A statistical study of solar energetic electron events over one solar cycle

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Using WIND/3DP electron data from 1995 through 2005, we study the number distribution of solar energetic electron events over one solar cycle. We find a quite power-law relationship between the event number N and the event peak flux J: $dN/dJ = A \cdot J^{-\gamma}$. Taking into account the effect of instrumental background, we estimate the yearly number of electron events from the integration using the minimal peak flux observed at 3 and 40 keV. We find that both the observed and estimated numbers of electron events show a time variation similar to the sunspot numbers. We also present the statistical study of electron events accompanied by low-energy, $\sim$MeV/nucleon and highly ^{3}He-rich ion emissions, and estimate the effects of electron scattering in the interplanetary medium from in situ observations at 1 AU.