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Effects of the May 2024 Solar Storm on the Earth's Radiation Belts Observed by CALET on the International Space Station

The Calorimetric Electron Telescope (CALET), launched to the International Space Station in 2015, provides more than 9 years of continuous observation of the radiation environment at low Earth orbit. Using this dataset, we present 5 months of observations following the May 2024 solar storms and the effects they had on the radiation belts across three electron energy ranges (>1.5, >3.4, and >8.1MeV). We show that this event populated a long-lasting new structure of relativistic electrons extending to values of L shell below the slot region barrier of L = 2.8. Additionally, we observe the decay rates for this population as a function of energy and L shell to show the evolution of this structure over time.

Collaboration(s)

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