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Transport modeling of energetic electrons in the 20 October 2002 solar event

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The modeling of solar particle propagation offers the possibility to derive transport coefficients and to test the validity of theories describing the interaction of energetic charged particles with magnetic field fluctuations. Here we analyze electrons in the energy range of 1 - 180 keV, observed by the Wind spacecraft following an impulsive solar flare on 20 October 2002. The event is characterized by weak, but measurable pitch angle scattering which allows a characterization of the pitch angle scattering coeffcient $D_{\mu\mu}(\mu)$, as well as by particle reflection at an outer bondary which could be a magnetic compression related to a coronal mass ejection or a corotating interaction region. Based on numerical solutions of the focused transport equation we present fits to the observed electron fluxes, with emphasis on a detailed modeling of the particles' angular distributions. We compare the derived values of $D_{\mu\mu}(\mu)$ for several energy ranges with the ones obtained from an analysis of the magnetic fluctuations observed during the event and current transport theories. Preliminary results indicate that the scattering of electrons at low energies is much weaker than predicted by the above models, and that at large wave numbers the slab component makes up only a few percent of the fluctuations.