

# What Contribute to the Occurrence of a Geosynchronous Relativistic Electron Event?

Hee-Jeong Kim, Dae-Young Lee, and Kyung-Chan Kim

Dept. of Astronomy & Space Science,

Chungbuk National University

Our previous study has shown that the occurrence of a geosynchronous relativistic electron event is associated with a prolonged solar quiet interval. That is, the long duration of weak solar wind dynamic pressure and no large south/north turnings of IMF Bz can help a large population of MeV electrons (generated by whatever acceleration mechanisms) to be stably trapped in the geosynchronous region for a number of days. In the present paper, we show that the sudden large electron flux increases in a relativistic event are closely related with the ULF wave power. Enhanced wave activities are observed during the time of the electron flux increases. And the elevated electron flux level is roughly proportional to the wave power. We find that relativistic electron events are observed only when both the prolonged quiet solar wind and the high ULF power conditions are satisfied. The results indicate that the occurrence of a geosynchronous relativistic event could be a matter of the delicate balance between the effects of electron acceleration and loss.