

Participatory Exploration for Inspiration and Education (12)
Educating the Next Generation (2)

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INVOLVING ARCHITECTURE EDUCATION IN PLANETARY EXPLORATION

Abstract

This paper aims to discuss the integration of architectural education into the human planetary exploration endeavour, through experiences on space architecture related workshops. As the planetary exploration mission perspectives are getting more ambitious than ever, the habitable assets of the mission architectures require augmented qualities of habitability and operational capabilities. Architectural education, by its nature, includes the comprehension, reformation and development of the habitable spaces. The spatial spectrum, in which the architecture is involved is extended from conventional palette of structures, like residential or industrial buildings to habitable hi-tech products of the contemporary, including aerospace structures. A planetary human outpost is no longer out of the scanning range of the architects. Therefore, the need to enrich the design education with adaptability to actual needs of the technology and progress is emerging. Within this scope, a series of workshops with students from architecture and neighbouring disciplines are made, focused on the planetary habitation systems. Based on the planetary exploration architectures of major space agencies, like ESA and NASA, various design options are considered and developed within a limited time frame, akin to typical design studio tasks of the architectural education. A focus is set on the mobile planetary habitat structures, in compliance with the extended exploration ranges of human missions to the Moon and Mars. In this paper, the results of the workshops are presented in a comparative structure, giving the option to view the conditions of the working environment, such as effects of the feedbacks from different areas of expertise, the given design basis, production capabilities (e.g. hard-digital modelling, drawing). An evaluation of applied methods and an outlook on the further work is provided in the final section.