

PROPERTIES OF EARTH'S LOWER IONOSPHERIC PLASMA PERTURBED BY SOLAR FLARES

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Abstract. Energetic outbursts of electromagnetic energy from solar corona, known as solar flares (SFs), are well-known agents that cause perturbations within Earth's ionospheric regions faced towards the Sun. Soft X-ray component (0.1-0.8 nm) has crucial importance related to lower ionospheric region, since this radiation penetrates deep into the Earth's atmosphere and reaches altitudes corresponding to D-region (50-90 km). Properties of Earth's lower ionospheric plasma perturbed by such energetic solar events were topic of this research, with high energy SFs' influences in special focus. For examination of lower ionospheric response to such events, remote sensing approach was utilized by the use of Very Low Frequency (VLF) radio signal (3-30 kHz) technology. Based on VLF signals' perturbations, recorded by system located at the Institute of Physics in Belgrade (Serbia), numerical simulations was conducted with the goal of obtaining electron density profile changes within this region induced by these high energy events. Main findings are presented in this research.