

PROPAGATION OF ELECTROMAGNETIC WAVES IN PERTURBED LOWER IONOSPHERIC PLASMA

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Abstract. Remote sensing of the lower ionospheric plasma has scientific and practical applications. Namely, this atmospheric layer is continuously exposed to numerous astronomical and terrestrial events, and analyses of variations in its plasma parameters are important for detection of these events as well as modeling of influences of perturbed ionospheric plasma on the propagation of electromagnetic waves within it. Here, we present the recent research related to the lower ionospheric disturbances around the periods of natural disasters, and changes in propagation of satellite signals during D-region perturbations induced by solar X-ray flares. In the first part, attention is focused on research of possible ionospheric earthquake precursor visualized as reduction of the noise of the amplitude of a very low frequency radio signal used for monitoring the lower ionosphere (Nina et al. 2020). Analysis of importance of the perturbed D-region for satellite signal delay is subject of the second part of this study (Nina et al. 2019).

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