

**VARIATIONS IN SAR AND GNSS SIGNAL PROPAGATIONS
IN THE LOW IONOSPHERE DUE TO INCREASE IN
INTENSITY OF SPECTRAL LINES AND CONTINUUM
DURING SOLAR X-RAY FLARES**

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Characteristics of the solar hydrogen Ly α and X lines, and X radiation continuum are very important for properties of the terrestrial ionosphere. Keeping in mind that these domains of the electromagnetic radiation can significantly affect electric properties of this atmospheric layer it is clear that variations in the incoming relevant radiation intensity affects propagation of electromagnetic waves including telecommunication and satellite signals.

In this study we analyze the influence of X-radiation increase on propagation of SAR (Synthetic aperture radar) and GNSS (Global Navigation Satellite System) signals within the ionospheric D-region during occurrence of solar X-ray flares. These signals play very important role for different types of practical applications including positioning, Earth observations etc. For this reason research of variation of spectral characteristic of solar radiation due to this astrophysical phenomenon is important not only for scientific studies but for life of people and their everyday activities to commercial applications.