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SOCIOMAPPING COMPARATIVE STUDY OF THE STRUCTURE AND DYNAMICS OF
INTERPERSONAL RELATIONSHIPS OF FOUR SPACE CREWS IN THE INTERNATIONAL
“SIRIUS PROJECT 2017 – 2025” IN THE FIELD OF COMMUNICATION AND COOPERATION OF
ASTRONAUTS

Abstract

Introduction In 2017–2025, a research team of Czech scientists was involved in the international research project “SIRIUS”, organized by IBMP RAS and NASA, whose program was a series of four isolation experiments simulating a manned flight to the Moon. Six-member gender- and culturally mixed crews completed a demanding scientific program in the following time frames: SIRIUS-17 lasted 17 days, SIRIUS-19 four months, SIRIUS-21 eight months, SIRIUS-23 twelve months. The team’s approach is comprehensive, interdisciplinary and multidisciplinary, using the authors’ own diagnostic methods. Extensive research data sets were obtained regarding the life and work of exposed professions operating in extremely demanding conditions of long-term isolation and stress. Target The aim is to a) outline one of the key areas of the model used in the “SIRIUS” project (Bernardova, 2022, 73rd IAC, Paris, <https://iac2022-iaf.ipostersessions.com/Default.aspx?s=5E-3C-6C-5E-A4-86-6B-2B-FF-60-1E-08-FE-3F-35-AC>), which is the sociodiagnostic and intervention/developmental method SOCIOMAPPING, b) present the key outputs obtained through quantitative and qualitative analysis, c) highlight the important findings of the twelve-month isolation. Methods A combination of the authors’ own questionnaires forming the above-mentioned applied research model was used to identify and describe aspects of the extreme and given environment. Data collection took place in individual experiments before, in the middle, during at regular intervals and after isolation. 1. Questionnaire of satisfaction with work and life; 2. Questionnaire of the structure and dynamics of relationships using Sociomapping; 3. Questionnaire of specific areas of astronauts’ lives; 4. Questionnaire of subjectively perceived health, physical readiness and saturation of human needs. Ad 2. SOCIOMAPPING is a technique suitable for the analysis of nonlinear dynamic systems - groups, organizations, populations. The method of the Czech author R. Bahboub allows you to analyze the relationships and ties between the elements of the system, reveal stable and recurring structural patterns and monitor their dynamics. Results Within the framework of the “SIRIUS” project, the team stated the main goals: 1. PREPARE human crews for manned flights and stays in space and on interplanetary bases; 2. REDUCE THE RISKS of physical and psychological damage and loss of life of astronauts, and thus CONTRIBUTE TO THE PROTECTION of the physical and psychological health of humans and small social groups on the threshold of the 21st century. Content-wise, visually and graphically interesting, understandable and significant outputs will be presented describing the ongoing communication and cooperation of crews accompanied by varying degrees of mutual trust, respect,

support and other aspects accompanying space missions.