

Image: Luca installs BioRock

20 August 2019



Credit: European Space Agency

Heigh-ho, heigh-ho, it is off to work the microbes go.

ESA astronaut Luca Parmitano slides the smallest miners in the universe into the [Kubik](#) experiment container on the International Space Station.

For the next three weeks, three different species of bacteria will unleash themselves on basalt slides in the Kubik centrifuge that simulates Earth and martian gravity as well as in microgravity.

Run by a research team from the University of Edinburgh in the UK, the [BioRock experiment](#) is testing how altered states of gravity affect biofilm formation – or the growth of [microbes](#) on rocks.

Microbes are able to weather down a rock from which they can extract ions. This [natural process](#) enables biomining, where useful metals are extracted from rock ores.

Already a common practice on Earth, biomining will eventually take place on the Moon, Mars and asteroids as we expand our understanding and exploration of the Solar System.

The bacteria arrived at the Space Station on the latest Dragon resupply mission in a dehydrated, dormant state.

The organisms are given 'food' to restore [cell growth](#) and left to grow on basalt at 20°C.

After three weeks, the samples will be preserved and stored at 4°C while they await their return to Earth.

Researchers will map out how altered states of gravity affect the rock and microbes as a whole, as well as which microbe is the best candidate for mining in space. It is hoped these results will shine light on extraterrestrial biomining technologies and life-support systems involving microbes for longer duration spaceflight.

Biomining in space can also increase the efficiency of the process on Earth and could even reduce our reliance on precious Earth resources.

In addition to installing the little creatures, Luca is busy with a host of other experiments during his six-month mission, called Beyond.

Provided by European Space Agency

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