

Radio waves generation by Cherenkov-Vavilov process in the lower polar ionosphere

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Low-frequency radiowaves of natural origin were detected with ground and spacecraft receivers. In the present work results of radioemission registrations in the auroral zone on the frequencies 2.5-3.5 MHz are presented. A possibility of such a radioemission generation by flows of charged particles on the heights of the polar mesosphere and lower thermosphere of the Earth (70 – 200 km) was investigated. A model of three-component partial ionized magnetic-active plasma was used for solving of the problem. It was considered that particles of a bunch or a blob, which was moving in the ionosphere, radiated coherently due to the Cherenkov-Vavilov radiation mechanism.