

Statistical analysis of the sub-ionospheric reflection height of tweek atmospherics

hiroyo ohya[1]

[1] Electronics and Mechanical Eng., Chiba Univ

Tweek atmospherics are VLF/ELF electromagnetic waves which the source is the lightning discharges. These atmospherics propagate in the earth-ionosphere waveguide in great distance.

In this study, we estimated the propagation parameters (the first order cut-off frequency, the propagation time and the propagation distance) using the curve fitting method by the flat earth-ionosphere waveguide model. The sub-ionospheric reflection height is estimated from the first order cut-off frequency. As a result, the sub-ionospheric reflection height goes down 8 km after 1 day since geomagnetic storm occurs. Moreover, the number of tweek atmospherics during the severe geomagnetic storm is 24 times as large as usual.