SMALL SPACECRAFT SYSTEMS VIRTUAL INSTITUTE

OVERVIEW

August 2017
**S³VI Charter**

- Advance clear communications, coordination, and consistent guidance regarding small spacecraft activities across NASA
  - Enhance internal integration
  - Act as single point of contact for information dissemination
  - Serve as repository for streamlined development approaches and processes
- Provide US smallsat research community with access to mission enabling information
  - Within NASA
  - Other government agencies (OGAs)
  - Academia
  - Industry

*S³VI is a NASA-wide Institute*
Promoting innovation and exploration of new concepts by establishing effective conduits for the exchange of information.

**Engage**
Small Spacecraft Body of Knowledge

**Share**
Small Spacecraft State of the Art & Technical Databases

**Small Spacecraft Systems Virtual Institute**

**Collaborate**
Working Groups, Partnership Opportunities

**Launch**
Launch Portal

Jointly Sponsored by the Space Technology Mission Directorate and the Science Mission Directorate
Key $S^3VI$ Web Portal Features

- Small Spacecraft Body of Knowledge (SSBoK)
  - Smallsat parts db (SPOON – collaboration with AFRL Small Spacecraft Portfolio)
  - State of the Art (components, systems – generated from SPOON annually)
  - Lessons Learned and Best Practices dbs (to be developed/acquired)
  - Smallsat Community of Practice (currently NASA only, but looking to expand)
  - Other dbs (i.e., component catalogues, test libraries, etc.)
- Links to feature stories (Recent NASA SmallSat News)
- Small spacecraft user guides, standards, and other documentation
- NASA small spacecraft mission and technology funding opportunities
- Launch opportunities (including CSLI, DoD*, commercial)
- Working Groups repositories, collaboration tool kits, proceedings
- Smallsat Seminar Series (to be developed)
- External links of interest to community, including upcoming smallsat workshops, conferences, events, etc.
- Virtual Collaboration Tools
- More to come

*Some launch information not for wide dissemination.*
• **Request for Information (RFI) Data Call**
  – Collecting information regarding the State of the Art for technology, components, and systems relevant to small spacecraft for Earth and interplanetary mission design
  – Seeking qualified civil servant and other government experts to serve as reviewers. [https://www.fbo.gov/spg/NASA/ARC/OPDC20220/NNA17S3VI001L/listing.html](https://www.fbo.gov/spg/NASA/ARC/OPDC20220/NNA17S3VI001L/listing.html)

• **SmallSat Parts On Orbit Now (SPOON)**
  – This database includes a variety of small satellite components, including payloads, flight processors, antennas, propulsion systems, ground station equipment, star trackers, and more
  – SPOON will be the first federated S3VI database
  – [https://spoonsite.com](https://spoonsite.com)

• **Points of Contact:**
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SmallSat Parts On Orbit Now (SPOON)

Search Tool Options By:
• Tag Cloud
• Entry Organization
• Relationships between Entries
• Create Advanced Searches

Results for a Tag Cloud Search for “Thermal Control(s)”
Science Mission Directorate
- Planetary Instrument Concepts for the Advancement of Solar System Observations Program (PICASSO)
- Maturation of Instruments for Solar System Exploration Program (MatISSE)
- Undergraduate Student Instrument Project (USIP)
- Planetary Science Deep Space SmallSat Studies (PSDS3)

Space Technology Mission Directorate
- Small Spacecraft Technology Program (SSTP)
  - Capability demonstrations
  - Technology development
  - Smallsat Technology Partnerships (STP)
- Tipping Point and ACO Public/Private Partnerships
- Centennial Challenges Program
  - CubeQuest Challenge
- Small Business Innovative Research Program (SBIR)
  - Approximately 30 SBIR awards made in 2017 relating to small spacecraft

Human Exploration and Operations Mission Directorate
- Cubesat Launch Initiative (CSLI)
- Space Launch System EM-1 cubesats
*2008 was first year that Smallsat topic was solicited. Note: data for 2017 not yet complete.
No SBIR solicitation in 2013.
Estimated over $110M funded on ~360 projects.