

# Simultaneous observation of auroral emission and ion upflow using an aurora spectrograph and EISCAT Svalbard Radar

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A number of ion upflow events associated with increase of ionospheric electron temperature and number density observed with the ESR at Longyearbyen has been reported. Precipitation of low energy electrons is thought to be one of the sources that drive ions upward. Auroral OI630nm and OII 732/733nm emissions, which are enhanced by soft electron precipitation, are within the wavelength range of aurora spectrograph (ASG) installed also at Longyearbyen. Observation presented here is aimed to clarify ion upflow phenomena associated with soft electron precipitation by monitoring soft electron precipitation with the ASG and ion upflow with the ESR.

Our observation was carried out as a part of EISCAT Rocket study (SERSIO) campaign which was organized to investigate physical processes leading to ion outflow from cusp/cleft region. Enhancement of OI630nm and OII732/733nm emission was observed around the time of rocket launch at 0857UT on January 22, 2004. Detailed results obtained from the data analysis will be presented.