Geophysical Research Abstracts
Vol. 20, EGU2018-9303, 2018
EGU General Assembly 2018


# Simulation of energetic particle transport and acceleration at shock waves in a focused transport model: effects of the shock angle

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We use numerical solutions of the focused transport equation obtained by an implicit stochastic differential equation scheme to study the evolution of the pitch-angle dependent distribution function of protons in the vicinity of shock waves. We assume a scenario in that a flare-accelerated population of ions is released close to the Sun simultaneously with a traveling interplanetary shock. Both parallel and oblique geometries of the shock are considered for an analysis of the resulting intensities, anisotropies, and energy spectra as a function of time. In addition, we investigate the effects of adiabatic focusing in the diverging magnetic field on the particle transport at the shock, and of the competing effects of acceleration at the shock and adiabatic energy losses in the expanding solar wind. We find that that our simulations can naturally reproduce the morphologies of so-called mixed particle events by assuming parameter values which are typically observed for transport conditions of ions in the inner heliosphere.