Theoretical Study of the Diurnal and Seasonal Behavior of VLF Signals and Comparison with VLF Campaign Data

Sujay Pal [1], Sudipta Sasmal [2], and Sandip K. Chakrabarti [1, 2]

[1] S.N. Bose National Centre for Basic Sciences, Block JD, Sector – III, Kolkata 98
[2] Indian Centre for Space Physics, 43 Chalantika, Garia Station Rd, Kolkata 84

Very low frequency (VLF) waves propagate along the earth-ionosphere waveguide with a very low attenuation in various modes. In case of multiple hop propagation, signals reaching to the receiver through different hops interfere with the ground wave at the receiving point. Therefore, signal intensity will go through maxima and minima depending upon phase of the sky-waves. Based upon this fact, we show the diurnal and seasonal behavior of VLF signals transmitted from VTX transmitter for different propagation paths in India. We collected data through VLF campaign over whole India from a dozens of stations during December-2008 and July-2009. We found a reasonable matching between the theoretical results and obtained data.

References

[1] N. Wakai, N. Kurihara and A. Otsuka, Electronics Letter, Vol. 24, No. 5 (2004).
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