

Will we mine asteroids?

January 9 2015, by Fraser Cain



Platinum crystals. Credit: Periodictableru

It's been said that a single asteroid might be worth trillions of dollars in precious rare metals. Will we ever reach out and mine these space rocks? How hard could it be?

Here on Earth, precious metals like gold and silver are getting harder to find. Geologists are developing more elaborate ways to get at the veins of [precious metals](#) beneath the surface of the Earth. And for the truly

rare metals, like platinum and iridium, forget about it. All the platinum ever mined in the history of the world would fit inside my basement, and it's not that big of a basement.

There are asteroids out there, just floating past us, taunting us, containing mountains of precious minerals. There are iron-nickel asteroids made entirely of metal. Comets of water, dirt and organic materials, everything you'd need to make an orbital farm. Just a single 30-meter [asteroid](#), like the recently discovered 2012 DA14, is worth \$20 trillion dollars. Now, if you could just somehow get to it.

Mining here on Earth is hard enough, but actually harvesting material from asteroids in the Solar System sounds almost impossible. But almost impossible, is still possible. With enough ingenuity and a few breakthroughs in spaceflight and robotics, plus some convenient hand waving for the sake of storytelling and there could be a future of [asteroid mining](#) ahead of us.

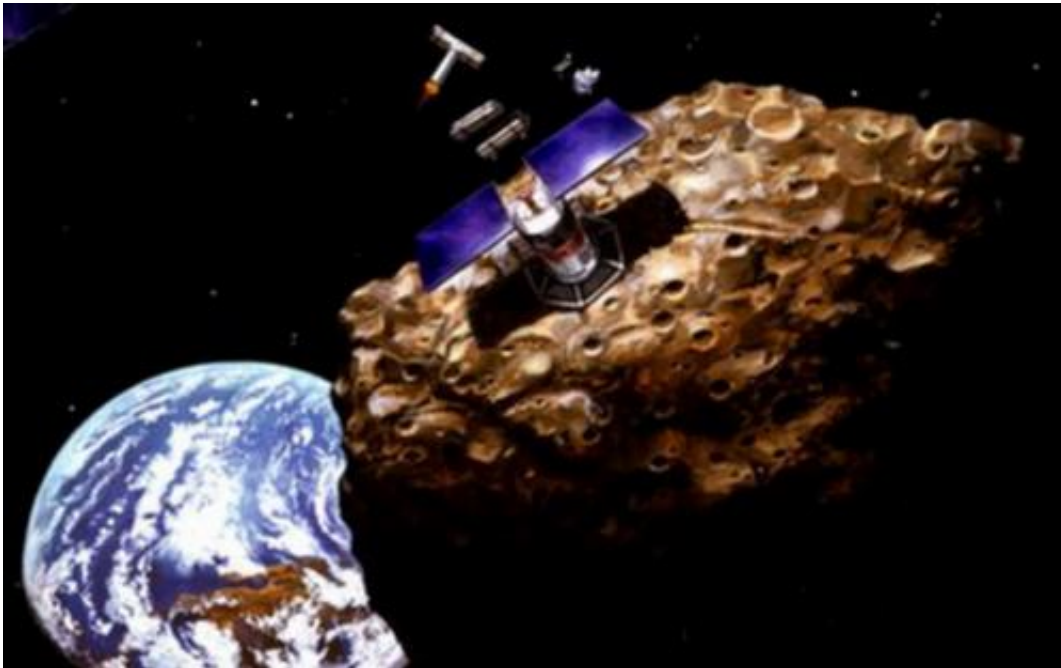
If there are mineral rich asteroids that contain a large amount of precious elements, it just might be cost effective to deliver those elements back to Earth. \$20 trillion dollars sure would help buy that [space elevator](#) you wanted for sci-fi Christmas. If we had Robotic harvesters extract the gold, platinum and iridium off the surface of the [space](#) rock and they could send return capsules to Earth.

It would make even more sense to keep this stuff in space. Future spacecraft will need rocket fuel, hydrogen and oxygen, conveniently contained in water. If you could mine water ice off a comet or asteroid, you could create fuel depots across the Solar System.

Miners could extract and concentrate other materials needed for spaceflight and return them to Earth orbit. There could eventually be an orbiting collection of everything you need to survive in space, all

gathered together and conveniently located ... in space.

You might be surprised to know that getting to a nearby asteroid would require less energy than traveling to the Moon. Asteroids actually make better refueling stations than the Moon, and could serve as a waypoint to the other planets.



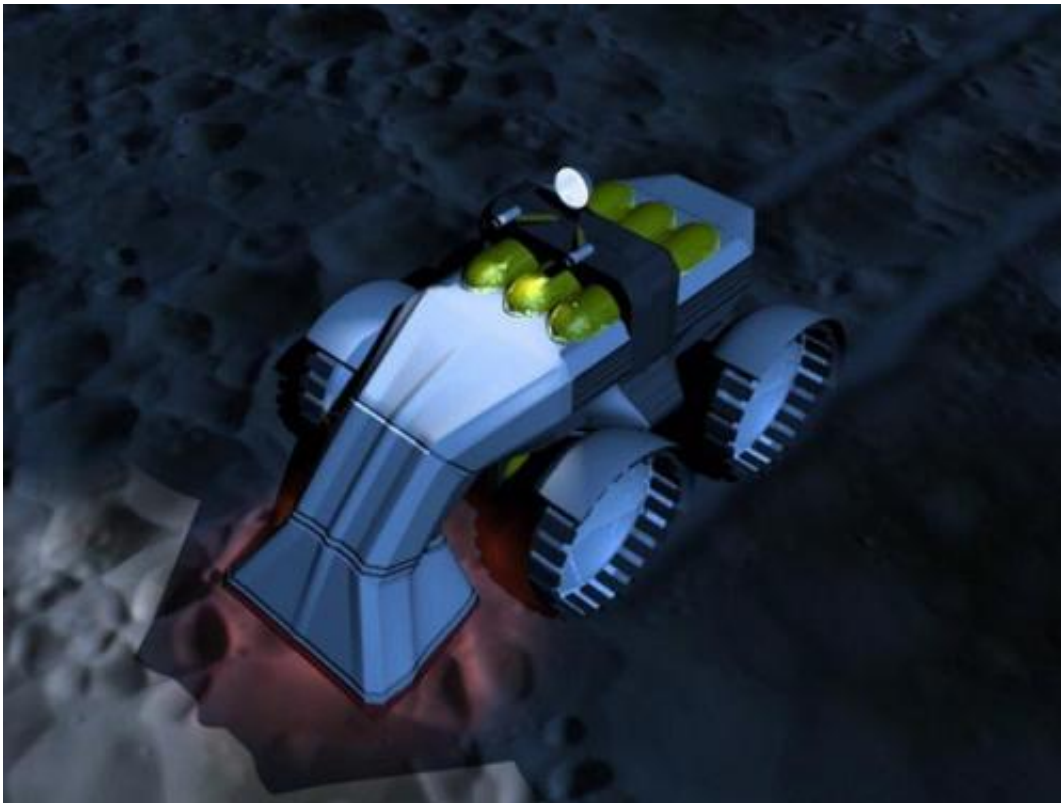
Artists's conception of a Robot space miner. Credit: NASA

There are a few companies working to mine asteroids right now. Planetary Resources and Deep Space Industries have both developed plans for robotic missions to find asteroid targets, analyze them up close, and even return samples to Earth for study.

Within a few decades, they should have identified some ideal candidate asteroids for mining, and we get on with the work of mining with Solar

System to support our further exploration. Perhaps then we'll become a true spacefaring civilization, or just get conquered by an uprising of our sentient robotic miner drones.

So, will this ever happen? Will we eventually mine asteroids to send material back to Earth and support the exploration of space? Who knows. Business and industry are drivers of innovation. If there's profit to be made, somebody will figure out how to do it.



Artist's illustration of a robotic miner. Credit: NASA

Source: [Universe Today](#)

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