

Referee report on “Detection and Localization of F-layer Ionospheric Irregularities with Back Propagation Method Along Radio Occultation Ray Path”, by Ludwig-Barbosa et al.

The authors have addressed my comments. They show that the S4 index value is considerably stable outside the SLTA range affected by the soiraduc E sporadic-E scintillation (Zeng and Sokolovskiy, 2010; Wickert et al., 2004; Arras and Wickert, 2018), and therefore they reduced the chances of having the estimation contaminated by sporadic-E irregularities. Besides, some recent references should also be referenced:

Resende, L. C. A., Arras, C., Batista, I. S., Denardini, C. M., Bertolotto, T. O., & Moro, J. (2018). Study of sporadic E layers based on GPS radio occultation measurements and Digisonde data over the Brazilian region. *Annales Geophysicae*, 36, 587–593.

Yu, B., Xue, X., Yue, X., Yang, C., Yu, C., Dou, X., et al. (2019). The global climatology of the intensity of the ionospheric sporadic E layer. *Atmospheric Chemistry and Physics*, 19(6), 4139–4151.

Yu, B.; Scott, C.J.; Xue, X.; Yue, X.; Dou, X. Derivation of global ionospheric Sporadic E critical frequency ($f_o E_s$) data from the amplitude variations in GPS/GNSS radio occultations. *R. Soc. Open Sci.* 2020, 7, 200320.

Carmona, R. A., Nava, O. A., Dao, E. V., & Emmons, D. J. (2022). A comparison of sporadic-E occurrence rates using GPS radio occultation and ionosonde measurements. *Remote Sensing*, 14(3), 581.

Minor comments

1. Abstract: Line 15 provide insight into...
2. Line 238 Different from...
3. Conclusions: Line 395: . Approaches to estimate such features...