SENSING THE EARTH'S LOW IONOSPHERE DURING SOLAR FLARES USING VLF SIGNALS AND GOES SOLAR X-RAY DATA

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An analysis of four solar flare X-ray irradiance effects on VLF signal amplitude and phase delay variations on the GQD/22.1 kHz signal trace, during period of time from September 2005 to December 2006, was carried out. Solar flare data were taken from GOES12 satellite one-minute listings. For VLF data recordings at the Institute of Physics, Belgrade, Serbia, the AbsPAL system was used. It was found that solar flare events affected VLF wave propagation in the Earth-ionosphere waveguide in way that lower ionosphere electron density height profile changes, according to variation of estimated parameters, sharpness and reflection height, being different for these solar flare events.

DATABASES IN ASTROPHYSICS: CHALLENGES AND OPPORTUNITIES

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We summarize Scientific Databases challenges and point out experiences which could be applied on problems facing Intelligence and Security Databases.