

Panels (P)

Extending the Prediction Horizon of Earth's Radiation Belts: from Science to End-users Space Weather Services (PRBEM.3)

HIGH-ENERGY ELECTRON FLUX ENHANCEMENT PATTERN IN THE OUTER RADIATION BELT IN RESPONSE TO THE CORONAL MASS EJECTIONS

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We consider the high-energy electron flux enhancements that occur in the outer radiation belt in response to Interplanetary Coronal Mass Ejections (ICMEs). We selected ten events during the Van Allen Probes era in which the high-energy electron flux enhancements start at L-shells below 3.8. Although the physical processes responsible for high-energy electron flux enhancements in the outer radiation belt are known to be associated with the dynamics of the incident solar wind structures and interplanetary transients, there are still several open questions. This work seeks to identify the sequence of ideal physical processes needed for high-energy electron flux enhancements that occur under the influence of the ICMEs via an epoch analysis applied to the interplanetary medium parameters that define ICMEs. Additionally, the dynamic mechanisms driven by both whistler-mode chorus and ultra low-frequency waves will be discussed individually and through epoch analyses to identify the role of these waves in the electron flux enhancement pattern. Thereby, the results of this work may offer support models for the radiation belts within the inner magnetosphere.