NevadaSat: Student Projects in Aerospace Science and Engineering

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NevadaSat is sponsored by NV Space Grant.

What is NevadaSat?

Students designing, building and flying small-scale aerospace projects.

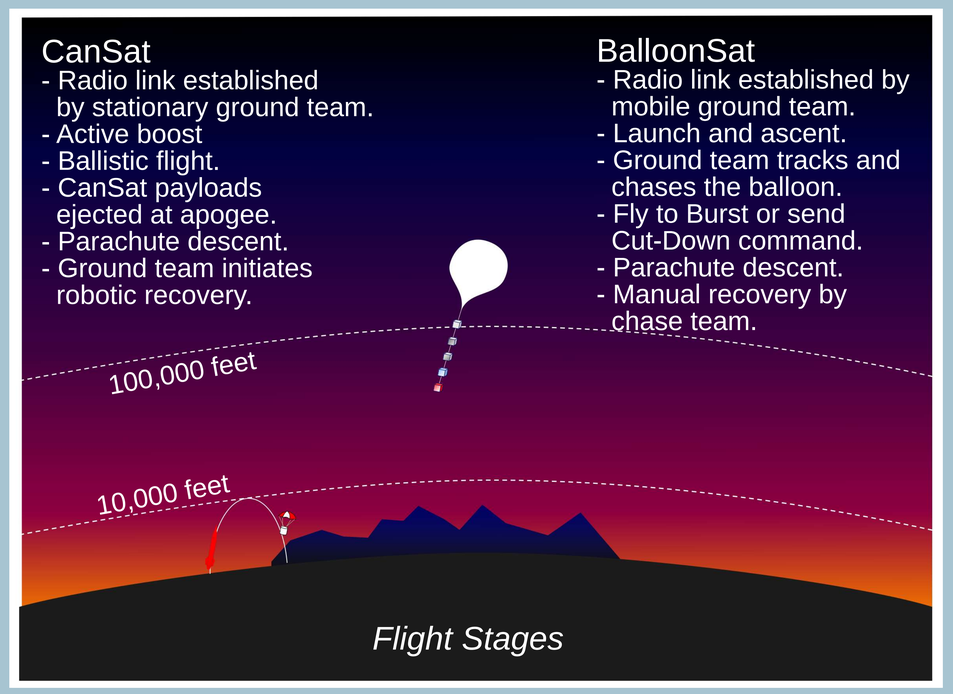
OBJECTIVES

- Use high-impact (exciting) projects to *Recruit & Retain* students into STEM.
- Provide students with hands-on design and analysis opportunities to develop technical skills.

M-Class Rocket being transported to launch-pad.

PROJECTS INCLUDE ...

- CanSats flown on high-powered rockets.
- BalloonSats flown on high-altitude balloons.



KEY FEATURES

- NvSat Projects are low cost. *Costs from $500 to $5000.*
- NvSat Projects can be completed on short timelines. *Timelines from 3 days to 3 or 4 semesters.*
- NvSat Projects are accessible to students with a wide range of skill level. *Project complexity ranges from simple kits to graduate student thesis projects.*

BalloonSat launch with student built payloads.

- NvSat projects require design considerations analogous to the production of full scale payloads.
  - -- *Power Management*
  - -- *Radio-Telemetry*
  - -- *High Accelerations*
  - -- *Exposure to Space Environment*

Example CanSat Flight Data

Max Acc. ≈ 8g
Max Speed ≈ 948 ft/sec.
Max Altitude ≈ 10,000 ft

Black Rock Desert
September 2004

Example BalloonSat Flight Data

Launch Time: 6:50 AM
Location: West Shore of Pyramid Lake

Burst Time: 8:05 AM
Burst Altitude: 97,000 feet
Ave. Ascent rate: 1240 feet/min

Landing Time: 8:28 AM
Ave. Descent Rate: 4000 feet/min
Landing Location: Just East of Black Rock Playa

93,343 feet above Pyramid Lake and the Black Rock Desert. Reno, NV and Lake Tahoe are seen in the distance.

Image taken from student BalloonSat payload on Aug. 18, 2007.