Poster

SOLAR X RAY FLARES AND THEIR IMPACT ON THE IONOSPHERE

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Very low frequency (VLF, 3-30 kHz) and low frequency (LF, 30-300 kHz) radio signals are powerful tool for long-range remote sensing of the ionospheric D-region. Propagation of VLF/LF signals emitted by man-made transmitters takes place in the Earth-ionosphere waveguide and strongly depends on the electrical properties of the ionosphere. Changes in the D-region electron density cause changes in the received amplitude and phase on VLF/LF signals (Šulić & Srećković, 2014, Nina et al., 2011). The focus of this contribution is on the study of the narrowband VLF/LF perturbations induced by solar X-ray flares in order to deeply understand processes in the perturbed D-region. During occurrence of solar flare the altitude profile of ionospheric conductivity changes, a VLF/LF signal reflects from lower height and these changes result that VLF/LF propagation is performed with more discrete modes than in normal ionospheric condition (Šulić et al., 2016). Amplitude and phase perturbations on different VLF/LF signals observed at Belgrade have sensitive dependence on: X-ray flare intensity, solar zenith angle, and geophysical characteristics of path.

References

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