Comparison of KITSAT-1/CPE Experiment and Trapped Radiation Model

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Cosmic Particle Experiment (CPE), which measures the linear energy transfer of the high energy particle flux with a silicon diode detector of 30x30x0.3 mm³ size, is one of the scientific instruments on board the first Korean technology demonstration microsatellite (KITSAT-1), launched in August 1992. The CPE data obtained from 1992 to 1997 are compared with the Trapped Radiation Models, which are omnidirectional, static, and empirical models developed at the NASA National Space Science Data Center (NSSDC) using an extensive compilation of spacecraft measurements taken between 1958 and 1978. Various particle path lengths for the satellite structures and the detector have been considered to see the effects of particle pitch angle along the magnetic field. Comparisons are made for many different factors such as local time, season, solar activity, geomagnetic latitude, and the angle between the detector and magnetic field.