

An investigation of whistler intensities above thunderstorms

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Abstract

We study a penetration of whistlers to the ionosphere. We developed an automatic method for assigning causative lightning to fractional-hop whistlers observed on the DEMETER satellite. Processing data from 364 passes of the satellite over Europe, we found that at nighttime, a mean whistler intensity is approximately three times larger than at daytime. A maximum of whistler intensity is shifted approximately one degree from the satellite magnetic footprint owing to the oblique propagation. Calculations of wave attenuation made using IRI2007 and MSIS models show very similar result in a ratio of nighttime and daytime intensities.