SSEP

Student Spaceflight Experiments Program

Program Overview - SSEP Mission 18 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 18 to the ISS:
Ferry Vehicle to ISS: Space X-31

Launch Site: Launch Complex 39A (LC-39A), NASA Kennedy Space Center, Florida

Ferry Vehicle for Return: Space X-31

Payload Duration on ISS: projected 4-6 weeks

Payload Designation: SSEP20 – *Surveyor* (named for NASA's Surveyor Program, which imaged the lunar surface in advance of the Apollo Moon landings. Starting with Mission 16 to ISS, SSEP experiment payloads are named for NASA's robotic lunar exploration programs in advance of the Apollo missions.

Number of Student Team Flight Experiments: 39; 36 Mission 18 communities flying one experiment, 2 communities flying two experiments; 1 Mission 17 community flying one carry-over experiment

For more information about SSEP Mission 18 to the ISS:

SSEP Community Profiles and Local Partners: SSEP Mission 18 to ISS – http://ssep.ncesse.org/communities/community-directory/community-profiles-and-local-partners-ssep-mission-18-to-iss/

Selected Experiments on SSEP Mission 18 to ISS – http://ssep.ncesse.org/communities/experiments-selected-for-flight/selected-experiments-on-ssep-mission-18-to-iss/

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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 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 18 to ISS. A total of **242 communities** have participated in the program, reflecting 42 States and the District of Columbia in the U. S., 5 Provinces in Canada, Brazil and Ukraine. Thus far 76 communities have participated in multiple flight opportunities – one community is conducting its 11th flight and another conducting their 10th flight with Mission 18 – reflecting the sustainable nature of the program.

Through the first twenty flight opportunities, a total of **161,900 grade 5-16 students** across **3,480 schools** were fully immersed in microgravity experiment design and proposal writing, **31,385 flight experiment proposals** were received from student teams, and **421 experiments were selected for flight**. A total of **381 experiments have flown** through SSEP Mission 17. **39 more experiments** are to launch on Space X-31 as the SSEP Mission 18 *Surveyor* payload of experiments. Through SSEP Mission 17 over 224,600 more students across the entire grade preK-16 pipeline were engaged in their communities' broader STEAM experience, submitting **195,500 Mission Patch designs**.

Explore the separate SSEP website – the SSEP Community Network Hubsite – which is dedicated to the participating communities and the over **1,600 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 (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 partnership with Nanoracks, LLC, which is working with NASA under a Space Act Agreement as part of the utilization of the International Space Station as a National Laboratory. 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 venture.

The Center for the Advancement of Science in Space (CASIS) is a U.S. National Partner on the Student Spaceflight Experiments Program.