



Solar Electron and Proton Observations: first Results from the Twin STEREO Spacecraft

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The twin observatories of the STEREO mission, launched on October 25, 2006, will perform comprehensive studies of Coronal Mass Ejections (CMEs) directed towards Earth from two vantage points which allow stereoscopic remote observations of CMEs and multi-point in-situ measurements of their interplanetary counterparts (ICMEs). The angle STEREO-A – Sun – STEREO-B increases at a rate of 44 degrees per year. As the observatories separate, larger ICME structures are revealed by the particles and field instruments of the IMPACT investigation one of which is the Solar Electron and Proton Telescope (SEPT). It is designed to provide the three-dimensional distribution of energetic electrons and protons with good energy and time resolution. This knowledge is essential for characterizing the dynamic behaviour of CME associated and solar flare associated events. SEPT will cleanly separate and measure electrons in the energy range from 30 – 400 keV and protons from 60 – 7 000 keV. Anisotropy information on a non-spinning spacecraft is provided by two separate telescopes: SEPT-E looking in the ecliptic plane along the Parker spiral magnetic field both towards and away from the Sun, and SEPT-NS looking vertical to the ecliptic plane towards North and South. At the time of abstract writing STEREO-A is already in its heliocentric orbit and SEPT is operating nominally while STEREO-B still awaits its injection into heliocentric orbit using gravitational maneuvering and the SEPT doors are still closed. SEPT just missed the solar activity in December 2006, unexpected at the minimum between solar cycle 23 and 24, but if the Sun is cooperative, first results will be presented with multi-point observations of solar energetic particles.