

Contact: Chris Koehler
Carol Rowe

July 22, 2003

Editor's Note: Student teams from throughout Colorado will demonstrate their payloads at the final Launch Readiness Review set for Friday, Aug. 1, from 1 to 6 p.m. in the Discovery Learning Center, located on the southwest corner of Colorado Avenue and Regent Drive in Boulder. The review is not open to the public, but reporters and photographers are welcome to attend.

STUDENT EXPERIMENTS TO SET SAIL ON HIGH ALTITUDE BALLOONS

Undergraduate student teams from 11 colleges and universities in Colorado will launch high-altitude balloon experiments Aug. 2 from Deer Trail, Colorado, testing new concepts and technologies that could be used on future space flight missions.

The experiments range from scientific instruments that could be used to measure weather conditions in a Mars-like environment to prototype devices that upon landing would deploy and operate a planetary rover.

More than 100 students have been involved in developing the experiments since the "DemoSat" project was funded through a \$100,000 grant from NASA in December 2002. The project is an expansion of the successful "BalloonSat" program developed by Chris Koehler, deputy director of the Colorado Space Grant Consortium headquartered at CU-Boulder.

"Our high-altitude balloon programs give students hands-on experience in designing, building, flying, operating, and analyzing real space engineering and science experiments," said Koehler. "It's really a great experience for freshman and

sophomore engineering students and enables them to see the wide range of paths their future careers could take.”

In the DemoSat program, students have worked with NASA scientists and engineers from the Jet Propulsion Lab and Ames Research Center, as well as faculty from their own institutions to develop the ideas and prototypes.

The experiments, which will be launched on two balloons, will reach an altitude of about 100,000 feet before the balloons burst and the experiments plummet back to earth. Students will track and retrieve their devices using radio communications and GPS data for later analysis.

In addition to providing experimental data of potential use to NASA, the CU-Boulder team will be testing technologies for a later mission of its own. Students will launch a version of the decision-making and communications software they designed for “Three Corner Satellite,” a stereoscopic imaging mission being developed in collaboration with Arizona State and New Mexico State universities. The systems are intended to rank the quality of photographic images taken during flight and transmit only the best images to the ground, thus making the best use of satellite downlink times.

“The balloon experiment offers a quick and inexpensive way to test the image ranking algorithms and communications technologies. We’ll get the data back in just two to three hours,” said project manager Kevin McWilliams, a senior in aerospace engineering sciences.

The students also must tackle a number of other engineering challenges to have a successful experiment, including protecting their payload from temperatures nearing –100 degrees Fahrenheit, pressure close to vacuum and descent speeds exceeding Mach 1.

Cameron Hatcher, a sophomore on the CU-Boulder team who is working on his first real engineering project said: “We weren’t really sure what to do when we started, but there are a lot of great people here that have helped us. We really hope the experiment works.”