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Magnetic anomalies and ionospheric photoelectrons: electron observations from Mars Express ASPERA-ELS

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The Mars Express spacecraft arrived at Mars on December 25, 2003. Since then, the Analyser of Space Plasmas and Energetic Atoms (ASPERA-3) experiment has been observing in situ electrons with the ASPERA-3 Electron Spectrometer (ELS). The environment of Mars has similarities to that of a comet in its solar wind interaction; however, Mars possesses a CO2 dominated atmosphere and has remnant magnetism on its surface which produce unique features around the planet. While in the vicinity of the planet, ELS provides information on the solar wind interaction with Mars and, with energy resolution as good as 8%, allows study of ionospheric photoelectrons. As a survey of ELS observations, we present examples of boundary crossings, of ionospheric photoelectron data, and of electron signatures related to magnetic anomalies.