

Abstract Submitted
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Climatology of Traveling Ionospheric Disturbances Observed by HamSCI Amateur Radio. DIEGO SANCHEZ, New Jersey Institute of Technology, NATHANIEL FRISSELL, University of Scranton, GARETH PERRY, New Jersey Institute of Technology, WILLIAM ENGELKE, University of Alabama, ANTHEA COSTER, PHILIP ERICKSON, MIT Haystack Observatory, MICHAEL RUOHONIEMI, JOSEPH BAKER, Virginia Tech, LYNN HARVEY, University of Colorado Boulder, CARL LUETZELSCHWAB, None — Traveling Ionospheric Disturbances (TIDs) are propagating variations in ionospheric electron densities that affect radio communications and can help with understanding energy transport throughout the coupled magnetosphere-ionosphere-neutral atmosphere system. Large scale TIDs (LSTIDs) have periods of 30 - 180 min, horizontal phase velocities of 100 – 250 m/s, and horizontal wavelengths of 1000 km or greater. TIDs create concavities in the ionospheric electron density profile that move horizontally with the TID and cause skip-distance focusing effects for high frequency (HF, 3-30 MHz) radio signals. This phenomenon is manifest as quasi-periodic variations in contact ranges in HF amateur radio communication reports recorded by automated monitoring systems such as the Weak Signal Propagation Reporting Network (WSPRNet) and the Reverse Beacon Network (RBN). In this study, members of the Ham Radio Science Citizen Investigation (HamSCI) present a climatology of LSTID activity. Results will be organized as a function observation frequency and longitudinal sector season. Connections to geospacer and neutral atmospheric sources are also explored.

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