

SPACE LIFE SCIENCES SYMPOSIUM (A1)
Radiation Fields, Effects and Risks in Human Space Missions (4)

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CURRENT STATUS AND RESULTS OF THE HAMLET PROJECT

Abstract

The radiation exposure of astronauts in space causes a major concern in long duration and interplanetary missions. The knowledge of the radiation doses to radiosensitive organs within the human body is a prerequisite for radiation risk assessment. One way to approach this is the ESA facility MATROSHKA (MTR), under the scientific and project lead of DLR. The MTR experiment is dedicated to determine the radiation load on astronauts within and outside the International Space Station (ISS), and was launched in January 2004. MTR uses a human phantom equipped with radiation detectors in different depth and at organ sites to measure depth dose profiles and organ doses. MTR is currently in its fourth experimental phase inside the Japanese Experimental Module (JEM). MTR is the largest international research initiative ever performed in the field of space dosimetry and combines the expertise of leading research institutions around the world, thereby generating a huge pool of data of potentially immense value for research. Aiming at optimal scientific exploitation, the FP7 project HAMLET Project Nr: 218817 processes and compiles the data acquired individually by the participating laboratories of the MATROSHKA experiment. Data on dose and linear energy spectra are available for first three MTR experimental phases (MTR-1, 2A and 2B).