



# 5<sup>th</sup> Annual Robotics Challenge



**April 2, 2011**  
**Great Sand Dunes**  
**National Park**



<http://spacegrant.colorado.edu/robotics>



Can you develop a small, autonomous robot capable of navigating some of the Great Sand Dunes most challenging terrain?

Then come to the Robotics Challenge!

Open to students and the general public

No entry fee for the Robotics Challenge

For rules and more information see:  
<http://spacegrant.colorado.edu/robotics>

Or email:  
Randy Emmonds: [rwemmonds@adams.edu](mailto:rwemmonds@adams.edu) or  
Brian Sanders: [brian.sanders@colorado.edu](mailto:brian.sanders@colorado.edu)

Team Registration  
Deadline:

Friday, Dec. 3 2010 !

***Part of the Colorado Space Grant Consortium Experience***

# RockOn!

## BUILD, INTEGRATE AND FLY A ROCKET PAYLOAD IN 5 DAYS!

RockOn is the next step in complexity for hands-on how-to workshops developed by Colorado Space Grant Consortium. The workshop kicks off with team building activities and a general overview. Over the next three days, teams of three build rocket payloads to measure: temperature, pressure, counts of radiation, and accelerations in three axes. In addition to building all of the hardware, participants write the software to control their payload and are an active part of rocket integration. On the fifth day, participants watch their payloads soar into space on a Terrier Improved Orion rocket!



Science Experiment Build



Building the Microcontroller



Software Development



Structural Integration



RockOn! 2010 Participants



Rocket Integration

### RockOn 2011:

- June 18<sup>th</sup> – 23<sup>rd</sup>
- Wallops Flight Facility, Virginia
- <http://spacegrant.colorado.edu/rockon/>



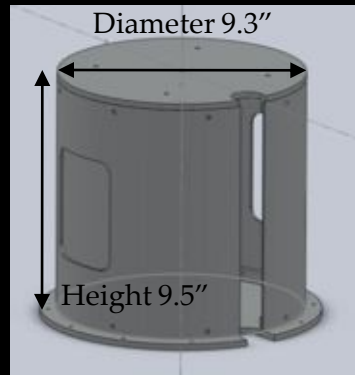
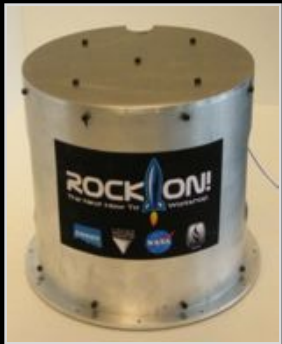
# RockSat-C

## The Next Step In Low-Cost Student Access to Space

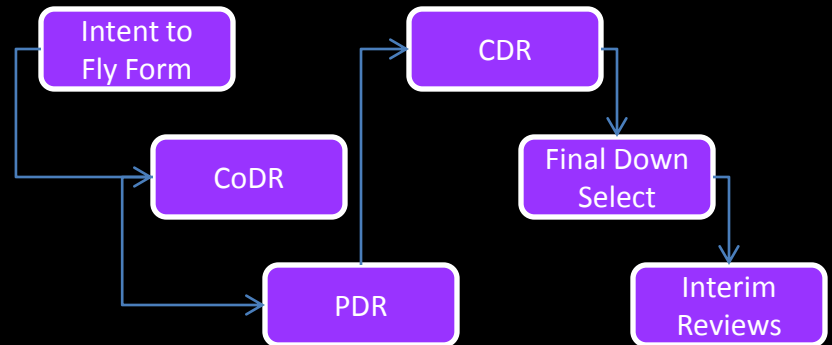
**What RockSat Is:** RockSat is a program for students to design a rocket payload and fly on a sounding rocket launched out of Wallops Flight Facility. Students initially submit an Intent to Fly form, and then go through a full selection process by presenting design reviews to the RockSat Project Manager. Teams that are selected for flight will then build and test their payloads, and finally travel to Virginia for integration and launch in June.

### What You Get:

#### 1 RockSat Payload Canister



#### Competitive Selection Process



#### Mission Management and Support

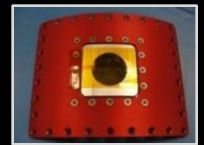


- Integration the Week of Launch
- Environmental Testing
- Payload Manager / Liaison

#### Flight On A Terrier-Improved Orion



- Apogee ~ 73 miles!
- Launch in June 2011
- 13 lbs for a payload
- Port access
  - Atmospheric
  - Optical (below)



### Contact Information

#### PROJECT MANAGER:

Emily Logan

#### EMAIL:

rocksatprogram@gmail.com

#### WEBSITE:

www.spacegrant.colorado.edu/rocksatc

**RockSat 2011:  
Intent to Fly Forms  
Due September 6<sup>th</sup>**

### Cost

#### RockSat 2011 Costs

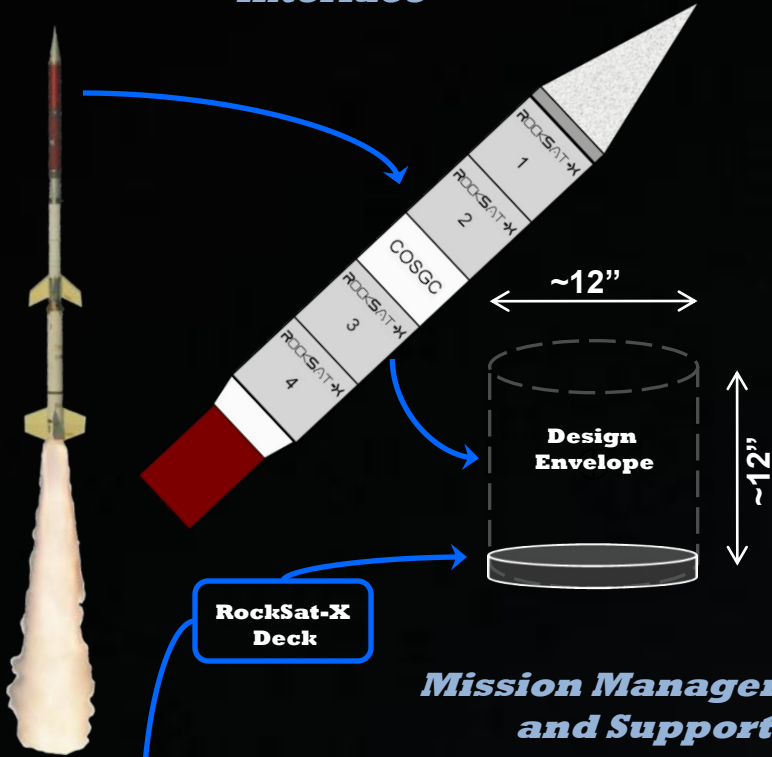
Full Canister	\$ 12,000
1/2 Canister	\$ 7,000
1/3 Canister	\$ 5,000



## Overview

[spacegrant.colorado.edu/rocksatx](http://spacegrant.colorado.edu/rocksatx)

### RockSat-X Deck and Standard Interface



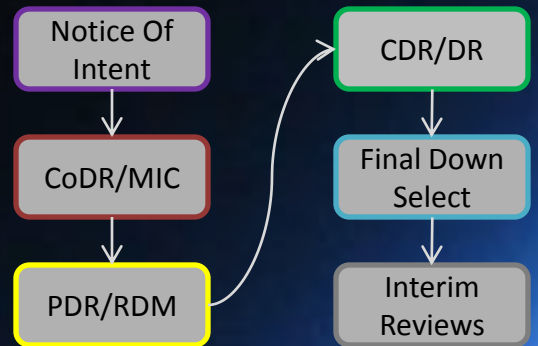
### Each RockSat-X Deck Gets

- Flight On A Terrier-Improved Orion
- 30 lbs Payload + Deck and PT Interface
- 28 V with 1 Ah Provided by Wallops
  - 3 Non-Redundant Events
  - 1 Redundant Event
- Access to Space Environment
- Real Time Telemetry
  - Ten 16 bit 0-5V A/D Lines
  - One Parallel Line
  - One Asynchronous Line
- GPS Data of Flight
- Standard Mounting Plate
- Environmental Testing Prior to Flight
- ~ 100 Mile Apogee

### Mission Management and Support

- Integration The Week of Launch
- Environmental Testing Prior To Launch
- Payload Manager/Liaison
- Guidance In Design Process

### Competitive Selection Process



## Cost

### RockSat-X 2011 Costs

RockSat-X 2011 Costs	
Full-X	\$ 24,000
Half-X	\$ 14,000

### RockSat-X 2011:

- Notice of Intent Due September 10<sup>th</sup>

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