

R006-04

C会場：11/5 PM1 (13:45-15:30)

14:30~14:45

2017年9月8日の磁気嵐中のサブストーム開始時のオーロラのあらせ衛星による観測

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Observation of a substorm onset poleward expansion aurora by the Arase satellite during the geomagnetic storm of September 8, 2017

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Since the plasma and electromagnetic conditions can be very different with quiet time during geomagnetic storm, there will be differences between substorms that occur during geomagnetic quiet time and storm time. In this presentation, we show a unique auroral substorm study during a geomagnetic storm using a ground-based all-sky camera and the Arase satellite at L[~]6. The auroral arcs of interest were observed on September 8, 2017, at Tromsø, Norway (69.6N, 19.2E, in geographic coordinate; 66.7N in geomagnetic coordinate). The ground-based electron-multiplying charge-coupled device (EMCCD) camera observed that the substorm auroral arcs in the south edge of FOV that started poleward expansion at ~2040 UT, while the footprint of the Arase satellite was moving southeastward and crossed the brightening arc at the southwestern edge of FOV at ~2043 UT. The Dst index indicates that this substorm occurred during the recovery phase of a geomagnetic storm with a minimum Dst of -122 nT at 0200 UT on September 8. The ion and electron omnidirectional energy spectra from the Arase measurements show clear signatures of plasma sheet stretch (satellite got into the lobe) and subsequent ion and electron flux enhancements at the timing of the footprint crossing of the poleward expanding aurora. A series of field-aligned Poynting flux enhancements were found to appear simultaneously with the plasma sheet flux enhancement. The electric field also significantly deviated from the quiet level in the lobe. We will discuss these results with previous conjugate observations of substorm auroral brightening during a geomagnetically quiet time that occurred at L[~]6.