

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

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INTERPERSONAL PERCEPTION AND COMMUNICATION OF THE ISS CREW WITH MISSION
CONTROL CENTER: GROUND SIMULATION RESULTS AND PROSPECTS FOR RESEARCH ON
BOARD**Abstract**

Currently, communication between the International Space Station (ISS) and Mission Control Center (MCC) is changing. According to independent experts of different national space agencies, the division into national segments of the ISS reduces the efficiency of interaction between the crew and ground control services. Preliminary results of our space experiment "Interaction-Attitudes" indicate an increase of "psychological distance" between the crew and MCC personnel that can be regarded as unfavorable trend in terms of flight control. Interpersonal perception and communications of the isolated crew with the external support center have been studied in the 105 and 520 days ground experiments, simulating a piloted flight to Mars ("Mars-500" project), that were organized at IBMP in Moscow in 2009-2011. Methodology: We used (monthly) the PSPA computerized method, which is currently applying on board of the ISS. It is based on factor analysis of the subject's evaluations of chosen personages (including the crewmembers, MCC personnel and Self-image of the subject), using a set of criteria formulated by the subject himself. Mathematical data, representing the tendencies of psychological "rapprochement" (similarity) of the members of international crew, are the basis for conclusions about interaction between the crewmembers under spaceflight stress-factors. Twice a month the Questionnaire for Sociomapping Analysis of the Crew was used, which provides the information about the effectiveness of communications between the crewmembers, as well as with MCC representatives. Mathematical processing of Sociomapping data, using specialized software provides a graphic presentation of relationships between the communicants, looking like a 3D "geographical map" of communication. Ground simulation results showed that the intensity and quality of communication with MCC was much lower, it could be seen on the map as "located very far from the subjects and in the "lowland". We found out that the change in relation to MCC occurred concurrently with the negative changes amongst the crewmembers. The data showed that the relationship

between internal and external communication of the isolated crew should be investigated in more detail. This methodology is supposed to be used on board of the ISS as the continuation and development of space experiment "Interaction-Attitudes". The results of the study will permit to obtain the statistically significant data, concerning the effects of different aspects of interpersonal perception and communication (both inside the crew and with external communicants) on interaction and cohesiveness of the ISS crew.