

# A Commercial Roadmap for Space Resource Utilization



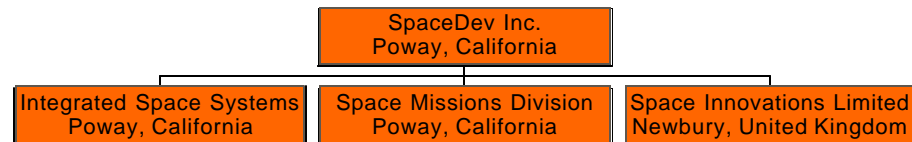
Presentation to the Space Resources  
Utilization Roundtable

Colorado School of Mines

October 27, 1999

[www.spacedev.com](http://www.spacedev.com)

Twenty years from now,  
you'll say you knew us "when..."



\$25,000,000 Market Capitalization

350 Visionary Shareholders

50 Spacecraft Engineers

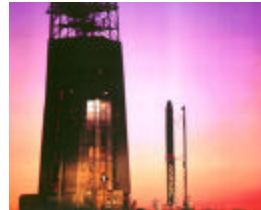
20 Rocket Engineers

4 Operating Units

3 Companies

2 Continents

1 Goal...



To serve our customers, to profit our shareholders.

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**SpaceDev**

858.375.2022

## Why Commercial?

Why should we tolerate in space what we won't on Earth, in our business lives what we won't in our personal lives? Truly commercial companies can offer:

- ⚡ Inexpensive, fixed-price solutions
- ⚡ Rapid Response
- ⚡ Standardized product offerings
- ⚡ Standard Guarantees
- ⚡ Quality Service

# Why Commercial?



The advantages that commercial companies provide their customers vis a vis government programs include:

- /// Focus
- /// Commercial Incentives
- /// Commercial Methodologies
- /// Standards

## SpaceDev's Role



- SpaceDev is a full service commercial space exploration and development corporation providing mission and spacecraft design, analysis, construction, launch integration and operation services.
- At SpaceDev we can handle your custom mission, but where we truly excel is standard fare. Mass producing standardized separation systems, spacecraft, spacecraft components and spacecraft/payload interfaces will allow the related costs of space exploration to drop precipitously.
- By adopting standards that you help us to mold, you can greatly increase the number of deep space missions, their reliability and the overall effectiveness of space exploration.

# Infrastructure

□ Standards are the building blocks of infrastructure, which in turn consists of:

- ▤ Transportation

- ▤ Hybrid Launch Vehicles, MiniSILs, MicroSILs, Micromissions Spacecraft, The Near Earth Asteroid Prospector (NEAP)

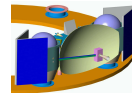
- ▤ Concentrated Portable Energy

- ▤ Water Rockets, ISRU - on-orbit propellant generation
  - ▤ NORCAT low-gravity asteroid anchoring & drilling equipment

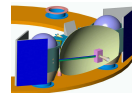
- ▤ Communications

- ▤ CCSDS - Interplanetary Internet, NORCAT Interface

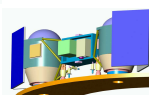
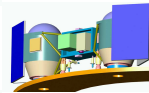
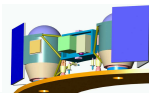
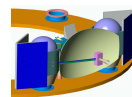
# SpaceDev Micromissions



COMM



PROBE



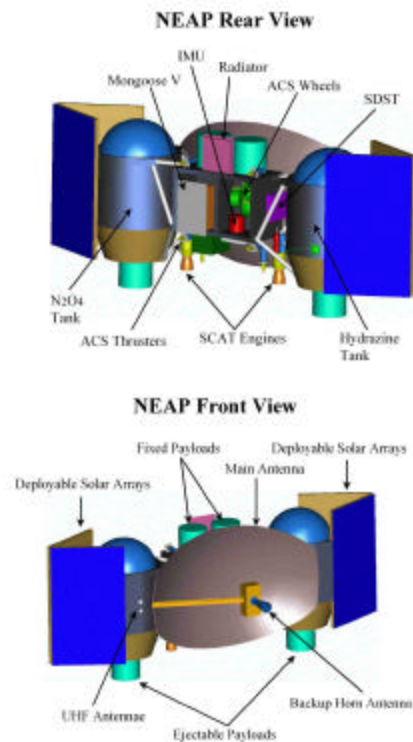
SCIENCE

## Why not build spacecraft like cars?

Why not use shared platforms, modular designs, and proven off-the-shelf parts? Why not produce a spacecraft at a fraction of today's prices by using techniques proven by the manufacturers of everything from automobiles to washing machines?

We might not be the first to ask these questions, but we're certainly among the first to answer them...with three modular spacecraft built off of one platform, five generic Mars Missions built right into the design, and enough customizable leeway to go from Mercury to the Main Belt.

# The Near Earth Asteroid Prospector



[www.spacedev.com](http://www.spacedev.com)

- NEAP is SpaceDev's first deep space mission and may travel to either the asteroid Nereus or 1998KY26.
- NEAP is a delivery system, analogous to the FedEx truck. We provide your payloads with a complete commercial mission package. We supply the spacecraft, the integration, the launch, the mission operations and the mission insurance. All you have to do is provide the instrument and collect your data, all for one fixed price.
- NEAP is designed to carry a multi-band CCD camera from the University of Arizona in addition to four 1-2kg payloads, two that eject to the surface and two that are bolted to the structure.
- Ejectable payload slots are \$9M.
- Bolt-on payload slots are \$10M.
- **NEAP is authorized as a Mission of Opportunity (MO) under NASA's Discovery program.**
- **Yes, it is that simple.**



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