

COMPARATIVE ANALYSIS OF VLF SIGNAL VARIATION ALONG TRAJECTORY INDUCED BY X-RAY SOLAR FLARES

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Comparative qualitative analysis of amplitude and phase delay variations along trajectory of GQD/22.1 kHz and NAA/24.0 kHz VLF signal traces, propagating from Skelton (UK) and Maine (USA) toward Belgrade, induced by four isolated solar X-ray flare events occurred during period from September 2005 to December 2006, was carried out. For monitoring, recording and for storage of VLF data at the Institute of Physics in Belgrade, Serbia, the AbsPAL system was used. For the modeling purposes of propagating conditions along GQD and NAA signal propagation paths, LWPCv21 program code was used. Occurred solar flare events induced lower ionosphere electron density height profile changes, causing perturbations in VLF wave propagation within Earth-ionosphere waveguides. As analyzed VLF signals characterize by different propagation parameters along trajectories from their transmitters to the Belgrade receiver site, their propagation is affected in different way for different solar flare events and even in different way for the same solar flare events.