

Monitoring of Medium Scale Travelling Ionospheric Disturbances over a regional network of GNSS receivers

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Travelling Ionospheric Disturbances (TIDs) are propagating quasi-periodic perturbations in ionospheric electron density and play an important role in local ionospheric variability. The temporal scales of TIDs range from minutes to hours and the spatial fluctuations in Total Electron Content (TEC) induced by these disturbances can have potentially adverse effects on high-accuracy Global Navigation Satellite System (GNSS) positioning techniques. Therefore, methods are needed to reliably detect and monitor TIDs. This contribution investigates a dataset from a dense GNSS reference receiver network on the Japanese island of Okinawa for Medium Scale TIDs (MSTIDs) and provides estimated TID wave parameters for the selected period. Strategies to mitigate the effect of MSTIDs on network-based positioning making use of the estimated parameters are also introduced and discussed.

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