

# Going for gold beyond Earth

A well-worn theme of science fiction, mineral extraction in space may be on the verge of becoming a reality, after Luxembourg announced this week steps to create a legal framework for exploiting resources beyond Earth's atmosphere.

## Why mine asteroids?

- A large number of asteroids – which vary in size from a few hundred kilometres across to a few metres – are clustered in a belt between Mars and Jupiter, and orbit the Sun in the same way as planets.

- Rare metals and other elements are more plentiful and accessible on these free-floating fragments than on Earth.
- Nasa has identified some 1,500 asteroids that it has described as easily accessible.

## Mining process, according to US company Deep Space Industries

### 1 Prospecting

Space probes, the size of suitcases, are launched into the asteroid to search for water, iron ore, rare-earth metals and silicates.

### 2 Harvesting

Resources are harvested using specialised robotic spacecraft. Harvester spacecraft will utilise water extracted from the target asteroid as propellant for the return trip.

### 3 Processing

Those resources will then undergo a unique processing stage, separating valuable components for manufacturing.

### 4 Manufacturing

Processed materials will then be used to manufacture components, such as antennas and reflectors for satellites, using 3D printing.

