Ulysses EPAC and KET observations of Jovian electron jets during the distant Jupiter encounter

B. Heber^a, N. Krupp^b, L. Rodriquez, H. Kunow^b

- (a) 1. Physikalisches Institut, Universität Stuttgart, Pfaffenwaldring 57, 70550 Stuttgart, Germany
- (b) Max Planck Institute for Solar System Resarch, 37191 Katlenburg-Lindau, Germany
- (c) Institut für Experimentelle und Angewandte Physik der Christian-Albrechts-Universität Kiel, Germany

Presenter: H. Kunow (kunow@physik.uni-kiel.de), ger-heber-B-abs1-sh25-oral

The Energetic Particles Composition instrument (EPAC) consists out of four detector heads and was designed to provide information on the flux, anisotropy and chemical composition of energetic particles in interplanetary space. During the mission it became evident that important informations about a few hundred keV electrons can be extracted from the four telescopes. The COSPIN/KET experiment on-board Ulysses has been monitoring the flux of 3-20 MeV electrons in interplanetary space since the launch in October 1990. Between 1 and 10 AU Jovian, and galactic particles contribute continously to the few-MeV electron intensities. During it's recent descend to low latitudes the Ulysses spacecraft approached the planet Jupiter within 1 AU. However, in addition to the average intensity level well accounted for by diffusion, we report about very short duration electron events, which are called Jovian electron jets, characterized by: (i) a sharp increase and decrease of flux: (ii) a spectrum identical to the electron spectrum in the Jovian magnetosphere; and iii) a strong anisotropy. We compare our results with similar events, observed during the Jovian flyby in 1992.

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