

INITIAL OBSERVATIONS OF ULF WAVES USING GPS TEC

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The increased number of GPS receivers capable of observing Total Electron Content (TEC) that are deployed under the high-latitude ionosphere provides a new opportunity to observe ULF waves. In particular, these new observations may provide a significant benefit when combined with the traditionally available, though spatially-integrated, signal from ground-based magnetometers. We will present direct comparisons of ULF pulsations observed with ground magnetometers, the SuperDARN radars, and GPS TEC. Initial indications are that for Pc5 waves of nominal amplitude observed on the ground, there exists a clear signal in the local GPS TEC observations. In some cases the density and distribution of the GPS receivers allows for the study of spatial distribution of these fluctuations in the ionosphere on scales that are smaller than the spatial-integration scale of a ground-based magnetometer. Additionally, in some regions the network of GPS receivers provides far better spatial coverage on larger spatial scales than the existing network of magnetometers.

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