

Abstract (paper not available)

Recovery of Ionospheric Plasma Density based on GNSS Network

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The ionosphere interacts with low altitudes orbiting spacecraft. Knowledge of the ionospheric plasma density is useful to determine probability of spacecraft charging in the auroral zone or assess thermospheric and ionospheric interactions with spacecraft operations. Modern GNSS infrastructures allow in principle the monitoring of the ionosphere in real time at global and regional scale. This paper presents an innovative algorithm to determine the ionospheric plasma density in real time. A case study is performed based on measurements from 272 days in 2013, namely STEC values with time interval of 15 sec obtained with the GNSS observations from 17 continuously operating stations of the ZAKPOS in Ukraine. It is shown that this algorithm gives consistent results for ionization field restoration that do not depend on the ionosphere state, satellites positions and changes in number of stations in the network used for computations. Further possible improvement of the method are discussed.
