

## Solar Energetic Particles, Solar Modulation and Space Radiation: New opportunities in the AMS Era #3

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# Interplanetary Energetic Particle Measurements from NASA's Heliophysics System Observatory

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NASA's fleet of geospace and interplanetary spacecraft have collectively provided long-term monitoring of solar, heliospheric, and galactic energetic particles from the inner solar system to the outer heliosphere and now with Voyager 1 in local interstellar space. The new proton and helium flux data from AMS-02 will extend Heliophysics System Observatory (HSO) data coverage in the NASA archive of the Space Physics Data Facility to the highest energies ever archived from spacecraft. Most of the measurements can be accessed through the NASA Space Physics Data Facility (SPDF) at [spdf.gsfc.nasa.gov](http://spdf.gsfc.nasa.gov) with enhanced browser access for many data sets through the associated Virtual Energetic Particle Observatory (VEPO) at [vepo.gsfc.nasa.gov](http://vepo.gsfc.nasa.gov). These data can for example be used in conjunction with radiation transport codes, e.g. GEANT, to specify radiation dose rates for irradiation of spacecraft and surfaces of planetary bodies. Example flux spectra and dose profiles are discussed for the inner solar system at the Moon and Mars, for Pluto in the outer solar system, and for extreme Kuiper Belt Objects in the outermost heliosphere and the local interstellar medium.

**Author:** Dr COOPER, John (NASA Goddard Space Flight Center)

**Presenter:** Dr COOPER, John (NASA Goddard Space Flight Center)

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