

あけぼの衛星太陽電池劣化から推測する放射線帯プロトンの空間分布

三宅 互¹、三好 由純²、松岡 彩子³

¹東海大学工学部航空宇宙学科

²名古屋大学宇宙地球環境研究所

³JAXA 宇宙科学研究所

On spatial distribution of the proton radiation belt deduced from solar cell degradation of the Akebono satellite

W. Miyake¹, Y. Miyoshi² and A. Matsuoka³

¹*Department of Aeronautics and Astronautics, Tokai University*

²*ISEE, Nagoya University*

³*ISAS, JAXA*

We have been studying on L-shell distribution of energetic (>10 MeV) protons from solar cell degradation of Akebono satellite orbiting in the inner magnetosphere. We obtained more compact distribution of the trapped protons than given by the AP8 and AP9 models (Miyake et al., 2014; 2015). In our previous study, we assumed that proton flux varies along the field line in the same rate as in the AP8 model. If the flux is more confined around the equator, the L-shell distribution may be possibly widen and the difference from the previous models can be smaller. In our preliminary calculation, we have obtained a fair agreement with the actual degradation by employing a model with more confined distributions near the equator only for larger L values. We will further discuss our result by comparing with pitch angle measurement on the Van Allen probes.

References

Miyake, W., Y. Miyoshi, and A. Matsuoka, On the spatial extent of proton radiation belt from solar cell output variation of the Akebono Satellite, *Adv. Space Res.*, vol. 53, 1603-1609, 2014.

Miyake, W., Y. Miyoshi, and A. Matsuoka, An empirical modeling of spatial distribution of trapped protons from solar cell degradation of the Akebono satellite, *Adv. Space Res.*, vol. 56, 2575-2581, 2015.