

Low-frequency electric field fluctuations and field-aligned electron beams observed around the edge of an acceleration region

Wataru Miyake[1], Risa Yoshioka[2], Ayako Matsuoka[2], Toshifumi Mukai[2], Tsutomu Nagatsuma[3]

[1] CRL, [2] ISAS, [3] HSTRC, CRL

Electron beams narrowly collimated to the magnetic field line were observed simultaneously with upflowing ion beams around the edge of an auroral acceleration region by Akebono (Exos-D) satellite. The field-aligned electron beams were extended from the downward current region adjacent to the acceleration region (i.e., upward current region).

We examined electric and magnetic field perturbations around the region of co-existence of the field-aligned electron beams and upflowing ion beams.

We found that the field-aligned electron beams are well correlated with low-frequency electric field fluctuations in the auroral acceleration region as well as in the adjacent downward current region.

Electron beams narrowly collimated to the magnetic field line were observed simultaneously with upflowing ion beams around the edge of an auroral acceleration region by Akebono (Exos-D) satellite. The field-aligned electron beams were extended from the downward current region adjacent to the acceleration region (i.e., upward current region).

We examined electric and magnetic field perturbations around the region of co-existence of the field-aligned electron beams and upflowing ion beams.

We found that the field-aligned electron beams are well correlated with low-frequency electric field fluctuations in the auroral acceleration region as well as in the adjacent downward current region.