

SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
On Track - Undergraduate Space Education (3)

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UTILIZING HIGH POWERED ROCKETRY AS A TOOL FOR SPACE EDUCATION VIA STUDENT
LAUNCH PROJECTS

Abstract

Student launch projects provide the opportunity for university students interested in space exploration to become involved in hands-on launch vehicle development, encouraging research, design, and analysis of a high powered rocket and payload while emphasizing the team work and communication skills critical to success at a professional level. At the University of Alabama in Huntsville (UAH), Mechanical and Aerospace Engineering students have developed, tested, and flown Aethon, a high powered research sounding rocket capable of flying at altitudes and speeds exceeding 6,000 meters and Mach 1.3, respectively, as part of NASA's University Student Launch Initiative Level 2 (USLI L2) program. The goal of the program is to introduce university students to the collaborative engineering design and development process while adhering to quality, safety, and performance standards required by upper level industry professionals in order to gain experience and education in space related activities and research. The competition consisted of three university teams from across the United States with unique challenges and payloads intended to test the skills, teamwork, and innovation of each university. Formal design reviews to NASA engineers across the US were implemented to monitor and evaluate each stage of development throughout the systems engineering process. The USLI L2 project in conjunction with Charger Rocket Works enabled UAH students who previously had little or no experience in rocketry and space exploration to quickly and effectively develop a high performance supersonic sounding rocket within an eight month timeframe - delivering a student-developed, state of the art payload to speeds in excess of Mach 1.3. The skills and experiences acquired through this project have provided an invaluable opportunity for graduating seniors to attain professional careers in space exploration and aerospace research. The present paper describes the collaborative efforts of the University of Alabama in Huntsville student launch team and NASA Student Launch Projects in the development of Aethon, as well as the educational value and resulting effect on graduating team members as they seek positions within the professional industry.