

IAF SPACE EXPLORATION SYMPOSIUM (A3)
Space Exploration Overview (1)

Author: Dr. Sandra Haeuplik-Meusburger
Vienna University of Technology, Austria, haeuplik@hb2.tuwien.ac.at

ELEMENTS OF HABITABILITY AND ITS RELATIONS TO SPATIAL DESIGN – A CONCEPT
ANALYSIS**Abstract**

The term ‘habitability’ is a general term to describe the suitability of a built habitat for its inhabitants in a specific environment and over a certain period of time. Set into the space context, habitability can be understood as the measure of how well the (built) environment supports human health, safety and wellbeing to enable productive and reliable mission operations and success.

The term ‘habitability’ or any similar concept that can describe the suitability of the environment for daily human life was not in the vocabulary of early spacecraft designers or engineers. Their often used term ‘man in a can’ underlines that attitude. On the other hand, studies of living in isolated and confined environment (ICE) were conducted since the early 1950s, mainly in remote areas such as polar and underwater research stations, but also oil rigs and submarines.

In recent years, the use of the term ‘habitability’ has increased. It is used by different professions with a variety of underlying questions. Correspondingly a series of concepts exist.

This paper aims to give a systematic overview of the common features and differences of those scientific concepts. Based on relevant literature in that field (Bishop, Cohen, Kanas, Otto, Sandal, Stuster, Suedfeld, etc.), the author looks into selected dimensions of the phenomena ‘habitability’, and will create a conceptual analysis of the term through structured argumentation. The author is convinced that habitability is an important determinant for the design of any inhabited building type or human-used object, but in a confined and isolated environment it becomes critical. The long-term objective behind this conceptual analysis of the term habitability aims at sharpening the view of socio-spatial relationships in order to extract design principles for isolated and confined environments.