

## On the upward acceleration of field-aligned electron beams associated with ion beams

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Upflowing and counterstreaming electron beams aligned with the magnetic field lines are observed simultaneously with upward ion beams by Akebono (Exos-D) satellite over the polar region. Yoshioka et al.(1998; 1999) suggest that the electrons of ionospheric origin are accelerated upward below the upward electrostatic field of auroral particle acceleration and are injected into the upward electrostatic field along the magnetic field line. We will discuss the possible mechanisms and location of the field-aligned acceleration of electron beams in our talk.