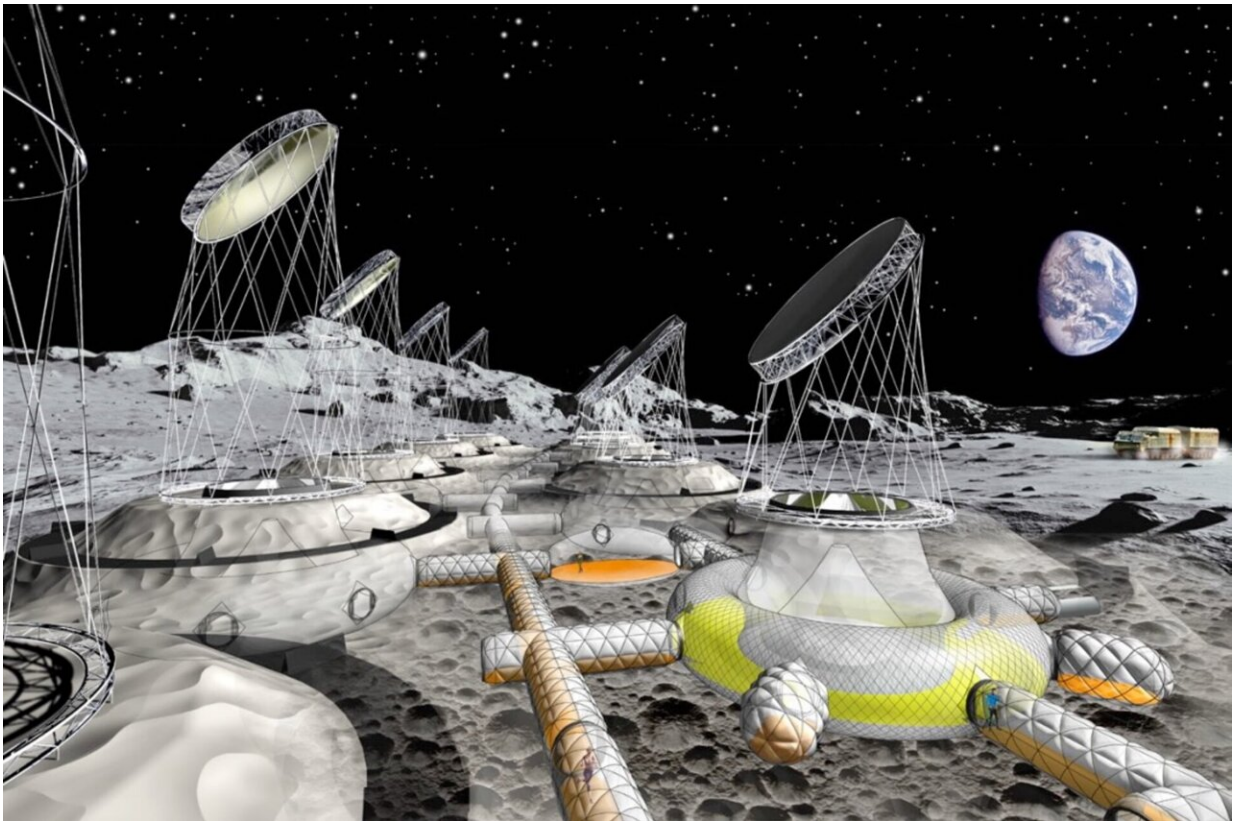


System study of proposed inflatable moon base

September 1 2022



Credit: Pneumocell

A vision of a future moon settlement is assembled from semi-buried inflatable habitats. Sited beside the lunar poles in regions of near-perpetual solar illumination, mirrors positioned above each habitat would

reflect sunlight into greenhouses within the doughnut-shaped habitats.

Inflatable structures specialist Pneumocell in Austria performed a system study of an inflatable lunar habitat, based on prefabricated ultralight structures.

Once inflated, these habitats would be buried under 4–5 m of lunar regolith for radiation and micrometeorite protection. Above each habitat a truss holding a mirror membrane would be erected, designed to rotate to follow the sun through the sky. Sunlight from the mirror would be directed down through an artificial crater, from which another cone-shaped mirror reflects it into the surrounding greenhouse.

The study was supported through the Discovery element of ESA's Basic Activities. It came about after Pneumocell submitted their idea to the Agency's Open Space Innovation Platform, OSIP, seeking out promising ideas for [space research](#) from all possible sources.

Provided by European Space Agency

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