



Program Overview - SSEP Mission 21 to ISS (<http://ssep.ncesse.org>)

A Program of the National Center for Earth and Space Science Education (<http://ncesse.org>) and the Arthur C. Clarke Institute for Space Education (<http://clarkeinstitute.org>)

Created to Address U.S. Strategic Need in Workforce Development for the 21st Century – SSEP is a bold commercial space venture utilizing the ISS to deliver a high caliber STEM education program, tuned to the next generation national science education standards, that inspires and engages the next generation of scientists and engineers.

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SSEP Mission 21 to the ISS:

Ferry Vehicle to ISS: Space X-35

Launch Site: Space Launch Complex 40 (SLC-40), Cape Canaveral Space Force Station, Florida

Ferry Vehicle for Return: Space X-35

Payload Duration on ISS: projected 4-6 weeks

Payload Designation: SSEP22 – *Discovery* (named for NASA's [Space Shuttle orbiter Discovery](#)). Starting with Mission 19 to ISS, SSEP experiment payloads are named for the orbiter vehicles from the NASA Space Shuttle Program.

Number of Student Team Flight Experiments: 17; 17 Mission 21 communities flying one experiment

For more information about SSEP Mission 21 to the ISS:

SSEP Community Profiles and Local Partners: SSEP Mission 21 to ISS –
<http://ssep.ncesse.org/communities/community-directory/community-profiles-and-local-partners-ssep-mission-21-to-iss/>

Selected Experiments on SSEP Mission 21 to ISS –
<http://ssep.ncesse.org/communities/experiments-selected-for-flight/selected-experiments-on-ssep-mission-21-to-iss/>



Brief SSEP Program Overview

Launched in 2010, the Student Spaceflight Experiments Program (SSEP) is a remarkable U.S. National, even International Science, Technology, Engineering, and Mathematics (STEM) education initiative that gives typically, at least 300 students across a community the ability to design and propose real experiments to fly in low Earth orbit, first aboard the final two flights of the Space Shuttle, and now on the International Space Station.

Each participating community conducts a local Flight Experiment Design competition with student teams vying for an experiment slot reserved just for their community in a real research mini-laboratory scheduled to fly in orbit. Students can design experiments in diverse fields, including: seed germination, crystal growth, physiology of microorganisms and life cycles (e.g., bacteria), cell biology and growth, food studies, and studies of micro-aquatic life.

SSEP is designed to inspire and engage America's next generation of scientists and engineers, and is accomplished by providing each participating community their own very real Space Program. Students from fifth grade through undergraduates in 4-year colleges and universities are truly given the ability to be real scientists and engineers.

SSEP is a successful, authentic, highly visible research experience. The program garners very significant media coverage at the national and local level, e.g., SSEP and the payload of SSEP experiments on the first flight of the SpaceX Dragon out of Kennedy Space Center in 2012, was covered by the New York Times, Washington Post, MSNBC, Space.com, and dozens of regional media outlets.

To explore extensive media coverage of SSEP, visit SSEP in the News: <http://ssep.ncesse.org/ssep-in-the-news/>

For videos of all SSEP launches and all astronauts operating SSEP experiments since program inception, visit: <http://ssep.ncesse.org/current-flight-opportunities/launch-and-on-orbit-operations-history/>

Impact to Date

Since program inception in June 2010, there have been twenty-four SSEP flight opportunities—SSEP on STS-134 and STS-135, which were the final flights of Space Shuttles Endeavour and Atlantis; and SSEP Missions 1 through 22 to ISS.

A total of **257 communities** have participated in the program (from inception thru Mission 21), reflecting 42 States and the District of Columbia in the U. S., 5 Provinces in Canada, Brazil/Portugal and Ukraine. Thus far 84 communities have participated in multiple flight opportunities reflecting the sustainable nature of the program.

Through the first twenty-three flight opportunities, a total of **173,000 grade 5-16 students** across **4,040 schools** were fully immersed in microgravity experiment design and proposal writing, **33,045 flight experiment proposals** were received from student teams, and **466 experiments were selected for flight**. A total of **442 experiments have flown** through SSEP Mission 19. **17 more experiments** are to launch on Space X-35 as the SSEP Mission 21 *Discovery* payloads of experiments. Through SSEP Mission 21 over 287,200 more students across the entire grade preK-16 pipeline were engaged in their communities' broader STEAM experience, submitting **235,000 Mission Patch designs**.

Explore the separate SSEP website – the SSEP Community Network Hubsite – which is dedicated to the participating communities and the over **1,700 organizational partners** at the local level. At the Hubsite, you can read profiles of the participating communities, see a map of the Community Network, read about the selected flight experiments and flight Mission Patches, explore the many hundreds of media articles on SSEP, and watch videos of student teams reporting out at the SSEP National Conferences in Washington, DC.

SSEP Community Hubsite: <http://ssep.ncesse.org/communities/>

Map of the Community Network: <http://ssep.ncesse.org/communities/#map>

The Student Spaceflight Experiments Program [or SSEP] is a program of the National Center for Earth and Space Science Education (NCESSE) in the U.S. and the Arthur C. Clarke Institute for Space Education internationally. It is enabled through a strategic collaboration with Rhodium Scientific, America's first commercial space biotech and mission Spaceflight Implementation Partner, ISS Commercial Service Provider, working with NASA through a CASIS Agreement to utilize its facilities aboard the International Space Station for this mission. SSEP is the first pre-college STEM education program that is both a U.S. national initiative and implemented as an on-orbit commercial space endeavor.