



# Boston University Satellite (BUSAT) Deployables

## Problem Statement

Deployable systems on CubeSat to nanosat class satellites are extremely rare because of the risk they bring to a flight. Developing a reliable, simple, and broadly applicable deployable system using COTS technology will greatly enhance small sat capability.

BUSAT will characterize and demonstrate the technology readiness of a CubeSat-standard deployment system in a microgravity environment

Potential users of BUSAT's technology include: NASA cubesat-standard missions, NSF cubesat missions, the University Nanosat Program, Air Force Operationally Responsive Space office, Air Force Research Laboratory

## Technology Development Team

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## Proposed Flight Experiment

### Experiment Readiness:

- Fabrication and Assembly Complete: June 1

### Test Vehicles:

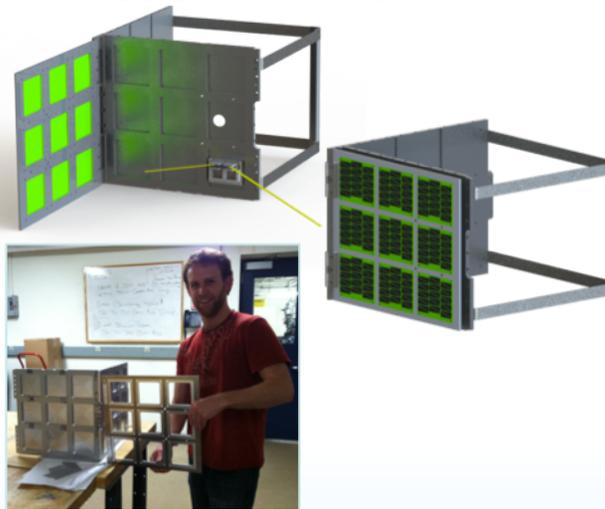
- Parabolic Aircraft

### Test Environment:

- 1G bench testing
- No previous microgravity testing

### Test Apparatus Description:

- Engineering unit with fracturable bolt solar panel and spring hinge antenna deployment



## Technology Maturation

Existing TRL's:

- Solar Panel Release System: 5
- Antenna Release System: 5
- Antennas: 4

Steps to Mature Technology:  
Microgravity testing of complete system, thermal testing of hinges, thermal testing of antennas

Deadline to TRL 6: January 2013

## Objective of Proposed Experiment

Testing Objectives

1. Validate the performance of the complete system design
2. Characterize dynamic deployment in a microgravity environment
3. Demonstrated repeatable and reliable deployment

Data will be taken in the form of quantitative accelerometer data and qualitative high speed video to verify design assumptions and optimize the final design for maximum reliability

Deployment of Flex Materials (1.3.1c), Restraint/Release Devices (2.3.1b), Common Universal Interfaces (2.3.1a)