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Analyzing the Spectral Characteristics of Propagations Teepees[1]
SYDNEY WILSON, CHUCK HIGGINS, Middle Tennessee State University, SHING F. FUNG, ITM Physics Lab, NASA Goddard, DAVE TYPINSKI, AJ4CO Observatory, JEREMY FADEN, Cottage Systems — A high-frequency spectral feature has been previously identified in ground-based spectrographs and recorded by a group of citizen scientists from the Radio JOVE project (Fung et al., 2020 GRL, 47, e2020GL087307; https://doi.org/10.1029/2020GL087307). This feature is a teepee (TP) tent shape found in data between 15 to 30 MHz, where the spectral enhancement frequency increases and then decreases with time, hence the name (Figure 1). The presence of these features is currently being attributed to the ionospheric reflection of VHF emissions from lightning activities in remote thunderstorms. In this study, we will analyze TP observations by studying their times (seasons) of occurrences, duration, apex frequency, upper cutoff frequency drift rates, and quality, to better understand these spectral features. Analysis was completed using the Autoplot software (http://autoplot.org), and these characteristics and statistics are presented in order to gain a deeper understanding of these peculiar spectral features.

[1]RadioJOVE, Spectrograph User Group

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