



## **Morphology of the energetic electrons of the magnetotail plasma sheet**

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The RAPID instrument on each of the four Cluster spacecraft comprises an imaging ion mass spectrometer (IIMS) and an imaging electron spectrometer (IES). The latter is capable of detecting electrons within the energy range of some 30 to 400 keV. Such high-energy electrons provide a powerful diagnostic for the acceleration processes associated with magnetospheric boundaries, and are characteristic of the magnetotail plasma sheet. Between the months of July and October, the apogee of Cluster traverses the nightside plasma sheet from the dawn to the duskside flanks. Using data from the 2002, 2003 and 2004 tail crossings, for which we have nearly complete data coverage, we apply a combination of re-ordering and superposed epoch techniques to characterise the plasma sheet energetic electron population as a function of location, and with reference to the magnetic field observations from the Cluster/FGM instrument. We present a statistical study of these data showing the variation in the plasma sheet energetic electrons as a function of the prevailing geomagnetic and interplanetary conditions.