



FREQUENTLY ASKED QUESTIONS

How will asteroid mining benefit humanity?

- Water resources: enabling the large-scale exploration of the Solar System.
- Metal resources: for use in the growing Earth economy.
- Scientific knowledge: via spacecraft that are dramatically more cost-effective than current systems.
- Environment: off-planet resources will contribute to sustainability.
- Economic growth: large-scale exploration of space will create new jobs and businesses.

Why start this effort now?

Early learning about asteroids came from studying meteorites, and more relevant data was gained from spacecraft missions to a few asteroids. We are now at a place in time when private investors are willing to bear the risk involved with exploratory endeavors and technology is at a point where we are capable of developing small, cost-effective spacecraft that will be able to determine an asteroid's true composition and value.

Isn't asteroid mining science fiction?

Exploring for alternate resource deposits is not science fiction. Harnessing valuable minerals from a practically infinite source will provide stability on Earth. The location of this source is a new concept for many. There are over 1,500 asteroids that are as easy to reach as the Moon. These "space rocks" contain a range of minerals, from water to platinum. Asteroid mining will provide sustainable resources on Earth and will afford the availability to maintain a human presence in space.

How can a start-up possibly achieve such an audacious plan? What are some of Planetary Resources' unique advantages?

Planetary Resources is poised to initiate prospecting missions at a quick pace, compared to government-sponsored missions that have taken place to date. We are not constrained by federal budget cycles or the ever-changing political landscape. We are focused on targeting resource-rich asteroids that are easily accessible. Planetary Resources will establish a new paradigm for resource utilization that will bring the Solar System within humanity's economic sphere of influence. Our company possesses a world-class team of skilled engineers, scientists, managers and private investors who have a track record of success in a variety of industries, not just the space industry. In fact, many of our investors and founders have created not just new companies, but entirely new industries.

What organizations will benefit as Planetary Resources moves forward?

Planetary Resources' advances in low-cost spacecraft and cost-effective space technologies, as well as access to plentiful in-space resources such as water and rocket propellant will benefit a wide range of stakeholders. Examples include government agencies such as NASA, the scientific community and universities, non-profit institutions, and the commercial spaceflight sector.

Aren't asteroids too remote and difficult to access?

Actually, there are over 1,500 asteroids that are as easy to reach as the Moon and that's because they have Earth-like orbits and they also have small gravity fields. So, we can reach them with very little propulsion. Additionally, it is relatively easy to depart from them and come back to Earth because of their very small gravity field and their orbits. These 'space rocks' contain a range of minerals from water to platinum. Asteroid mining will provide sustainable resources on Earth and will afford the availability to maintain a human presence in space.

What is asteroid prospecting?

It is the process of assessing the material resources an asteroid contains. Using telescopic remote sensing, we can measure and value an asteroid in space with more ease and precision than an ore body below Earth's surface.

What makes an asteroid more appealing than another?

Asteroids are enticing for several reasons. They have small gravity fields, so it makes it easier to place spacecraft and mining equipment on the surface. It's also easier to launch off an asteroid than say the Earth or the Moon. Also, asteroids are not processed bodies like the Earth and the Moon, so their mineral deposits are more uniform throughout.

As for targeting, once prospecting has commenced, we will have an expanded knowledge of certain near Earth objects. Some will be more accessible than others; some will be organic versus ones with metallic ore deposits. Through spectroscopy and other remote sensing techniques, we will be able to target a selection of asteroids that will be suitable for resource exploration.

Is it possible to mine a body with a small gravity field?

Conventional terrestrial mining techniques rely on the presence of gravity, developed over hundreds of years of our evolving understanding of the way materials behave. The microgravity environment presents unique challenges for materials acquisition and processing that require a different way of thinking about the problem. Problems associated material transport and handling must be solved with a new set of tools. While a significant challenge, Planetary Resources has experience with extraterrestrial materials handling in both reduced and microgravity environments, and is incredibly excited about employing these tools and techniques for asteroid resource acquisition.

If some asteroids are so resource-rich, wouldn't extracting billions of dollars of resources devalue the market?

The global economy is truly enormous – global GDP is over US\$70 trillion annually.

Second, in order for every person on Earth to reach the standard of living enjoyed by Americans today, global GDP would more than quadruple, reaching nearly \$330 trillion annually.

Third, history shows that an increase in ease of access to resources often leads to an expansion, not a shrinkage, of the associated industries, as well as the development of new technologies that use that resource.

Fourth, Planetary Resources will not only serve the global market but will also provide resources such as water to in-space destinations, for which there is currently no supply available.

Finally at Planetary Resources, we pride ourselves in assembling team members from all industry sectors, utilizing not only what we have learned through the decades of space exploration, but also carefully analyzing some of the breakthroughs that have occurred in other industries and how they were made possible.

Are you affiliated with Arkyd Astronautics?

Yes. Before we publicly announced the company, we referred to ourselves as Arkyd Astronautics. We have officially changed our name to Planetary Resources, Inc. The Arkyd name lives on in our [spacecraft line of products](#).