

SOLAR IMPULSIVE ELECTRON EVENTS WITH UNUSUAL VELOCITY DISPERSIONS

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Solar impulsive electron events observed at 1 AU occasionally do not show the expected velocity dispersion normally produced by the difference in time of flight of electrons at different energies. These unusual velocity dispersions were brought to attention by Roelof et al. investigating ACE EPAM data (40-300 keV). They explain the absence of velocity dispersion by wave-particle interaction slowing down the electrons. Here we present WIND/3DP observations of those events investigating the following questions: 1) Are the onset times simultaneously at all energies? In particular, what are the onset times at low energies (1-40 keV)? 2) Are the spectra flat at the beginning of the events as predicted by wave-particle interaction? 3) Is there an enhanced level of insitu waves at the time when 40-300 keV electrons arrive at 1 AU as a result of the wave-particle interaction?