

From Earth Missions to Deep Space Exploration (05)
Exploration Research and Technologies (2)

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THE ENERGETIC PARTICLE HAZARD EN ROUTE FROM EARTH TO, AND AT, THE MARTIAN
SURFACE UNDER DIFFERENT SOLAR CIRCUMSTANCES

Abstract

In consequence of the potential health hazard posed to a human crew during long-haul space missions, an ensemble of models is used in the present paper to estimate the energetic particle radiation dose potentially experienced in the space environment under different solar circumstances during a Cruise Phase (400 days) to/from Mars. Also, estimates are made of the particle radiation dose potentially experienced at various sites on the Martian surface during a 30 day sojourn, including a worst case scenario.

Mitigating strategies under development to protect prospective crew members from the deleterious effects of energetic particle radiation are, in addition, outlined.