
A case study to determine the relationship of relativistic electron events to substorm injections and ULF powers

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We study the two storm events of 1997: one in May that was accompanied by a relativistic electron event (REE) and the other in September, with a more profound Dst decrease, but with no significant flux increase of relativistic electrons. We find that a larger amount of seed electrons was present in the May event compared to that of the September storm, whereas the ULF (ultra low frequency) power was more enhanced and the particle spectrum was harder in the September event. Hence, we demonstrate that a larger storm does not necessarily produce more seed electrons and that the amount of seed electrons is an important factor in an actual increase in REE flux levels, while ULF can harden the particle spectra without causing an apparent REE.