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PEM022-10

会場: 201A

時間: 5月23日14:30-14:45

オーロラ微細構造の超高速撮像

High-speed EMCCD imaging of auroral microstructures

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It has been known that auroral microstructures sometimes show very rapid variations beyond Pc1 ULF range, possibly associated with electromagnetic ion cycotron waves or dispersive Alfvén waves. In order to resolve the key optical features of the electron acceleration mechanisms, it may be essential to realize the high-speed imaging with sampling rate beyond the Video frame rate of 30 Hz.

We have conducted a coordinated observation of 110 Hz high-speed imaging of auroral microstructure at Poker Flat Research Range since late January 2010. Two wavelengths of 845 and 670 nm are observed by two different EMCCD cameras to estimate the characteristic energy of precipitating electrons. Many types of interesting features were found associated with substorms, although we are now in the very initial stage of basic data analysis. We will report the initial results, comparing the optical data with ground-based search-coil magnetometer data from the ULF to ELF ranges. Future planning of high-speed imaging system will also be discussed.