

# NASA Participation Guide **SmallSat2024**

[smallsat.org](https://smallsat.org)



This compendium of Small Satellite Conference events and presentations is limited to those sponsored by NASA, include NASA participation, or are topics related to NASA. Presentations given by other organizations on a NASA-related topic are indicated by an asterisk. Visit the SmallSat 2024 website for the complete list of conference events and to confirm scheduled times and locations.

## Side Meetings & Related Events

<https://smallsat.org/extras/side-meetings>

<https://smallsat.org/extras/related-events>

### SATURDAY, AUGUST 3

#### LOCATION

- **6:00PM - 9:00PM** **F Prime Open Source Flight Software Tutorial** — NASA Jet Propulsion Laboratory **ECC 216**  
*ADVANCE ENROLLMENT IS REQUIRED* to confirm a seat at the tutorial. Please email [prime@jpl.nasa.gov](mailto:prime@jpl.nasa.gov) with interest or questions.

### SUNDAY, AUGUST 4

- **6:00PM - 9:00PM** **F Prime Open Source Flight Software Tutorial** — NASA Jet Propulsion Laboratory **ECC 216**  
*ADVANCE ENROLLMENT IS REQUIRED* to confirm a seat at the tutorial. Please email [prime@jpl.nasa.gov](mailto:prime@jpl.nasa.gov) with interest or questions.

### MONDAY, AUGUST 5

- **9:00AM - 10:30AM** **Industry-Enabled Service Paradigms for Mars Exploration** **LSB 133**  
— NASA Jet Propulsion Laboratory
- **10:00AM - 12:00PM** **NASA Town Hall** — NASA Small Spacecraft Systems Virtual Institute **ESLC 130 (Auditorium)**

## Weekend Technical Sessions

#### LOCATION

Aggie Recreation Center,  
Utah State University

<https://smallsat.org/conference/technical-sessions>

### SATURDAY, AUGUST 3

ADVANCED TECHNOLOGIES - RESEARCH & ACADEMIA I	<b>Mission Architecture for the Green Propulsion Dual Mode Mission</b> — NASA Marshall Space Flight Center	<b>9:30AM MT</b>
NEXT ON THE PAD - RESEARCH & ACADEMIA	<b>MOCI: Structure-from-Motion in Low Earth Orbit</b> — NASA Marshall Space Flight Center	<b>4:15PM MT</b>

### SUNDAY, AUGUST 4

AUTOMATION RESEARCH & ACADEMIA	<b>Advancing Autonomy in Distributed Space Systems: Results from the Distributed Spacecraft Autonomy Experiment on Starling 1.0</b> — NASA Ames Research Center	<b>8:30AM MT</b>
	<b>Adversarial Assessment of the F Prime Flight Software Framework: Findings and Recommendations</b> — NASA Jet Propulsion Laboratory	<b>9:30AM MT</b>
ADVANCED TECHNOLOGIES - RESEARCH & ACADEMIA 2	<b>The PY4 Mission: A Low-Cost Demonstration of CubeSat Formation Flying Technologies</b> — NASA Ames Research Center	<b>4:15PM MT</b>

## LOCATION

Aggie Recreation Center,  
Utah State University

<https://smallsat.org/conference/technical-sessions>

## MONDAY, AUGUST 5

### YEAR IN REVIEW

#### Starling CubeSat Swarm Technology Demonstration Flight Results

— NASA Ames Research Center

3:00PM MT

## TUESDAY, AUGUST 6

### SCIENCE/MISSION PAYLOADS

#### \*NASA PRISM's Lunar Vertex Mission – Lessons Learned in Establishing a New Low-cost Science Mission Paradigm

— Johns Hopkins University Applied Physics Lab

8:15AM MT

#### BurstCube: Behind the Scenes of a Do-No-Harm I & T Production

— NASA Goddard Space Flight Center

8:45AM MT

#### Compact-Fire Infrared Radiance Spectral Tracker (c-FIRST)

— NASA Jet Propulsion Laboratory

10:45AM MT

#### \*Deep Purple Payload Qualifies for NASA Launch, Could Provide New Method for Real-Time Space-Domain Awareness

— Lawrence Livermore National Laboratory

11:00AM MT

### AUTOMATION

#### \*CAPSTONE: An Ongoing Demonstration of Navigation and Autonomy Technologies in the Cislunar Domain — Advanced Space, LLC

2:00PM MT

#### TechEdSat-11: Prototyping Autonomous Communications in Orbit

— NASA Glenn Research Center; NASA Ames Research Center

2:45PM MT

### ORBITAL DEBRIS, SSA & STM

#### Automating Maneuvers: Considerations for Collision Avoidance

— NASA Headquarters

5:00PM MT

## WEDNESDAY, AUGUST 7

### PROPULSION

#### Flight Results and Lessons Learned from the Starling Propulsion System — NASA Ames Research Center

10:45AM MT

#### Solar Sail Propulsion - Ready for SmallSat Mission Implementation

— NASA Marshall Space Flight Center

11:30AM MT

#### A Green Propulsion Dual Mode (GPDM) In-Space Technology Demonstration on a 6U CubeSat — NASA Marshall Space Flight Center

11:45AM MT

#### Controls Modeling Approach for Deployment of a Large Thin Structure for Solar Sails — NASA Marshall Space Flight Center

12:00PM MT

### NEXT ON THE PAD 2

#### A Building Block Approach to Satellites and its Impact on Changes in Late AI&T Athena – A Case Study — NASA Langley Research Center

2:30PM MT

## THURSDAY, AUGUST 8

### ADVANCED TECHNOLOGIES 2

#### Starling Formation-Flying Optical Experiment: Initial Operations and Flight Results — NASA Ames Research Center

10:45AM MT

#### Development of Advanced Ablative Carbon Phenolic TPS for Future NASA Missions and Commercial Space — NASA Ames Research Center

12:00PM MT

## Swiftly Sessions 1

TUESDAY, AUGUST 6

10:00AM - 10:45AM MT

**Variation in Predicated Orbital Lifetime due to Launch Year** — NASA Kennedy Space Center

## Swiftly Sessions 2

3:45PM - 4:30PM MT

**Upgrade of the Experimental S-Band Feed at DSS-17 for Deep Space Applications** — NASA Jet Propulsion Laboratory

## Session 1

TUESDAY, AUGUST 6

9:45AM-10:45AM MT

### NASA Leadership Panel – Opportunities for the SmallSat Community

MODERATOR — **Florence Tan**, Chair, Small Spacecraft Coordination Group, Deputy Chief Technologist, NASA Science Mission Directorate

- Panelists:**
- **Christopher Baker**, Program Executive, Small Spacecraft Technology Program and Flight Opportunities Program, NASA Space Technology Mission Directorate
  - **Rachele Cocks**, Chair, Small Spacecraft Working Group, Science Mission Directorate and Program Executive, Astrophysics Division, NASA Science Mission Directorate
  - **Liam Cheney**, Mission Manager, Launch Services Program, NASA Space Operations Mission Directorate

### LIVE STREAMED

This session will be LIVE STREAMED as an S3VI Community of Practice webinar.  
Connection information is available at <https://www.nasa.gov/smallsat-institute/community-of-practice/>

## Session 2

3:30PM - 4:30PM MT

### NASA Collaborations and Partnerships

MODERATOR — **Catherine Venturini**, Principal Engineer, The Aerospace Corporation

- Speakers:**
- **Collaboration Between the United Nations Office for Outer Space Affairs and National Aeronautics and Space Administration** — **Craig Burkhard**, NASA Small Spacecraft Systems Virtual Institute
  - **It's a SmallSat World After All** — **David Hitt**, NASA Space Launch System Program/Jacobs
  - **CSLI Lessons Learned** — **Liam Cheney and Greg Raffington**, NASA Launch Services Program
  - **Adapting Mission Assurance for Small Satellites** — **Carrie O'Quinn**, The Aerospace Corporation
  - **R5 Partnering and (Preliminary) Flight Results** — **Sam Pedrotty**, NASA Johnson Space Center
  - **Shielding SmallSats: Collaborative Opportunities** — **Larry Thomsen**, NASA Langley Research Center
  - **Improving the Cyber Resiliency of the F Prime Flight Software Framework** — **Steven Doran**, NASA Jet Propulsion Laboratory
  - **ISS Trajectory and Satellite Deploy Operations** — **Cameron Leonard**, Trajectory Operations and Planning Office, NASA Johnson Space Center
  - **SpinSat: A Comprehensive and Flexible Approach to Mars-relevant Science & Technology Development Activities** — **Dr. Jay Bookbinder**, Programs and Projects Directorate, NASA Ames Research Center

### Session 3

WEDNESDAY, AUGUST 7

9:45AM-10:45AM MT

#### Infusion Stories - Utilizing NASA's Space Technology Mission Directorate Mechanisms to Develop Technology

MODERATOR — **Les Johnson**, Chief Technologist, NASA Marshall Space Flight Center

#### Panelists:

- **Elwood Agasid**, Deputy Program Manager, Small Spacecraft Technology Program, NASA Ames Research Center
- **Danielle McCulloch**, Program Manager, Flight Opportunities Program, NASA Armstrong Flight Research Center
- **Dr. Ryszard (Rich) Pisarski**, Small Business Innovation Research / Small Business Technology Transfer Program, NASA Ames Research Center
- **Sachidananda (Sachi) Babu**, Program Manager, In-Space Validation of Earth Science Technologies Program, Earth Science Technology Office, NASA Science Directorate

#### Infusion Stories:

- **Onboard Autonomy for SmallSats with autoNGC. Infusion into Lunar Communications Relay and Navigation Systems (LCRNS) and Other Missions** — **Dr. Sun Hur-Diaz**, autoNGC Principal Investigator, NASA Goddard Space Flight Center
- **Idea to Flight: LISA-T** — **Dr. John Carr**, Deputy Chief Technologist, NASA Marshall Space Flight Center

#### LIVE STREAMED

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### Session 4

3:30PM - 4:30PM MT

#### SmallSat Development Roadmap from Education to Flight

MODERATOR — **Anh Nguyen**, Ph.D., Program Portfolio Integrator, Small Spacecraft Technology Program and Flight Opportunities Program, Bryce Space and Technology, LLC, NASA Headquarters

#### Panelists:

- **Jose Nunez**, University Partnerships & SmallSat Capabilities Manager, NASA Kennedy Space Center
- **Anh N. Nguyen**, Program Portfolio Integrator, Small Spacecraft Technology Program and Flight Opportunities Program, Bryce Space and Technology, LLC, NASA Headquarters
- **Bruce Yost**, Director, Small Spacecraft Systems Virtual Institute, NASA Ames Research Center
- **Lee Jasper**, University Nanosatellite Program Lead, Space Dynamics Laboratory
- **Samson Phan**, Project Manager, University SmallSat Technology Partnerships & SmallSat Small Business Innovation Research Portfolio, Small Spacecraft Technology Program, NASA Ames Research Center
- **Liam Cheney**, Mission Manager, Launch Services Program, NASA Kennedy Space Center
- **Erika Hamden**, Associate Professor Astrophysics and Director of the University of Arizona Space Institute
- **Luis Santos**, Portfolio Manager, Small Satellite and Special Projects Office, NASA Goddard Space Flight Center

### Session 5

THURSDAY, AUGUST 8

9:45AM-10:45AM MT

#### University SmallSat Updates

MODERATOR — **Anh Nguyen**, Ph.D., Program Portfolio Integrator, Small Spacecraft Technology Program and Flight Opportunities Program, Bryce Space and Technology, LLC, NASA Headquarters

#### Speakers:

- **Parabolic Flight Testing of Hard Disk Drive Reaction Wheels (TechFlights)** — **Adam Zufall**, University of California, Davis
- **Miniature High-Performance Microwave Oscillators Using Optical Frequency Division (University SmallSat Technology Partnership 2023)** — **Qing-Xin Ji**, California Institute of Technology
- **Creating a Simulated Lunar Terrain for Computer Vision Research in Omniverse (TechLeap)** — **Alex Mariano**, California State Polytechnic University, Pomona
- **My University Nanosatellite Program Story** — **Isabella Hart**, West Virginia University
- **The University Nanosatellite Program Experience** — **Patrick Sullivan**, Axient Corporation
- **Chip-scale Precision Optomechanical Inertial Sensors for GPS-free Navigation. (University SmallSat Technology Partnership 2020)** — **Christine Yang**, University of California, Los Angeles
- **Developing a CubeSat Payload Interface Board for Neuromorphic Processing and Distributed Computing** — **Kayla Del Rosario and Gibson Puckett**, California State Polytechnic University, San Luis Obispo

## Poster Sessions

### WEEKEND POSTER SESSION 1

SATURDAY, AUGUST 3

Viewing Time  
9:00 AM-5:00PM

**Evaluation of Spectral CNNJPEG Adaptive Compression on the STP-H7-CASPR Platform**  
— NASA Goddard Space Flight Center

**Commissioning Plans for the Pandora SmallSat: A Mission to Quantify Stellar Contamination of Exoplanet Transmission Spectra** — NASA Ames Research Center; NASA Goddard Space Flight Center

### WEEKEND POSTER SESSION 2

SUNDAY, AUGUST 4

Viewing Time  
9:00 AM-5:00PM

**Design of HyCUBE, A Hypersonic Configurable Unit Ballistic Experiment Cube Satellite Platform**  
— NASA Ames Research Center

**Automation of the G/T Characterization Measurements for DSS-17** — NASA Langley Research Center

### WEEKDAY POSTER SESSION 1

TUESDAY, AUGUST 6

Viewing Time  
9:00 AM-12:30PM

**Design and Development of a Neural Surface Rendering Model for Lunar Satellite Photogrammetry**  
— NASA Ames Research Center

### WEEKDAY POSTER SESSION 2

Viewing Time  
1:30pm - 5:00pm

**Thermal Performance of Starling Spacecraft and Comparison to Thermal Model Results** — NASA Ames Research Center

**A Methodology for Cost Effective Single Event Effect Radiation Characterization of COTS Hardware for Space Use** — NASA Goddard Space Flight Center

### WEEKDAY POSTER SESSION 3

WEDNESDAY, AUGUST 7

Viewing Time  
9:00 AM-12:30PM

**International Space Station Satellite Deployment: Jettison Policy and Best Practices for Satellite Payload Developers** — NASA Johnson Space Center

**BioSentinel: Leading the Way for Deep Space CubeSat Missions** — NASA Ames Research Center

**Actively Cooled Near Infrared Spectrometer for Pandora SmallSat** — NASA Goddard Space Flight Center,  
— NASA Ames Research Center

### WEEKDAY POSTER SESSION 4

Viewing Time  
1:30pm - 5:00pm

**\*The Framework Makes the Mission - An Analytical Comparison of Two Popular NASA Open Source Flight Software Framework Offerings**, Georgia Institute of Technology

### WEEKDAY POSTER SESSION 5

THURSDAY, AUGUST 8

Viewing Time  
9:00 AM-12:30PM

**Autonomous Navigation, Guidance, and Control Software in a Low SWaP Box** — NASA Goddard Space Flight Center

## Exhibit Hours

All exhibits are open:

**MON 11AM - 5PM**

**TUES 9AM - 5PM**

**WED 9AM - 5PM**

**THUR 9AM - 12PM**

BOOTH	NASA ORGANIZER
Booth 15	Advanced Multi-Mission Operations System
Booth 7	Ames Research Center Engineering
Booth 12	Glenn Research Center
Booth 5	Goddard Space Flight Center
Booth 13	Jet Propulsion Laboratory
Booth 17	Kennedy Space Center - CubeSat Launch Initiative
Booth 2	Langley Research Center & Johnson Space Center
Booth 3	Marshall Space Flight Center
Booth 11	Office of the Inspector General
Booth 1	Science Mission Directorate
Booth 16	Space Launch System
Booth 9	Space Technology Mission Directorate