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COMPOUND AURORAL MICROMORPHOLOGY: GROUND-BASED HIGH-SPEED IMAGING

Kataoka Ryuho (*National Institute of Polar Research, Japan*)

Fukuda Yoko (*University of Tokyo, Japan*)

kataoka.ryuho@nipr.ac.jp

Auroral microphysics still remains widely unexplored because of the technical limitation of high-speed imaging. Cutting-edge ground-based optical observations using sCMOS cameras recently enabled us to observe the fine-scale morphology of aurora at magnetic zenith for a variety of rapidly varying faint features for long uninterrupted periods. We report two interesting examples of unexpected combinations of fine-scale rapidly varying auroral features as observed by the sCMOS cameras installed at Poker Flat Research Range, Alaska in February 2014 (Kataoka et al., 2014). The first example shows that flickering rays and pulsating modulation simultaneously appeared at the middle of a surge in the pre-midnight sector. The second example shows localized flickering aurora associated with growing eddies at the poleward edge of an arc in the midnight sector. Further, we report the initial results obtained from the new high-speed experiment during 2014/2015 winter season.

¹ Kataoka, R., Y. Fukuda et al. (2014), Compound auroral micromorphology: Ground-based high-speed imaging, submitted to Earth Planets and Space.