

Data needed for low ionosphere modeling: new results and models

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Intense radiation can generate additional ionization in the Earth's atmosphere and affect its structure. These types of solar radiation and activity create sudden ionospheric disturbances (SIDs), affect electronic equipment on the ground along with signals from space, and potentially induce various natural disasters. Focus of this work is on the study of SIDs using very low frequency (VLF) radio signals in order to predict the impact of intense radiation on Earth and analyze ionosphere plasmas and its parameters. All data are recorded by VLF BEL stations [1] and the model computation is used to obtain the daytime atmosphere parameters induced by this extreme radiation [2]. We present an empirical model of the D-region plasma density and simple approximative formula for electron density.

References

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- [2] Srećković, V. A., Šulić, D. M., Ignjatović, L., & Vujčić, V. (2021). Low Ionosphere under Influence of Strong Solar Radiation: Diagnostics and Modeling. *Applied Sciences*, 11(16), 7194.