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Onset times of solar particle events at Mars Science Laboratory en route to Mars.

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En route to Mars, the Mars Science Laboratory (MSL) Radiation Assessment Detector (RAD) was turned on ten days after launch on December 6, 2011. RAD measures protons up to 100 MeV and electrons up to 20 MeV, and observed a total of five solar particle events (January 23 and 27, March 7 and 13, and May 17) before landing on Mars on August 6, 2012. These particle events were also seen by an array of spacecraft, including SOHO, elsewhere in the heliosphere. This constellation provides an unique opportunity to investigate particle propagation in the ecliptic plane and thus constrain particle propagation models because of the unique (magnetic) connections between Earth, MSL, and other spacecraft. We will provide onset times of these events at MSL and relate them to other measurements and to the length of the Parker spiral as modeled by the CCMC-provided WSA-ENLIL model. We find considerable uncertainties which are due to the flare timing, as well as unknown solar wind conditions at MSL.