

## Time constant of MeV electron losses in the slot region inferred from TSUBASA measurements

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Earth's radiation belt is divided into two parts by the existence of slot, which is considered to be made from the wave-particle interactions. Very low frequency (VLF) waves scatter highly energetic electrons into loss cones. Cause of VLF waves can be triggered by the propagating power line harmonics (PLR) in the slot region. In order to clarify the electron loss processes we have first investigated the time constant of highly energetic electrons based on the TSUBASA satellite observations. Results demonstrate the time constants are 1.5 days ( $L=3.0$ ? $2.6$ ), 4 days ( $L=2.4$ ), and 8 days ( $L=2.2$ ) for 0.4 - 0.9 MeV electrons in the slot region. These results were longer than those obtained in 1960's by two times. In the talk we will discuss on the increase of time constant by paying a particular attention on the progress of recent human activity.