

International Cooperation for Space Exploration (12)  
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## INTERNATIONAL COOPERATION IN THE FIELD OF SPACE MINING EXPLORATION

**Abstract**

Nowadays, exploration and exploitation of space resources are facing new challenges, especially from commercial point of view. Developing new partnerships for a better cooperation between space faring nations, and new space powers are essential.

## i) Mining Exploration of the Moon

On the Moon, some initiatives are lead. For example with Moon Express which is an american private commercial space company created to develop and mine the resources of the Moon and further space exploration. On the other hand, the European Space Agency is developing the Moon Village with the idea that it will be open to any and all interested parties and nations. Robotic and astronaut activities are equally sought after. It will be possible to develop not only scientific and technological activities, but also activities based on exploiting resources or even tourism. This open nature of the concept would allow many nationalities to go to the Moon and take part while leaving behind them on Earth any differences of opinion. An other initiative concerns Ispace, a private lunar robotic exploration company, collaborates with JAXA (Japanese Space Agency) on lunar resource development. This is the first japan initiative for the development and creation of a space resource industry.

## ii) Exploration of Asteroids

From a commercial standpoint, Planetary Resources, the United-States asteroid mining company, and the Government of Luxembourg announced last november the finalization of a cooperation agreement with the aim of launching the first commercial asteroid propsecting mission (CERES) by 2020. Deep Space Industries, an American private company, is a partner with Luxembourg to test asteroid mining technologies. Known as Prospector-X, the small spacecraft will test key technologies in Low Earth Orbit that will necessary for future asteroid prospecting. An important step toward developing the technologies is necessary to enable the potentially very lucrative business of asteroid mining.

In return, emerging space powers fear that the exploration and the exploitation of space resources could be a sole and exclusive space faring nations interests. It is important to join stakeholders and other States such as Japan, Canada, China, to lead innovation. National Space Agencies and the European Space Agencies have also a key role to play. Within three or five years, initiatives have to be developped. The distribution of these resources have to be taken into account but also the environment protection. This is a long-term view because the actual exploitation of space resources could start by ten or twenty years.