



Observations of Ionospheric Langmuir-waves Enhanced by Electron Precipitation

Bjorn Gustavsson (1), Herbert Gunell (2), and Hervé Lamy (2)

(1) Dept. of Physics and Technology, UIT the Arctic University of Norway, Tromsø, Norway, bgu001@uit.no, (2) Royal Belgian Institute for Space Aeronomy, Brussels, Belgium

Incoherent scatter radar observations during auroral events regularly show strongly enhanced back-scatter from Langmuir-waves. In this presentation we show observations of significantly enhanced power in E-region plasma-lines. The observations show the altitude variation of the plasma-line power and frequency with 3 km altitude-resolution. One novel observation is that the back-scatter is just above a multiple of the electron gyro-frequency. This novel finding cannot be explained by the standard incoherent-scatter and electron transport theories. However, this frequency dependency is similar to the ionospheric responses to HF-radio-wave pumping. Electron-beam excited UH-waves converting to Langmuir-waves are suggested as a plausible explanation.