Relations between the auroral plasma cavity and the impulsive electrostatic broadband noise

Kenichi Kawamura [1], # Toshio Matsuo [1], Iwane Kimura [2], Toshifumi Mukai [3]


Akebono satellite observations of VLF (low frequency plasma wave) and LEP (low energy particles) revealed that in the auroral plasma cavities,

(1) electron density is very low (below 1/cc) and highly fluctuate, depending upon the magnitude of the flux of the accelerated electron from the plasma sheet region.

(2) upflowing ion beam and inverted V electron precipitation are always observed.

(3) electrostatic ion cyclotron wave (EIC) is highly associated with the upflowing ion beams.

(4) impulsive electrostatic noise strength corresponds to the increment and decrement of the fluxes of the upflowing ion beams and precipitated electrons.