

Solar Energetic Particles (SEP), Solar Modulation and Space Radiation: New Opportunities in the AMS-02 Era #2

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Probabilistic Modeling of the Space Radiation Environment

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Design and planning for space missions must account for possible solar energetic particle events (SEPEs) during these missions. Missions account for SEPEs by designing or planning to the worst operating reference environment. It is important to choose a mission-specific environment to avoid expensive over-design of the satellite.

This discussion focuses on two new probabilistic models for choosing the design reference environment of a mission. First probabilistic model is a peak mission flux model used for mission durations ranging from 10's of minutes to several years. Second model is a SEPE episode-integrated fluence model used for mission durations ranging from a few weeks to several years. Both models use a new data set of SEPEs that utilizes a much lower threshold for SEPE identification.

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