

# **CHARACTERISTICS OF VLF ATMOSPHERICS NEAR THE RESONANCE FREQUENCY OF EARTH-IONOSPHERE WAVEGUIDE 1.6-2.3 kHz BY OBSERVATIONS IN THE AURORAL REGION**

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Ground-based recording of ELF-VLF waves with right-handed (R) and left-handed (L) circular polarization has been performed in Northern Finland. Monitoring showed a difference in the behavior of VLF waves with R- and L-polarization. Well-defined amplitude maximum were observed in vicinity critical frequency of the first transverse resonance in Earth-ionosphere waveguide (around 1.6-2.3 kHz) for L waves only. Near this maxima waves have a perfect circular L-polarization. To study the features of VLF wave propagation near the first transverse resonance we calculated the parameters of waveguide modes from the full wave equation for night model of the ionosphere. Intensity of the signals in the near and far zones was calculated. Our calculations show that a maximum in the spectra of VLF waves near the critical frequencies of 1.6 – 2.3 kHz is due to small absorption of L waves and excitation of resonance waves in Earth-ionosphere waveguide.

ELF-VLF waves, Earth-ionosphere waveguide

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