Geophysical Research Abstracts, Vol. 9, 05401, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-05401

Model of the pitch angle diffusion

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The mathematical model in the form of the differential equation describing all set sine like of pitch angle distributions of charged particles in view of losses and sources of particles is offered. For this purpose concrete pitch angle dependences of the pitch angle diffusion coefficient and the function of a source of the charged particles are certain. In the offered model also contains, as a special case, new model of the pitch angle diffusion of the charged particles in a cone of losses. The model in a cone of losses differs from previous models presence of a source of the charged particles. Through the numerical solution of the differential equation of the pitch angle diffusion for all range of pitch angles from 0 up to 180 degrees influence of a mode of the pitch angle diffusion and intensity of a source of particles on a pitch angle distribution of the charged particles is investigated. The offered mathematical model of the pitch angle diffusion of particles can be used, for example, for the analysis of experimental pitch angle distributions of the charged particles in the magnetospheres of the Earth and Jupiter.