

Identification of seismo - ionospheric signatures by using amplitude and phase information of VLF/LF transmitter waves

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In this paper, we analyse the VLF/LF transmitter signals in association with major seismic activities over Japan. Particular attention is paid to phase in addition to amplitude information of the VLF/LF signals. As a result, significant change both in the phase and amplitude are identified as an anomaly of seismo - ionospheric signatures. Moreover, the results of numerical analysis of VLF/LF transmitter waves in the earth - ionosphere waveguide by using FDTD method are in good agreement with the experimental results. We conclude that simultaneous use of amplitude and phase information of VLF/LF signal will be useful to identify the special scale of seismo - ionospheric anomalies.

Keywords: seismo - ionospheric perturbation, FDTD method, VLF/LF transmitter, earthquake