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Verification of the TSMP-Assisted Digisonde Topside Profiling Technique

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A b s t r a c t

The purpose of this paper is to evaluate the performance of the TSMP-assisted Digisonde (TaD) topside profiling technique. We present systematic comparisons between electron density profiles and *TEC* parameters extracted from TaD model with (a) CHAMP-derived *TEC* parameters, (b) CHAMP reconstructed profiles, (c) ground based GPS-derived *TEC* parameters, and (d) profiles reconstructed from RPI/IMAGE plasmagrams. In all cases, TaD follows the general trend of plasmaspheric observations derived from the above datasets. Especially during storm cases, TaD shows remarkable agreement with the variations of the ground based GPS-derived *TEC* parameters. Overall, the comparison results shows that TaD method can be adopted by EURIPOS to provide the electron density distribution up to plasmaspheric heights in real-time.

Key words: ionosphere, plasmasphere, electron density reconstruction, ionospheric scale height, total electron content.

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