

Absolute comparison of magnetospheric particle fluxes

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The flux of magnetospheric particles is usually a function of energy (E), magnetic field (B), McIlwain's parameter (L), pitch angle (α), latitude (λ), longitude (ϕ), and time (t). Since the pitch angle dependence is usually in the form of $\sin^q \alpha$, which does not indicate equal number of particles from equal intervals of pitch angle, the calculation of flux j from counting rate N from the relation $j = N/(\text{Geometric factor} \times \Delta E)$ is incorrect in the sense that j represents an isotropic flux in which N is independent of the direction of incidence, and depends only on the size of the solid angle of acceptance. The quantity defined as the ratio of the counting rate to the product of the detector area, detector response function, and the integral energy spectrum, takes care of the anisotropy in pitch angles. This quantity can be calculated for different particle telescopes and compared in the correct way.