

Abstract Submitted
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High altitude ballooning as a platform for student research experiences in science and engineering JOHN ARMSTRONG, Weber State University, SHANE LARSON, Utah State University, BILL HISCOCK, Montana State University, HARBOR - THE HIGH ALTITUDE RECONNAISSANCE BALLOON FOR OUTREACH AND RESEARCH TEAM — Humans have dreamed of sailing high above Earth's atmosphere and making the voyage into outer space. At the start of the 21st Century, our students can send their own research experiments from the surface of Earth to the fringes of outer space, borne aloft by high altitude balloons. Colloquially known as near-space platforms, these balloon systems are designed, constructed and own by the students themselves. They are inexpensive to construct, are built with common electronic and hardware components that are easily purchased from commercial vendors, and can be launched and recovered in a single day. The systems are reusable and can be own many times, allowing students to many new experiments during their student lifetime, or to a single experiment many times to acquire extended scientific data sets. We will focus the presentation on Weber State University's High Altitude Reconnaissance Balloon for Outreach and Research (HARBOR) that is based on the successful Montana State BOREALIS ballooning program. We will outline successful strategies for engaging undergraduate students in research and design using such programs.

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