Commercial Spaceflight for Science and R&D:

Context and Capabilities

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Overview

- **Commercial Spaceflight Member Organizations**
- **Context for Commercial Spaceflight**
- **Capabilities for Science and R&D Missions**
- **CSF Scientific Advisory Panel**
- **Discussion**

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Commercial Spaceflight Federation Members

Executive Members include developers and operators of:

- Orbital spacecraft
- Suborbital spacecraft
- Spaceports

Associate Members include product and service providers for:

- Training services
- Medical services
- Life support services

Membership represents 2,600 employees in 30 states

Over $1 billion of investment into the commercial spaceflight industry to date

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Context for Commercial Spaceflight

Expand existing space activities and enable new ones

- Scientific research flights, telecommunications satellite launches, national security missions
- Flights by individual private citizens, frequent cargo and crew missions to the International Space Station, and education and outreach activities
- Contribute to NASA's mission and allow more NASA resources to be focused on beyond-LEO exploration

Lower the spaceflight cost barrier

- Commercial spaceflight leverages the power of competition, innovation, and multiple design approaches to pursue lower development and operational costs

Open the space frontier to more people

- High flight rates, improved infrastructure, and lower barriers to entry, will allow thousands of teachers, explorers, engineers, writers, scientists, and many others to travel to space

Promote economic competitiveness and excite the public

- Generate jobs in a dynamic industry that is entrepreneurial, high-tech, and inspirational

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Scientific and R&D Benefits

Overview:

- Low-cost, frequent access to space using commercial launch vehicles for scientific, engineering, and educational payloads
- Enthusiastic response from science community with over 200 participants at CSF suborbital science workshops

Benefits:

- **Unique capabilities**: Fly-on-demand, rapid-turnaround, and human-in-the-loop capabilities will enable new types of previously impossible research
- **Instrument flexibility**: Vehicles can support both unmanned payloads and human-tended experiments, with a variety of possible mission profiles
- **Cost-effectiveness**: Lower cost access to space than existing launchers
- **Leveraging private investment**: Take advantage of hundreds of millions of dollars of private investment in development of new commercial vehicles
- **Hands-on experience for students**: University research payloads will provide a new avenue for student involvement and hands-on-training with hardware

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CSF Scientific Advisory Group

Strong potential for science, research and education missions using commercial spacecraft

Recently announced the Suborbital Applications Researchers Group (SARG), a sub-committee of CSF

- Composed of 10 scientists, engineers, and educators
- Chaired by Dr. S. Alan Stern, former head of science at NASA
- First in-person meeting in Boulder in August
- SARG goals: increase awareness of commercial suborbital research, work with policymakers, and develop payload ideas

Next-Gen Suborbital Researchers Conference in 2010

- February 18-20 in Boulder, Colorado
- Organized with Universities Space Research Association (USRA) and Southwest Research Institute (SwRI)
- Sessions to discuss scientific, research, and education missions

SARG Chair Alan Stern: Former Head of Science Mission Directorate at NASA

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Thank You

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