Poster paper

SHORT-TERM PERTURBATIONS IN HIGH AND MIDDLE LATITUDE LOW IONOSPHERE UNDER EUROPE INDUCED BY GRB$_S$

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In this study, we analyzed the low ionospheric short-term reactions connected with 54 gamma ray bursts (GRBs) registered in the energy range between 15 eV and 150 eV using Swift's Burst Alert Telescope device (BAT) in the period between 31 August 2009 and 25 November 2012. We based our analysis on the low ionospheric monitoring using the 37.5 kHz low frequency (LF) signal emitted by the NRK transmitter located in Grindavik (Iceland) and received at Institute of Physics in Belgrade (Serbia). The area through the signal from Iceland passes is characteristic because of high latitude location of the transmitter apropos a significant penetration of charged particles from outer space in the low ionosphere due to the curvature of the magnetic lines of force near the North Pole.

In addition to analysis of full sample (Nina *et al.* 2015) we study dependences of characteristics of GRBs and considered plasma medium on detectability LF signal short-term variations. The obtained results based on statistical analysis confirm detectability of short-term changes induced by GRBs in the analyzed ionospheric area. Significance of this study is for science investigations (geophysics, astrophysics) as well as in possible practical applications in telecommunication technologies.

References

Nina A., Simić S., Srećković V. A., Popović L. Č.: 2015, *Geophysical Research Letters,* **42** (19), 8250.