

R010-17

A 会場 : 9/25 AM1 (9:00-10:30)

9:55~10:10

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Annual electron dose on Himawari8: comparison of SEDA-e observation with empirical model estimation

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Total ionizing dose (TID) effects are common problem in space. Major sources of TID at geostationary orbit are energetic electrons in the outer Van Allen radiation belt and solar energetic particles (SEPs) accompanied by solar flares. Space environment data acquisition monitor (SEDA) onboard Japanese geostationary meteorological satellite Himawari8 have been observing such energetic electrons and protons since November 2014. In this study, annual changes in electron dose are estimated from the SEDA-e observation by inputting yearly fluence data to SHIELDOSE-2 model assuming 1-mm Aluminum sphere shield. The annual electron dose was found highly varying year to year. It was highest in 2017 during the declining phase of solar cycle 24, and lowest in 2020 in the period near-minimum of the cycle. The electron dose based on SEDA-e observations are compared estimation based on AE8 trapped electron model which are commonly used for spacecraft designing. Recently AE9 was newly released as upgraded model of AE8. Observation based dose values were also compared with AE9 and other available model-based doses. The comparison results will be presented in the talk.