

## Study on relations between ion upflows and auroras based on simultaneous satellite and ground-based observations

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We present initial results from a coordinated study of ion upflows in the nightside auroral zone, using the EISCAT KST UHF/VHF radars, several ground-based optical instruments, and particle and optical instruments on Reimei satellite, in a campaign from October-December, 2007. The nightside campaign observations allow us to investigate relative locations between ion upflows and auroral phenomena, transition from thermal to suprathermal ions, and relative significance of energy sources of ion upflows such as increases of soft particle precipitations and ionospheric electric field. The plausible mechanisms determining the relative locations and relative significance are discussed.