 2029 to reveal the atmospheric secrets of 1,000 distant worlds. Known as CASE, this pair of precision-engineered spectroscopic detectors from JPL will not only expand ARIEL's vision into visible and near-infrared wavelengths for detecting clouds, hazes, and light reflection patterns from light years away, but also serve as the mission's fine guidance system, keeping the telescope precisely aimed at its targets. Building on the same detector technology JPL contributed to ESA's Euclid mission, CASE represents another step toward understanding potentially habitable worlds beyond our solar system.

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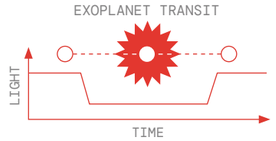
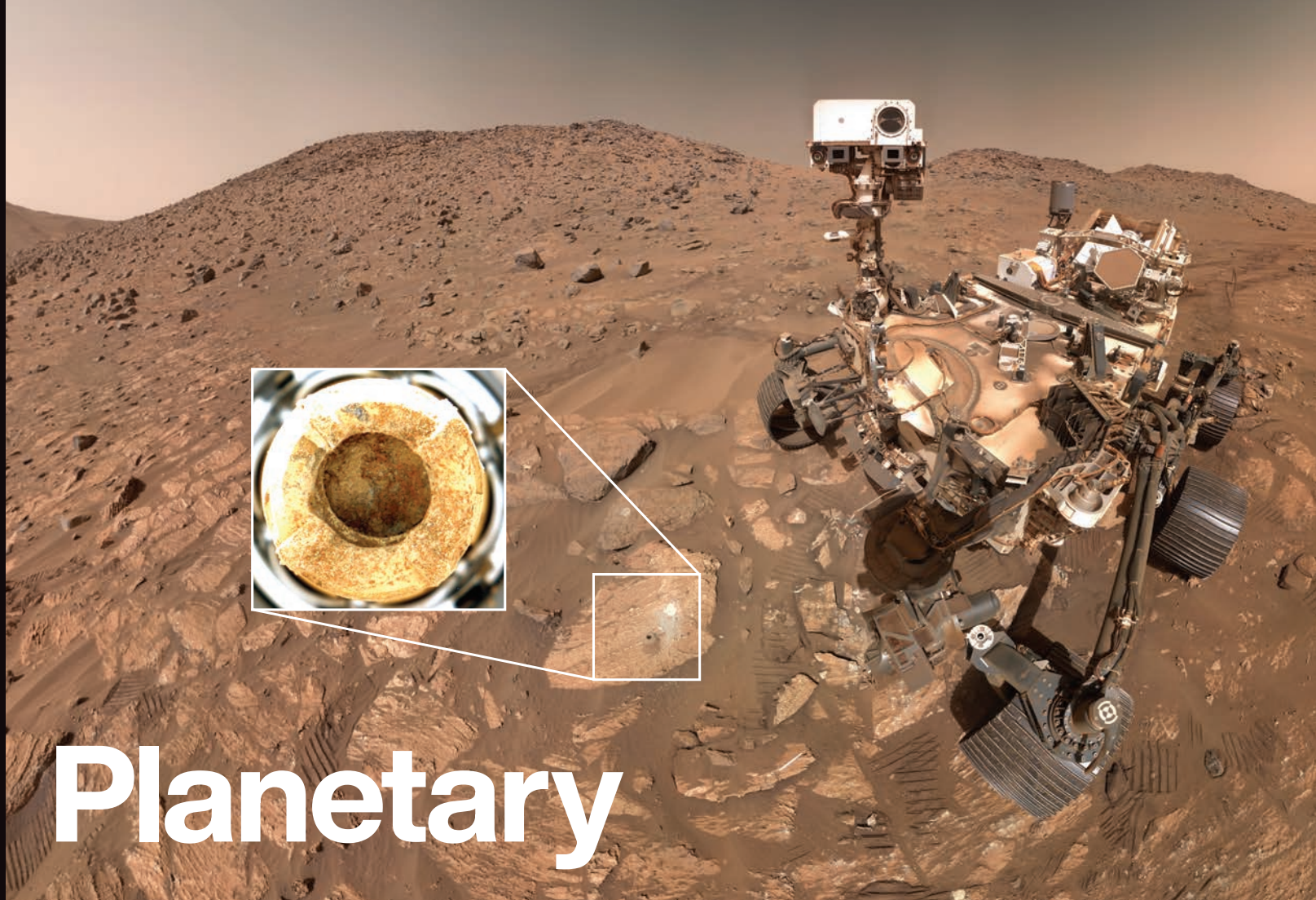


What can the colors of the cosmos teach us about our origins?

A new JPL and Caltech-led space telescope took shape during 2024 that will paint the most colorful portrait of our universe ever created. After successfully completing development at BAE Systems, NASA's SPHEREx mission stands ready for its early 2025 launch, when it will wield the power of spectroscopy to split starlight from hundreds of millions of galaxies into 102 distinct infrared colors. This innovative observatory will reveal the physics of our universe's first moments, track the light of distant galaxies, and map the ingredients of life across our Milky Way. By fusing panoramic sky coverage with precise spectroscopy, SPHEREx will illuminate our cosmic story like never before.

READ MORE

ABOVE: INNER AND MIDDLE PHOTON SHIELDS OF SPHEREX SPACECRAFT
COVER: ASSEMBLED SPHEREX SPACECRAFT
CREDIT: BAE SYSTEMS



Planetary

What can an ice-encrusted alien ocean tell us about life's potential?

On Oct. 14, 2024, NASA's Europa Clipper blasted off on a daring quest: to scout the conditions for life in an alien ocean locked beneath the frozen surface of one of Jupiter's moons. This first-of-its-kind mission, two decades in the making at JPL, will dive deep into one of our solar system's most tantalizing mysteries. When it arrives in 2030, the spacecraft will zip past Europa dozens of times, using sophisticated remote sensing instruments to study what lies beneath the icy crust and investigate whether its hidden waters contain the ingredients that could make life possible.

READ MORE

IMAGE: EUROPA CLIPPER LIFTS OFF FROM NASA'S KENNEDY SPACE CENTER IN FLORIDA

Can the Moon's story inform our past and our future?

Earth's nearest neighbor guards ancient secrets about our cosmic origins — and holds the key to humanity's future in space. In a bold push to unlock both, JPL is launching a series of pioneering missions and technology demonstrations. Lunar Trailblazer will hunt for hidden water that could fuel future explorers. CADRE's autonomous rovers will venture into the Moon's treacherous terrain. The Farside Seismic Suite will eavesdrop on lunar quakes to reveal how our celestial companion was born. Additionally, JPL is embarking on a study for a future rover, Endurance, that could push lunar robotics to new limits. Together, these missions aren't just exploring the Moon — they're blazing the trail for humanity's greatest quests beyond Earth.

LAUNCH TIMELINE:

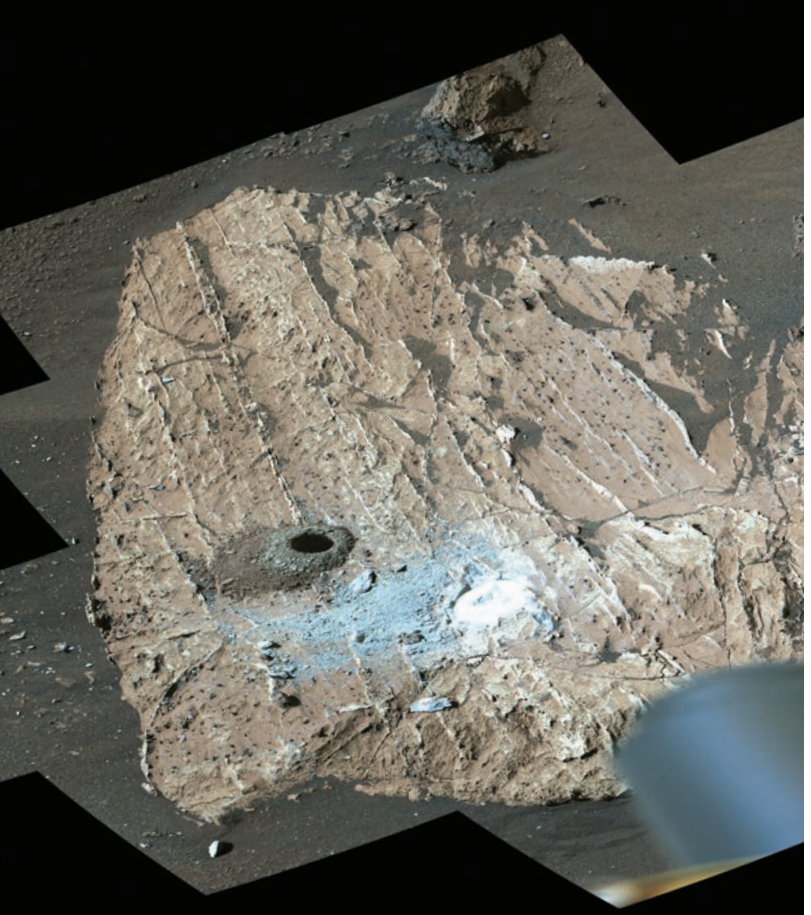
IMAGE: TESTING CADRE'S DEVELOPMENTAL MODELS IN JPL'S MARS YARD

Is it possible to fly on another world?

JPL defied aerial expectations in 2021 when a tiny helicopter lifted off into the alien skies of Mars. For nearly three years, Ingenuity defied the odds, soaring through the Red Planet's thin atmosphere in a series of 72 historic flights — zooming past its original goals to fly an astounding 14 times farther than planned. Though rotor damage finally brought its aerial adventures to an end on Jan. 25, 2024, the pioneering chopper remains proudly upright on Martian soil, still communicating with JPL's Perseverance rover. Ingenuity didn't just prove powered flight was possible on another world — it revolutionized Mars exploration, becoming the Perseverance rover's eyes in the sky and scouting the horizons for future aerial explorers.

READ MORE

IMAGE: THE PERSEVERANCE ROVER CAPTURES THE INGENUITY HELICOPTER IN MID-FLIGHT



Was there ever life on Mars?

In an ancient river valley on Mars, JPL's Perseverance rover has uncovered a mysterious rock that could rewrite history. Nicknamed "Cheyava Falls," this striking specimen, collected on July 21, 2024, is laced with veins that might tell a billion-year-old story of life on the Red Planet. The rock bears compelling signatures that could point to ancient microbial Martian life — though other explanations remain possible. While the rover's instruments have revealed intriguing clues, the real breakthrough awaits: JPL scientists plan to bring these samples back to Earth, where the world's most advanced laboratories stand ready to unlock their secrets.

READ MORE

LEFT: CLOSE-UP IMAGE OF THE CHEYAVA FALLS SAMPLING SITE
COVER: PERSEVERANCE ROVER TAKES A SELFIE AT THE CHEYAVA FALLS SAMPLE SITE

Interplanetary

How do you keep a cosmic phone line open for six decades straight?

Since coming online 60 years ago, the global web of massive radio dishes known as NASA's Deep Space Network (DSN) has commanded robots, guided astronauts, and captured the epic stories of space exploration — from Apollo moonwalkers to Mars rover tracks to James Webb Space Telescope panoramas. Now JPL, which manages this crucial network for NASA, is supercharging Earth's most vital space communications and navigation system for an even greater future: adding powerful new antennas and pioneering optical communications to handle twice today's mission load. By 2030, these upgrades will connect Earth with over 80 trailblazing missions pushing deeper into the solar system.

READ MORE

IMAGE: ARCHIVAL IMAGE OF THE SPACE FLIGHT OPERATIONS FACILITY AT JPL, TAKEN IN 1964

What will it take to return humans to the Moon?

The DSN is transforming for NASA's next great leap into space. In October 2024, engineers achieved the fourth milestone in the DSN Lunar Exploration Upgrade, adding near-Earth K-band uplink to Deep Space Station 34 at DSN Canberra. As similar work begins at DSN Madrid, engineers are outfitting six antennas with near-Earth S-band systems — essential for keeping Artemis III astronauts connected during humanity's return to the Moon. A parallel computing infrastructure upgrade, initiated in 2024, will be ready ahead of Artemis II. These enhancements adapt a network built for the depths of space into one that can handle critical near-Earth communications for NASA's Moon to Mars architecture.

READ MORE

THE NEW K-BAND UPGRADES ALLOW FOR HIGHER DATA RATES:

100 Mbps DOWNLOAD SPEED

20 Mbps UPLOAD SPEED

Can we help our most distant explorers reach even farther?

The DSN achieved a historic first on April 20, 2024, with all six antennas at its Madrid complex uniting to receive Voyager 1's faint signal from interstellar space. While five antennas still suffice for science data today, six will soon be essential as the spacecraft's whispers grow fainter. And when a memory chip failure in November 2023 threatened to silence Voyager 1, JPL's relentless engineers fought back, using the DSN to diagnose the problem and devise a solution. By April 2024, engineering data transmission resumed, with science data returning soon after. These achievements showcase the DSN's vital role in maintaining contact with humanity's most distant explorers, now nearly a day from Earth at the speed of light.

READ MORE

IMAGE: ALL SIX ANTENNAS AT THE MADRID DEEP SPACE COMMUNICATIONS COMPLEX POINT TOWARD VOYAGER 1

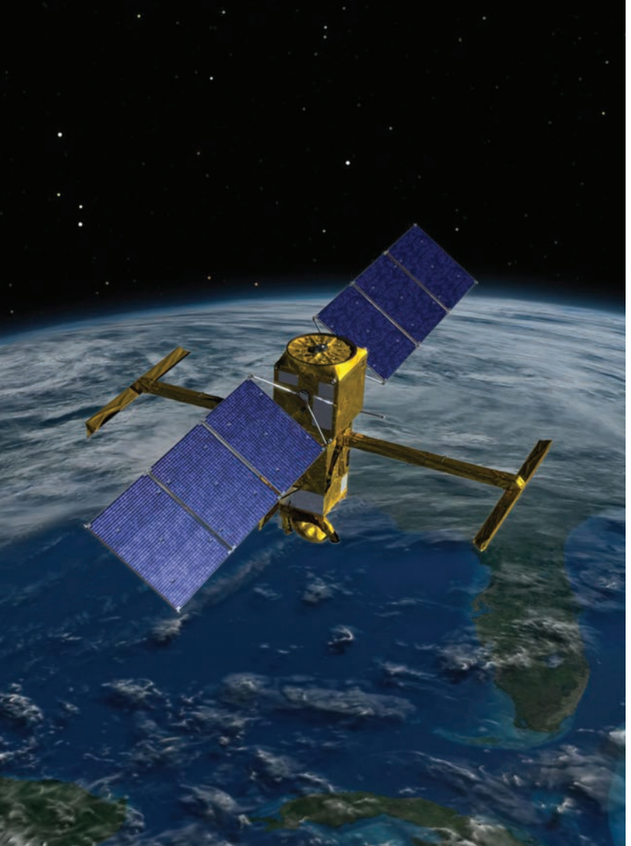
How do we increase our deep space bandwidth?

NASA just lifted the next piece of humanity's growing interplanetary switchboard into place. On Dec. 18, 2024, DSN Goldstone teams hoisted a colossal 133-ton radio dish into the California sky, which will add another link to the chain that's connected Earth with space explorers since 1963. When Deep Space Station 23 powers up in 2026, it will join the DSN's global array of antennas enabling missions like Voyager, Europa Clipper, and Artemis to share their discoveries. As NASA ventures deeper into space, with both robots and astronauts, this upgraded "phone line to the cosmos" ensures every breakthrough makes it home.

READ MORE

ABOVE: DSS-23 RECEIVES ITS NEW RADIO DISH AT GOLDSTONE DEEP SPACE COMMUNICATIONS COMPLEX
COVER: DSS-14 AT GOLDSTONE

Earth Science



How do we better understand and preserve the key to life?

In 2024, the Surface Water and Ocean Topography satellite, or SWOT, which launched in 2022, continued to track how Earth's lakes, rivers, reservoirs, and oceans change and empowered dozens of scientists to decode our planet's water mysteries. From probing the hidden depths of Death Valley's ephemeral lake to mapping rivers with unprecedented precision, SWOT made the invisible visible. And it didn't stop at the surface — SWOT explored the seafloor, shining a light into the oceanic darkness with unprecedented accuracy. Collaborations like Google's "A Passage of Water" used SWOT's measurements to illustrate how global conditions are impacting Earth's water cycle. Through its first-ever global survey of Earth's surface water, SWOT is revolutionizing how we understand the essential resource of our world.

READ MORE

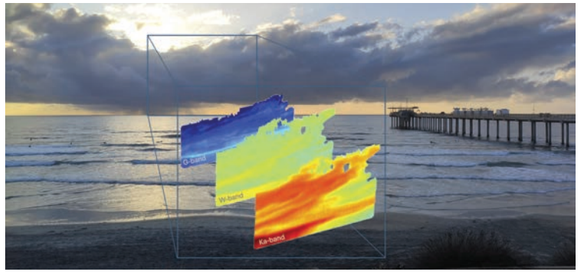
SINCE SWOT'S LAUNCH:

5 million LAKES OBSERVED AROUND EARTH

2 million KILOMETERS OF RIVER OBSERVED

13 TB OF SCIENCE DATA A DAY

What secrets do coastal clouds hold about weather patterns?

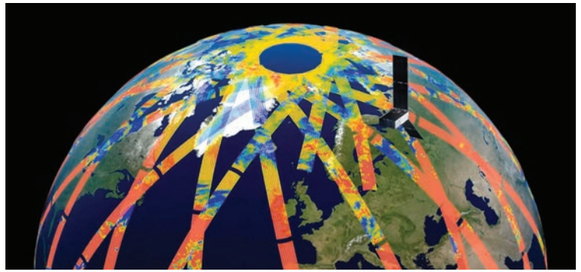


Last year, JPL cracked open new insights into how urban pollution shapes clouds and rainfall through the Eastern Pacific Cloud Aerosol Precipitation Experiment (EPCAPE) along Southern California's coast. The study unleashed two breakthrough technologies: VIPR, a radar system that captures unprecedented detail of water vapor within clouds, and CloudCube, a compact, energy-efficient radar that profiles cloud structure across three wavelength bands. This natural laboratory near La Jolla is revealing how city emissions interact with coastal weather patterns, filling crucial gaps in climate science and advancing our ability to predict Earth's changing precipitation patterns.

READ MORE

IMAGE: CLOUDCUBE DATA SHOWING CLOUD AND PRECIPITATION REFLECTIVITY PROFILES COLLECTED DURING AN EPCAPE EXPERIMENT

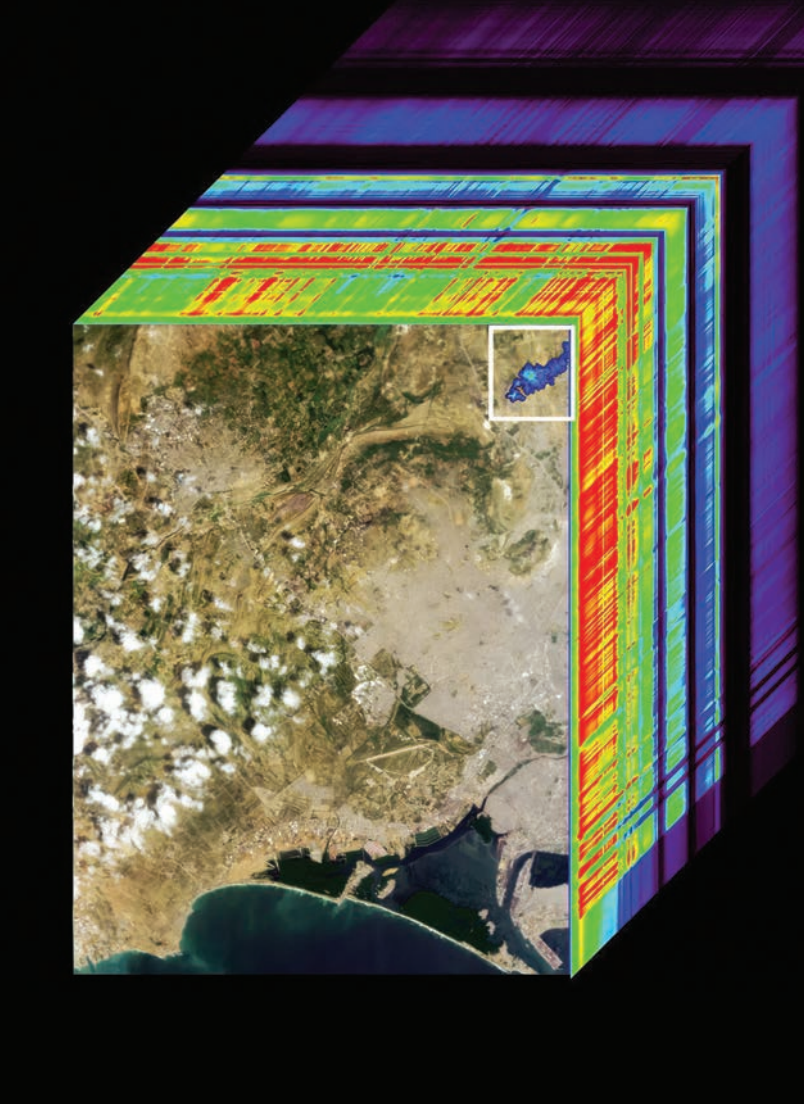
Can two tiny satellites complete Earth's energy picture?



Two shoebox-sized satellites known as PREFIRE are revolutionizing how we track Earth's polar heat emissions. Launched in mid-2024, the powerhouse CubeSat couple are doing what no satellite has before — measuring the Arctic's invisible far-infrared radiation. Think of PREFIRE as Earth's heat detectives: capturing novel data about our planet's energy balance. The satellites work in sync, tag-teaming the poles every few hours to track rapid changes in Earth's most extreme regions. Their first images? A stunning heat map showing the Arctic's thermal fingerprint in vivid yellows, reds, and blues. PREFIRE's data will continue unlocking groundbreaking discoveries around ice melt, cloud formation, and changing weather patterns.

READ MORE

IMAGE: FIRST-LIGHT DATA FROM PREFIRE, SHOWING BRIGHTNESS TEMPERATURES ALONG THE SPACECRAFTS' ORBIT PATHS

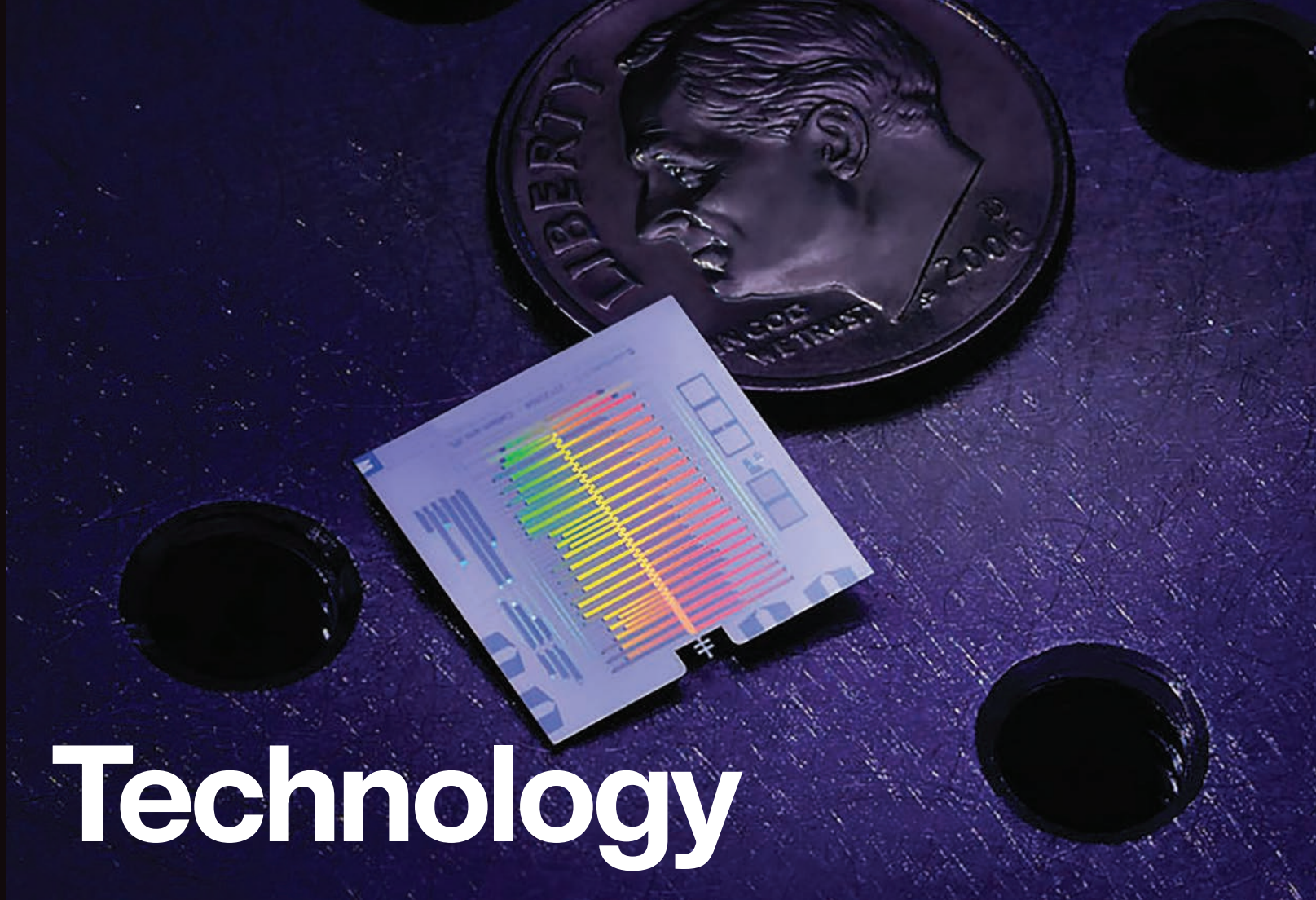


How does Earth science drive real-world impact?

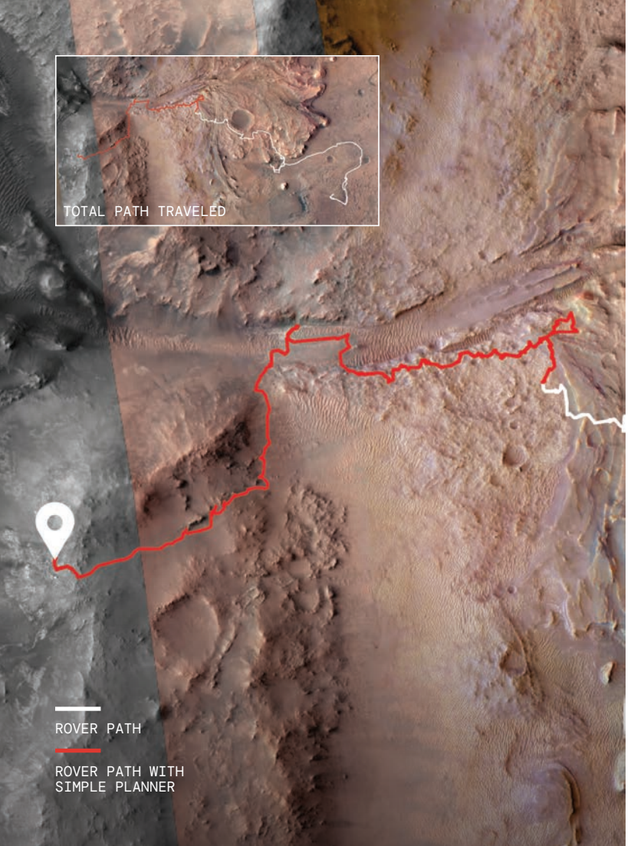
JPL is transforming Earth science with missions that turn satellite data into planet-saving solutions. At the core is NASA's Earth Science to Action plan, supercharged by JPL's fleet of planet-monitoring satellites and sensors. The EMIT mission, perched on the International Space Station, spots methane leaks with laser precision, while Carbon Plume Mapper Coalition's newly launched Tanager-1 satellite has already helped industry operators identify methane plumes across three continents. These discoveries feed into NASA's newly launched Earth Information Center Portals, where agencies collaborate with end users to accelerate innovative solutions. Also this year, JPL spearheaded the launch of the U.S. Sea Level Change website, which helps coastal communities prepare for rising waters with cutting-edge science and adaptation strategies.

READ MORE

LEFT: LANDFILL-BASED METHANE PLUME DETECTED BY CARBON PLUME MAPPER OVERLAID ON A DATA CUBE
COVER: EMIT HYPERSPECTRAL IMAGE OF THE AMAZON RIVER



Technology



How do we teach a Mars rover to think for itself?

JPL's Perseverance rover flexed new decision-making muscle in 2024 through Simple Planner, an AI tool that supercharges the rover's daily operations. Whether adjusting equipment warm-up times in Mars' frigid mornings, taking energy-saving naps, or starting drives sooner when previous tasks finish early, the rover can now adapt its schedule to changing conditions. First deployed in late 2023, Simple Planner is showing how AI empowers robots to juggle ambitious science goals with real-world constraints. This opens the door to smarter, self-directed robots that can tackle ever more ambitious exploration across the solar system.

READ MORE

SIMPLE PLANNER ROVER TRACKER:

7,495	12.5	70k+
ACTIVITIES EXECUTED	KILOMETERS TRAVELED	IMAGES TAKEN

How do we break free from traditional spacecraft design?

During 2024, JPL validated an innovative approach to spacecraft design called "topology optimization," using physics-based simulations to discover structural possibilities that traditional engineering methods might never hit upon. Thanks to this innovative method, when Europa Clipper soared into space, it carried the first topology-optimized, 3D-printed aluminum bracket ever to meet NASA's exacting standards. That achievement is already propelling future missions forward, as JPL engineers apply these resource-efficient design techniques to develop everything from chassis to thermal systems for the autonomous Endurance lunar sample collection rover concept, blazing new paths to more ambitious space exploration.

READ MORE

IMAGE: TESTING FOR THE ENDURANCE ROVER IN THE ARROYO SECO NEAR THE JPL CAMPUS

Can we supercharge the brains of future NASA missions?

NASA's High-Performance Spaceflight Computing (HPSC) project is rewriting the rules of space exploration — developing a next-generation flight computing system that can address computational performance, power management, fault tolerance, and connectivity needs of NASA missions through 2040 and beyond. Leveraging the benefits of industry partnerships, JPL is leading the development of this cutting-edge computing system, which packs a 100x performance boost compared to current tech, is built to thrive in the brutal extremes of space, and combines raw power with ultra-efficiency. After making it through critical design, verification, and testing in 2024, HPSC is many steps closer to reality, soon to be a critical building block of NASA's boldest exploration pursuits.

READ MORE

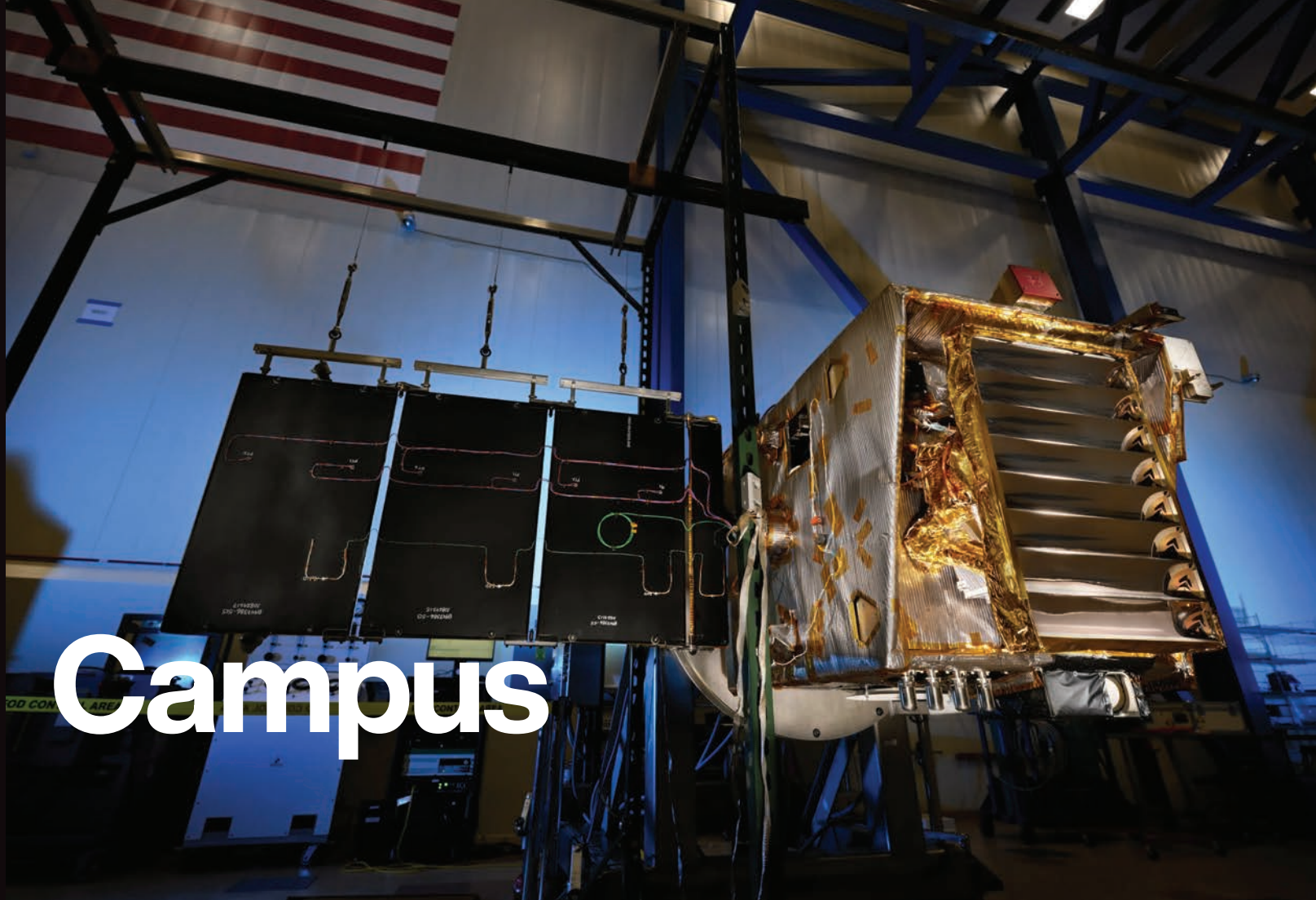
IMAGE: ARTIST CONCEPT SHOWING HPSC IN USE ON A HYPOTHETICAL MISSION TO SATURN'S MOON, TITAN

Can we hear whispers from the beginning of time?

Astrophysics technology continued expanding at JPL and Caltech in 2024 with significant strides in ultra-sensitive light detectors called Microwave Kinetic Inductance Detectors (MKIDs), that can sense the faintest signals from the birth of the universe. With higher pixel counts and improved sensitivity compared to previous technologies, these detectors can better trace echoes of cosmic inflation — the universe's runaway early expansion. The technology is advancing into far-infrared wavelengths, an understudied region of the spectrum, as JPL gears up for the proposed PRIMA mission, which would illuminate how galaxies and solar systems grow. These advances establish MKIDs as an essential technology for probing the mysteries of our cosmic origins.

READ MORE

ABOVE: CLOSE-UP IMAGE OF A LOW FREQUENCY KID RESONATOR
COVER: A PROTOTYPE SINGLE-CHIP SPECTROMETER OPERATING IN THE MILLIMETER-WAVE REGIME



Campus

How do we redefine space innovation?

This year, JPL and Caltech launched the Brinson Exploration Hub, rewriting the future of space exploration with a game-changing $100 million investment from the Brinson Foundation. The Hub provides teams of scientists and engineers from campus and Lab with access to funds and facilities to develop, test, and implement novel scientific concepts and instrumentation on faster timescales and at lower costs than is possible through conventional means. Based at Caltech, the Hub furthers collaboration between researchers on campus and at Lab while offering students hands-on experience and building a new generation of space-savvy leaders. It's the new home for projects that push boundaries, embrace risk, and deliver scientific breakthroughs, empowering innovation now.

READ MORE

IMAGE (L TO R): MARK SIMONS, GARY BRINSON, SUZANN BRINSON, LAURIE LESHIN, THOMAS F. ROSENBAUM, AND DAVID TIRRELL

What can we learn from a better view of crashing stars?

NASA's UVEX mission, selected in February 2024, represents a leap forward in ultraviolet astronomy. The space telescope, set to launch in 2030, is led by Caltech, and powered by JPL's advanced detector systems. Once it's surveying the sky, UVEX will revolutionize our view of the cosmos. Its powerful UV spectrograph and rapid-response capabilities will capture the aftermath of interstellar collisions — like neutron star mergers that send gravitational waves rippling through space. It aims to crack open the secrets of galaxy evolution and star formation like never before. With UVEX, JPL energizes NASA's Medium-Class Explorer program and demonstrates the Lab's skill at developing ambitious yet targeted campaigns to understand the universe.

READ MORE

IMAGE: RENDERING OF MERGING NEUTRON STARS, A TARGET OF INTEREST FOR THE UVEX MISSION

What changes do we discover by looking beneath the surface?

Caltech researchers, with support from JPL, announced new insights in 2024 about surprising ways that melting Antarctic ice shelves are connected. Using historical records from sensors carried by seals and new data from undersea gliders, they traced currents that carry meltwater across the Antarctic coast. These pathways reveal how meltwater from one shelf intensifies melting elsewhere, triggering a domino effect across the region. This bold research blends cutting-edge tech and fearless curiosity to expose the hidden mechanics of Earth's changing systems. As the oceans continue to warm due to climate change, an improved understanding of processes near the Antarctic coast is needed to predict future rates of global sea level rise.

READ MORE

IMAGE: OCEANOGRAPHERS RUN THROUGH A SERIES OF TESTS IN PREPARATION FOR THE RELEASE OF A SEAGLIDER INTO THE WEDDELL SEA
CREDIT: ANDREW THOMPSON

Can tiny explorers unlock big secrets of the Moon?

Expected to launch in 2025, Lunar Trailblazer is a dorm fridge-sized powerhouse that proves big discoveries don't require a big spacecraft. After completing environmental and flight software tests in 2024, the Lunar Trailblazer satellite, armed with cutting-edge instruments, is set to create the most detailed maps of lunar water ever. As part of NASA's SIMPLEx program, the mission harnesses Caltech's scientific leadership and JPL's mission management expertise. The target? The Moon's most mysterious regions, from sun-scorched surfaces to permanently shadowed craters. Using advanced infrared technology, Lunar Trailblazer will track down water in all its forms — crucial intel for future explorers.

READ MORE

LEFT & COVER: LUNAR TRAILBLAZER UNDERGOES TESTING AND VERIFICATION
CREDIT: LOCKHEED MARTIN

National Aeronautics and Space Administration

Communications and Education

How do scientific curiosity and artistic expression connect us to nature?

In collaboration with the City of Glendale and Getty's PST art initiative, The DesignLab Studio at JPL produced "Blended Worlds: Experiments In Interplanetary Imagination," an art-meets-science exhibit at the Brand Library & Art Center. Through a series of mind- and universe-expanding installations, ten artists collaborated with JPL scientists and engineers to explore how empathy and connectedness can reveal unknown worlds and inspire innovative ways to nurture them. "Blended Worlds" invited visitors to discover what space smells like, to watch tall grass swept by Martian winds, and to reflect on the vibrant aurorae of a geomagnetic sunset on a distant exoplanet — fostering a renewed sense of wonder and curiosity toward our planet and cosmos.

READ MORE

THE JPL PST EXHIBIT GARNERED:

294
MEDIA MENTIONS IN DIGITAL NEWS

12.4 million
POTENTIAL VIEWERS REACHED BY BROADCAST

How can our technology create global inspiration?

In 2024, JPL continued to support the NASA-wide website modernization effort, which slashed the number of public-facing websites to create a bold, unified online presence that blends cutting-edge design with seamless functionality. Crucially, prior to the total solar eclipse on April 8, 2024, JPL's web team implemented a major under-the-hood upgrade to NASA's primary science website and supported technology efforts across multiple NASA centers to ensure websites were prepared for the high-traffic event. During the eclipse, science.nasa.gov seamlessly hosted a record-setting 14 million views, demonstrating high performance with zero signs of instability.

READ MORE

IMAGE: NASA'S EYES ON THE SOLAR SYSTEM SHOWCASED AN INTERACTIVE SIMULATION OF THE TOTAL ECLIPSE

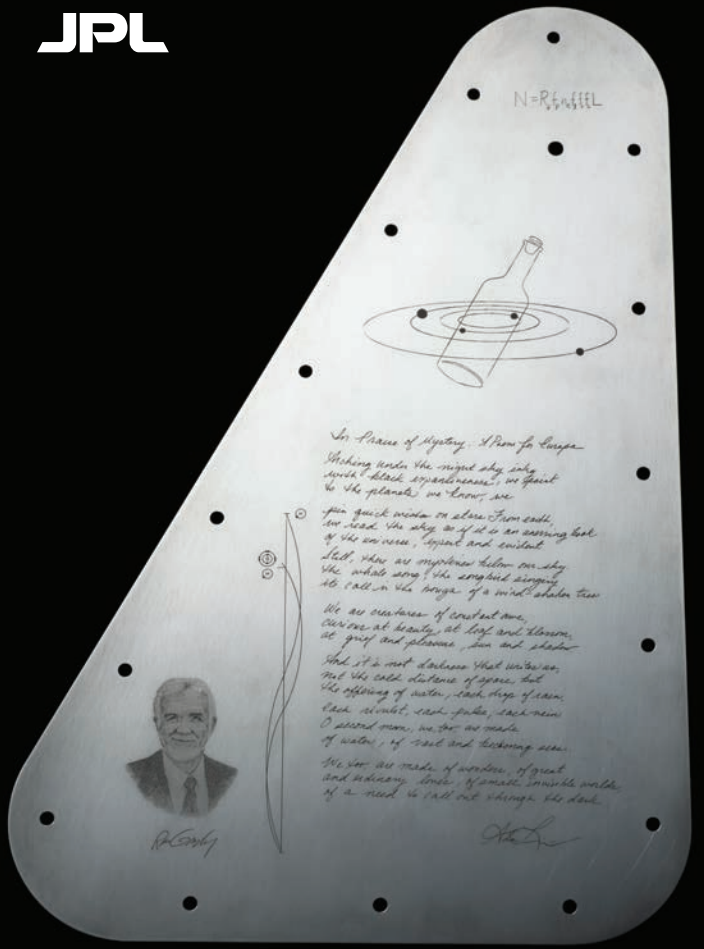
What fuels JPL's exploration of the cosmos?

Behind the daring and history-making missions illuminating our cosmos are the people and experiences that make the Lab extraordinary, where innovation is fueled by human connection and celebration. From a vibrant Cultural Festival celebrating our heritage to the LA Dodgers' "JPL Night" with STEM outreach to thousands of students, JPL staff fostered a deep sense of community in 2024. The Lab's annual Halloween birthday celebration showcased JPLers' zany space-themed creativity and kicked off our yearly United Way Giving Campaign. Finally, as Europa Clipper departed on its intrepid journey, thousands of JPLers, friends, and family gathered worldwide to witness history and celebrate what unites us — Daring Mighty Things Together.

READ MORE

IMAGE: JPLERS WAVE TO THE CAMERA PAN ON THE JPL DODGERS NIGHT
CREDIT: DODGERS

JPL



www.nasa.gov

Who will join us on our journey into the great unknown?

In the build-up to Europa Clipper's launch, imaginative outreach campaigns became an interplanetary phenomenon — literally. In a first-of-its-kind initiative, over 2.6 million people around the world sent their names on a special Message in a Bottle microchip aboard the spacecraft for the 1.8 billion-mile journey to Jupiter's moon Europa. The chip was attached to the Europa Clipper Vault Plate, a piece of tantalum etched with art and symbolism, including U.S. Poet Laureate Ada Limón's "In Praise of Mystery," which blends the soul of the mission's scientific goals and humanity's spirit of exploration. Beyond these campaigns, JPL rallied the world through roadshows, social media campaigns, and interactive events to join us on our quest into the icy unknown.

READ MORE

LEFT: INNER SIDE OF THE EUROPA CLIPPER VAULT PLATE
COVER: MEDIA DAY FOR EUROPA CLIPPER PRIOR TO LAUNCH

JPL TODAY | 2024

JPL YEAR IN REVIEW

National Aeronautics and Space Administration

JPL Today

Budget and Workforce

5,457 — **Number of JPL employees**

839 — **Number of Interns at JPL in 2024**

$2.66 billion — **FY 2024 Budget:**

$2.5 billion NASA funding
$160 million non-NASA funding

PROFESSIONAL DISCIPLINE

- Science & Engineering 63%
- Business & Administration 18%
- Information Technology 6%
- Program & Project Leadership 5%
- Other 8%

HIGHEST EDUCATIONAL ATTAINMENT

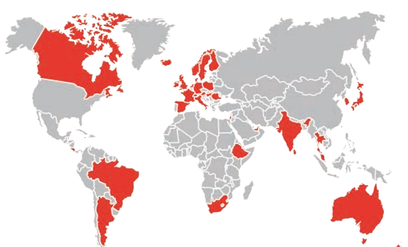
- Master Level 35.9%
- PhD 23.6%

Core Competencies

- Formulate and execute complex space missions
- Planetary landing expertise including Mars
- Advanced autonomy and robotics
- Deep space communications and navigation
- Finding and characterizing exoplanets
- Microwave and radar instrumentation
- Infuse innovative technology into space applications

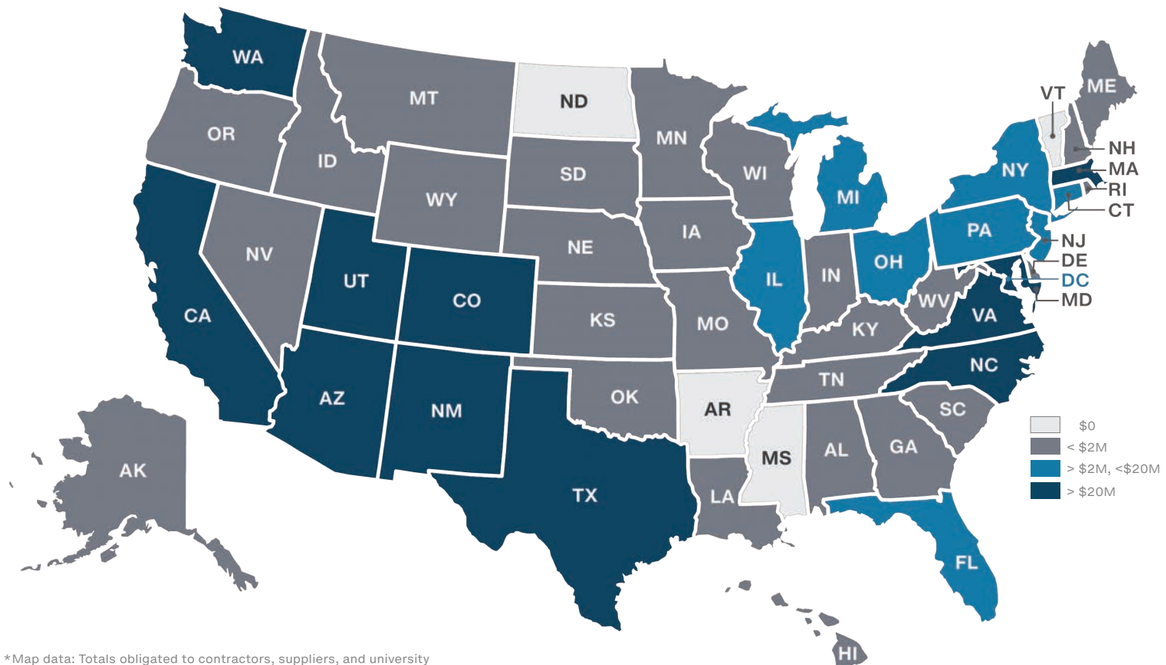
International Impact

JPL collaborates on missions, instruments, and deep space communication with space agencies and partners across the world.



Major Contract Partners

JPL's subcontractors, suppliers, and university partners drive their local economies in almost every state, with a total annual impact approaching $1B.



*Map data: Totals obligated to contractors, suppliers, and university partners for FY24, as tracked by JPL Small Business Programs Office

JPL

Honors and Recognition

INSTITUTIONAL

Deep Space Optical Communications
TIME's Inventions of 2024

Europa Clipper
TIME's Inventions of 2024

INDIVIDUAL

John R. Brophy
National Academy of Engineering Class of 2024

Bonnie J. Buratti
American Astronomical Society Fellow

Dariush Divsalar
National Academy of Engineering Class of 2024

Richard Hofer
Class of 2024 American Institute of Aeronautics and Astronautics Fellow

Douglas C. Hofmann
Fellow of the National Academy of Inventors

Glenn Orton
American Astronomical Society Fellow

Sue E. Smrekar
Fred Whipple Award and Lecture

Graeme Stephens
The Carl-Gustaf Rossby Research Medal

Current Missions

20 Major Missions in Space*

ASTEROIDS & COMETS
Psyche/DSOC

EARTH
GRACE-FO
Jason-3
OCO-2
PREFIRE
Sentinel-6 Michael Freilich
SMAP
SWOT
Multiple Instruments on the ISS

INTERSTELLAR SPACE
Voyager 1
Voyager 2

JUPITER
Europa Clipper
Juno

MARS
Mars Odyssey
Mars Reconnaissance Orbiter
Mars Science Laboratory (Curiosity)
Mars 2020 (Perseverance)

STARS & GALAXIES
Euclid (ESA mission with NASA-JPL contributions)
NuSTAR
Cold Atom Laboratory
MIRI Instrument (James Webb Space Telescope)

*as of December 2024

National Aeronautics and Space Administration

Jet Propulsion Laboratory
California Institute of Technology
Pasadena, California

nasa.gov

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