

## Particle and field near the equatorial region in the magnetosphere at the onset of pulsating aurora

Natsuo Sato<sup>1\*</sup>, Akira Kadokura<sup>1</sup>, Yoshimasa Tanaka<sup>1</sup>, Keisuke Hosokawa<sup>2</sup>, Tetsuo Motoba<sup>3</sup>

<sup>1</sup>National Institute of Polar Research, <sup>2</sup>University of Electro-Communications, <sup>3</sup>The Johns Hopkins University Applied Physics Laboratory

Fundamental characteristics of pulsating auroras, such as modulation region, modulation mechanism, and their shapes are still open question. Simultaneous observation onboard satellite and on the ground are important method to examine such fundamental characteristics of pulsating aurora. In this study we examined some selected pulsating auroral events, which obtained onboard Cluster spacecraft and ground-based all-sky camera at Syowa-Iceland conjugate-pair and also onboard THEMIS satellites and the THEMIS ground-based all-sky camera network. Both of Cluster and THEMIS satellites were located near the equatorial plane in the magnetosphere. The particle and field signatures in the magnetosphere during pulsating aurora are; 1) All pulsating aurora associate with high-energy (>10 keV) electron flux enhancement, 2) Not all pulsating aurora associate with ELF/VLF wave enhancement, 3) It is difficult to identify a quasi-periodic modulation of high-energy electron flux, which may be corresponding to pulsating aurora patch. We will discuss modulation region and possible mechanism of pulsating aurora.

Keywords: aurora, pulsating aurora, high energy electron, plasma wave, magnetosphere, ionosphere