



## **Investigation of ELF/VLF waves created by a “beat-wave” HF ionospheric heating at high latitudes**

Oleg Shumilov, Evgeniy Tereshchenko, Elena Kasatkina, and Alexandr Gomonov

Polar Geophysical Institute, Kola Science Center RAS, Apatity, Russian Federation (shumilov@pgia.ru, +7(81555)74339)

The generation of extremely low frequency (ELF, 3-3000 Hz) and very low frequency (VLF, 3-30 kHz) electromagnetic waves by modulated ionospheric high frequency (HF, 2-30 MHz) heating is one of the main directions of ionospheric modification experiments. In this work, we present observations of ELF waves generated during a “beat-wave” heating experiments at the EISCAT heating facility. ELF waves were registered with the ELF receiver located at Lovozero (68 N, 35 E), 660 km east from the EISCAT Tromso heating facility (69.6 N, 19.2 E). Frequency shifts between the generated beat-wave and received ELF waves were detected in all sessions. It is shown that the amplitudes of ELF waves depend on the auroral electrojet current strength. Our results showing a strong dependence of ELF signal intensities on the substorm development seem to support the conclusion that electrojet currents may affect the BW generation of ELF/VLF waves.