

The electron radiation belt model depending on the mean Dst index

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Electron radiation belt models are important for spacecraft designs to evaluate the total radiation dose. The Akebono satellite has been in the highly elliptical orbit since 1989 and measured almost whole region of the inner radiation belt and the high latitude region of the outer radiation belt over a period of 22 years which is the 2 solar cycles. From the long-term Akebono satellite observation, we find that the logarithm of the annual mean high energy ($>2.5\text{MeV}$) electron flux shows a good correlation with the annual mean Dst index in the slot region and the outer belt. We propose the electron radiation model depending on the mean Dst index.

Keywords: Electron radiation belt model, Akebono satellite, Dst index