GCR flux gradients in the inner heliosphere from ESA SREM data during the Rosetta SREM cruise and comet phase

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Abstract. The radiation data collected by the ESA Standard Radiation Environment Monitor (SREM) aboard various ESA missions are analysed with an emphasis on characterising Galactic Cosmic Rays (GCRs) in the inner heliosphere. Cross-calibration between all sensors was performed. We investigate the stability of the SREM detectors over long term periods. Based on INTEGRAL and Rosetta SREM data, a GCR helio-radial gradient of 2.96%/AU is found between 1 and 4.5 AU. Finally, the data during the last phase of the Rosetta mission around comet 67P/Churyumov-Gerasimenko were studied in more detail. An unexpected and as yet unexplained 8 % reduction of the Galactic Comic Ray flux measured by Rosetta SREM in the vicinity of the comet is noted.