Nanosat Launch Vehicle
- Status Update -

Carla Loveless
Garvey Spacecraft Corporation

CubeSat Developers' Summer Workshop

Logan, UT
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Background

- GSC and CSULB are incrementally developing a Nanosat Launch Vehicle (NLV)
- goal: 10 kg to 250 km circular polar orbit
- dedicated to the needs of very small payload developers and users – not a secondary priority as on other launchers
- work to date sponsored primarily by DOD R&D
- already manifesting payloads on test flights
- seeking inputs on payload accommodations

CSULB Students Preparing the P-6 Prototype for Launch

June 2005

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Recent Development and Flight Testing

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- Developed the Prospector 7 prototype RLV for the Air Force

- Total of four low-altitude flights
  - evaluated RLV operations
  - ORS pathfinding

- Multiple student payloads
  - Montana State
  - Cal Poly SLO
  - Naval Research Lab
  - CSULB

Cal Poly SLO P-POD Integration Underway at CSULB

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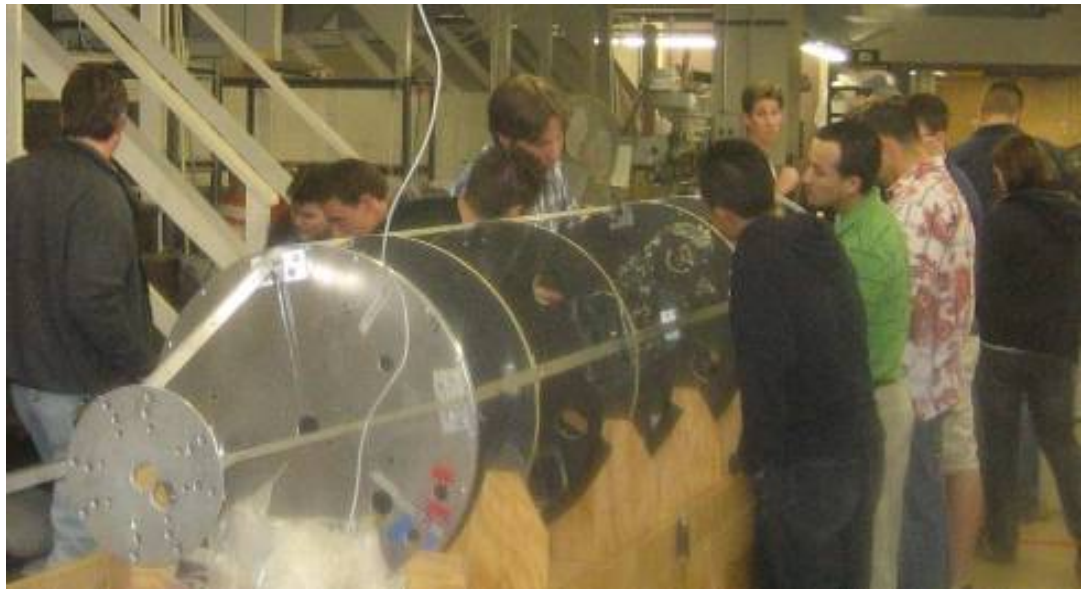
P-7 Prototype RLV with Aerospace Corporation Payload

- **Operational RLV flight sponsored by the payload provider – <u>not</u> a development mission**
- Date: April 2006
- Early evaluation test of Re-entry Break-up Recorder (REBR) concept
- Assessed GPS and Iridium data links
- Fourth flight for MSU data logger
- Also hosted CSULB data logger

Future Flight Opportunities

- Multiple flights planned over the next year
  - P-8A, -8B
  - P-9A/B, -9X
  - P-10
- Vehicles will feature increasing performance and payload capability
- Starting to get more sponsored payloads; commercial interest is growing



P-8 vehicle refurbishment underway at CSULB

Payloads Now Under Consideration

- NASA Ames wireless sensor networking experiment
- Ecliptic RocketPod
- Stanford telemetry packages
- NRL student experiment
- Epsori Space System commercial payload

Activities Since Last CubeSat Workshop

- Continued horizontal static fire testing of new first stage engine
- Completed upgrade of P-8A and conducted first vertical static fire (co-sponsored by CSA)
- Upgrading electrical ground support equipment
- Initiating water recovery test and evaluation
- Starting to receive key elements of P-9 vehicle
- Converging on plans for additional flight projects in 2008

4.5K Engine Horizontal Static Fire Test

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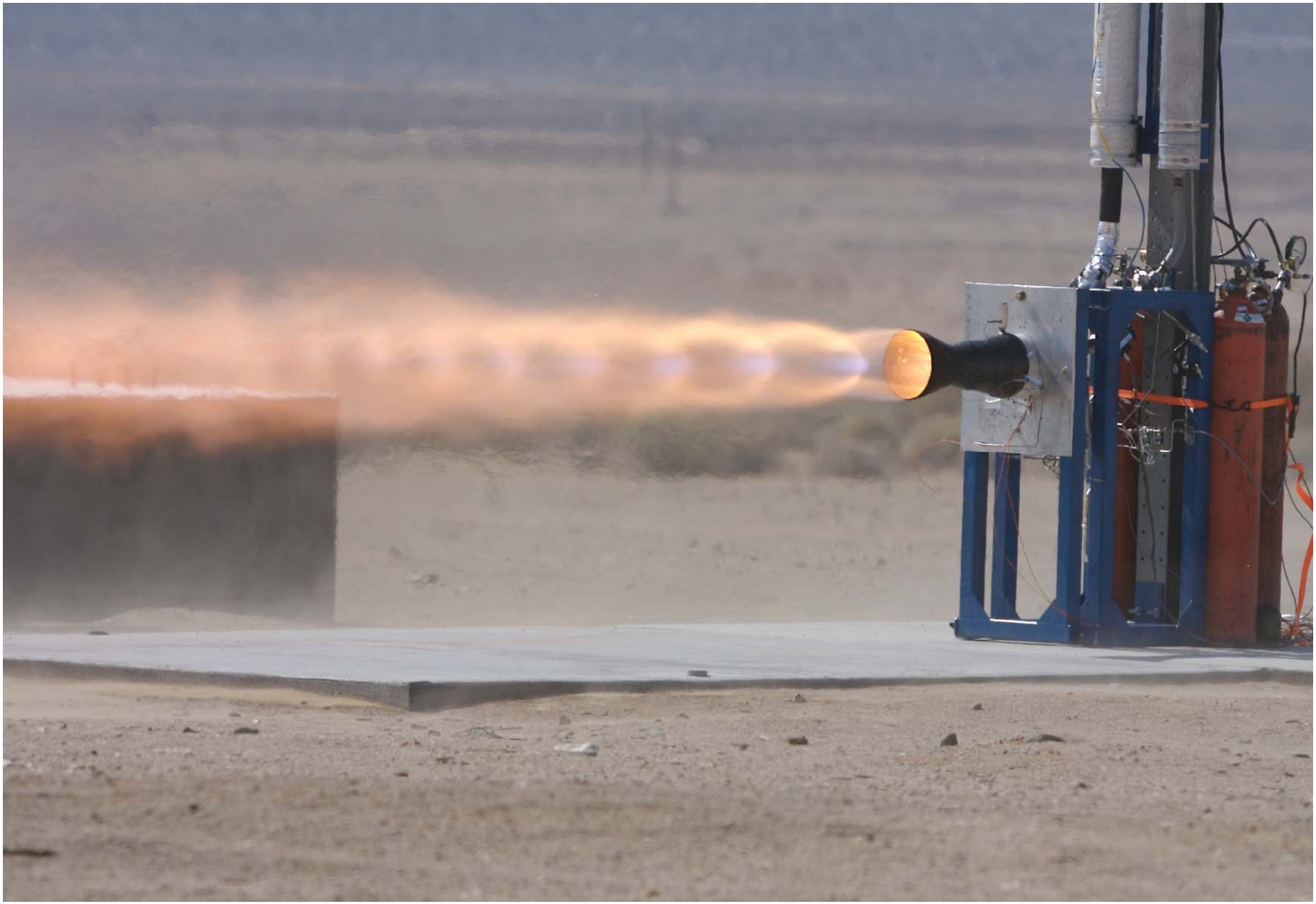

P-8A Prior to Shipment for Next Vertical Static Fire Test

Integration of Wireless Sensor Experiment

Initial Water Recovery Testing Using Full-scale Mockup

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Summary

- NLV test flights complement less frequent orbital missions
- Multiple near-term launch opportunities
- User inputs could have a major influence on future development
- Could be a very busy Fall 2007

- Further information can be found at:

www.garvspace.com

www.csulb.edu/rockets