# Amplitude modulations of the flickering aurora

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The flickering aurora appears during aurora breakup, and the average frequency is ~3-15 Hz. One of the possible origins of flickering aurora is that electromagnetic ion cyclotron (EMIC) waves that cause electron flux modulations at a few thousand kilometers. The flickering aurora has the amplitude modulations, and 10-20 % modulations to the background aurora intensity have been reported. In order to understand detail characteristics of the amplitude modulations of the flickering aurora, we analyze the s-CMOS camera at Poker Flat Research Range, Alaska and investigate distributions of the amplitude of the flickering aurora at different background aurora intensity. We analyzed the intense flickering aurora event at 06:40 UTC on February 8$^{th}$, 2016. The frequency range of the observed flickering aurora was a few Hz. We derived the relative amplitudes to the background aurora arc. The average ratio was ~13 % and its standard deviation was ~10 % while the background aurora intensities are different. We suggest that the amplitudes and distribution to the background aurora arc do not depend on the background aurora arc. In this presentation, we will show the spatial and time variations of relative amplitude within the flickering aurora arcs.

Keywords: flickering aurora, high-speed camera observations, wave-particle interactions

 