# Modeling of the equilibrium distribution of Earth's radiation belt protons

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The average quiet time structure of energetic Earth's radiation belt protons can be explained as an equilibrium balance among radial diffusive transport, losses due to Coulomb collisions, charge exchange with the ambient neutral hydrogen geocorona and drift of protons under influence of the magnetospheric convection. The mode of transport is diffusion due to substorm-associated fluctuations in the large-scale electric and magnetic fields. Attention is restricted to equatorially mirroring protons in the energy range (1 - 750) keV, and comparison is made between theoretical predictions of proton energy spectra at values L between 1 and 6.6 and radiation belt ion observations on board several satellites. Agreement between theory and observations is received.