

## Response of relativistic electron microbursts to the arrival of high speed solar wind streams and its relation to flux variation of radiation belt electrons

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Relativistic electron microbursts are short-lived bursty precipitations of relativistic electrons observed by low-altitude satellite in the radiation belt. They are considered as a consequence of pitch angle scattering of radiation belt electrons by discrete whistler-mode emissions known as chorus. Microbursts are frequently observed during geomagnetic storms and previous studies show that atmospheric loss through microbursts appears to contain enough electrons to deplete the radiation belt. They suggest that microburst is an important loss process of radiation belt electrons during the main phase of geomagnetic storms. Microbursts are also frequently observed during high-speed solar wind stream (HSS) events, while important solar wind parameters for the frequent microburst precipitations have not been well understood. We perform a superposed epoch analysis of the microburst occurrence during HSS events, considering the polarity of interplanetary magnetic field (IMF) and solar wind speed according to the method used by Miyoshi and Kataoka (2008). We find the most frequent microburst precipitations during the highest-speed solar wind streams with a southward offset of IMF (SBZ-fast HSS events), indicating that both the southward IMF and fast solar wind are important for enhanced microburst precipitations. We also demonstrate that fluxes of radiation belt electrons with energies from hundreds keV up to 7 MeV preferentially increase during the SBZ-fast HSS events. The result suggests that loss through microbursts is not major loss process of radiation belt during the HSS events. We conclude that relativistic electron microbursts can be a proxy of acceleration of MeV electrons by chorus.

Keywords: radiation belt, high speed solar wind streams, radiation belt dropout