Paper ID: 90162
oral

IAF/IAA SPACE LIFE SCIENCES SYMPOSIUM (A1)
Behaviour, Performance and Psychosocial Issues in Space (1)

Author: Mr. Michail Magkos
Royal Institute of Technology (KTH), Sweden

Dr. Guilherme Elçadi
Royal Institute of Technology (KTH), Sweden
Prof. Mikael Forsman
Royal Institute of Technology (KTH), Sweden

ARCHITECTURAL PROPERTIES' IMPACT ON STRESS AND COGNITION – PRELIMINARY RESULTS FROM A STUDY CONDUCTED ON SPACE ANALOGUES AND THE ISS.

Abstract

The Architectural Properties' Impact on Stress and Cognition (APISC) studies stress responses and cognitive performance of crews in isolated and confined environments. Results of two, four-week long, seven participant in each, analogue missions will be explored. The same protocol is being implemented in the ISS. The aim of this study was to quantitatively identify benefiting architectural properties that can guide design requirements of future space habitats. The APISC study utilizes paired and continuous tracking of Heart Rate Variability (HRV) and the participants' location in the station, to investigate associations between locations and stress responses. Additionally, a series of computer based, self-delivered cognitive assessments were repeated in specific locations in the base to examine differences in performance that are associated to selected architectural properties (privacy, exposure to natural elements, crowding). Exposure to natural elements and private spaces was significantly correlated to enhanced working memory accuracy and reaction times; private areas showed the most benefit. Executive function was significantly ordered, being the highest with natural settings, second in private spaces, and the lowest in public areas. These preliminary findings indicate measurable effects of the architectural environment to cognitive performance for ground-based crews. The space segment of the data collection is still ongoing.