



Comparison of reconstructed F2 layer peak parameters over Cyprus by slant TEC ingestion into the NeQuick model and manually scaled data

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This paper presents a statistical comparison between manually scaled foF2 and hmF2 experimental values measured by the Nicosia ionosonde (35.1 N, 33.4 E) and the corresponding reconstructed values obtained by ingesting slant total electron content (TEC) values over Nicosia into the NeQuick model. This investigation is conducted for three years (2009-2011) including periods of low (2009) and high (2011) solar activity for different seasons during the current solar cycle. In the context of the present study, after specific adaptations, the model has been used to retrieve foF2 and hmF2 values above Nicosia based on the knowledge of the model driving parameter Az (ionization level) which is the effective F10.7 index that allows to match (in RMS sense) the slant TEC at a single station. In the present study, the necessary Az values have been obtained through direct ingestion of GPS and GLONASS-derived slant TEC data from the IGS reference station in Nicosia.

A statistical comparison between experimental and NeQuick-derived slant TEC over Nicosia is also presented. In particular the data are related to the periods 2000 - 2003 and 2008 - 2011 and the modeled slant TEC are computed using the NeQuick driven by the flux of the day.