

16th IAA SYMPOSIUM ON VISIONS AND STRATEGIES FOR THE FUTURE (D4)
Contribution of Space Activities to Solving Global Societal Issues (2)

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SPACE FOR EARTH OR EARTH FOR SPACE

Abstract

Spaceflight preparation or new equipment design are very time, money and forces consuming processes. Equipment should be tested in different conditions to guarantee a certain level of safety and a space mission needs a wide spector of preliminary studies on the ground, including studies with human participation in case of manned mission. Experiments can be divided into short and long term tests and only a combination of all the data can make the study complete. Such studies have many aims. For example, they help to specify time to failure as well as to find weak sides of equipment, to define its safety and interaction with human. The data forms knowledge basis which could be used after the main studies are completed as well as the equipment used for experiments (especially models) could be used for next studies, but also it could and should be used for Earth purposes. This paper is dedicated to utilization of space technologies on Earth including overview of life support systems preliminary experiments and their possible future applications, including such important aspects as its usage for STEM activities and for studies related to human safety in emergencies on Earth. At the same time, the paper analyzes how Earth technologies and hazards influence on the approach used for space mission and equipment design.