

## ***Interactive comment on “Ionosonde Total Electron Content Evaluation Using IGS Data” by Telmo dos Santos Klipp et al.***

### **Anonymous Referee #1**

Received and published: 16 October 2019

The reviewer says: "1. The authors state that “they noticed” that ITEC systematically underestimates  $vTEC$ , and they explain this by claiming that the ITEC profile integration stops at 900 km. Both claims are not quite correct. Firstly, the original ITEC paper by Reinisch and Huang [2001], which the authors have cited, shows that the height integration for the ITEC calculation goes to infinity, and is not stopped at 900 km."

This is not true. For the time window (2016-2017) considered by the authors the ITEC (Ionospheric - not Ionosonde - Total Electron Content) given as output by digisondes is the one calculated to approximately 1000 km of altitude.

The reviewer continues to saying: "The Digisonde calculations of ITEC assume an alfa-Chapman topside profile with constant scale height  $H_m$ . Secondly, extensive studies by Belehaki et al. [e.g., 2004, 2012] had shown as early as 2004 that the Digisonde

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ITEC systematically underestimates  $vTEC$ ; Belehaki's explanation was that a constant scale height  $H_m$  (calculated from the bottomside profile for heights near  $h_mF_2$ ) makes the topside profile decay too rapidly with height. They concluded that the plasma above about 900 km is practically not included in the Digisonde's ITEC value. Instead of saying "they noticed" the underestimate, it might be more correct to say that the Belehaki et al. results were "confirmed" to also apply in the equatorial region."

The authors cannot consider what the reviewer is claiming, especially "the Belehaki et al. results were "confirmed" to also apply in the equatorial region" because the situation here is completely different from that faced by Belehaki et al. I repeat, ITEC values considered by the authors for the time window 2016-2017 are those calculated till 1000 km of altitude and not beyond.

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Interactive comment on Ann. Geophys. Discuss., <https://doi.org/10.5194/angeo-2019-131>, 2019.

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