

RocketPod™ Update

Rex Ridenoure, CEO
Ecliptic Enterprises Corporation
Pasadena, CA and Moffett Field, CA



2008 Aug 9-10

Summer CubeSat Developers' Workshop

USU -- Logan, UT

Ecliptic Products



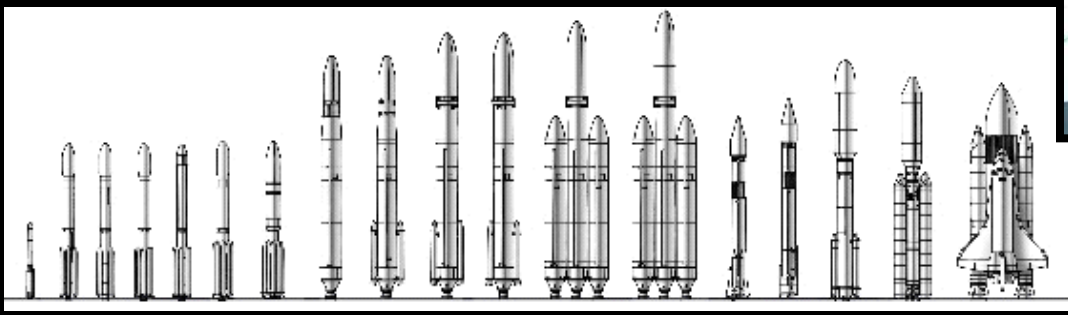
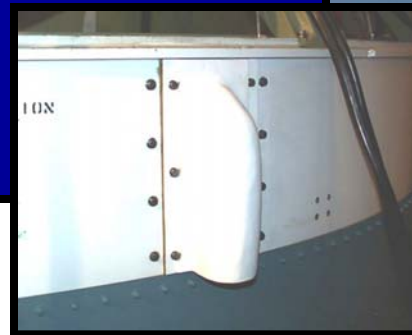
- **RocketCam™: Get the picture.**
- **RocketPod™: Get the ride.**



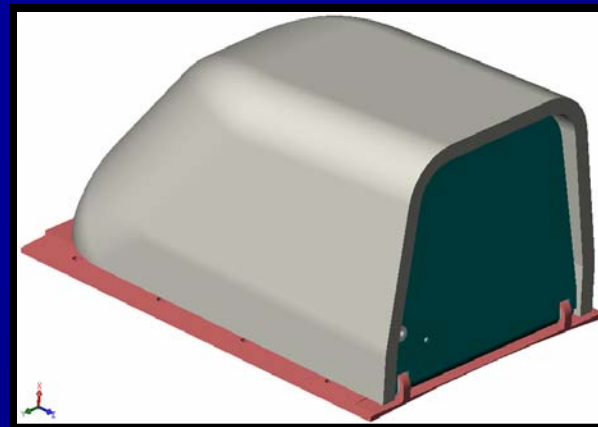
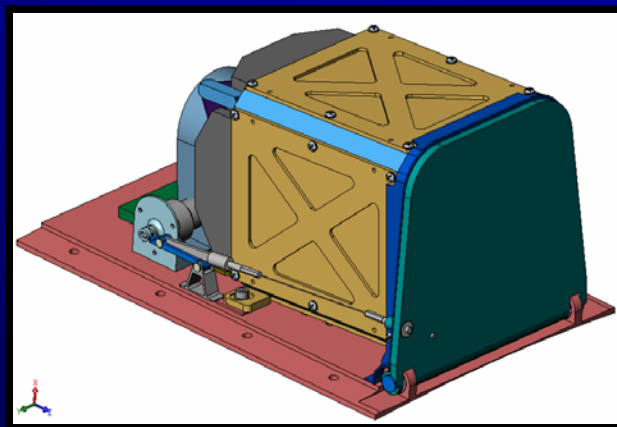
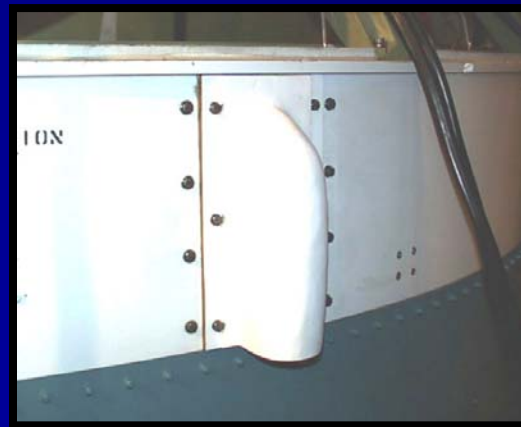
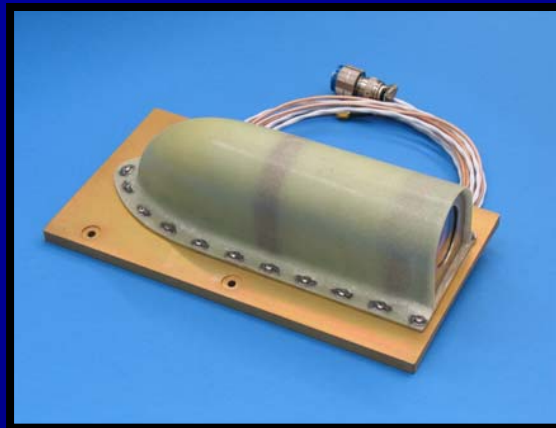
RocketCam Space Heritage



- **Launched on 63 projects since 1997**
 - 35 rockets to orbit (76 cameras)
 - 23 suborbital launches (55)
 - 4 spacecraft (11)
- **All relatively simple integrations**
- **All relatively low cost**
- **All successful**
- **Many more to come**

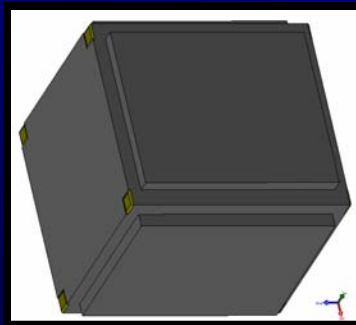
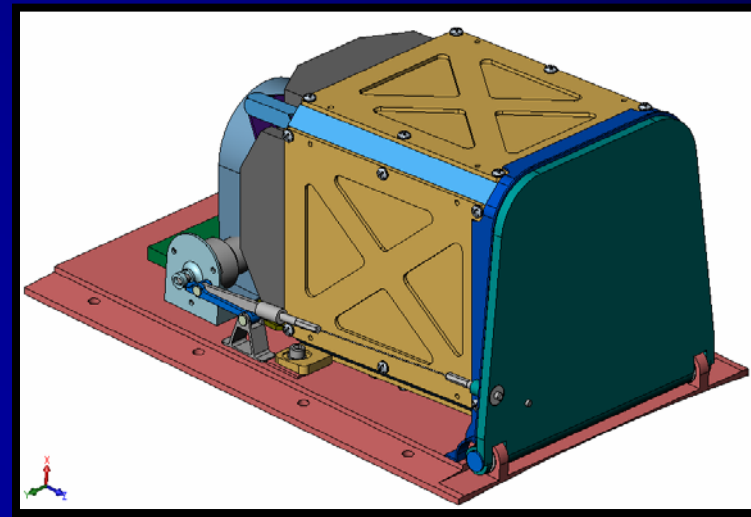
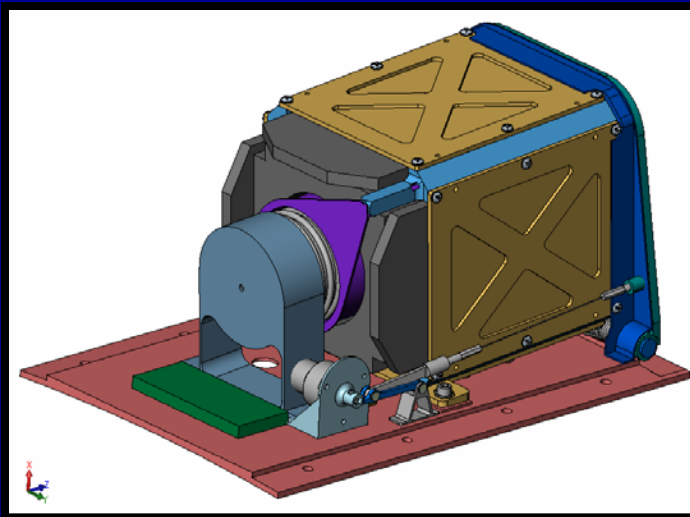


RocketCam to RocketPod (Delta II example)



RocketPod™ patented in U.S. and Europe

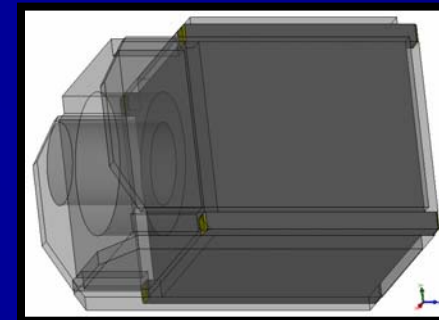
RocketPod Internal View



Std. CubeSat

Sep velocities:

- 2.6 m/s for 0.6 kg payload
- 2.0 m/s for 1.0 kg
- 1.4 m/s for 2.0 kg



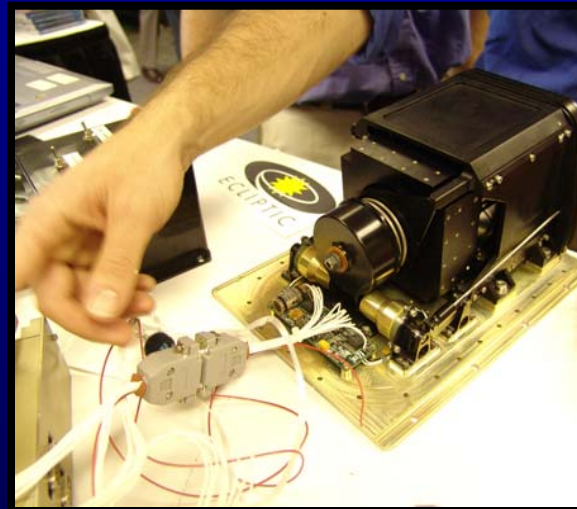
"CubeSat+"

Project Accomplishments

2002-2004



- **Delivered a flight-like RocketPod working model**
 - 8 mos. after contract start (delivered 2004 Jul)
 - Verified functionality in lab and in simulated microgravity
- **Delivered a preliminary User's Manual**
- **Secured add-on funding for definitive Delta II secondary payload assessment via USAF/SMC**
 - Completed 2004 Dec by Boeing

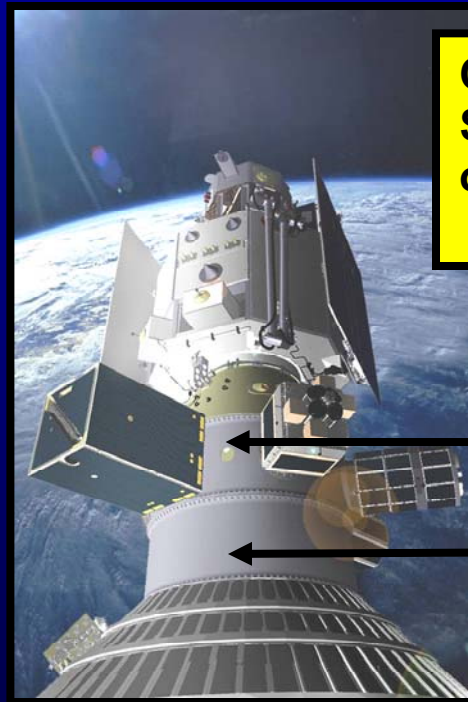


Project Accomplishments

2005-2006



- **Assessed integration issues for most other U.S. ELVs, plus some spacecraft**
 - Delta IV, Atlas 5, Minotaur, Taurus, Falcon 1
- **Settled on Atlas 5 “C Ring” as most desirable RocketPod (and P-Pod) location**

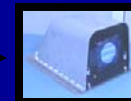
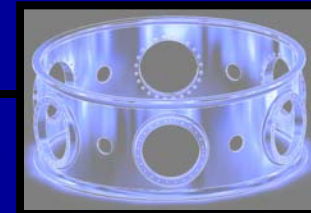


Completed DARPA Phase-1 STTR with Cal Poly SLO to identify and work orbital launch opportunities for RocketPod and P-Pod
-- Focused on 2009 Atlas 5 launch

ESPA Ring

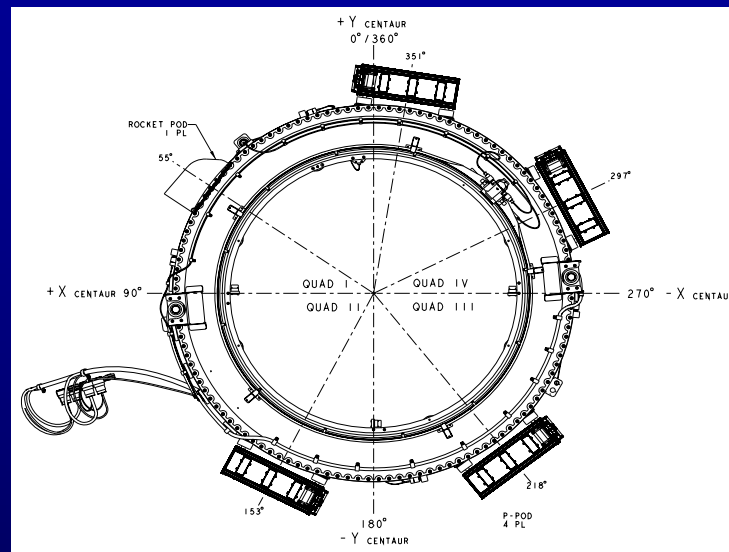
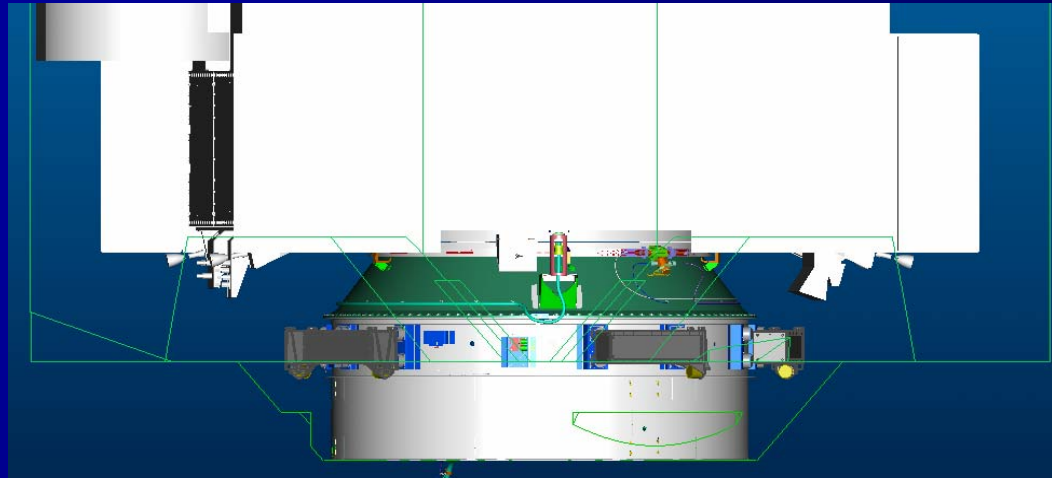
C Ring

RocketPod (xN)



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Mid-2007 Baseline Atlas 5 Concept



5 slots

2007-2008 Developments



- **2007-present: Continued with suborbital launch plans**
 - Garvey Spacecraft Corp. reusable rocket
- **2007: Ecliptic and Cal Poly proposed DARPA Phase 2 STTR, continuing with C-Ring baseline**
 - Awarded but not on contract yet
 - ULA funded by KSC to perform initial NRE for accommodating ** 6 ** standard P-Pod mounting locations
 - Make this interface the same for a single RocketPod mounting
 - Make P-Pod and RocketPod qualification and CubeSat integration processes nearly identical
- **2008: KSC funding for ULA halted before PDR**
 - STTR plan and milestones in re-work now
 - Will re-assess other launchers such as Minotaur
 - Expect to be on contract this quarter; 2010 launch target

Suborbital Launch Plans



- **First RocketPod launch imminent on Garvey P-9 liquid, recoverable rocket**
 - Now scheduled for Aug 23 at Mojave Test Area
 - Hardware layout designed and built up summer 2007 by two Caltech undergrad interns
 - Final system tests, pre-ship review and hardware delivery completed Aug 7 by one San Jose State Univ. summer intern and Ecliptic technical staff

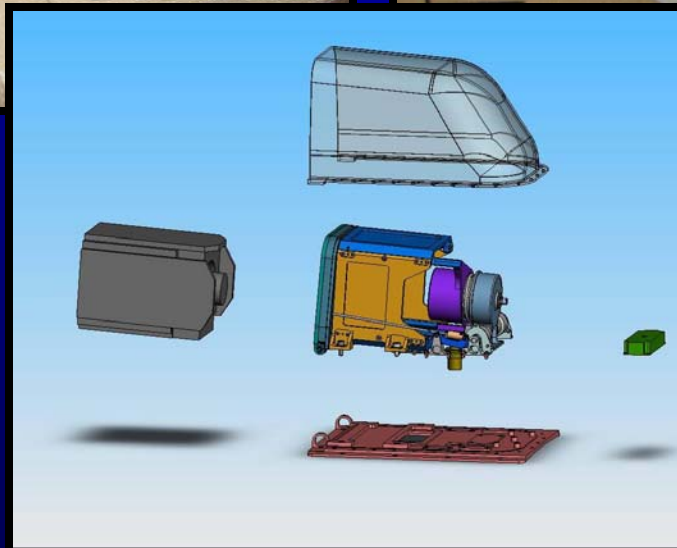
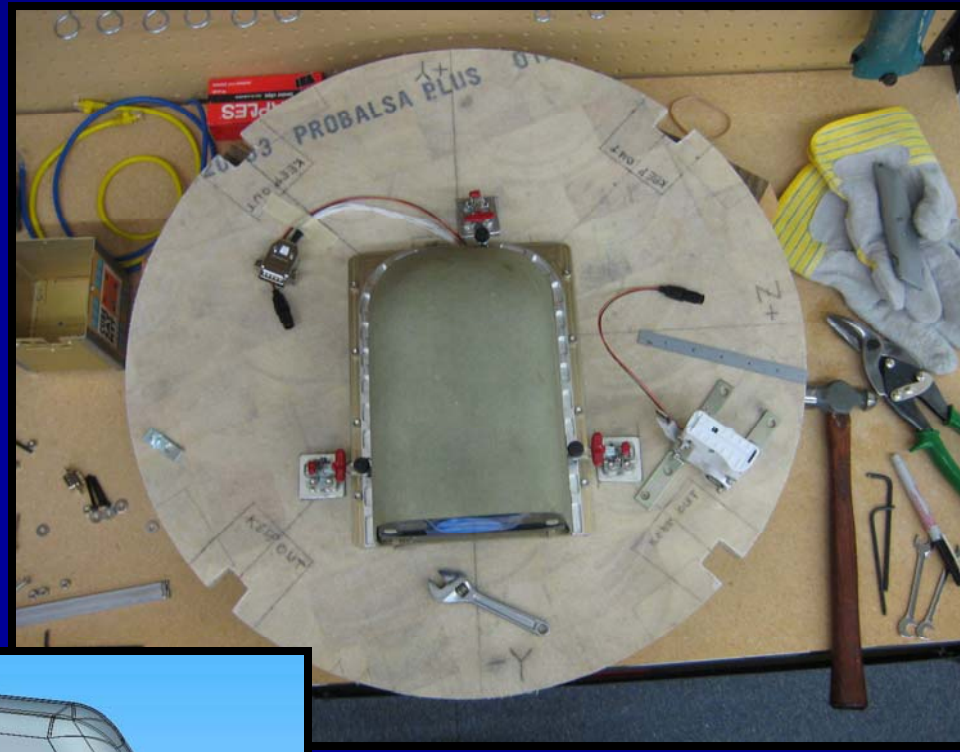
Ecliptic Summer Internship (2007)



Jason Cerundolo (l) and Brian Hires (r)

Prepping for P-9 Launch

(late summer 2007)



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12

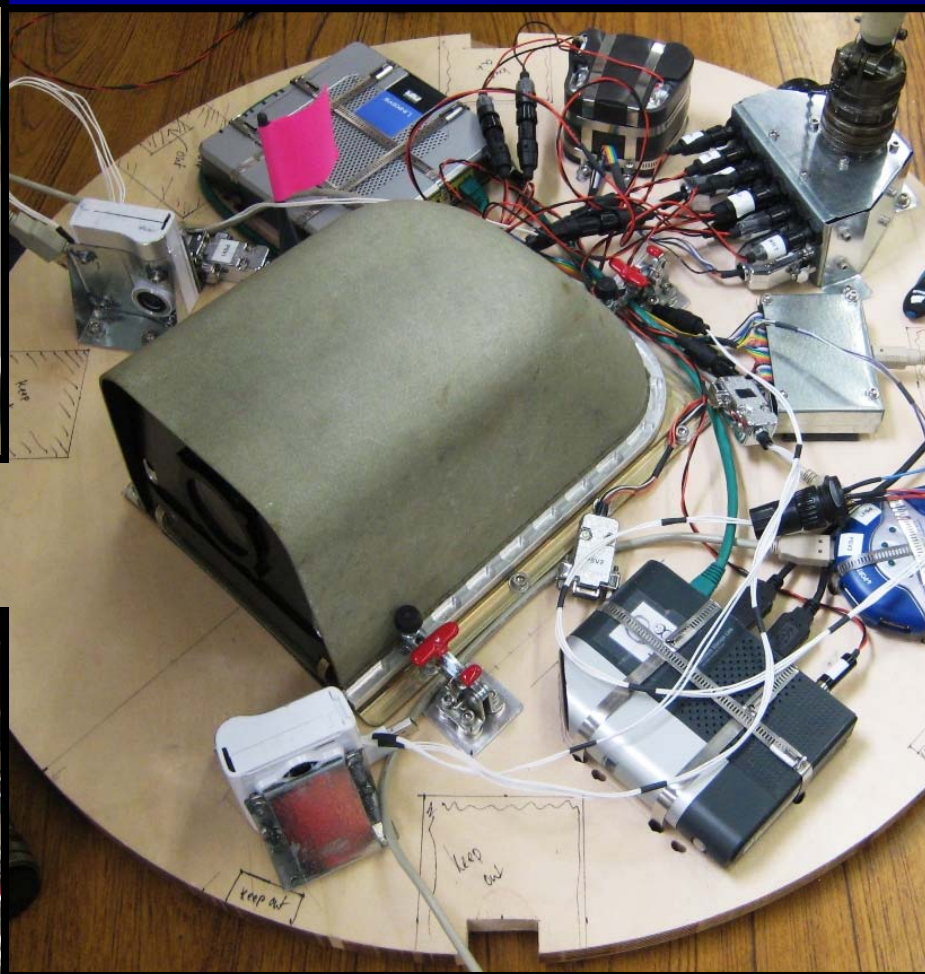
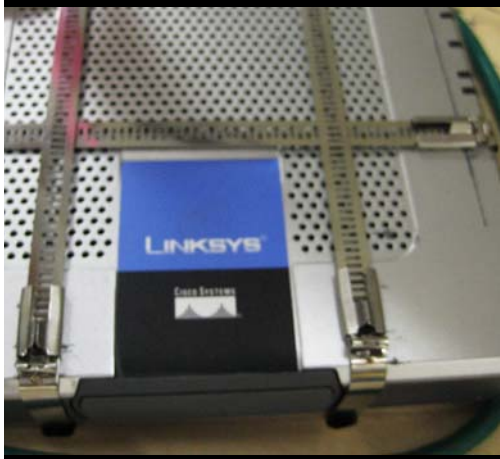
Garvey P-9 in Work

(2007 Dec)



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Prepping for P-9 (2008 Apr)



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14

Pre-Ship Review (2008 Aug 1)



Matt Martino (l) and Alex Baklashov (r)

Garvey P-9 in Work (Last Thursday)



2008 Aug 10

16