

The Balloon Assisted Stratospheric Experiments (BASE) project is operated under the Physics and Astronomy Department at DePauw University. The program uses helium weather balloons to carry scientific experiments into the stratosphere. The experiments are designed by students from DePauw and various schools throughout western Indiana. ***None of the experiments contain hazardous materials.*** The communications system purchased from StratoStar Systems relays location, speed, environment, and experimental data to ground based trackers.

On a typical flight, approximately 200 cubic feet of helium is filled into a large latex balloon. The balloon lifts a parachute, communication radios, and science experiments to altitudes between 80,000 and 100,000 feet. Ascent rates vary from 400 feet/minute up to 1200 feet/minute. The total flight time varies from ninety minutes to five hours.

As the system climbs higher in the sky, the pressure outside the balloon decreases and the latex is stretched until it bursts.



Figure 1 - Photograph of system after launch.
(BASE 4: 2007-04-19)

After the balloon bursts, the system tumbles toward the ground for several minutes before the parachute encounters enough air to become effective. During the tumbling, the packages reach speeds in excess of 100 miles/hour, but impact speeds are less than 20 miles/hour.



Figure 2 - Photograph of system during descent
(BASE 1: 2006-11-07)

As an unmanned, uncontrolled system, the BASE flights comply with the Federal Aviation Regulations (PART 101). Our flight path is subject to the winds, both in the lower atmosphere and the stratosphere. We are able to predict the general flight path, but cannot predetermine the landing point.

Depending on the winds, the landing point for a BASE flight may be more than one hundred miles from the launch site. By using the flight prediction software, moving our launch site, and controlling the amount of helium in the balloon, we make every effort to avoid landing in heavily populated or densely wooded areas.

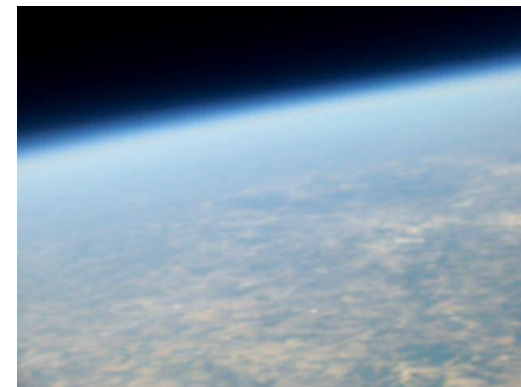
Wherever the BASE flight ends, we attempt to contact the property owner before recovering our system. Without the cooperation of the landowners, we would not be able to conduct this scientific research program.

If you would like additional information on the BASE program, please visit our website:

<http://www.depauw.edu/acad/physics/base>

or contact:

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