

NASA Sounding Rocket Program Educational Outreach

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ABSTRACT

Educational and public outreach is a major focus area for the National Aeronautics and Space Administration (NASA). The NASA Sounding Rocket Program (NSRP) shares in the belief that NASA plays a unique and vital role in inspiring future generations to pursue careers in science, mathematics, and technology. To fulfill this vision, the NSRP engages in a variety of educator training workshops and student flight projects that provide unique and exciting hands-on rocketry and space flight experiences. Specifically, the Wallops Rocket Academy for Teachers and Students (WRATS) is a one-week tutorial laboratory experience for high school teachers to learn the basics of rocketry, as well as build an instrumented model rocket for launch and data processing. The teachers are thus armed with the knowledge and experience to subsequently inspire the students at their home institution. Additionally, the NSRP has partnered with the Colorado Space Grant Consortium (COSGC) to provide a "pipeline" of space flight opportunities to university students and professors. Participants begin by enrolling in the RockOn! Workshop, which guides fledgling rocketeers through the construction and functional testing of an instrumentation kit. This is then integrated into a sealed canister and flown on a sounding rocket payload, which is recovered for the students to retrieve and process their data post flight. The next step in the "pipeline" involves unique, user-defined RockSat-C experiments in a sealed canister that allow participants more independence in developing, constructing, and testing spaceflight hardware. These experiments are flown and recovered on the same payload as the RockOn! Workshop kits. Ultimately, the "pipeline" culminates in the development of an advanced, user-defined RockSat-X experiment that is flown on a payload which provides full exposure to the space environment (not in a sealed canister), and includes telemetry and attitude control capability. The RockOn! and RockSat-C elements of the "pipeline" have been successfully demonstrated by five annual flights thus far form

Wallops Flight Facility. RockSat-X has successfully flown twice, also from Wallops. The NSRP utilizes launch vehicles comprised of military surplus rocket motors (Terrier-Improved Orion and Terrier-Improved Malemute) to execute these missions.

The NASA Sounding Rocket Program is proud of its role in inspiring the "next generation of explorers" and is working to expand its reach to all regions of the United States and the international community as well.