

SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)  
Calling Planet Earth - Space Outreach to the General Public (6)

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BRINGING ROBOTIC SATELLITE SERVICING CLOSER TO HOME

**Abstract**

The Satellite Servicing Capabilities Office (SSCO) at NASA's Goddard Space Flight Center has developed a multifaceted and dynamic public outreach approach that allows the general public to access and interact with space technology.

Satellite servicing—a job only accomplished by astronauts to date—is not a viable option for a vast majority of satellites, presenting only one option in the case of low fuel or a functional anomaly: dispose of the satellite and send up a new one. However, SSCO aims to change this paradigm by developing cutting-edge robotic technology that could provide life-extending services for satellites and potentially spark a new commercial space industry—concepts with everyday implications that the general public can appreciate.

In January 2013, the Robotic Refueling Mission (RRM) successfully completed a first-of-its-kind refueling demonstration on the International Space Station (ISS). Relating the work of RRM to common interests, SSCO invited the public to join NASA project management and engineers in interactive discussions. Popular social media sites such as Google+ and Reddit hosted participant-directed dialogs with SSCO that welcomed any interest individuals. All website material was posted with daily updates with details, videos, images, and team testimony, encouraging the public to become immersed and to know the people behind the technology. In this way, SSCO brought out the human elements of this robotic endeavor, making the project accessible and intriguing to a wider audience.

Beyond public intrigue, SSCO looks to use its engineering endeavors to inspire the next generation. At local Science, Technology, Engineering, and Mathematics (STEM) events, the team brings technology to the students for them to hold and inspect. If SSCO is unable to meet students in person, interactive “virtual” tours of the team's Goddard facility allows classes to explore cutting-edge robotic technology, all by using online video-sharing platforms. At local school events, SSCO also teaches workshops such as “Build a Candy Satellite” for younger students to learn technical concepts (e.g. key subsystems of a satellite) with an entertaining, hands-on activity.

By gaging messages to the interests of broader audiences, the team has been able to invite the general public into the discussion of how robotic satellite servicing fits into the future of space, bringing the question of “Why space?” closer to home. The projects described can be adapted and replicated for a wide variety of space mission types and used to target all age groups through a mixture of online and in-person events.