

NASA's Living With a Star (LWS) Sentinels mission to understand the origin of Solar Energetic Particles (SEPs)

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One of the primary goals of NASA's Sentinels mission, the heliospheric element of the integrated LWS program, is to provide the observations necessary for an understanding of the physics of the Sun/inner heliosphere processes that produce SEP events, so the requirements for eventual predictive capability can be defined.. We present the results of the study by the Sentinels Science and Technology Definition Team (STDT) that recommends a combination of the Inner Heliosphere Sentinels (IHS), consisting of four identical spacecraft that utilize Venus gravity assists to achieve 0.25-0.75 AU orbits, primarily for in situ particles and fields measurements; a Near-Earth Sentinel (NES) with a spectroscopic coronagraph to provide the physical conditions in the SEP acceleration region and a wide field ($>\sim 0.3$ AU) coronagraph to connect to the IHS measurements, and a Farside Sentinel (FS) with a magnetograph to provide near global photospheric magnetic field measurements for modeling the structure of the inner heliosphere. We show how the combined measurements are designed to lead to an understanding of SEP origin and to improve our predictive capability for large SEP events.