1

WELCOME TO THE COMMUNITY OF PRACTICE WEBINAR SERIES

Keep your mics muted and cameras off

- Helps ensure a clean recording

The recording will be posted online

- nasa.gov/flightopportunities
- Resources menu
- Community of Practice webinars

Please engage!

- Post your questions in the chat

2

ABOUT THE COMMUNITY OF PRACTICE WEBINAR SERIES

An opportunity to hear from subject matter experts on best practices for preparing for suborbital flight tests

Researchers, program staff, and flight providers

Connecting and sharing information and lessons learned to:

- Increase the impact of suborbital flight tests
- Transfer best practices
- Optimize the experience of current and prospective program participants

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3

JOIN US FOR COMMUNITY OF PRACTICE WEBINARS

Subscribe to our newsletter for updates on future webinars!

https://www.nasa.gov/directorates/spacetech/flightopportunities/newsletter

Future webinars

- Webinars are usually held 1st Wednesday of each month at 10 a.m. PT.
- Topics are announced in the Flight Opportunities newsletter and website.
- Session recordings are posted on the Flight Opportunities website.
- Let us know session topics you would like to see covered.

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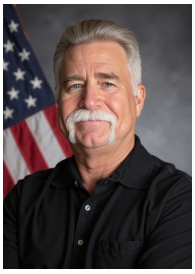
4

TODAY'S SPEAKERS



Greg Peters
Program Manager (Acting)
NASA's Flight Opportunities program

Lynn Van Deventer
Open Innovation Advisor
NASA's Prizes, Challenges, and Crowdsourcing program

Macarena Parra, Ph.D.
Technologist
NASA's Flight Opportunities program

Daniel Walsh
CERISS Program Executive
NASA's Biological and Physical Science Division

Stephan Ord
Chief Technologist
NASA's Flight Opportunities program

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5

WEBINAR AGENDA

1. Program introductions
2. What's the difference between a prize and a grant? How can NASA personnel participate?
3. Details of the TechLeap Prize: Space Technology Payload Challenge
4. More about CERISS (Commercially Enabled Rapid Space Science) initiative
5. Tips for preparing a strong application

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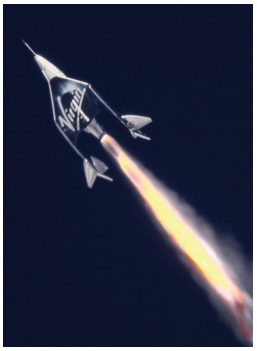
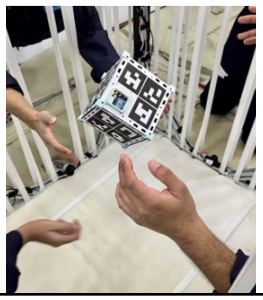
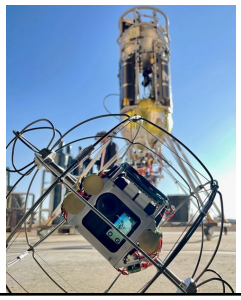
6

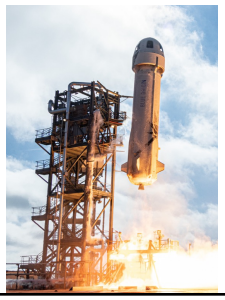
NASA'S FLIGHT OPPORTUNITIES PROGRAM



The **Flight Opportunities** program rapidly demonstrates promising technologies for space exploration, discovery, and the expansion of space commerce through suborbital and hosted orbital testing with industry flight providers.

- Opportunities for external researchers via prizes/challenges and solicitations
- Access to flight tests for NASA-funded researchers and other government agencies
- Part of the Space Technology Mission Directorate
- Based at NASA's Armstrong Flight Research Center

7

PRIZES, CHALLENGES AND CROWDSOURCING

8

WHAT'S THE DIFFERENCE BETWEEN A PRIZE AND A GRANT?

Prizes

- Incentivizes specific outcomes
- Awards provided after competition goal is met
- Funding not tied to financial reporting
- Open to participants who may be new to a field

Grants

- Funding is upfront
- Funding tied to financial reporting
- Often offered to specific entities with proven track records

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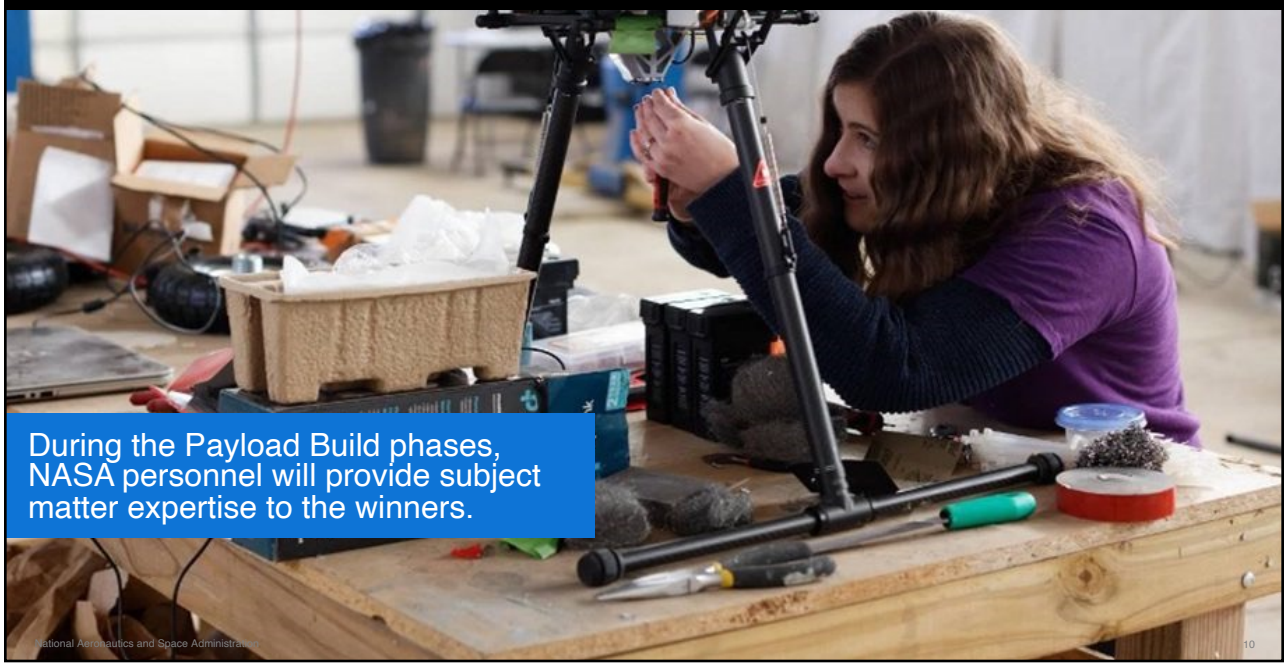
9

NASA PERSONNEL PARTICIPATE AS SUBJECT MATTER EXPERTS (SMEs)



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10

NASA TECHLEAP OVERVIEW

Rapidly identify and develop technologies of significant interest to NASA through a series of challenges

- Cash prize and opportunity for a flight test
- Open to qualified businesses, universities, entrepreneurs, and other innovators

NASA TechLeap PRIZE

1 Autonomous Observation Challenge
Autonomously detect, locate, track, and collect data on transient terrestrial events
COMPLETED

2 Nighttime Precision Landing Challenge
Detect hazards from an altitude of ≥250m and process the data in real time to generate a terrain map
COMPLETED

3 Universal Payload Interface Challenge
Optimized interface system that enables rapid and seamless integration of diverse payloads onto various flight vehicles
IN PROGRESS

4 Space Technology Payload Challenge
Advance transformative solutions and develop a flight-ready payload to address NASA's technology shortfalls
NEW

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11

MORE ABOUT TECHLEAP NO. 4: SPACE TECHNOLOGY PAYLOAD CHALLENGE

Prizes worth up to $500,000 + the opportunity for a flight test

- Up to 9 winners

Advancing technologies through flight testing

- Suborbital, hosted orbital, and parabolic flights
- Prioritizing payloads that are well suited to flight testing

Meeting future exploration, science, and other mission needs

- A wide range of STMD technology shortfalls
- NASA's Commercially Enabled Rapid Space Science Initiative

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Credits (top to bottom): Astrobotic, Zero Gravity Corporation, Varda Space Industries, Virgin Galactic, SpaceWorks 12

12

ELIGIBILITY FOR SPACE TECHNOLOGY PAYLOAD CHALLENGE

Who can apply?

- Individuals who are U.S. citizens or permanent residents
- Organizations that maintain a primary place of business in the U.S.
- Teams of eligible individuals or organizations, led by a U.S. citizen or permanent resident

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Credits (top to bottom): Blue Origin, Astrobotic, World View, Tyvak Nano-Satellite Systems, Zero Gravity Corporation 13

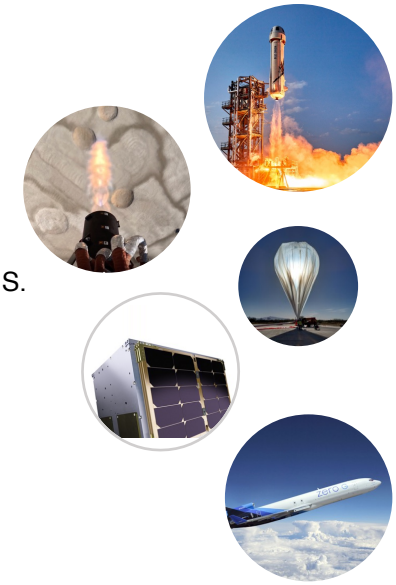
13

ELIGIBILITY FOR SPACE TECHNOLOGY PAYLOAD CHALLENGE

Who can apply?

How can foreign citizens participate?

- As an employee of a U.S. organization and reside in the U.S.
- As a full-time student at a U.S. university or college and reside in the U.S.
- Owners of less than 50% of a U.S. organization and reside in the U.S.



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Credits (top to bottom): Blue Origin, Astrobotic, World View, Tyvak Nano-Satellite Systems, Zero Gravity Corporation 14

14

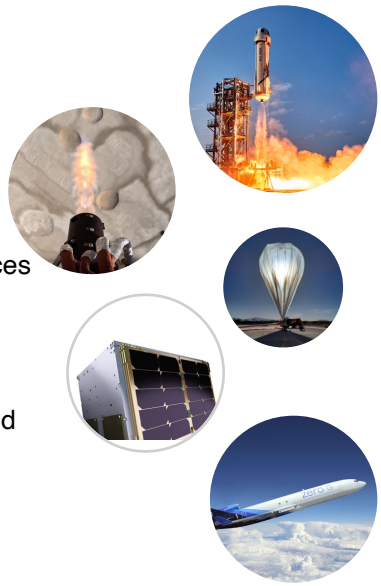
ELIGIBILITY FOR SPACE TECHNOLOGY PAYLOAD CHALLENGE

Who can apply?

How can foreign citizens participate?

What about government employees, contractors, and FFRDCs?

- Government employees may participate if they do not rely on resources available to them due to their employment
- FFRDC employees may participate if they do not rely on resources available to them due to their employment
- Contractors may participate if the technology proposed is different and not already federally funded



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Credits (top to bottom): Blue Origin, Astrobotic, World View, Tyvak Nano-Satellite Systems, Zero Gravity Corporation 15

15

TIMEFRAME: KEY DATES FOR APPLICATION

Tuesday, December 10	Wednesday, February 12 at 2:30 p.m. ET (11:30 a.m. PT)	Tuesday, March 4 by 5:00 p.m. ET (2:00 p.m. PT)	Thursday, March 6 at 3:30 p.m. ET (12:30 p.m. PT)	Thursday, March 20 by 5:00 p.m. ET (2:00 p.m. PT)
Opening date	**Q&A**	**Registration deadline**	**Q&A**	**Submission deadline**

Register and view more info:
https://stpc.nasatechleap.org

Email inquiries to:
questions@nasatechleap.org

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16

TIMEFRAME: SELECTION AND PROJECT SCHEDULE

July 2025
Winners selected
$200,000

July-Nov. 2025
Payload Build Round 1
$200,000

Dec. 2025-April 2026
Payload Build Round 2
$100,000

Summer 2026
Flight Test
Vehicle TBD by NASA

Register and view more info:
https://stpc.nasatechleap.org

Email inquiries to:
questions@nasatechleap.org

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17

FLIGHT PROVIDERS FOR THIS CHALLENGE

Suborbital Rocket-Powered Vehicles
- Astrobotic
- Blue Origin
- Rocket Lab USA Inc.
- Virgin Galactic

High-Altitude Balloons
- Aerostar International LLC
- Angstrom Designs
- World View Enterprises

Parabolic Flights
- Zero Gravity Corporation

Orbital Platforms
- Astro Digital
- Loft Federal
- Momentus Space
- Rocket Lab USA Inc.
- Space Exploration Technologies (SpaceX)
- Spire Global
- Tyvak Nano-Satellite Systems
- Varda Space Industries

Learn More: https://www.nasa.gov/stmd-flight-opportunities/flight-provider-overview/

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18

SPACE TECHNOLOGY PAYLOAD CHALLENGE TECHNICAL AREAS: TWO GROUPS

1 STMD Civil Space Shortfalls: A Broad Subset of Technology Areas

- Areas requiring further development to meet future exploration, science, and other mission needs
- NASA asked aerospace community to rate importance
- Goal: Better integrate the community's most pervasive technical problems to guide NASA's space technology development and investments
- Learn more about all shortfalls: https://www.nasa.gov/spacetechpriorities/
- **For this challenge, selected shortfalls well-suited for flight test to have a significant impact on technology advancement**

2 CERISS Program Capability Needs

- In-situ Analysis Capabilities
- In-situ Sample Preparation Capabilities

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19

Biological & Physical Sciences 20

BPS Program Areas

BPS uses Spaceflight environments to study biological and physical systems

Space Biology

Physical Sciences

Fundamental Physics

Commercially Enabled RapId Space Science (CERISS)

Open Science

20

CERISS mission is to develop transformative research capabilities with commercial space industry to dramatically increase the pace of research within the BPS areas of interest

Areas of Interest	Themes
Precision Health	TISSUE CHIPS
	ACCELERATED AGING & DISEASE
	MICROBIOLOGY
	SYSTEMS BIOLOGY
Space Crops	REGOLITH/SOIL
	BIOREGENERATIVE LIFE SUPPORT SYSTEMS
	CROP SPECIES
	CROP PRODUCTION SYSTEMS
Quantum Leaps	COLD ATOMS/ATOM INTERFEROMETRY
	QUANTUM ENTANGLEMENT
	LUNAR LASER RANGING
	ATOMIC CLOCKS
Foundations	CRYO FLUIDS & THERMAL MANAGEMENT
	FIRE SAFETY
	RECYCLING & SUSTAINABILITY
	MANUFACTURING & PROCESSING IN SPACE

TechLeap CERISS Verbiage

CERISS-1: In-situ analysis capabilities for use in microgravity including but not limited to the ability to characterize materials using imaging modalities, differential scanning calorimetry, thermogravimetric analysis, x-ray diffraction, nuclear magnetic resonance, gas chromatography, scanning electron microscopy, high performance liquid chromatography; evaluate material properties such as tensile and compression testing; conduct sequencing, fixation, polymerase chain reaction, fluorescent activated cell sorting, spectrophotometry, protein analysis, metabolic assays, or cell counting.

CERISS-2: In-situ sample preparation capabilities for use in microgravity including but not limited to fluid handling tools, mixing, subculturing, evaluating conductivity and pH of solutions, lyophilizing samples, mass measurements, or synthesis.

21

BPS & CERISS long term focus

Low Earth Orbit (LEO) and Beyond LEO (BLEO)

LEO: Transitioning to Commercial LEO Destinations (CLDs) platforms, and increasing research output

- Decreasing the need for down mass to complete research
- Decreasing the size of equipment
- Decreasing the need for astronaut time
- Decreasing the cost of research so each CLD can conduct research

BLEO: Long Duration Space Flight to Moon & Mars

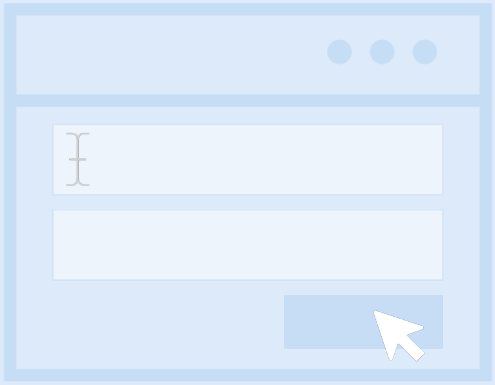
- No requirement for down mass to complete research
- Limited astronaut presence required
- Maximizing weight through multiple research tests per experiment

22

TIPS FOR PREPARING A STRONG APPLICATION

The Basics

- Register by the **March 4 deadline** at https://stpc.nasatechleap.org
- Note the **word count limits** for each section
- Pay attention to the **scoring criteria: 5 points each**
  - ✓ Strength of technology
  - ✓ Payload plan
  - ✓ Flight benefit
  - ✓ Project management



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23

TIPS FOR SUCCESSFUL TECHLEAP APPLICATIONS

Communicate the connection to shortfall(s)	• How will your technology and flight experiment benefit the specific shortfall(s)? • Clearly communicate how your technology can help close the gap.
Explain why your technology is outstanding	• Know the state of the art. • Clearly explain why your technology will be superior to what has been done before.
State your case for flight and flight requirements	• Why does your experiment need a test flight? What will you learn or gain through flight testing? • Describe your test environment needs.
Ensure your budget is clear	• The budget is used to determine if the proposed project plan and budget are reasonable. It is not related to the prize funding.
Be clear and to the point	• Ensure your writing is clear and cogent. • Ask for peer reviews to give feedback, allowing enough time to make revisions before the deadline.

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24

TIPS FOR YOUR VIDEO PITCH

Does **not** need to be professionally produced

Be sure to follow the requirements posted at https://stpc.nasatechleap.org/application

- No more than 90 seconds long
- Must include closed captioning (in English)
- Excludes non-licensed copyrighted material

Follow the guidance provided on the website

- Introduce yourself and your organization and/or team.
- Briefly describe your technology, including what is unique about it.
- Explain how you will know that you've achieved success.
- Make an effort to connect with your audience of Evaluation Panel judges.

Other advice

- If possible, show your technology to help judge understand the concept.
- Good lighting and sound quality are important. Minimize background noise.

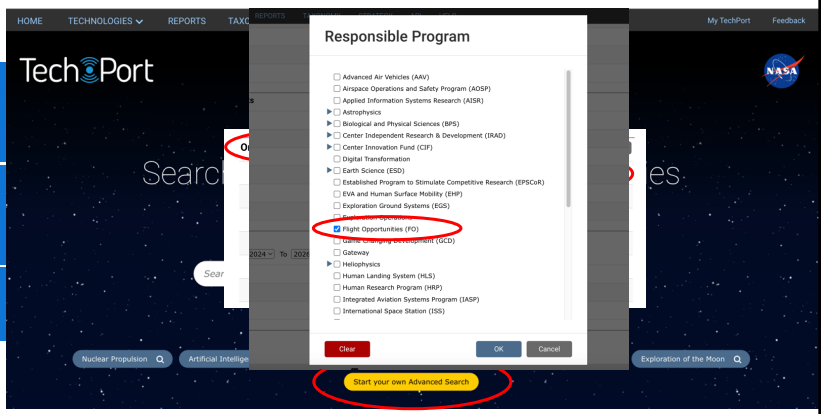
LEVERAGE THE FLIGHT OPPORTUNITIES COMMUNITY

Search the Flight Opportunities technology portfolio

- Identify technologies similar to yours
- Familiarize yourself with tests performed on various vehicles
- Identify community members with whom you can connect

To view our technology portfolio:

1. Go to https://techport.nasa.gov/ and click the Advanced Search button
2. Scroll down to Organization and Contacts and filter by Responsible Program
3. Check Flight Opportunities box and click OK and then Search



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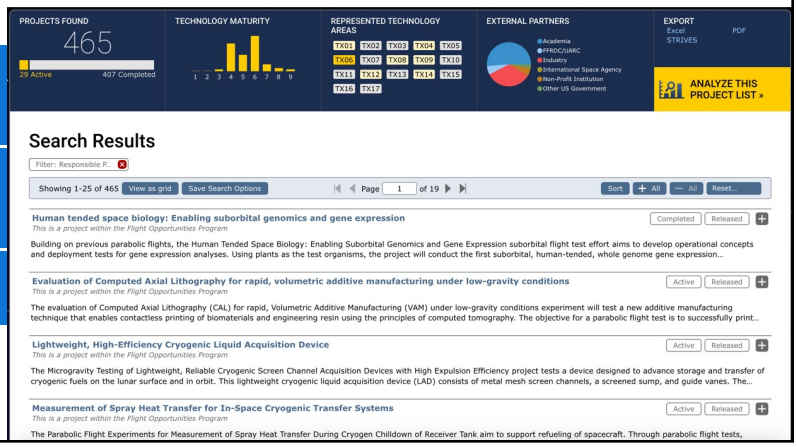

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27

WHAT QUESTIONS DO YOU HAVE?

https://stpc.nasatechleap.org

28

THANK YOU FOR JOINING TODAY'S WEBINAR

Reminders:

- Read the challenge details carefully and monitor the FAQs at https://stpc.nasatechleap.org/
- Register by March 4
- Join in the Q&As on Feb. 12 and Mar. 6
- Subscribe to the Flight Opportunities newsletter: https://go.nasa.gov/32jXl9s

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29