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INFLUENCE OF NEUTRAL SPICES ON THE ARTIFICIAL MAGNETIC PULSATIONS EXCITATION

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During last decade series with the EISCAT Heating Facility were carried out with the purpose to produce artificial magnetic pulsations in the 0.1 – 3 Hz frequency range. For several experiments the EISCAT radar provided measurement of ionospheric electric field and electron density. Numerical model of artificial pulsation excitation has been verified. Predicted amplitude of the pulsation is in accordance with the measured values, however model could not explained sporadic nature of the artificial signals.

Variations of neutral spice density are a possible way to explain this feature. Numerical modelling shows strong dependence of the conductivity modification on neutral density. Experiment on generation of artificial magnetic pulsations in Pc1 frequency range on November 19, 1998 is discussed in frame of numerical simulation. Clear ionospheric response is observed during first hour of the heating at 120-km distance by induction magnetometer but the artificial signal at the modulation frequencies has disappeared for next hour of the heating. Main ionosphere parameters do not show significant variations during this experimental run. Disappearance of the artificial pulsations may be related with density variations of neutral components of ionosphere.

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