

VLF propagation parameters modeling related to low intensity solar X-ray flares

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Solar X-ray flare (SF) events of low intensity are rarely investigated and their impacts on the subionospheric Very Low Frequency (VLF) propagation are not thoroughly described and annotated, primarily due to the prerequisite of quiet solar activity conditions and low-level X-ray emissions of background radiation. VLF propagation under events of such low-intensity SFs is inspected on VLF radio signal (3-30 kHz) recordings with path-oriented analysis conducted. Numerical modeling of VLF propagation parameters was carried out by the means of Long Wave Propagation Capability (LWPC) software package, based on VLF data recorded by Belgrade VLF stations (Serbia). Solar X-ray radiation data is obtained from Geostationary Operational Environmental Satellite (GOES) database. Main results are presented in this paper.

Key words: Solar flare, VLF perturbation, numerical modeling.