

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

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MOON RADIATION ENVIRONMENT IN THE VICINITY OF EARTH MAGNETOSPHERE

**Abstract**

One potential method of radiation mitigation on extra-terrestrial missions is in the form of magnetic fields. For Moon missions the Earth magnetosphere is a source of magnetic field, as the Moon spends about 25% of its orbit inside it. Recent modelling results have conflicted in their conclusions as to whether the Earth's magnetotail at lunar distances is sufficiently strong to provide shielding from GCR with energies greater than 10 MeV. Using RADOM data from Chandrayaan-1 satellite we try to reveal a possible shielding. The results show that during solar cycle minimum the magnetotail does not mitigate doses on Moon orbiter. Moreover, acceleration processes within the magnetosphere during substorms enhance the flux of energetic electrons at Moon orbit.