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ARES PLAN: A LATIN AMERICAN PROPOSAL FOR MANNED EXPLORATION TO MARS

Abstract

A model for manned exploration of Mars is proposed, which includes not only sending three astronauts to the red planet, but a conversion through a planetary bioengineering, which could transform and make it habitable, first to plant organisms and then to humans. Ares Plan is composed by four projects: (a) Mars Ascent-Return to Earth Vehicle, which includes testing in the stratosphere by mean of a balloon, it also comprises engine and production fuel testing; (b) Stratospheric Research Module, designed to facilitate aerial observation of the planet with geological, geographical and astrobiology purposes of specific areas in a save time and safely way; (c) Minimal Unit of Terraformation, its objective is the transformation of an environment through a combined technology involving an ecosystem design, where photosynthesis uses the atmospheric carbon dioxide of Mars for oxygen release, the carbon is used to build plant tissue, and also is performed a process of degassing and atmospheric gradual densification; and (d) Analog Mars Research Station, which implies the installation of a prototype of a EarthMars traffic vehicle, and serve as the basis for a scientific research and training program in order to prove its efficiency during space voyage, with a special emphasis on life support systems and in situ generation of food, in this project a number of subprojects will come off in various scientific and technological areas. These projects can have value not only as a scientific contribution, but have social and educational implications in local populations.