Geophysical Research Abstracts,
Vol. 10, EGU2008-A-05989, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-05989
EGU General Assembly 2008

The Spatial Evolution of 26-Day Recurrent Particle Intensity Variation: Correlated ULYSSES, SOHO, and STEREO Particle Observations

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The effects of corotating interaction regions (CIRs) on energetic particles were first studied in detail about 30 years ago. The three-dimensional extent of CIRs and its importance in structuring the quiet heliosphere, however, became obvious first from Ulysses observations at high heliolatitudes. Mid 2007 the energetic particle fluxes measured at the position of Ulysses at about 1.5 AU and about 30 degree South, at SOHO, close to Earth, and at the location of the two STEREO spacecraft show pronounced solar rotational variation. From July to September 2007 a series of CIRs are observed. In this paper we investigate the longitudinal and latitudinal variation of the paricle modulations and the correlation to coronal hole structures seen in synoptic maps.