



SPACE FOUNDATION

# 2022 | Annual Report



**Advocating for Innovation.**

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# A Letter from Space Foundation CEO Thomas E. Zelibor



When Space Foundation started in 1983, it did so with the purpose of convening national stakeholders in the business, government, military, and education communities to better understand the emerging opportunities and rewards of space. Four decades later, our mission has evolved into a global endeavor serving an expansive space ecosystem that is securing nations and economies, creating jobs and inspiration, and bringing more benefits to Earth.

Today, Space Foundation, a 501(c)3 nonprofit, is a premier leader in information, education and collaboration, known worldwide as a trusted partner helping a diversity of stakeholders understand and access space opportunities. As an ambassador for the global space community, our mission is in part to share and show how space benefits us all. Indeed, there are more space rewards found on Earth than in orbit, and those rewards are everywhere: life-changing technologies, environmental awareness, services that connect economies and infrastructures, assets that provide national security, and opportunities for collaboration.

As the demand for space access and space-enabled products and services grows, so does the need for new generations of talent who can continue developing the global space ecosystem. Space Foundation is a resource for students, educators, entrepreneurs, policymakers and anyone else who is seeking their place within the space community. Industries, nations and alliances are looking for their place as well, and to do so, stakeholders need to be aware of and informed about the changing developments in this dynamic environment. Space Foundation is proud to be recognized as a resource for space analysis, skills development and life-long learning, while bringing people of every background and interest together.

Our mission today is to continue serving as a vital resource to help propel the space ecosystem toward its greatest potential – not just for the success of organizations operating in space but for the benefit of all people on Earth. With the generous support of our corporate members, donors, grants and other resources, Space Foundation can fulfill that mission. And we know that the best is yet to come.



Thomas E. Zelibor

# Reaching the Next Generation of Space Leaders

The future of space starts in the classroom, and in 2022, Space Foundation expanded its programming for students, teachers, and young space professionals to develop science, technology, engineering, and mathematics (STEM) and 21st Century essential skills skills that will enable them to find their place in the global space community. Through Space Foundation Discovery Center, virtual and in-person events, and a host of educational resources, we continue to deliver on our mission to inspire and educate tomorrow's space leaders and innovators.

## Helping Teachers Reach the Next Generation of STEM and Space Leaders

Educators play a vital role in teaching and inspiring future generations of STEM and space professionals. To support their essential work, Space Foundation provides programming, materials, and events that equip teachers with the resources and knowledge they need to help their students thrive. Among these efforts is Space Foundation's International Teacher Liaison program – a global network of elite educators working to inspire and empower new generations of space professionals. Thanks to the support of Lockheed Martin and the Miller-Wood Foundation, Space Foundation provides more than 300 teachers in more than 20 countries the knowledge, lesson plans and other assets to help their peers in their home countries use space as a vehicle for exciting students about STEM subjects.

In 2022, the International Teacher Liaison program welcomed new teachers from nine nations outside the United States, including Australia, Brazil, Botswana, Canada, Ghana, Indonesia, Portugal, South Africa and Turkey. Through a competitive application process, educators were selected for their active promotion of space and STEM education in the classroom.



## Launching a New Resource for Commercial Space

At Space Foundation, we believe there is space for anyone who wants to be a part of this expanding global community. To open those possibilities, Center for Innovation and Education is a lifelong learning platform focused on workforce development and expanding economic opportunity. In 2022, the Center launched the Space Commerce Institute, an initiative to facilitate access, business opportunities, and growth in the space ecosystem for university students, entrepreneurs, businesses, and professionals.



Through its four pillars of service, Space Commerce Institute gives participants opportunities to learn from space leaders and experts about navigating the evolving space ecosystem. They include:

- **Space Foundation University:** A resource for entrepreneurs and aspiring space professionals seeking knowledge to access space market opportunities. Seasoned space industry professionals teach courses, share lessons and insights from real-world experience, and guide students through experiential learning scenarios.
- **Professional Development:** For next-generation and mid-level space professionals looking to enhance their skill sets, Space Commerce Institute offers professional development programming, including upskilling and leadership courses, to close the gap in the critical capabilities necessary for career advancement.
- **Consulting Services:** Leveraging Space Foundation’s extensive global network of experts, Space Commerce Institute offers consulting services for organizations entering or already competing in the space ecosystem. Space Foundation helps new and growing companies target opportunities and improve business execution.
- **Specialized Programming:** Every business is different, and in the space economy, some opportunities require specialized support. Space Commerce Institute provides tailored services for companies that require custom programming to fit their needs and objectives.

Space Commerce Institute is already launching programs and inking agreements with partners to help professionals grow their commercial space success. In April, a new partnership was announced with the MILO Space Science Institute led by Arizona State University to offer Space Studio Accelerator, a 12-week program designed to increase participation in space exploration and commerce.

Space Commerce Institute also launched on-demand virtual workshops and courses looking at the space ecosystem, emerging trends, and strategies for growth. It partnered with The Alan B. Levan | NSU Broward Center of Innovation for the first South Florida Space Day event, part of an ongoing program, and signed an MOU with Global Entrepreneurship Network – Space (GEN Space) to explore opportunities to support the space workforce and entrepreneurial supply chain.

Expanding its reach internationally, in December, Space Commerce Institute partnered with the Italian Embassy in Washington, D.C., the Italian Trade Agency (ITA), the Italian Space Agency (ASI), the U.S. Chamber of Commerce, and The George Washington University for the first U.S.-based Italian National Space Day.



## Celebrating 10 Years of Space Education at the Discovery Center

In 2022, Space Foundation Discovery Center in Colorado Springs, CO, celebrated its 10th anniversary. As a hands-on, interactive space and science center, Discovery Center focuses on inspiring, educating, and preparing the next generation of explorers and innovators for the future. Over the past decade, Discovery Center has welcomed more than 300,000 visitors to explore more than 20 exhibits and 1,800 artifacts from the history of space exploration.



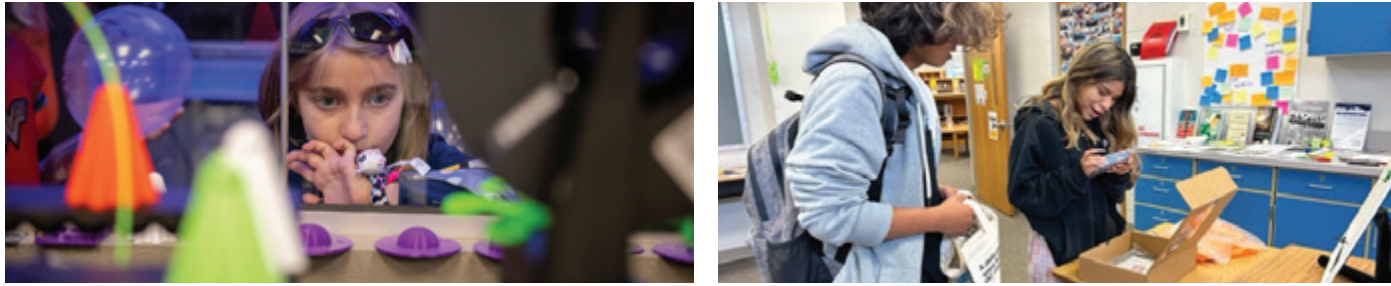
As it looks to its next decade of inspirational service, Space Foundation Discovery Center is expanding its existing relationships while building new ones to support its continued growth and service to the region.

In December, Space Foundation announced a \$500,000 donation from El Pomar Foundation to support renovations to Discovery Center, including updating critical infrastructure, gallery displays and experiences, 3D printer and drone labs, an updated Mars Robotics lab, and much more. As a nonprofit, pursuing our mission is made possible through the generous support of our donors.

In support of our home state of Colorado, Raytheon Intelligence & Space started a new partnership with Space Foundation to expand our STEM programs for students, teachers and young professionals across the state. Funded with a generous \$50,000 grant from Raytheon Intelligence & Space, Space Foundation launched the Discovery Center Field Trip Scholarship, helping K-12 students and teachers from Colorado’s Title 1 schools to visit Discovery Center.

In furthering its commitment to education and space awareness, in 2022, Space Foundation introduced new programs to reach students, families, teachers and space professionals.





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- **Marking World Space Week:** In October, Space Foundation joined in the global recognition of World Space Week 2022 by offering several programs virtually and at Discovery Center. With its theme of “Space and Sustainability,” participating students, teachers, and families learned how space contributes to bettering life on Earth and how future explorers will use some of those lessons and technologies to live and work in space for extended periods.
- **Imagining Careers for a Moon Colony:** During World Space Week, Space Foundation also launched its Moon Colony Kit project for students from Title 1 schools. Developed in collaboration with NASA and The White House National Space Council and with principal sponsorship from AstroSapiens Foundation, the Moon Colony Kit includes resources, lesson plans, and events that allow students to explore 50 STEM careers necessary for developing a lunar colony. To help teachers use the kit, Space Foundation hosted a free nationwide teacher development event. To date, the project has reached more than 20,000 students.
- **Sending Student Art into Orbit:** To help inspire students to find an interest in space activities, Space Foundation, with the generous support of Boeing, announced, “Art in the Stars,” a program to send digitized student artwork into space aboard a future flight of Boeing’s CST-100 Starliner.
- **Learning from Real Space Explorers:** Beginning in February, Space Foundation offered its renowned Audience with an Astronaut program. The six-part series was co-sponsored by the U.S. Air Force Academy Science, Technology, Engineering and Mathematics Outreach Program. Free and open to anyone nationwide, the ongoing program features former NASA astronaut Lt. Col. Duane “Digger” Carey, USAF (Ret.), Q&A sessions and hands-on STEM activities.

# The Engines that Make Our Impact Possible

As a nonprofit organization, Space Foundation relies on philanthropic giving to fund our mission areas. The charitable heroes who contribute make our activities and impact possible. Every contributor has been a vital mission partner and an essential part of our growth and success as a world-renowned non-profit organization. In 2022, these efforts included:



## Special Campaign with Double the Impact

In honor of Memorial Day, Space Foundation partnered with Angels of America’s Fallen, a nonprofit organization providing services to children who have lost a parent serving in the military or as a first responder. During the campaign, every \$50 donated to Space Foundation funded an immersive STEM experience for a student. The donation also gifted a Discovery Center Passport membership to a child served by Angels of America’s Fallen. At the campaign’s close, 500 Space Foundation Discovery Center Passports were funded for Angels’ children, which meant every child served by Angels and on their waitlist received a Passport.

## INNOVATORS COUNCIL SPACE FOUNDATION

### Innovators Council Partners Make a Sustainable Difference

Space Foundation is proud to offer an avenue for philanthropic giving to a special group of supporters: businesses and corporations. Partners on Innovators Council, our corporate giving partnership program, fuel a lifelong love of learning, ignite an educated and equipped future workforce, and make space a place for everyone.



## Inspiring Students at All Ages

To help cultivate a space-ready workforce and instill a passion for STEM fields, Space Foundation continues to offer its Junior Space Entrepreneur Program (JSEP). The program teaches high school student entrepreneurs how to access the space industry by embarking on a hypothetical Mars mission. The lessons learned not only advance aspiring space exploration efforts but also share how entrepreneurial vision and innovation contribute to mission success.

Building on the success of JSEP, Space Foundation expanded its programming to include the Cadet Space Explorer Program (CSEP), which immerses middle-school students in the world of space technology and exploration. Cadets uncover the wonders and challenges of an Artemis-themed Moon mission, and using knowledge gained throughout the program, they develop a CubeSat proposal and prototype.

## Growing the Board of Directors at Space Foundation

To help guide and inform our efforts, in 2022, Space Foundation welcomed six new members to its board of directors:

- **John Hyten, USAF (Ret.)**, former vice chairman, U.S. Joint Chiefs of Staff
- **Jeff Ashby, USN (Ret.)**, former NASA astronaut and senior executive
- **Pascale Ehrenfreund**, president, International Space University (ISU)
- **Dr. Kam Ghaffarian**, executive chairman, Axiom Space
- **Thomas L. Wilson**, corporate vice president and president, Northrop Grumman Space Systems
- **Edward J. “Ed” Zoiss**, president, Space & Airborne Systems, L3Harris



### Swigert Society Provides for the Future

Swigert Society is a group of annual leadership investors. Named in honor of Colorado native and legendary Apollo 13 astronaut Jack Swigert, the society’s donors join our efforts to inspire the world and future generations to seek challenge, explore the unexplored, and gain a greater understanding of the universe. Investors in Swigert Society make significant and innovative opportunities a reality by providing funds that jumpstart key efforts where other funding is not always available.

## Grants Making an Impact

Government, foundation, and corporate grant funding drives new programming and the expansion of current initiatives. Grantors provide key resources to help serve underrepresented communities. In 2022, Space Foundation was awarded 16 grants totaling more than \$2 million that have funded a range of programs and activities. Grant donors included Booz Allen, L3Harris, Lockheed Martin, Northrop Grumman, Raytheon, U.S. Department of Defense, U.S. Department of Homeland Security and U.S. Air Force Academy, among others.



## Legacy Giving

Space Foundation is fortunate to have dedicated benefactors supporting our mission, including many who have chosen to secure its future through planned gifts. These generous donors have turned their passion for space and education into action by remembering Space Foundation in their estate plan. Members of this unique group share the common bond of philanthropy and understanding the need to provide for future generations. We invite you to join with other thoughtful philanthropists who share your dreams.

### Thoughts from Our Donors:

*“I’m inspired by people that continue to educate and teach young (or old) minds.”*

— Angela L.

*“Space is the now and the future. Our kids need to take us there.”*

— James B.

*“My son had the fortunate opportunity of being exposed to many STEM programs during his childhood, and I truly believe it makes a difference in a child’s life and gives them hopes and dreams that they might not otherwise experience.”*

— Amy W.



**Space Foundation proudly participates in Combined Federal Campaign.**

# Engaging the Global Space Community

There has never been a better time to be a part of the global space ecosystem. With more than 90 countries operating in space, Space Foundation's mission is more important today than ever before. In this new era of access and opportunity, Space Foundation is sought out to convene established and emerging space stakeholders to understand the trends, challenges and opportunities in the space ecosystem. With expanded programming, investments and engagements, including the renowned annual Space Symposium, Space Foundation continues to deliver on its mission to inform, educate and collaborate across the global space community.

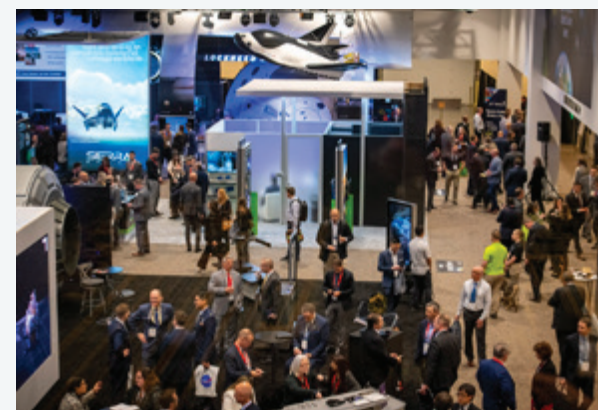
## Space Programming Year-Round with Symposium 365

Given constantly changing developments in the global space ecosystem and the need to convene today's space leaders, Space Foundation continued offering its virtual platform, Symposium 365. Expanding on the content offered at Space Symposium, Symposium 365's online resources provide space analysis, presentations from space stakeholders, and digital avenues to network and open new business opportunities year-round.

In 2022, Symposium 365's programming included the Space Matters series, which invites space policy influencers for monthly high-level conversations on emerging topics and trends within the global space ecosystem.



The 2022 episodes featured discussions with leaders such as former NASA Administrator Jim Bridenstine and former U.S. Congressman Robert Walker.



## Smashing Attendance at the Annual Space Symposium

Thousands of space professionals from around the world attended and watched the annual Space Symposium in Colorado Springs, CO. The event drew more than 11,000 attendees from 43 nations, including representatives from 15 space agencies, 20 top military space leaders, 235 exhibitors, and more than 220 speakers and presenters. By this, Space Symposium renewed its place as a global commons for business, government and other space community stakeholders to engage, connect and inspire.



## Forming International Relationships to Promote Space Education

Space Foundation sought out new partnerships and relationships in 2022 to promote space collaboration on the global stage. In April, Space Foundation announced a partnership and Memorandum of Understanding (MOU) with International Space University (ISU), a private nonprofit institution that is recognized by the French Ministry of Education as an institute of higher education. Through the partnership, both organizations coordinate space awareness and education programs focused on expanding diversity and entrepreneurial engagement in the space community.

Following on this collaboration, in September, Space Foundation signed an MOU with Singapore Space & Technology Limited (SSTL), providing a framework for broad cooperation and offering a gateway to education and information for space science and technology.



## Awarding Space Leaders

Each year, Space Foundation presents awards to honor people and organizations advancing space use and exploration and delivering the benefits on Earth. In 2022, Space Foundation was proud to award:

- General James E. Hill Lifetime Space Achievement Award to Joanne Maguire for her 38-year career at TRW (later Northrup Grumman) and Lockheed Martin, where she led programs for space customers (e.g., U.S. Air Force, NASA, NOAA), including the Mars Phoenix Lander, the JUNO mission to Jupiter, numerous GOES satellites, and the Orion contract.
- John L. “Jack” Swigert, Jr., Award for Space Exploration to NASA and the University of Arizona OSIRIS-REx team for their history-making mission that successfully reached the near-Earth asteroid Bennu and collected a sample for return to Earth, expected in September 2023.
- Douglas S. Morrow Public Outreach Award to Virgin Galactic, Blue Origin and SpaceX for their contributions to public space awareness, in part through the commercial human spaceflight missions throughout 2022.
- Space Achievement Award to the International Astronautical Federation (IAF) for its more than 70 years of work promoting dialogue, cooperation and collaboration among spacefaring nations, including through the annual International Astronautical Congress.



Space Foundation Board Chair, Dr. Kathryn Thornton, Joanne Maguire and Space Foundation CEO Tom Zelibor



Douglas S. Morrow Public Outreach Award to Virgin Galactic, Blue Origin and SpaceX

*Space Technology Hall of Fame® inductees included: the Beowulf computing cluster (developed by NASA’s Goddard Space Flight Center and commercialized by Penguin Computing); bubble detector technology (developed originally for the Canadian Space Agency by Bubble Technology Industries Inc.); and the CubeSat design standard (developed by the California Polytechnic State University CubeSat Lab and NASA’s Ames Research Center).*



## Participating in Space Events Worldwide

As a global space community leader, Space Foundation participates internationally in events and programs that advance collaboration in business, education, and partnerships. In September, Space Foundation CEO Tom Zelibor and Senior Vice President of Strategic & International Affairs Steve Eisenhart participated in the World Satellite Business Week conference in Paris. Zelibor led the four-person delegation to the 73rd International Astronautical Congress, and the team presented papers, reported at the Bureau and General Assembly meetings, and joined activities of the Space Generation Advisory Council.

Separately, Eisenhart participated in the International Astronautical Federation 70th Anniversary activities and Annual Spring Meetings of the IAF Bureau and committees. In May, he moderated a Heads of Agency panel at the first Global Conference on Space for Emerging Countries in Quito, Ecuador.

Space Foundation COO Shelli Brunswick moderated a July panel discussion on space innovation and global collaboration at the Islamic World Educational, Scientific and Cultural Organization (ICESCO) International Aerospace Symposium. She spoke again to the organization in October during ICESCO’s International Symposium on Space Sciences. Throughout the year, Brunswick has published articles in SpaceNews on the progress of space agencies in Brazil, Canada, Chili, New Zealand and South Africa.



# Collaborating with Industry and Government

To support and propel the global space community, Space Foundation works with government organizations and commercial enterprises to drive access and opportunity across the space ecosystem.

## Fueling Space Literacy in Government

As the global space ecosystem rapidly changes, government leaders, policymakers and the public need to understand the opportunities and challenges of today's space environment. In its fourth season, Space Foundation's online series "Start Here for Space" offered education for those who are new to space issues and related space policy topics. Designed for Capitol Hill and executive branch personnel, the series has featured episodes on nuclear propulsion, space domain awareness, STEM education and international space agencies. Space Foundation also supports space knowledge among government leaders and policymakers by delivering each quarterly edition of The Space Report to members of Congress, federal space oversight offices and other key decision makers.



## FAGA FORUM

SPACE FOUNDATION

### Classified Programs for Sensitive Space Matters

In October, Space Foundation hosted the Faga Forum on Space Intelligence, a classified one-day event for the intelligence community, government officials and industry experts. Topics at the 2022 forum included norms of operations between the intelligence community and the military, the role of the commercial space industry in Ukraine, and implications for the future of warfare. Speakers included Frank Calvelli, assistant secretary for Space Acquisitions and Integration, U.S. Air Force; Kristina Harrington, director of SIGINT Systems Acquisition Directorate and Cadre executive director, National Reconnaissance Office; and John Hill, deputy assistant secretary of defense for Space and Missile Defense.

# The Space Report

## The Authoritative Guide to Global Space Activity



The global space community saw another record-breaking year in 2022, and Space Foundation's The Space Report delivered access and insight to the people, data, and research that explained the dynamic missions and investments. The global space economy topped \$469 billion, continuing its steady march toward an anticipated \$1 trillion economy. There was a historic number of successful missions in 2022, with a launch failure rate of just 3.8%. The United States operated nearly half of all orbital launches with 87 launch attempts, a 71% increase from a year prior.

Spacecraft operators worldwide deployed 2,354 spacecraft, a 36% jump from 2021. More than 90% of these deployments were commercial space missions, and the mass lofted into orbit was nearly double that in 2021. These accomplishments came alongside macroeconomic trends signaling challenges ahead. Annual trends in the satellite and space markets in 2022 reflected factors such as an 18% drop in the S&P 500, soaring global inflation and tightening monetary policy.

Since its start more than a decade ago, The Space Report has become one of the most recognized and often-quoted sources of information about the happenings and developments in the global space ecosystem. From the White House, the U.S. Congress, NASA, and other domestic and international government agencies, to notable media outlets such as CNBC, the Wall Street Journal, Bloomberg, Forbes, and others, The Space Report is one of the most trusted resources to understand the dynamic global space ecosystem. In 2022, Harvard Business Review, the Center for Astrophysics, and the University of North Dakota purchased annual online memberships, joining universities, space agencies, and space companies around the world that subscribe quarterly and annually.

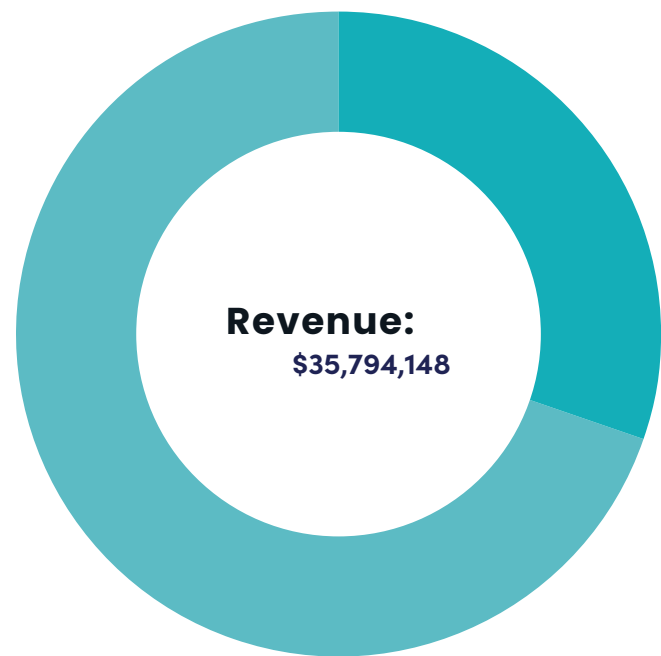
### The Space Economy Scorecard

AS OF FEBRUARY 10, 2023

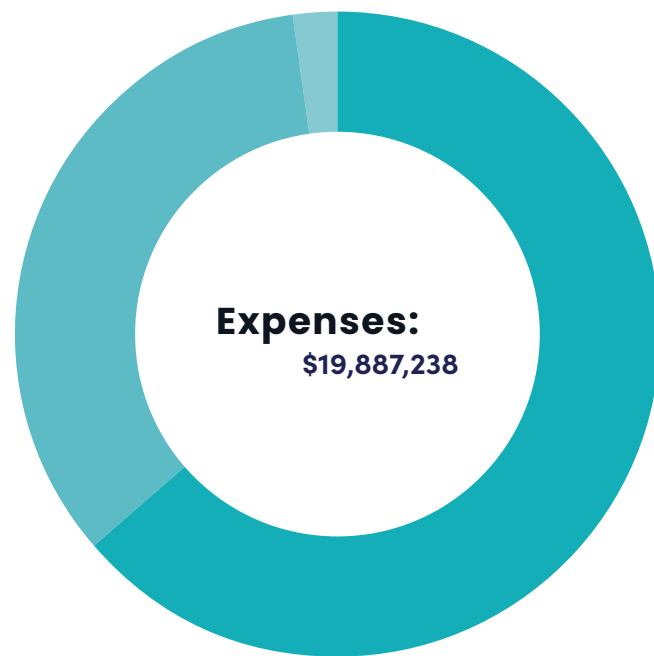
<b>No. of Nations Operating in Space (2023)</b>		<b>91</b>	<b>↑ 5% YOY</b>
<b>Size of the Global Space Economy (2020)</b>		<b>\$469 billion</b>	<b>↑ 9% YOY</b>
<b>Commercial Space Revenue (2021)</b>		<b>\$362 billion</b>	<b>↑ 6% YOY</b>
<b>Global Government Space Program Spending (2021)</b>		<b>\$107 billion</b>	<b>↑ 19% YOY</b>
<b>Global Space Investment (since 2013)</b> (Source: Space Capital)		<b>\$272.3 billion</b>	
<b>Avg U.S. Private Space Employment (2021)</b>		<b>198,573</b>	<b>↑ 3% YOY</b>
<b>No. of Global Launch Attempts (2022)</b>	<b>HIGHEST IN HISTORY</b>	<b>186</b>	<b>↑ 28% YOY</b>
<b>No. of Payloads Deployed (2022)</b>	<b>HIGHEST IN HISTORY</b>	<b>2,354</b>	<b>↑ 36% YOY</b>
<b>Avg. Number of Payloads per Launch (2022)</b>	<b>+694% OVER 10 YEARS</b>	<b>12.7</b>	<b>↑ 6% YOY</b>
<b>Humans Who Have Crossed the Kármán Line (2022)</b>		<b>629</b>	<b>↑ 6% YOY</b>

# 2022 Financials at a Glance

As a 501(c)3 nonprofit, Space Foundation preserves a sustainable balance between earned program income, contributions, grants and other investments. Our annual expenses are focused exclusively on our mission to be the preeminent advocate and gateway for trusted information, lifelong education, and seamless collaboration for all people and organizations engaging in space exploration and space-inspired industries that define the global space ecosystem.



● Contributions and grants	\$10,953,917	31%
● Earned Program income	\$25,115,181	70%
● Investment and other	(\$274,950)	-1%



● Program	\$12,665,066	64%
● Management/Operations	\$6,792,402	34%
● Fundraising	\$429,770	2.2%

**Change in Net Assets: +\$15,906,910**

Total Net Assets: \$22,203,340

**Bettering Life on Earth.**



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