

Ionospheric model investigation on the VLF/LF field strength prediction using the wave-hop theory

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The numerical VLF/LF radio wave field strength prediction program by means of wave-hop theory, which included in the recommendation of the International Telecommunication Union Radiocommunications Sector (ITU-R), widely employs a parabolic model on the lower ionosphere. Some parameter sets on the ITU-R method fairly agree with the measurement, however, some modification is needed for correct agreement. IRI model with D-layer option is the best fit for the LF signal variation received after the 2011 Tohoku Earthquake. The electric field at the receiving point consists of a ground wave and sky waves. Diurnal variation for some ranges exceeding the ground wave and 1-hop sky wave is considered on both observational and numerical results.

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